WILMAPCO Council
Action Item Summary Sheet
Meeting Date: September 11, 2025

Action Item #12: To Endorse the Draft 2025 Newark Bicycle Plan

Description/Summary of Item:

The 2025 Newark Bicycle Plan is an update to the 2014 Newark Bicycle Plan. The Plan was developed by WILMAPCO in partnership with the City of Newark and BikeNewark. Recommendations are based on stakeholder feedback, planning since the 2014 plan, and emerging best practices. The draft document is currently being reviewed by the City of Newark and BikeNewark.

Summary of Action Taken by PAC:
The PAC did not take action on this item. On June 16, 2025 the PAC reviewed results of the public engagement.

Summary of Action Taken by TAC:
At their August 21 meeting, the TAC recommended Council endorsement of the Draft 2025 Newark Bicycle Plan Update.

Summary of Action Taken by Subcommittee/Task Force *(if applicable)*:
The NWTWG reviewed draft recommendations at their June 3 meeting and reviewed the draft report via email.

WILMAPCO Staff Recommendations:
The WILMAPCO staff recommends Council endorsement of the Draft 2025 Newark Bicycle Plan.

Wilmington Area Planning Council

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DRAFT

RESOLUTION

BY THE WILMINGTON AREA PLANNING COUNCIL (WILMAPCO)
TO ENDORSE THE
2025 NEWARK BICYCLE PLAN

WHEREAS, the Wilmington Area Planning Council (WILMAPCO) has been designated the Metropolitan Planning Organization (MPO) for Cecil County, Maryland and New Castle County, Delaware by the Governors of Maryland and Delaware, respectively; and

WHEREAS, the WILMAPCO Council recognizes that encouraging nonmotorized transportation is consistent with the strategies of the 2050 Regional Transportation Plan (RTP); and

WHEREAS, the City of Newark requested WILMAPCO's assistance in developing a bicycle plan to make bicycling a more safe and convenient choice for transportation and recreation for people of all ages and abilities in Newark; and

WHEREAS, the Newark Bicycle Plan was developed with public input from residents, City staff, BikeNewark, and other stakeholders; and

NOW, THEREFORE, BE IT RESOLVED that the Wilmington Area Planning Council does hereby endorse the final report and recommendations of the 2025 Newark Bicycle Plan.

Date: _____

John Sisson, Chairperson
Wilmington Area Planning Council

2025 Newark BICYCLE PLAN

Planning for the next generation of bicycle improvements for all ages and abilities

Developed by: City of Newark, BikeNewark, and WILMAPCO

DRAFT
9/2/25

DEVELOPED BY:

www.wilmapco.org

WILMAPCO

Wilmington Area Planning Council

NEWARK DELAWARE

BikeNewark

Moving Bicycling Forward in Newark, Delaware

The preparation of this document was financed in part with funds provided by the Federal Government, including the Federal Transit Administration and the Federal Highway Administration of the United States Department of Transportation.

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INTRODUCTION

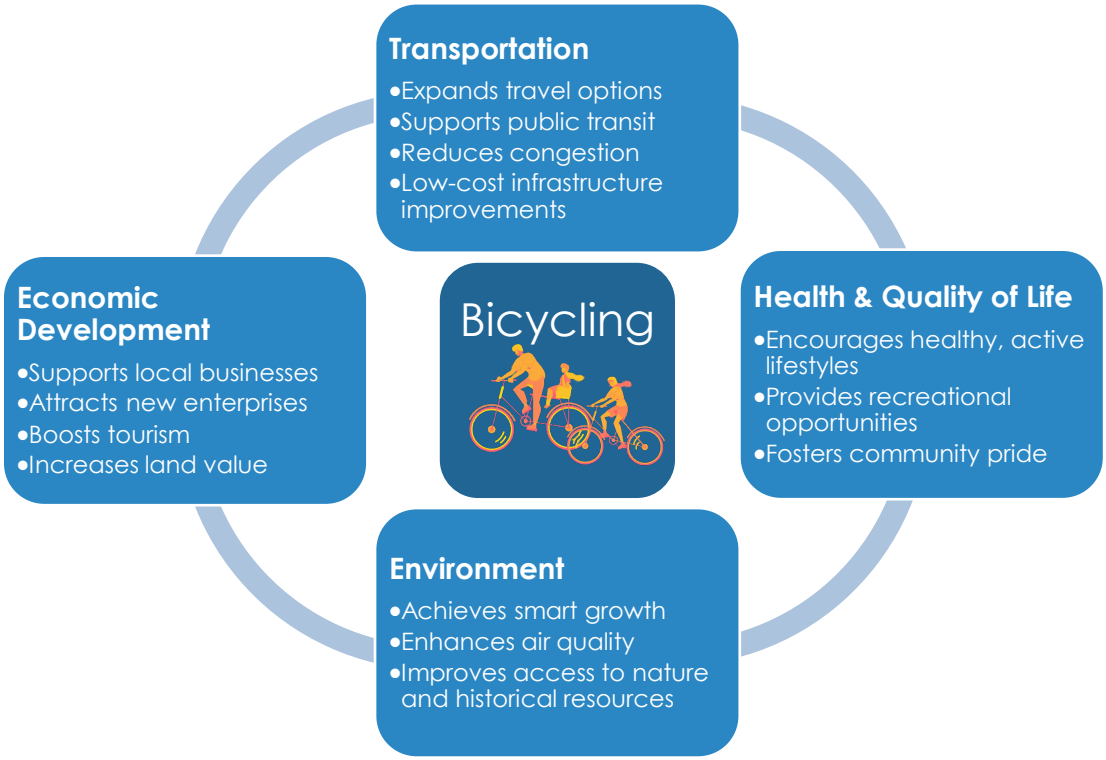
PROMOTING BICYCLING IN NEWARK

People who live, work, and play in Newark have diverse reasons for biking and varying levels of comfort when riding. Expanding the joy of bicycling to a wider audience benefits the entire community. Bicycling serves as an affordable and eco-friendly transportation option. Recreational cycling nurtures community pride and fosters economic growth and tourism in Newark. Additionally, transitioning trips from driving to cycling can help ease congestion on the city's busy streets. This Plan builds upon Newark's history of bicycle planning, bicycling culture, and the ambitious goals set by City leadership and stakeholders to identify the next generation of improvements. The Plan was developed by the City of Newark, the region's Metropolitan Planning Organization—the Wilmington Area Planning Council (WILMAPCO), and a partnership of interested cyclists and organizations working to improve bicycling in Newark, Delaware—BikeNewark.

WHY DEVELOP A BICYCLE PLAN?

Improving bicycling aligns with state, regional, and local objectives. Bicycling is integral to Newark's community, functioning not only as a cost-effective transportation option but also offering economic, environmental, health, and quality-of-life enhancements.

Bicycling Benefits



CORE VALUES, GOALS AND OBJECTIVES

The 2025 Newark Bicycle Plan's foundation is the City's vision established in the *2023 Comprehensive Development Plan*, for a **Healthy and Active Community**, a **Sustainable Community**, and an **Inclusive Community**. The Comprehensive Plan's vision informed core values that guided all recommendations, policies, and programs in the Plan.

CORE VALUES

SAFE, HEALTHY AND ACTIVE COMMUNITY: A community that provides safe infrastructure and amenities to allow opportunities for a healthy and active lifestyle, to include aspirations such as these:

- Make planning and design decisions that prioritize human life and align with Vision Zero principles to eliminate traffic fatalities and serious injuries, particularly for people walking and biking.
- Encourage exercise and active transportation by providing bicycle and pedestrian accessibility.
- Build Complete Streets to support all transportation options, including walking or bicycling.
- Promote compact and mixed-use development for a pedestrian-friendly and bicycle-friendly environment.
- Foster bicycle use to promote active lifestyles, reduce stress, and strengthen social connections.

SUSTAINABLE COMMUNITY: A community that will be sustainable, both economically and environmentally, for generations to come, to include aspirations such as these:

- Promote transit use, walking, and bicycling for reduced dependence on fossil fuels, energy conservation and reduced air emissions.
- Create economic opportunities via bicycle-friendly businesses and institutions.
- Effectively manage stormwater by incorporating green infrastructure into bicycle projects.
- Maintain and improve bicycle infrastructure efficiently by seeking low-cost options and timing improvements to reduce construction cost and burden.
- Value creative solutions and the integration of new technologies—such as e-bikes, bike share, and real-time data collection—to improve the bicycling experience.
- Commit to regularly monitoring outcomes, adapting approaches, and learning from best practices locally, regionally, and nationally.

INCLUSIVE COMMUNITY: A community that embraces diversity and enables different lifestyles, to include aspirations such as these:

- Provide direct, continuous, and comfortable connections between neighborhoods, destinations, and regional transportation—designed to be intuitive for riders of all skill levels.
- Address historical inequities in infrastructure investment that have left some neighborhoods with fewer safe and comfortable travel options.
- Ensure that resources, facilities, and programs benefit all residents, with particular attention to underserved communities, people with disabilities, older adults, and those who rely on bicycles as a primary means of transportation.
- Include broad community representation in bicycle planning, activities, and overall use.

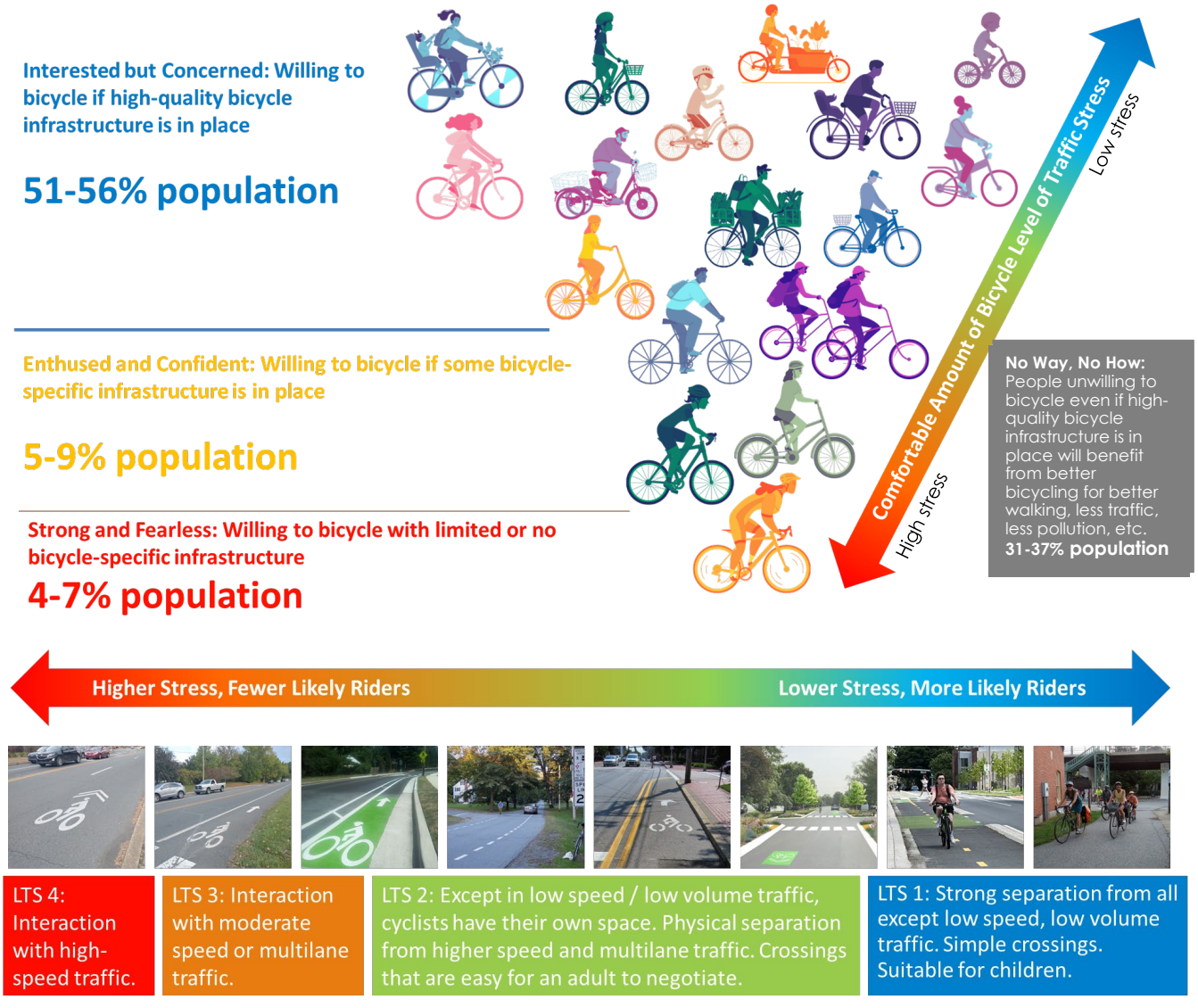
- **Enhance the bicycle transportation network.**
  - ACCESS: Ensure all residents can access the network within ¼ mile.
  - COMFORT: Identify connections for low-traffic, low-stress routes.
  - ELIMINATE GAPS: Identify and resolve key gaps and safety concerns.
- **Foster community and transportation opportunities.**
  - ENGAGE: Implement outreach and encouragement programs to include the broader community, including those with historical disparities in access to safe cycling routes.
  - ELIMINATE BARRIERS: Consider the needs of all user groups, ensuring that those of all ages, abilities, and backgrounds have access to the goods, services, jobs, education and recreation they need via the bicycle network.
- **Improve multimodal benefits.**
  - TRANSIT: Provide adequate and secure bicycle parking at transit locations and establish safe and convenient routes to and from transit stations.
  - WALKING: Ensure safe pedestrian routes by identifying and resolving gaps in the low-stress pedestrian network and prioritizing pedestrian safety, particularly where bicyclists and walkers share space or intersect.
  - DRIVERS: Promote a shift from driving trips to active transportation and provide traffic calming where appropriate to benefit all road users.
- **Encourage secure bicycle parking at all major destinations.**
  - Identify new locations for additional bicycle parking.
  - Implement bicycle parking retrofit program.
- **Enhance safety for cyclists through design, maintenance, and enforcement.**
  - Strive for Vision Zero with the goal to eliminate fatal and serious injury crashes.
  - Use best practices for designing and maintaining all bikeways and shared-use facilities, including appropriate lighting and signage.
  - Propose measures to educate and enforce pedestrians and cyclists' rights and responsibilities, focusing on violations leading to injuries and fatalities.
  - Identify training resources for local enforcement agencies.
  - Develop signage and promotional campaigns for drivers to raise awareness of cyclists' needs and rights.
- **Incorporate bicycle considerations into land-use and development planning.**
  - Encourage bicycle-friendly accommodations in local development reviews and provide incentives for such measures.
  - Ensure non-motorized facility considerations are integrated into all planning, design, construction, and maintenance activities of transportation or public works departments.
- **Create an implementation plan.**
  - Prioritize recommended infrastructure projects, programs, and policies for implementation.
  - Identify funding sources for implementation.
  - Continue to engage the broader community in the City's planning process and in BikeNewark.

BICYCLE FACILITIES: A TAILORED APPROACH

Bicycle facilities are not "one size fits all." From the highly skilled rider who desires secure bicycle parking and shower facilities after a long commute, to families seeking a safe environment for short rides for fitness and fun, there is a solution for everyone. Indeed, cycling is accessible to nearly anyone, regardless of income, age, or athletic ability, making it an excellent option for travel and maintaining fitness. This Plan outlines measures designed to address physical barriers and skill limitations that deter many from cycling.

Only a fraction of people have the skills and confidence to ride on busier streets; far fewer have the desire to do so. By creating welcoming routes for those categorized as "interested but concerned[1]" we can continue to grow bicycling use in Newark, along with all its benefits.

This Plan favors low-stress routes, or those with Level of Traffic Stress (LTS) scores of 1 and 2. LTS is based on travel speeds, volumes, degree of separation, and number of lanes. LTS 1 and LTS 2 facilities open the possibility of bicycling to the broadest share of the community. This requires paths and protected lanes on busier, higher speed corridors, and bicycle boulevards and bike lanes only on slow, low-volume streets.

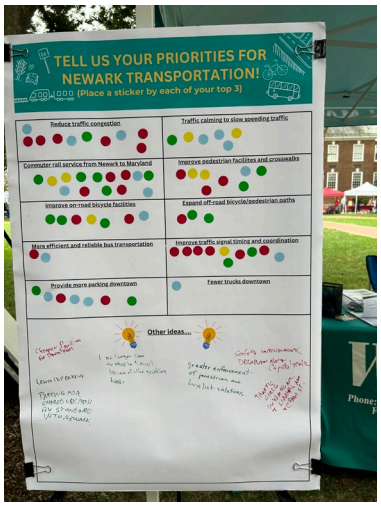


[1] As reflected in surveys from other cities and the 2011-2012 University of Delaware commuter survey

This Plan was developed through a partnership of City of Newark, WILMAPCO, and BikeNewark.

Outreach and collaboration included:

- **2023 – Listening Tour**
  - June 17 – Newark Family Bike Fest outreach table
  - September 5 – Newark Planning Commission presentation and discussion
  - September 17 – Newark Community Day outreach table
  - October 10 – Newark Conservation Advisory Committee presentation and discussion
  - October 23 – Newark City Council presentation and discussion
  - November 28 – Newark Diversity and Inclusion Committee presentation and discussion
- **2024 – Idea Development**
  - May 17 – Newark Bike to Work Day outreach table
  - September 15 – Newark Community Day outreach table
  - Volunteer Field Audit – July-November
- **2025 – Idea Refinement**
  - May 16 – Newark Bike to Work Day outreach table
  - May 22 – Public Workshop
  - May 22-June 22 – Online commenting



Details from the public outreach may be found in the appendix.

EXISTING CONDITIONS

Newark is blessed with some of the best bicycle infrastructure in Delaware and a high and growing share of trips by bike. Newark and the immediate surrounding area have 34 miles of existing routes, including 16.6 miles of paths. A total of 158 miles on Newark streets and paths are low stress routes (LTS 1 and 2). At the same time, congestion, infrastructure gaps, risky behavior by cyclists, pedestrians, and drivers, and safety concerns can make cycling challenging. Newark has 28 miles of higher stress streets (LTS 3 and 4) that are uncomfortable for most cyclists. These higher stress streets, along with three rail lines and I-95, are obstructions that may require people to take indirect routes.

HISTORY AND ACCOMPLISHMENTS

The City of Newark has a long-standing dedication to planning for bicycle transportation and recreational activities. This began with the *1973 Urban Route Bicycle System Master Plan*, which acknowledged the need for a bicycling network accommodating students, recreational riders, adults, and children. In 1996, the Newark Area Bicycle Interim Report was produced collaboratively by the City of Newark, the University of Delaware, the Delaware Department of Transportation (DelDOT), and the Wilmington Area Planning Council (WILMAPCO). This report acted as a supplementary document to the Newark/Elkton Intermodal Transportation Plan, detailing existing conditions, inventorying bicycle facilities in Newark and its vicinity, outlining preliminary recommendations for infrastructure enhancements, and issues needing attention before finalizing a Bicycle Facility Needs Plan.

The *2002 Newark Bicycle Plan* updated recommendations and contributed to incorporating a revised network of facilities in the *2011 Newark Transportation Plan*. This led to achievements, such as:

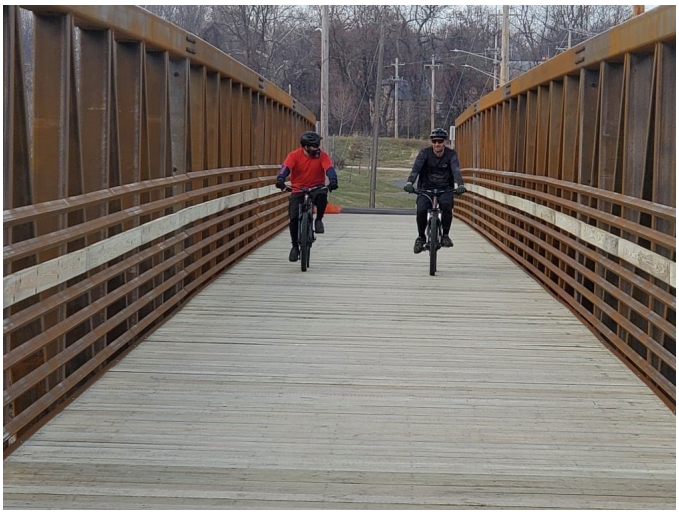
- Completion of the Hall and Pomeroy Trails
- Installation of bike racks on Main Street
- Implementation of a bicycle safety checkpoint program
- Establishment of the Newark Bike Project
- Addition of bike racks to most DART and University buses
- Enhancements to bike lanes on Elkton and Paper Mill Roads

As a result of these advancements, Newark earned a "Bronze" designation as a Bicycle Friendly Community from the League of American Bicyclists (LAB) in 2010, which provided feedback on successes and areas for improvement.

The *2014 Newark Bicycle Plan* was built upon the bicycling recommendations from the 2011 Newark Transportation Plan. It established a more detailed prioritization of infrastructure improvements, as well as initiatives focused on education, enforcement, and encouragement. The primary goal was to expand the bicycle network within the City, create connections to surrounding communities, and promote supportive policies and programs.

Since the 2014 plan, notable accomplishments include:

Route Improvements



Source: City of Newark

- SR 896 Path over I-95 (expected completion in 2026)
- Olan Thomas and Kershaw Park Path (expected completion in 2026)
- Elkton Road Path (completed in 2023)
- Emerson Bike-Pedestrian Bridge over White Clay Creek (completed in 2022)
- Delaware Avenue Protected Bikeway (completed in 2022)
- Casho Mill Road Bicycle/Pedestrian Improvements (completed in 2022)
- Cleveland Avenue Bicycle-Pedestrian Improvements (completed in 2021)
- Pomeroy Connector Path (completed in 2018)
- Main Street green-back sharrows (completed in 2017)
- Main Street contraflow lane connecting North College to South College (completed in 2017)
- Apple Road buffered bike lane (completed in 2017)

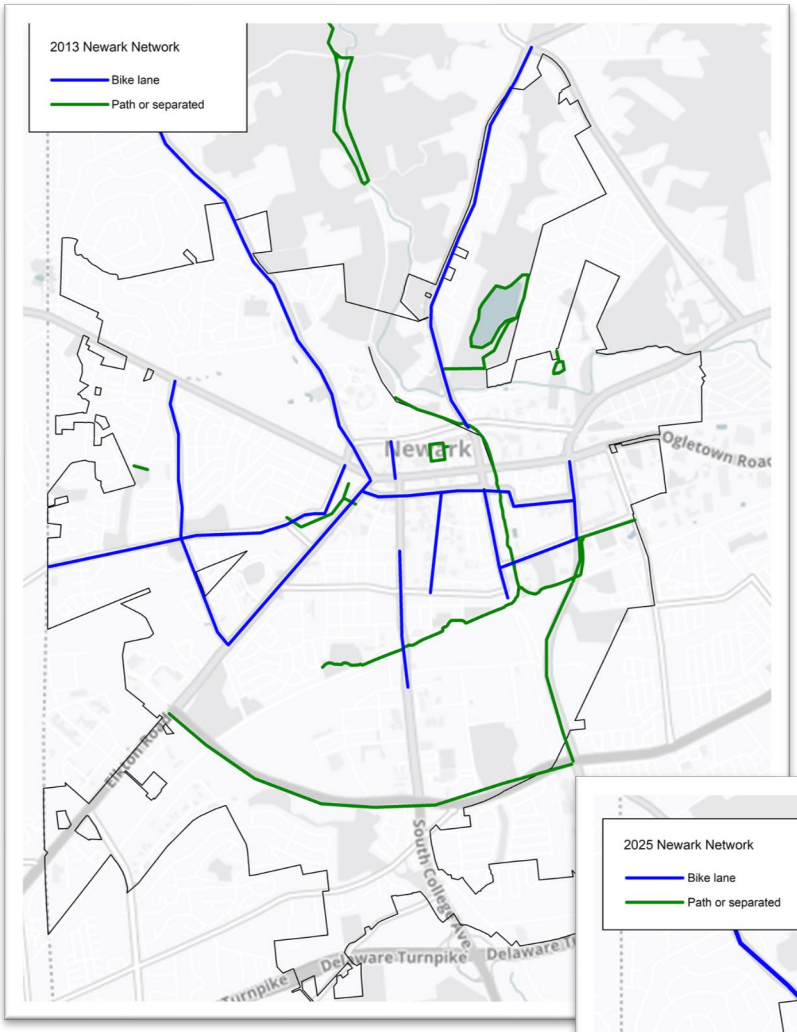
Amenities

- Bike racks installed at Downes Elementary School, Newark High School, and The Grove (2022-2023)
- Wayfinding signage for Central Loop, South, Southwest, North, Northwest, and West low-stress bikeways and Christina Valley Stream Trail (2019-2023)
- Bike racks added to Unicity buses (2015), replaced by DART Connect with bike racks (2023)
- Development of new safety and education videos and brochures

Planning

- South College Avenue Gateway (under development)
- Newark to Newport Pathway Study (2024)
- Chrysler Avenue Bikeway (2024)
- Iron Hill to Glasgow Pathway Study (2024)
- Newark Transportation Improvement District (TID) (2023)
- Wyoming Road Corridor Plan (2022)
- Newark/University of Delaware Bikeshare Feasibility Study (2022)
- New Castle County Bicycle Plan (2020)
- Newark to Wilmington Trail Study (2014)

As a result of these achievements, Newark was elevated to a "Silver" Bicycle Friendly Community by LAB in 2023.



Miles by Facility Type

	2013	2025
Path	11	16.8
Protected	0	1.1
Boulevard	0	0
Buffer	0	0.9
Contraflow	0	0
Lane	15.1	13.8
Advisory	0	0
Sharrow	1.2	1.8

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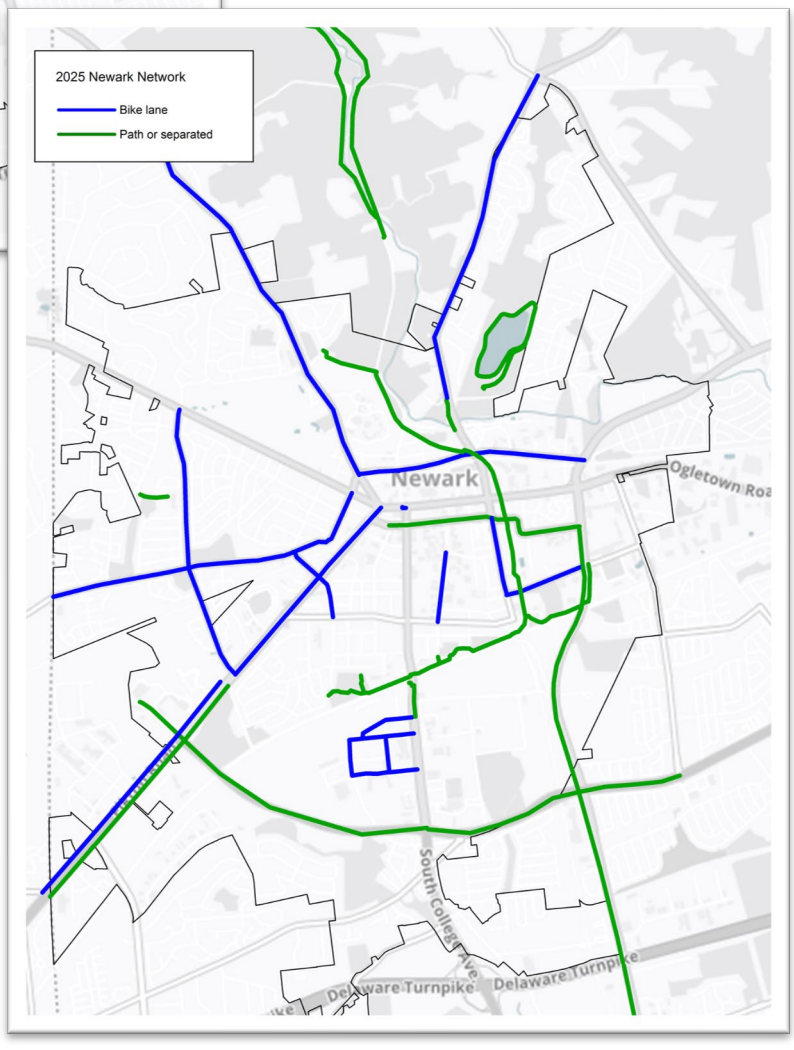
Note, some routes previously identified as bike lanes are no longer classified as bike lanes due to substandard widths.

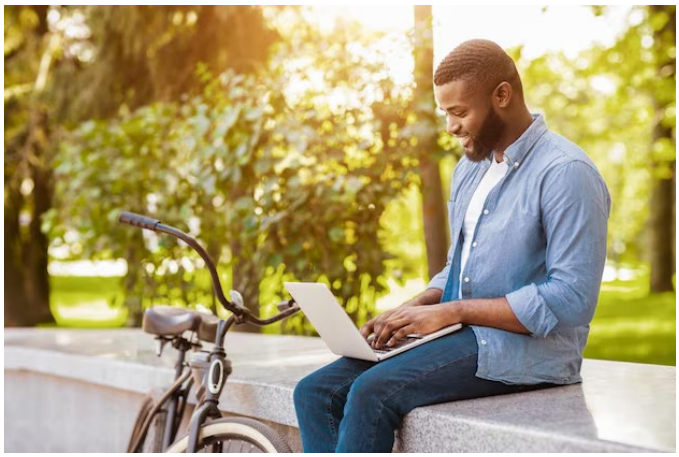


BICYCLING USE

Since the 2014 Bicycle Plan, one of the most notable changes in transportation is the shift from commuting to working at home. Home-based workers now account for more than 17% of all commutes, affording Newark area residents the potential of more leisure time (perhaps for bicycling), and fewer commutes by driving alone. At 13.5% and 2.1% respectively, Newark's share of commutes by walking and cycling are far greater than those for all New Castle County at 2.3% walking and 0.1% bicycling.

Mode	Newark 2010-14 avg.	Newark 2011-15 avg.	Newark 2012-16 avg.	Newark 2013-17 avg.	Newark 2014-18 avg.	Newark 2015-19 avg.	Newark 2016-20 avg.	Newark 2017-21 avg.	Newark 2018-22 avg.	Newark 2019-23 avg.
Drove alone	63.9%	66.8%	66.1%	65.1%	66.9%	66.3%	64.4%	63.3%	59.8%	58.0%
Carpool	9.4%	6.6%	6.5%	6.3%	6.4%	7.4%	6.7%	5.7%	6.4%	6.5%
Transit	5.1%	5.4%	4.4%	5.6%	5.2%	3.9%	3.6%	3.0%	1.5%	2.4%
Walk	15.2%	14.9%	15.8%	15.0%	13.5%	14.2%	13.3%	11.6%	13.3%	13.5%
Bike	2.3%	2.6%	2.8%	3.5%	2.7%	3.0%	2.7%	2.8%	2.4%	2.1%
Other	0.4%	0.3%	0.4%	0.3%	0.5%	0.4%	0.3%	0.6%	0.6%	0.4%
Work @ home	3.7%	3.4%	4.0%	4.3%	4.8%	4.7%	9.0%	13.0%	16.1%	17.1%

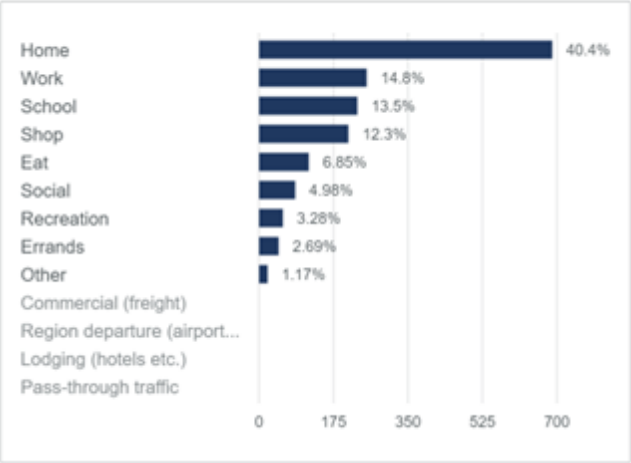
Data includes all workers aged 16 and older
Sources: U.S. Census Bureau, American Community Survey 5-Year Estimates



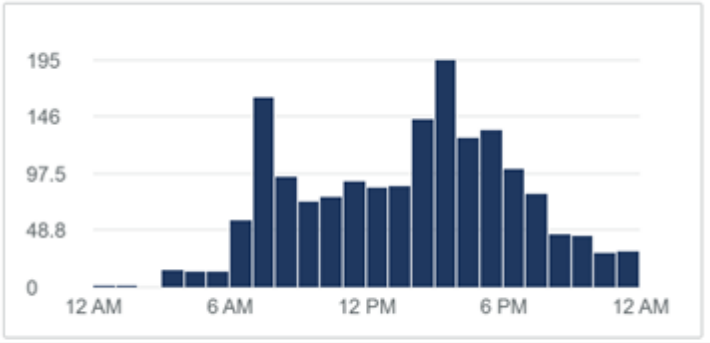
DAILY BICYCLE TRIP ESTIMATES

Analyzing projected bicycle trips on a typical Thursday during Fall of 2024 (using Replica), we estimate 1,700 daily bicycle trips made by Newark residents. The map on the next page shows the streets with the most bicycle trips according to this analysis.

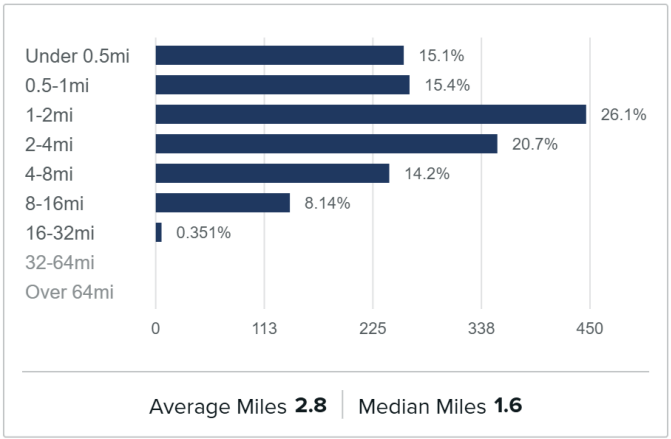
Trip Purpose



Starting Hour (In Local Time)



Trip Distance (Miles)



Daily Bicycle Trips

by Origin-Destination

Origin	Destination	Trip Count	Percent
Newark, DE	Newark, DE	1200	90.5%
Brookside	Newark, DE	37	2.8%
Newark, DE	Brookside	28	2.1%
Newark, DE	Glasgow, DE	8	0.6%
Wilmington	Newark, DE	6	0.5%
Newark, DE	Wilmington Manor	5	0.4%
Wilmington Manor	Newark, DE	4	0.3%
Bear, DE	Newark, DE	4	0.3%
Newark, DE	North Star, DE	4	0.3%

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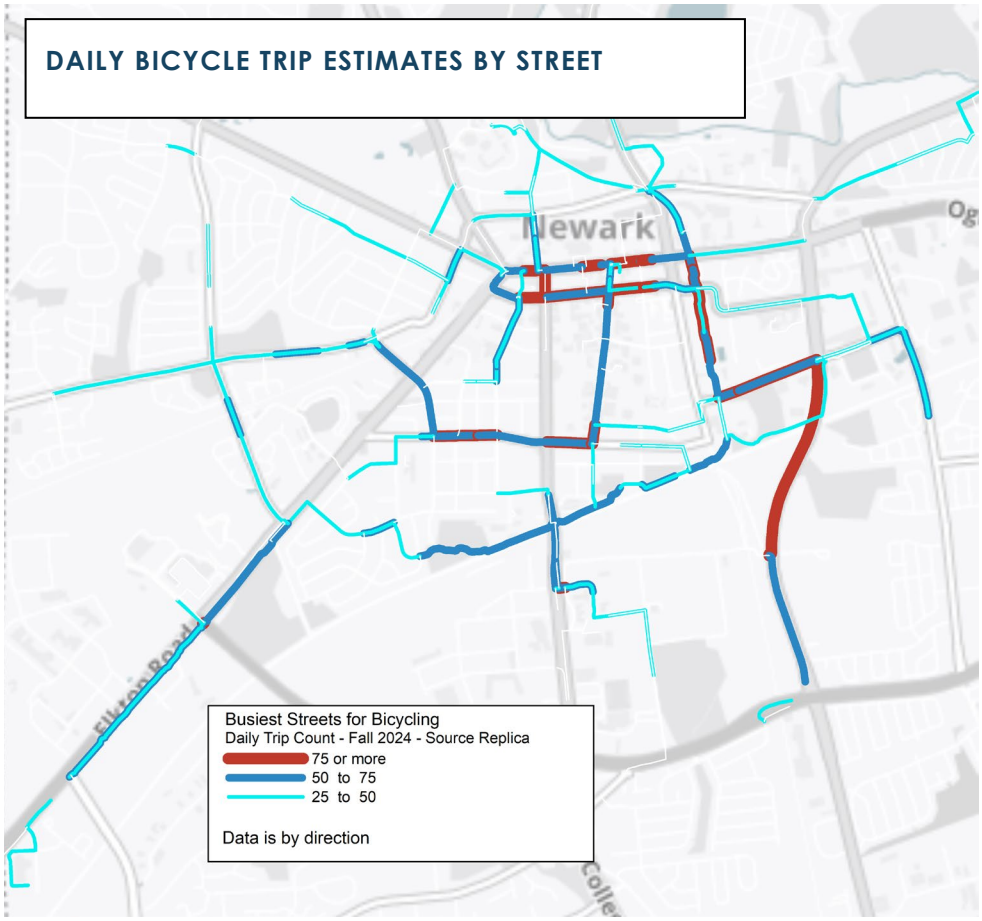
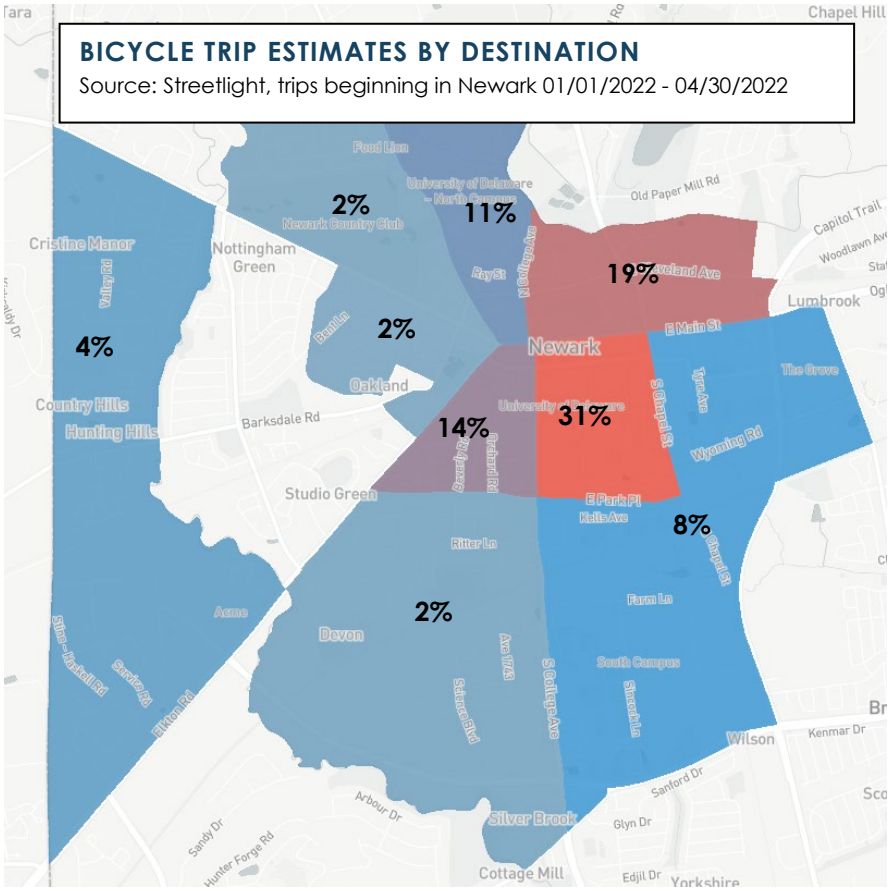
DAILY BICYCLE TRIP ESTIMATES BY STREET



BICYCLE TRIP ESTIMATES BY DESTINATION

Source: Streetlight, trips beginning in Newark 01/01/2022 - 04/30/2022



EXISTING PARTNERS AND PROGRAMS

Governmental, institutional, private, and nonprofit organizations all play a part in implementing projects and programs for bicycling. Major participants include:

CITY OF NEWARK: Newark's responsibilities include provision and maintenance of transportation facilities along locally maintained streets, land use development decision-making and code enforcement, parks and recreation, and enforcement of traffic laws. The breadth of Newark's involvement encompasses all departments, particularly:

- ***Parks and Recreation Department:*** Provides and maintains off-road bicycle and pedestrian corridors.
- ***Planning and Development Department***: Provides overall City coordination and oversees land use process and bicycle parking. The Planning Department also coordinates with the Newark Partnership on activities to foster a strong economy.
- ***Police Department***: Is responsible for enforcement of all traffic laws.
- ***Public Works***: Is responsible for improving and maintaining all local streets and may install signs and do minor maintenance along state streets.

DELDOT: DelDOT is responsible for providing and maintaining transportation facilities throughout the State of Delaware, including state streets within Newark. Roadway improvements and some maintenance activities done by DelDOT are addressed by the Delaware Complete Streets Policy. The Policy was created to ensure that system modifications are routinely planned, designed, constructed, operated and maintained in a way that enables safe and efficient access for all users. The result should be a system for all users that is comprehensive, integrated, connected, safe, and efficient, allowing users to choose among various transportation modes, both motorized and nonmotorized. All departments within DelDOT share responsibility for implementing the Complete Streets policy, particularly:

- ***Delaware Transit Corporation:*** Designs and provides the public transportation services, including bike parking at train stations and park-and-rides and bicycle racks on buses.
- ***Planning:*** Provides comprehensive transportation planning and development coordination services to address mobility needs. Programs within Planning:
    - Safe Routes to School Program includes programs and infrastructure designed to making encourage walking and bicycling to schools.
    - The Delaware Bicycle Council was established in 1990 to "consider, review and work on matters pertaining to bicycling, bicycle safety and bicycle safety education and to make recommendations to various state agencies." Members include representatives from the Department of Transportation, the Council on Transportation, the Department of Education, Delaware State Police, Office of Highway Safety, Division of Parks and Recreation, Council on Greenways and Trails, Division of Public Health, and seven citizen members.
    - Delaware Bike Maps are periodically updated and reprinted by DelDOT Planning. The New Castle County map includes an inset detailing Newark area routes.
    - Transportation Alternatives Program and Bicycle/Pedestrian Funding Pool provide funding and state support for the planning, design, and construction of bicycle and pedestrian projects.
    - Planning reviews subdivision plans to assess the transportation impacts of developments and makes recommendations to the City.
- ***Public Relations:*** Supports the department's programs and policies by planning, developing, and executing a variety of programs and customer services. For example:
    - Adopt-A-Bike Path program is a partnership between the Department of Transportation and volunteers, working together to make Delaware's bike paths cleaner and safer for pedestrians and bicyclists.
- ***Transportation Solutions:*** Develops, constructs, and maintains the State's infrastructure in a manner that results in a safe, cost-effective, and efficient multi-modal transportation network that enhances mobility, commerce, and livability. This includes:
    - Planning, design and construction of major roadway improvements
    - Preservation and rehabilitation of all state maintained roadways by maintaining a pavement system rating of a least 85 percent fair or better.

    - Maintaining materials, traffic control devices, signage, pavement markings, and surfaces of quality for the traveling public.
- ***Maintenance & Operations:*** Maintains and operates a convenient, safe, efficient, cost-effective, and environmentally-sensitive highway system by keeping the state's road transportation network in a state of good repair through the careful and consistent application of personnel, equipment, and financial resources. City of Newark is part of the North District maintenance area.

WILMINGTON AREA PLANNING COUNCIL (WILMAPCO): WILMAPCO is designated by the Governors of Delaware and Maryland as the Metropolitan Planning Organization (MPO) for New Castle County, Del., and Cecil County, Md., and is responsible for transportation planning in the region. To receive federal funding, projects must be included in the WILMAPCO *Regional Transportation Plan* and *Transportation Improvement Program*. In addition, WILMAPCO provides planning support to the Newark Bicycle Committee and City of Newark.

BIKENEWARK: BikeNewark is a partnership of interested cyclists and organizations working to improve bicycling in Newark, Delaware. BikeNewark exists to improve bicycling in Newark, Delaware, by working with partner organizations on five critical parameters—engineering, education, encouragement, equity, and evaluation—for the overall benefit of people who bicycle and utilize multimodal transportation in the city as a whole. BikeNewark comprises city residents, non-residents, and liaisons from our partner organizations:

- City of Newark
- DelDOT
- University of Delaware
- Newark Bike Project
- WILMAPCO
- Bike Delaware
- Delaware Greenways

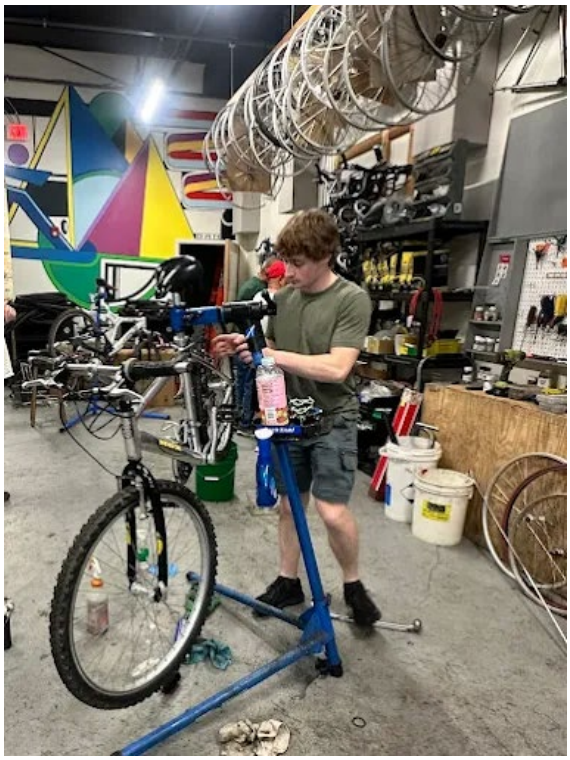
UNIVERSITY OF DELAWARE: The University is the City's largest employer and largest land owner, with the Newark campus totaling 970 acres and the STAR campus totaling 272 acres and has a student population slightly more than half the City's total population. Thus, the University plays a major role in making Newark a bicycle-friendly community. Primary departments include:

- ***Employee Relations***: Responsible for policies and procedures regarding employee commuting and benefits for bicycle commuters.
- ***Transportation/Parking Services:*** Responsible for planning and operation of parking facilities including bicycle racks, and buses including bike racks on buses.
- ***Environmental Health and Safety:*** Has the mission to serve the University community and ensure they are provided with healthy and safe living, work, academic, and recreational facilities and programs.
- ***Facilities and Auxiliary Services:*** Department serves as stewards of the University's physical and operational foundations, which help define the campus experience. They provide places of learning, innovate and renovate the built environment, and supply the daily care of students and structures. They help create the connections that keep the campus running, including getting people where they need to go and building and tending the spaces where the community comes together. They

are committed to thoughtful and progressive planning that balances historic architecture with the needs of a 21st century campus and reduces the impact on the community and the planet.

- ***University Police:*** Department works to create an environment where people can feel safe to learn, work, live, and visit. Programs include the Bicycle Registration Program and safety outreach.
- ***Healthy Hens Student Wellness:*** Healthy Hens Student Wellness cultivates a healthy and safe community that inspires students to succeed as leaders, role models, advocates and good citizens. Healthy Hens Student Wellness engages all members of the University community in health promotion and prevention strategies that empower students to develop skills and competencies that support healthy choices and academic success as a foundation for lifelong development. Recent programs included Alternative Journey to Work to encourage alternative, more sustainable ways to work or to classes.
- ***Employee Wellbeing:*** Employee Wellness is committed to improving and sustaining the overall health and well-being of the university community. They provide employees with the resources necessary to perform at their best and support their quality of life, including workshops and fitness classes.

NEWARK BIKE PROJECT: The Newark Bike Project is a community repair shop that offers shared access to professional tools and knowledgeable volunteer mechanics. Their mission is to educate, create community, and empower individuals in a way that encourages sustainability. Funding comes primarily from the sale of used bikes that have been donated by the community but also from financial donations, grants, and parts sales. Current programs and events include:



- ***Open Shop Hours:*** Scheduled hours during which community members can repair their bicycles with assistance from volunteers. A key feature of a bike collective is a "learn to do-it-yourself" bike shop. This community shop model serves as a place where youth as well as adults can collaborate on projects, learn to repair and maintain their bicycles, and shop for bicycles, parts, and accessories. In addition to volunteer mechanic expertise, the shop includes full sets of professional tools and an inventory of used parts for virtually any repair.
- ***Classes:*** Classes include wheel/tire repair workshops and bike mechanic courses that will train community members to work on the most common repairs and adjustments to several types of bicycles.
- ***Used-Bike Sales:*** Donated bikes may be sold to the community to raise funds for shop and program operating costs. Bikes are generally priced between $50 and $300, with most rideable bikes in the $100-$200 range.
- ***Bike Buy-Back Program:*** Refunds a portion of the purchase price for use of a bike for less than one year. Program is geared toward English Language Institute students and other visiting students.

BIKE DELAWARE: Bike Delaware is an independent, non-government, member-supported nonprofit advocacy organization whose mission is to make bicycling a safe, convenient, and fun transportation option by working in partnership with government, business, and community groups.

Other organizations involved in the Newark area include:

DELAWARE COMMUTE SOLUTIONS: Delaware Commute Solutions is dedicated to reducing the number of single occupancy vehicles (SOVs) on Delaware's highways. Delaware Commute Solutions aims to reduce congestion, improve air quality and lower vehicle emissions on Delaware's roadways. They assist employers and commuters with finding solutions and using alternative modes of transportation. Programs include Biking Buddy matching and Guaranteed Ride Home.

EAST COAST GREENWAY ALLIANCE: The East Coast Greenway is a developing trail system, spanning nearly 3,000 miles, as it winds its way between Canada and Key West, linking all the major cities of the eastern seaboard. Already, 65% of the East Coast Greenway is either complete or in an advanced stage of development. East Coast Greenway alignment would link Newark to Elkton, Churchmans Crossing, and points beyond. Within Newark, designated sections of the route include the Library Avenue/SR 72 path and the James F. Hall Trail. Pending completion of the South College Gateway Project, Newark's route will offer a downtown alternative that uses the Library Ave path, Delaware Ave protected bikeway, and S. College Ave.

WHITE CLAY BICYCLE CLUB: White Clay Bicycle Club offers a wide variety of year-round cycling experiences, on-road and off-road, fast and challenging, leisure and fun. The club is based in northern Delaware and offers frequent rides in the Newark area. In addition to cycling, the club offers enrichment programs and opportunities to lend support to advocacy issues, locally and nationally.

DELAWARE TRAIL SPINNERS: The Trail Spinners is an organization of mountain bicyclists of all abilities, joining together to enjoy and promote the sport of mountain biking. Members seek to balance their enjoyment of riding with responsible trail use and are committed to preserving access to trails through education and advocacy. In addition to recreational and instructional rides, members volunteer significant time and effort to construct, preserve and improve trails for shared use.

LAND USE

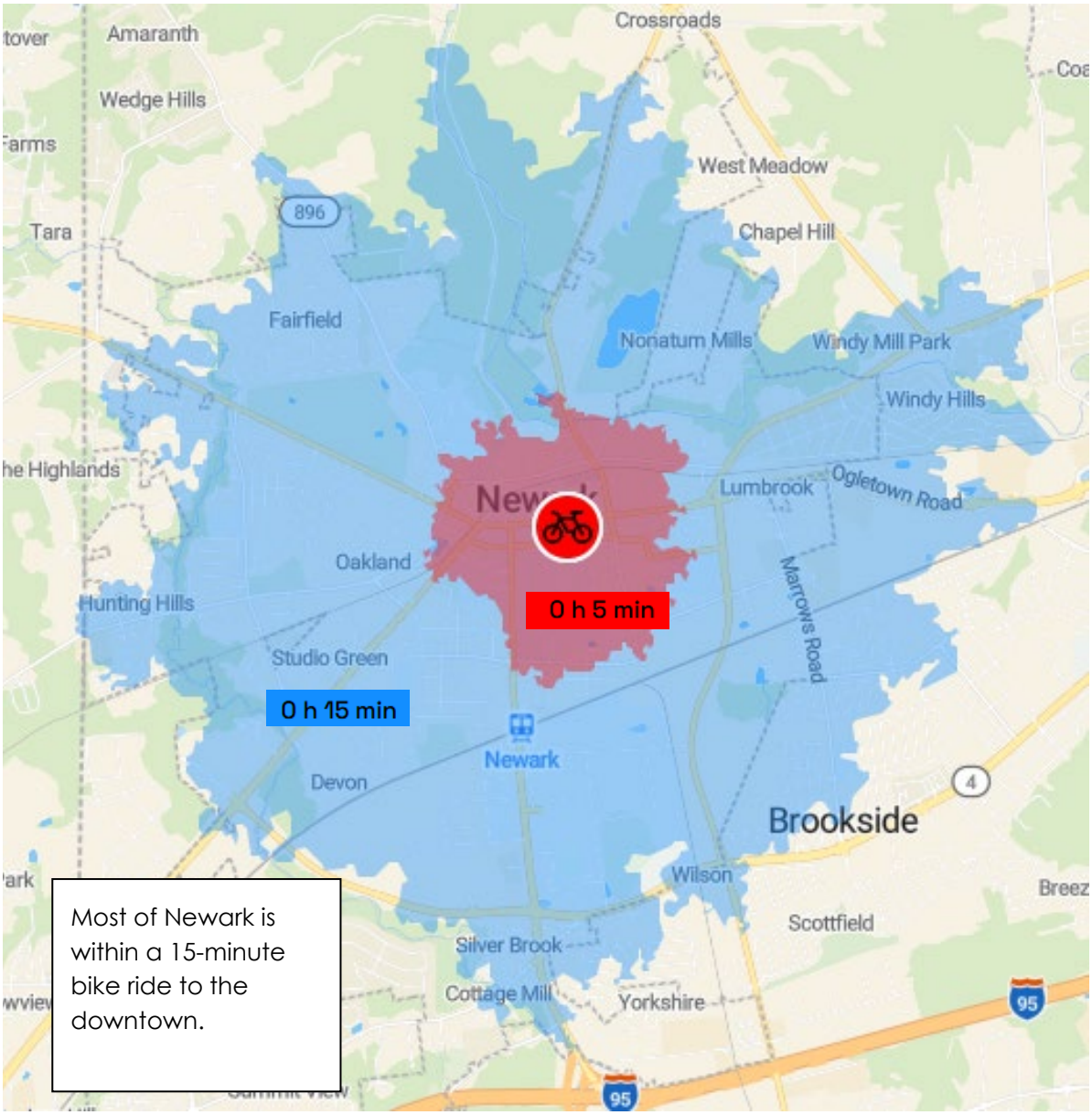
The City of Newark is a regional residential and commercial center. Newark's 9.5 square miles is home to more than 30 thousand people. It contains the University of Delaware, a diverse college community of 24 thousand students, a vibrant commercial district, and popular trails and parks.

The City of Newark is a compact area with a mix of land use types, including abundant parks, open space, and recreation areas, a vibrant mixed-use Main Street, and the University of Delaware. Residential areas are a mix of single-family homes and higher density apartments, townhouses, and condominiums.

"Bicycle Oriented Development" (BOD) involves community planning that mixes residential areas and destinations within an easy bicycling distance of 1-2 miles, or a 5–10-minute bicycle ride. Given Newark's land-use mix and compact size, BOD offers real potential to shift trips from driving to bicycling when combined with improvements to the bicycle route network, the addition of end-of-trip facilities and bike parking, and policies to promote bicycling or discourage driving. All residential areas are within a 2½-mile bicycle ride to Main Street or the University, making bicycling a practical option for local trips.

Open space within Newark consists of more than 1,200 acres of city parks, stream corridors, and open space at schools and the University. Beyond municipal boundaries, White Clay Creek State Park, Iron Hill County Park, and Fair Hill Natural Resources Area (Maryland) offer miles of trails for mountain biking and attract users from throughout the region.

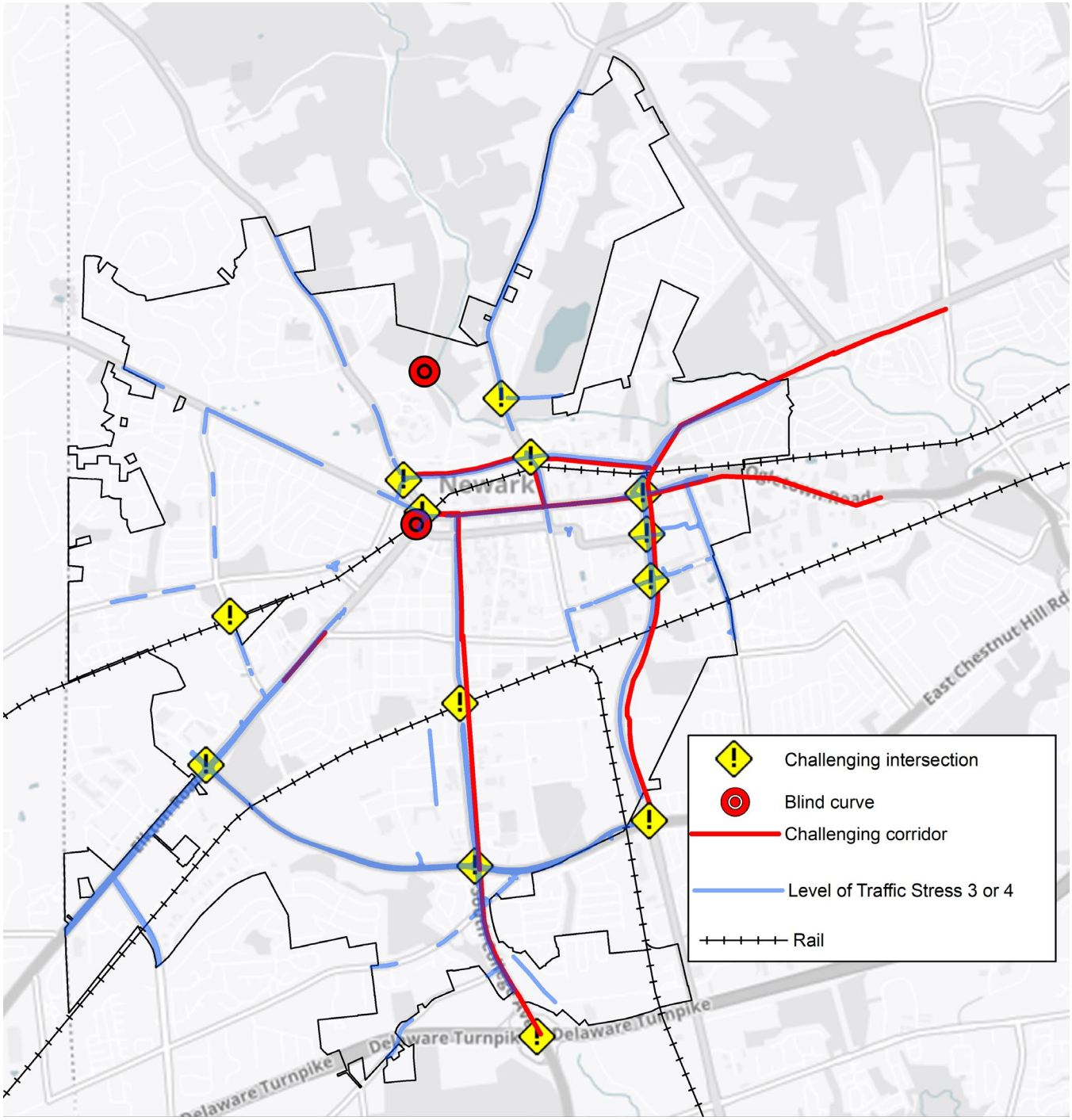
In the past, Newark's cycling connections with surrounding areas were limited. Work is being done to improve this. Access from the south of I-95 will improve dramatically in 2026 with completion of the I-95 and South College Avenue interchange. Elkton Road's path provides an off-road route to the Maryland line. The Newark to Newport Paths Plan explores low stress links to connect the two communities and the Newark to Glasgow Paths Plan identifies improvements to link Newark south to Glasgow and beyond.



Newark and DelDOT have established a Transportation Improvement District (TID) to facilitate the coordination of land use and transportation. DelDOT describes a TID as "A geographic area defined for the purpose of securing required improvements to transportation facilities in the area," as described in the Delaware Department of Transportation's Development Coordination Manual. A place where land use and transportation is planned in detail in advance, such that development consistent with that planning can pay a readily determined fee and forego the Traffic Impact Study process". TIDs provide transportation improvements that support land development. Coordinating land use and transportation can lower infrastructure costs and foster planning for market-ready development / redevelopment opportunities. TIDs equitably distribute the cost of transportation improvements triggered by development-related growth to the private sector benefiting from the facilities. Newark's TID was developed by a community advisory group which identified a range of bicycle improvements that have been included in this Plan's recommendations. A developer fee formula will subsidize those improvements, and a monitoring program tracks the need for the projects based on development activity. Additional details on the resulting recommendations contained in the TID are found in the Recommended Bicycle Network section of this Plan.

GAPS, OBSTRUCTIONS, AND HIGH STRESS CONDITIONS

Community outreach and field review for developing this Plan identified numerous areas of concern. Major obstacles and challenges are mapped below. More details may be found in the appendix.



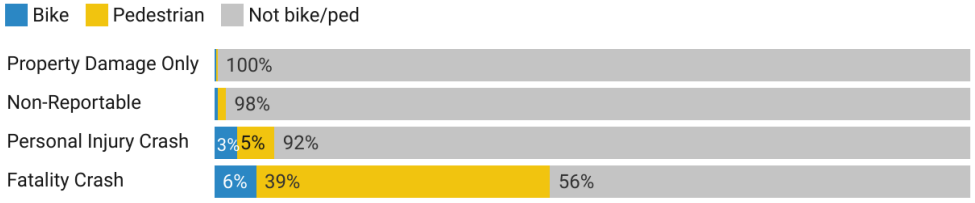
Analysis of Delaware crash data (all severities) from 2019-2023 shows that the majority of bicycle-related crashes in Newark occur along major arterial and collector roads and the Plan adopts a Vision Zero framework to address safety concerns. Recommendations are detailed in the Supportive Policy and Programs section the Plan.

BETWEEN 2019-2023, 44 PERCENT OF FATAL CRASHES WERE PEDESTRIAN AND BICYCLE CRASHES, WHILE THESE ONLY ACCOUNTED FOR TWO PERCENT OF TOTAL CRASHES.

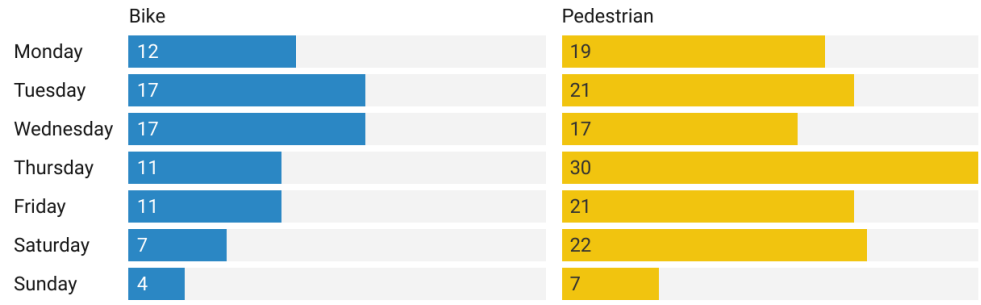
During this period, there were one fatal and 51 injury bike crashes. Eighteen percent of all New Castle County bike crashes were in the Newark area.

Crashes by Severity:

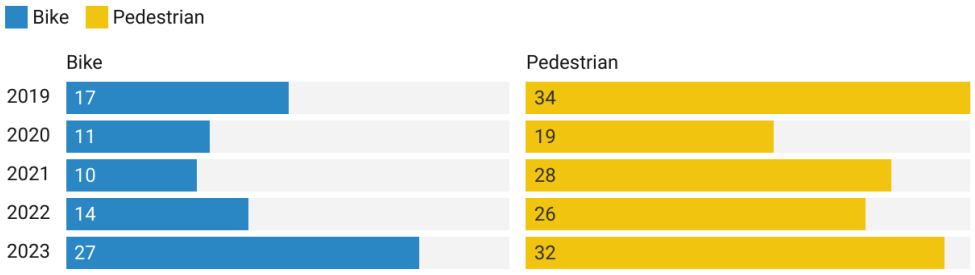
Bicycle and pedestrian crashes accounted for 45% of fatalities but only 2% of total crashes



Crashes per day of week



Crashes per year



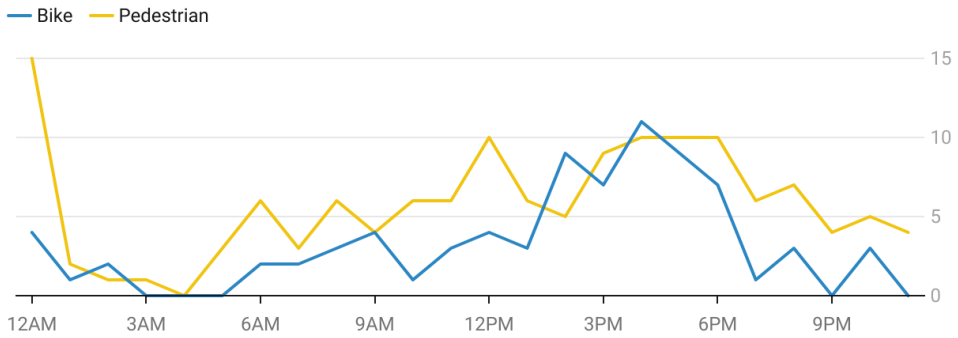
CRASHES PER STREET

Many crashes occur at intersections and are counted twice; this list excludes crashes not on streets.

Street	Count
E Delaware Ave	10
E Main St	8
S College Ave	8
Academy St	7
E Chestnut Hill Rd	6
E Cleveland Ave	6
S Main St	6
S Chapel St	5
Casho Mill Rd	3
Elkton Rd	3
New London Rd	3
Old Baltimore Pike	3
Wyoming Rd	3
David Hollowell Dr	2
E Park Pl	2
Lovett Ave	2
Paper Mill Rd	2
Scholar Dr	2
W Main St	2
Apple Rd	1
Augusta Dr	1
Bellevue Rd	1
Capitol Trl	1
Choate St	1
Christina Pky	1
Chrysler Ave	1
Fremont Rd	1
Hillside Road	1
Ilse Dr	1
Library Ave	1
N College Ave	1
Nottingham Rd	1
Old Newark Rd	1
Prospect Ave	1
Sanford Dr	1
Suburban Dr	1
Sypherd Dr	1
Tyre Ave	1
W Cleveland Ave	1
Winslow Ave	1

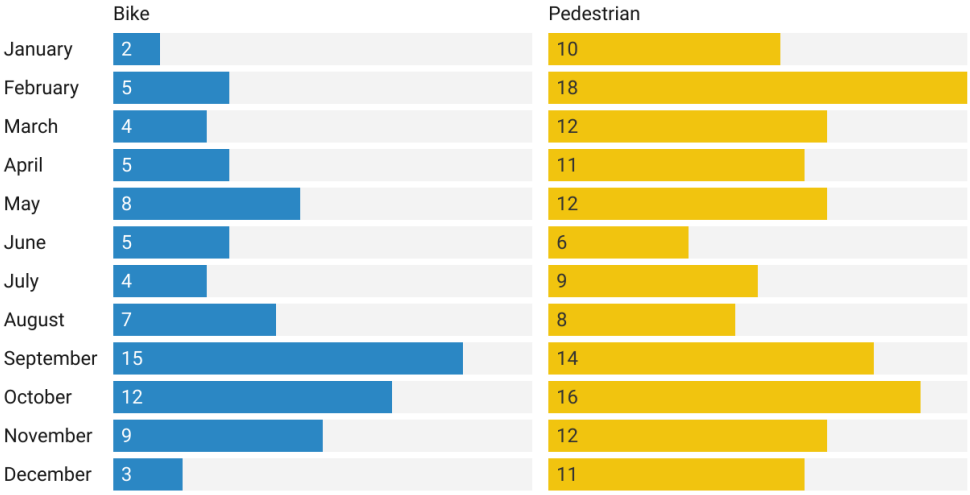
Crashes per hour

Bicycle crashes increase during the afternoon. Pedestrian crashes also increase during the afternoon and spike from midnight to 1 a.m.



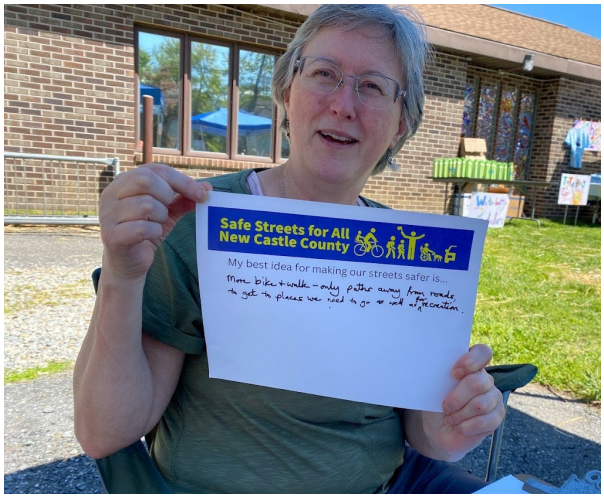
Crashes per month

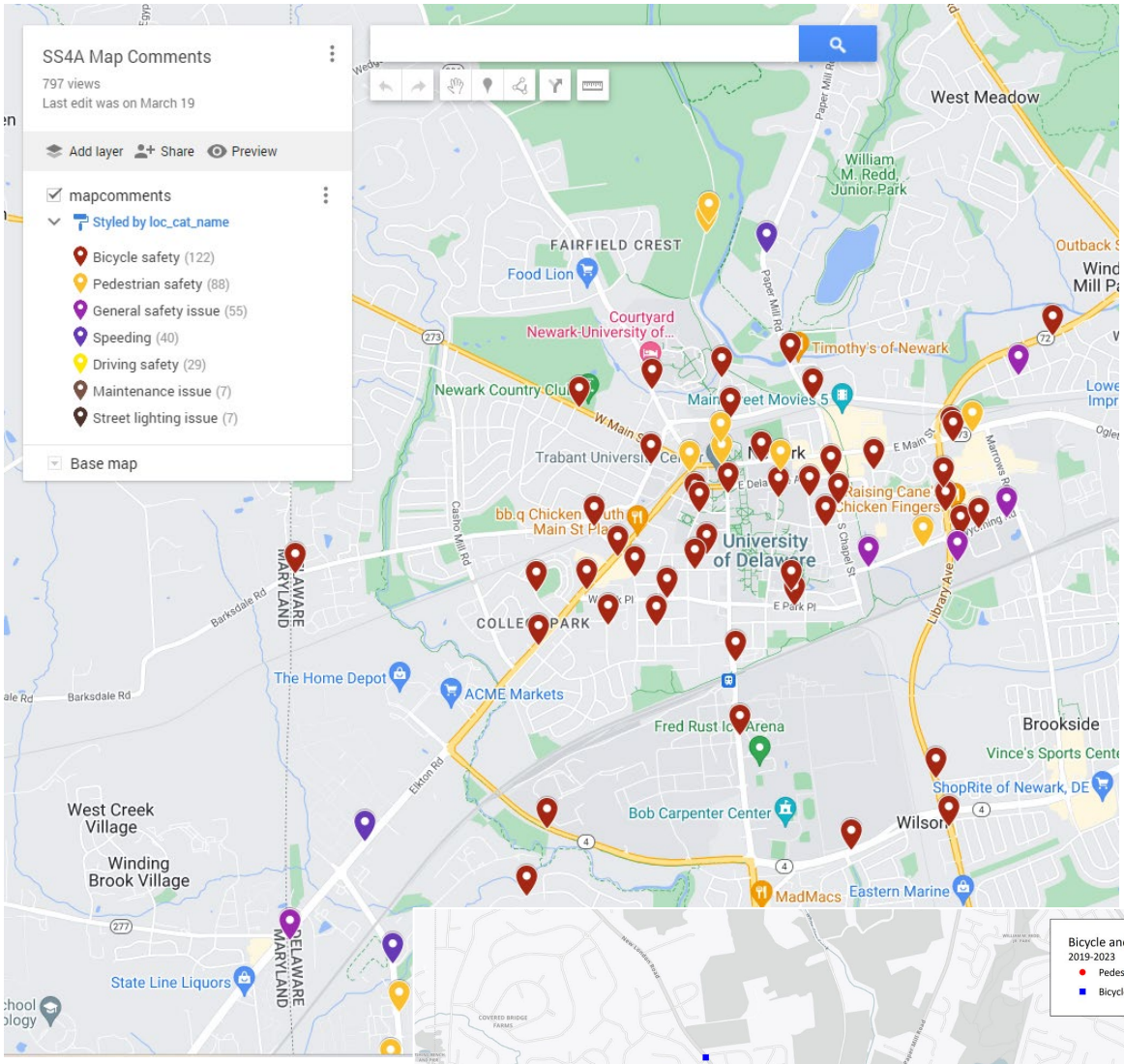
Bicycle crashes spike at the beginning of the school year, indicating a need for additional enforcement and education during this time

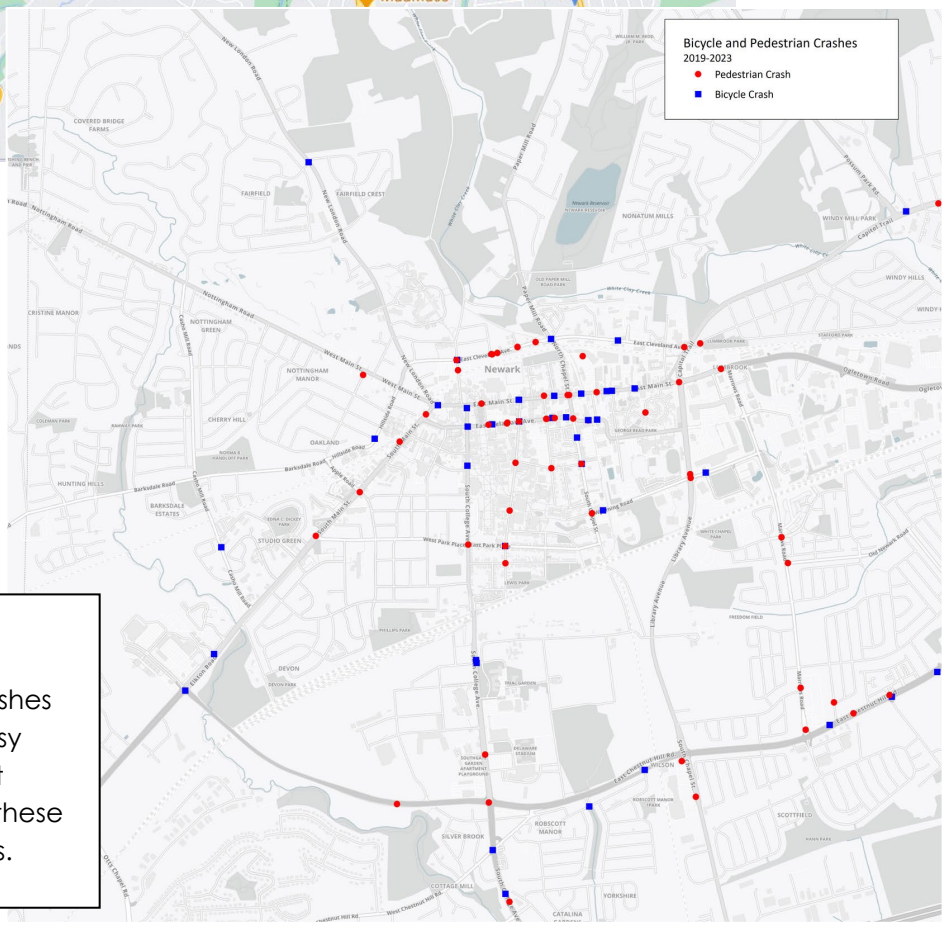


COMMUNITY FEEDBACK

While developing the 2023 New Castle County Safe Streets for All Action Plan, most of the feedback for the Newark area related to concerns about bicycle safety. An interactive map of comments and identified high crash corridors may be found at www.wilmapco.org/safestreets.

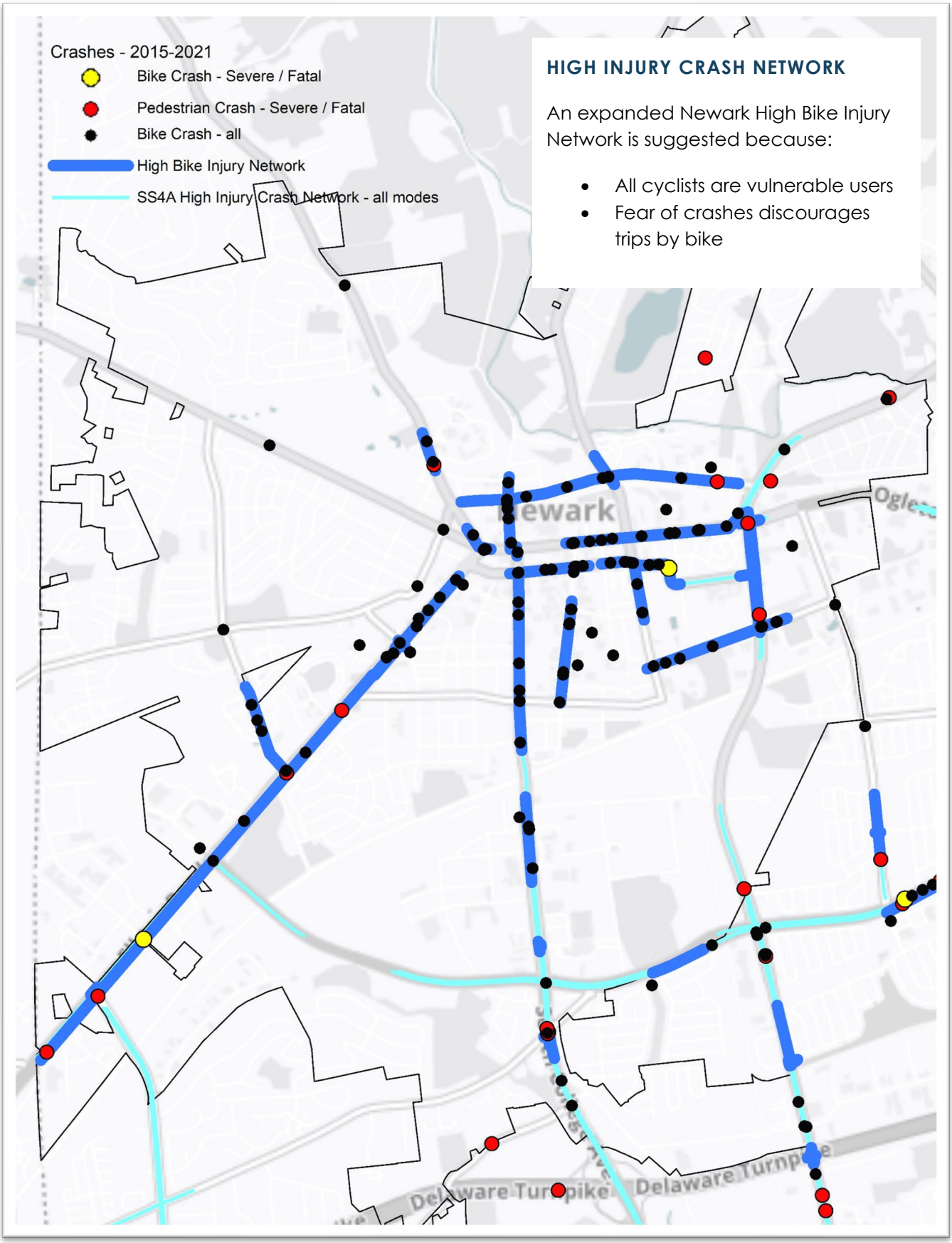






LOCATIONS OF CRASHES

Most bicycle and pedestrian crashes are clustered along Newark's busy arterial and collector roads. Most severe and fatal crashes are on these roads in areas with higher speeds.

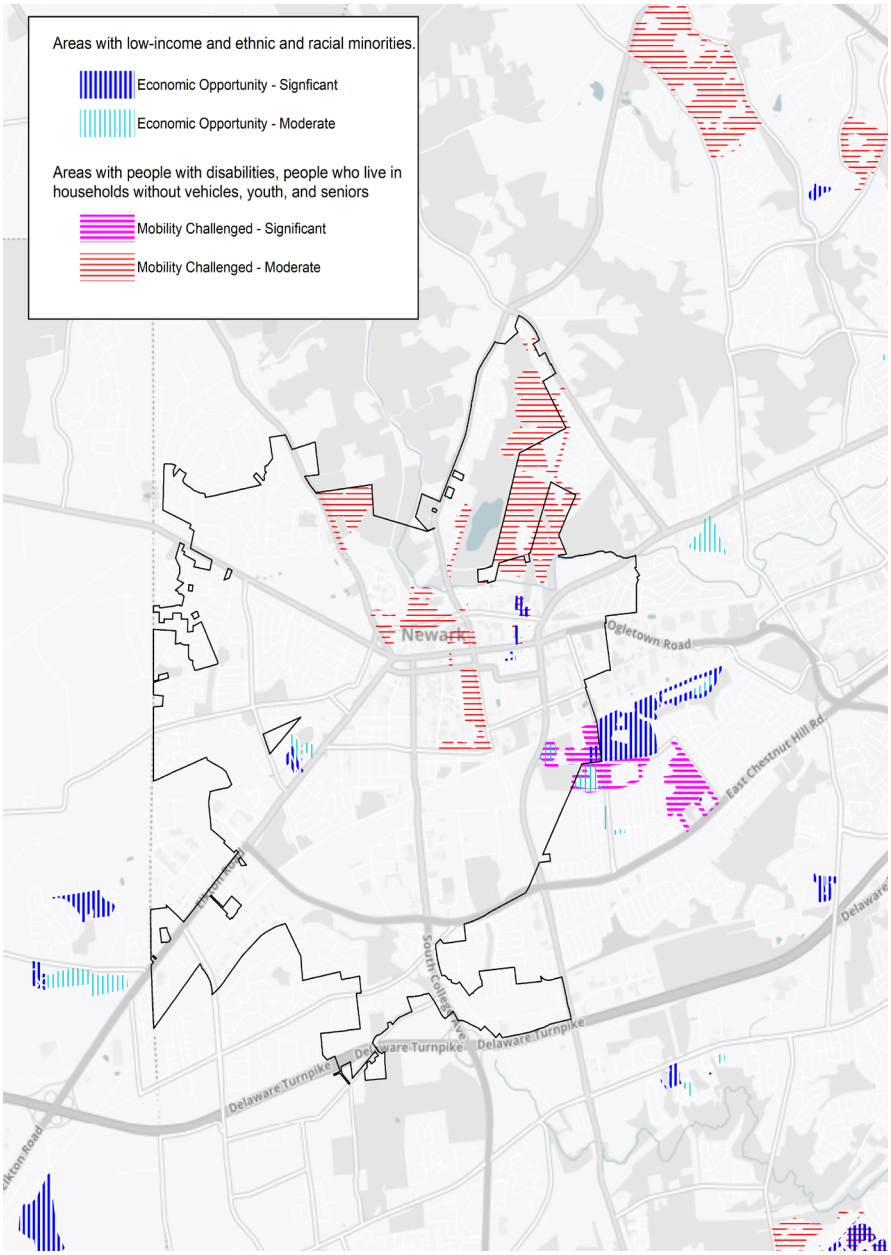

Crashes - 2015-2021
Bike Crash - Severe / Fatal
Pedestrian Crash - Severe / Fatal
Bike Crash - all
High Bike Injury Network
SS4A High Injury Crash Network - all modes
HIGH INJURY CRASH NETWORK
An expanded Newark High Bike Injury Network is suggested because:
All cyclists are vulnerable users
Fear of crashes discourages trips by bike
Delaware Turnpike

In Newark, access to safe, reliable, and affordable transportation is a matter of mobility and opportunity. Transportation Opportunity means that every community member, regardless of age, income, race, ability, or neighborhood, should have the access they need to the places and services that support a healthy, fulfilling life. Bicycling can play a central role in closing the transportation gap for those who may face barriers to driving or lack access to a private vehicle.

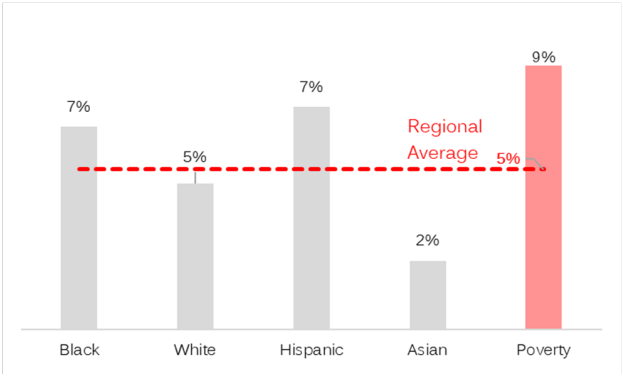
In developing the Plan, areas of particular need were looked at to ensure that they were tied into the low-stress bicycling network.

Across the region, WILMAPCO found that income and race corresponded with increased challenges accessing daily needs.

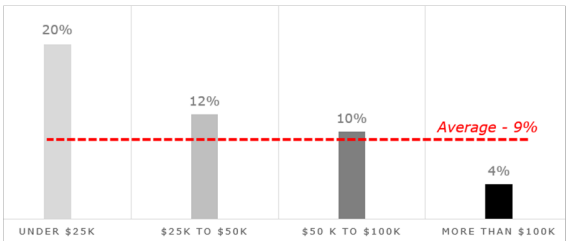
Learn more about Opportunities and Connectivity at: www.wilmapco.org/mop

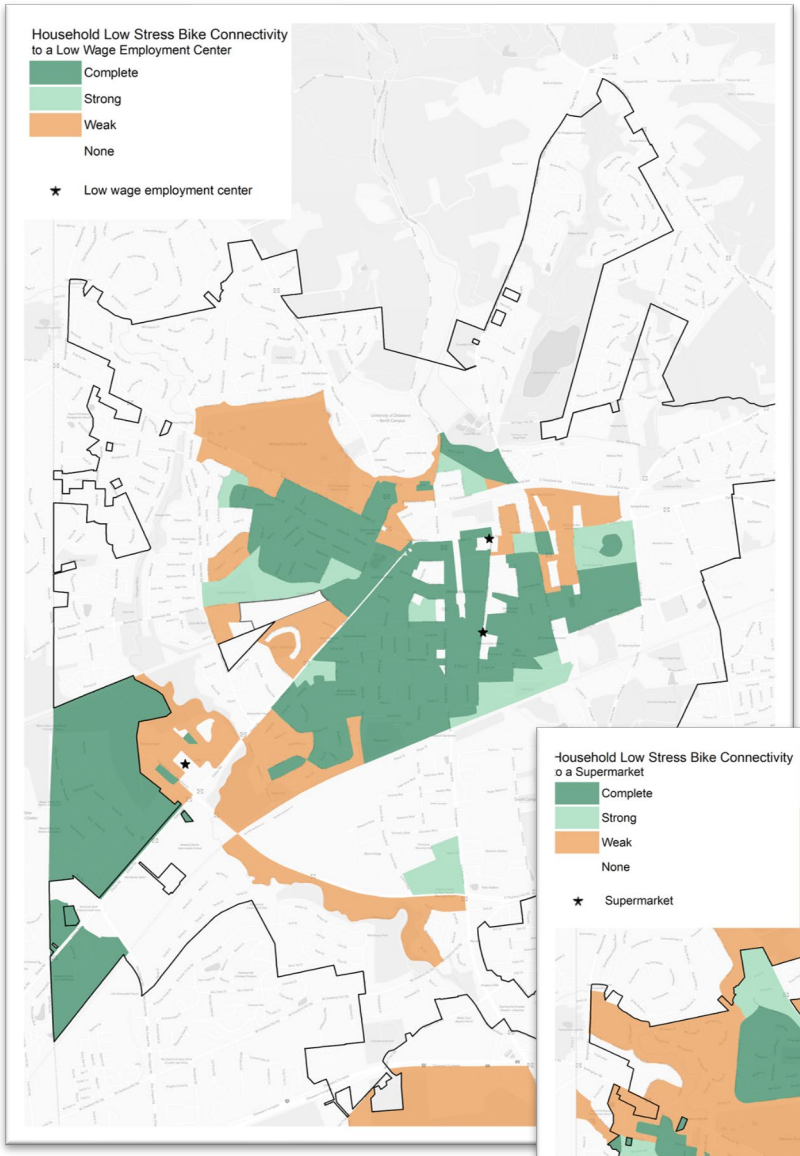


Walking
Workers Commuting 30 minutes or more by Group Concentration

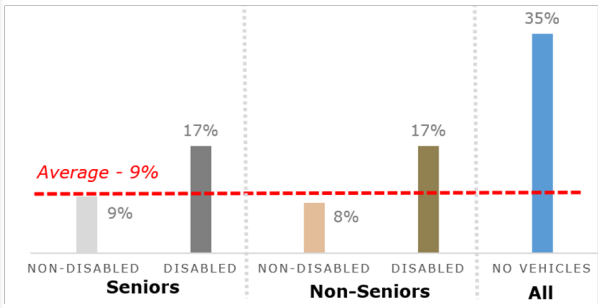


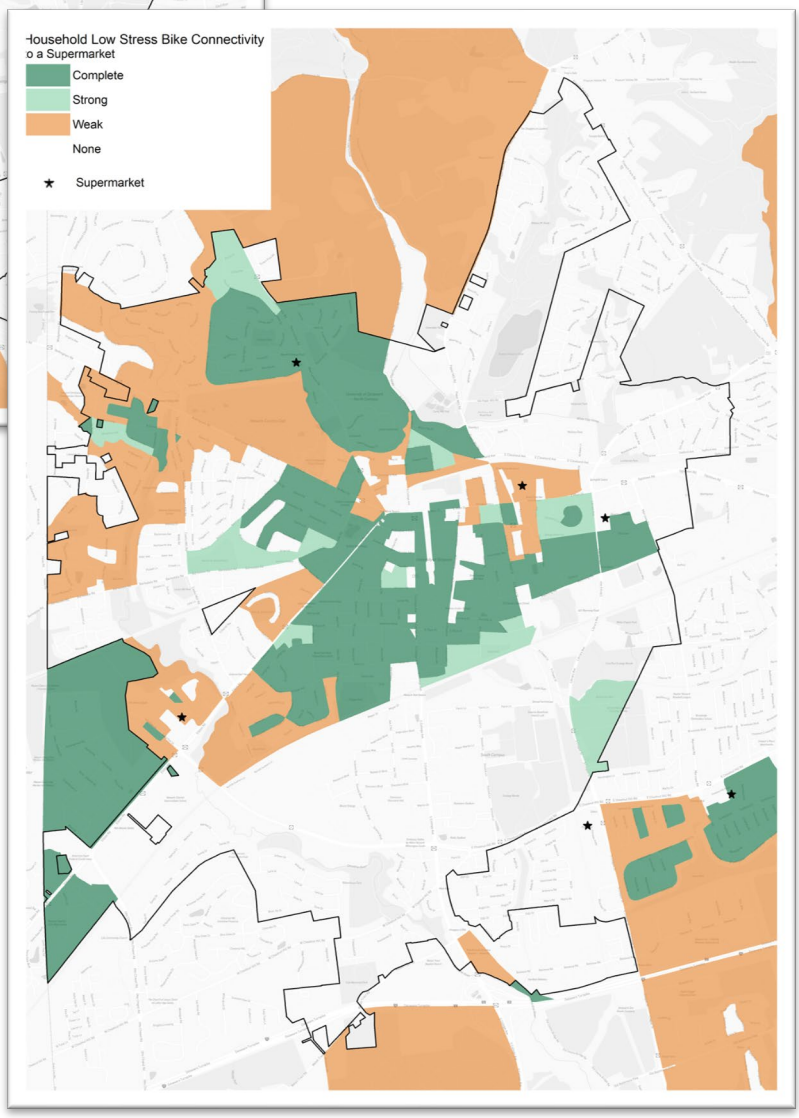
Limited Transportation Access to
Healthy and Affordable Grocery Shopping
by Annual Household Income
WILMAPCO Region, 2022



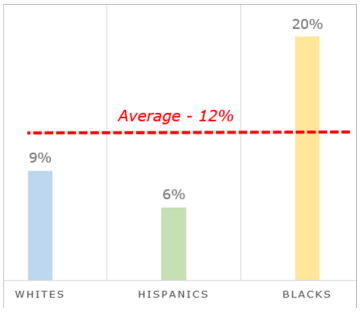


Limited Transportation Access to
Healthy and Affordable Grocery Shopping
WILMAPCO Region, 2022

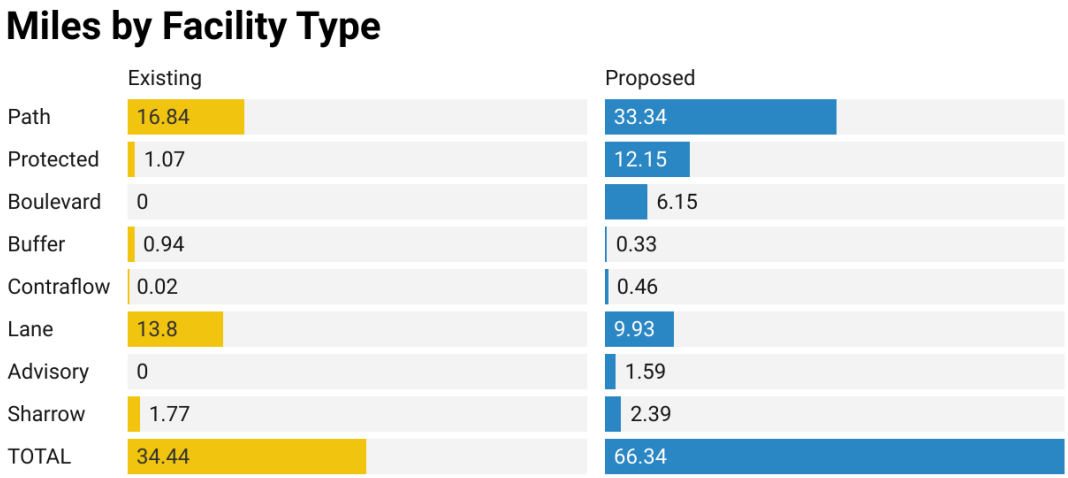




Limited Transportation Access to
Social Activities
by Race and Ethnicity
WILMAPCO Region, 2022



THE RECOMMENDED BICYCLE NETWORK WORKS SEEKS TO FILL GAPS AND IMPROVE THE COMFORT OF EXISTING FACILITIES.



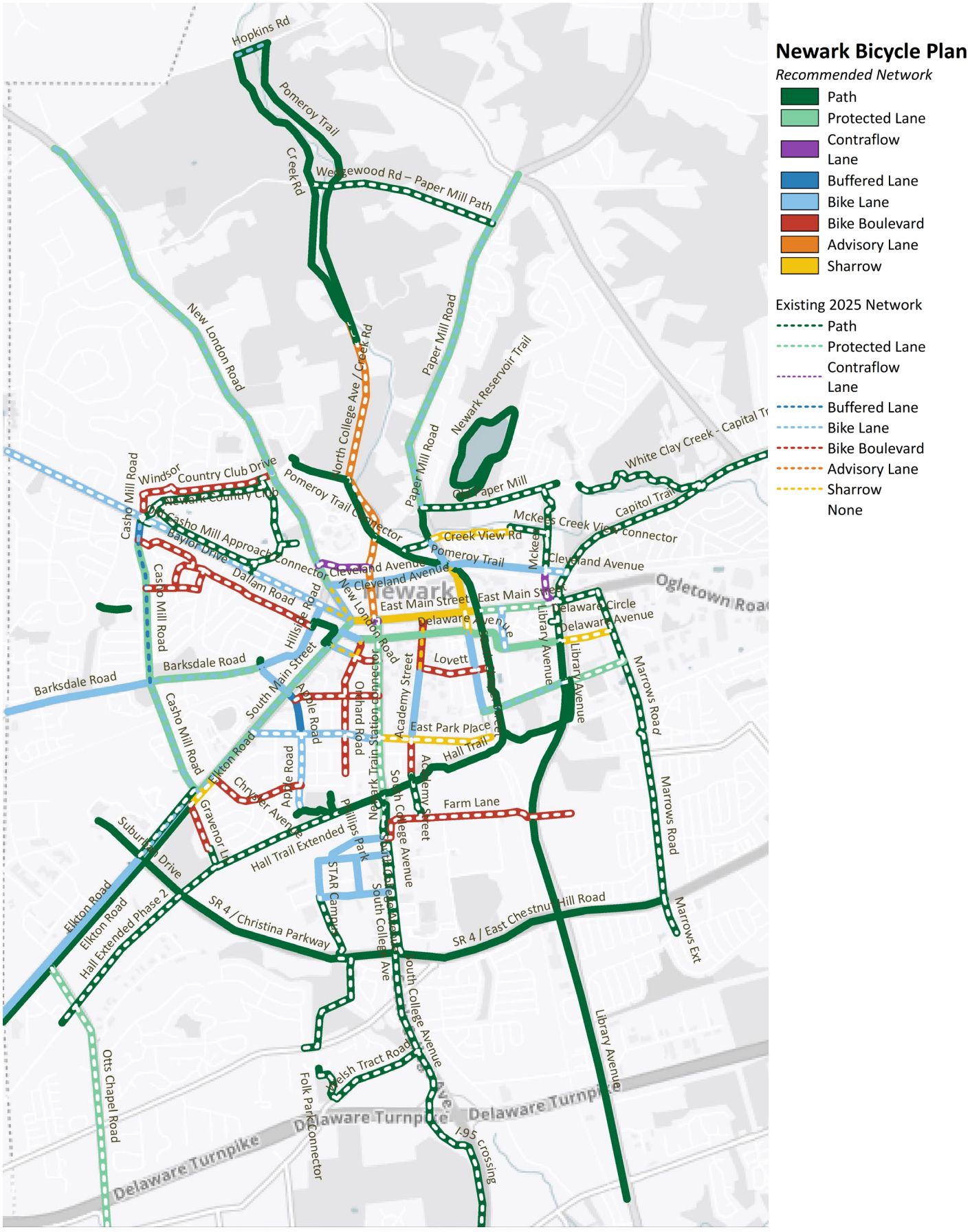
The Plan identifies facilities that connect homes, work sites, schools, parks, community centers, library, retail, and other destinations. The map on the following page shows existing and recommended routes. The remainder of this section describes types of facilities and includes suggested design considerations. Most designs are in keeping with the accepted design policies. Others look at emerging national and international best practices[2].

PREFERRED DESIGNS

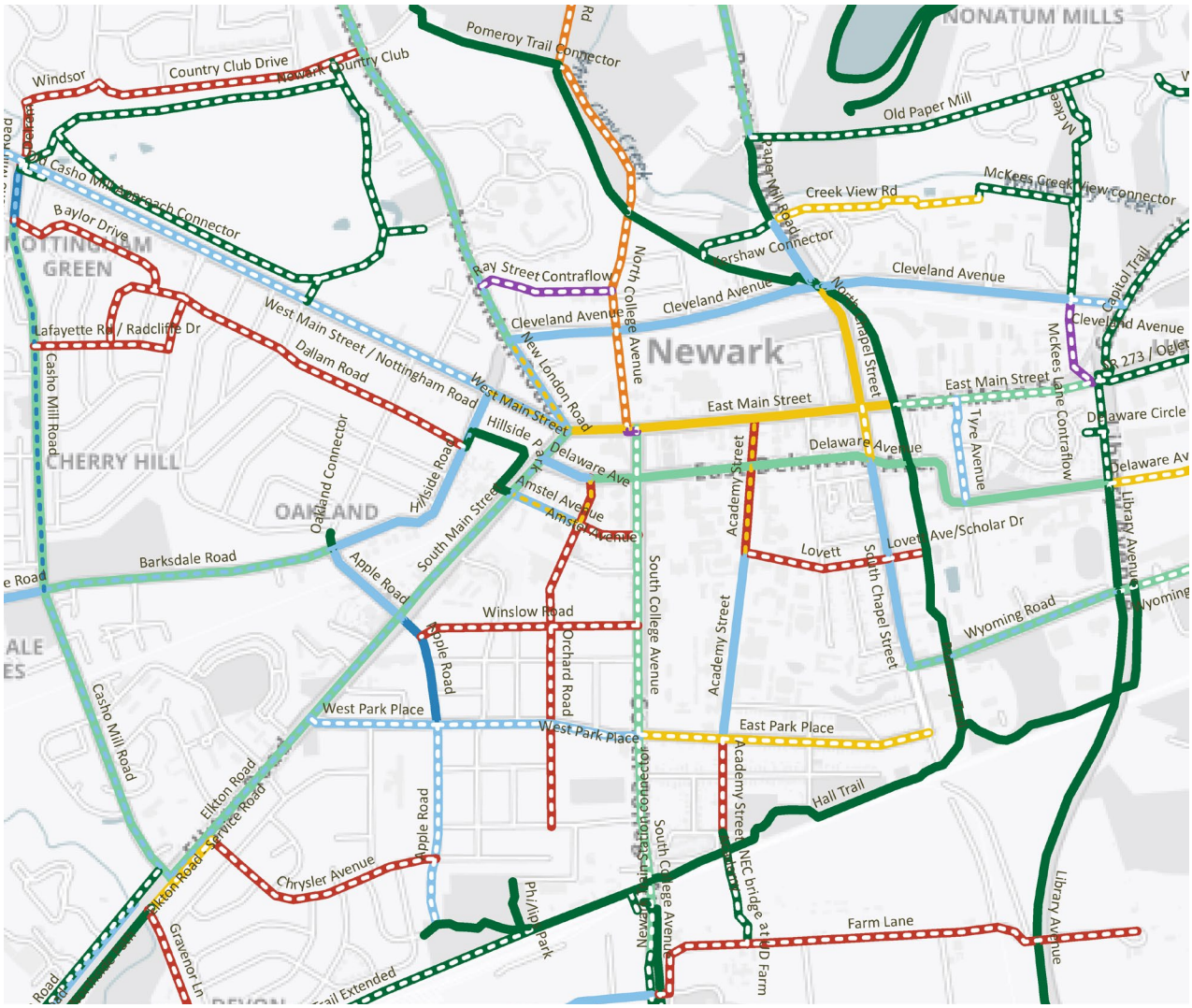
A short summary of preferred route design is as follows:

Type	Width	Surface	Treatment	Function
Path	10-16 ft.	Asphalt or concrete	Route completely separated from motor vehicles and shared by bicycles and pedestrians.	Provides linear park and desirable, traffic-free connections to key destinations. May parallel roads where traffic speeds or limited right-of-way make providing sidewalks and bicycle lanes infeasible or undesirable. Best when crossing infrequent driveways.
Protected Lane / Cycletrack	10-16 ft. if 2-way	Asphalt or concrete	Route within the street, separated from motor traffic and distinct from the sidewalk.	Provides greater separation from traffic than a bike lane and greater separation from pedestrians than a path.
Bike Boulevard	NA.	NA	Slow local street that combines traffic calming, bicycle wayfinding, and optional green infrastructure	Provides local low-stress connections while enhancing the livability of neighborhood streets.
Enhanced bike crossings	NA	NA	Protected intersection, roundabout, refuge islands	Provides enhanced multimodal safety at intersections and mid-block crossings.

[2] Design manuals and guides: https://roaddesignmanual.deldot.gov/index.php/Home, https://deldot.gov/Publications/manuals/de_mutcd/index.shtml, https://aashtojournal.transportation.org/aashto-releases-5th-edition-of-comprehensive-bicycle-guide/, https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/, https://nacto.org/publication/urban-bikeway-design-guide/

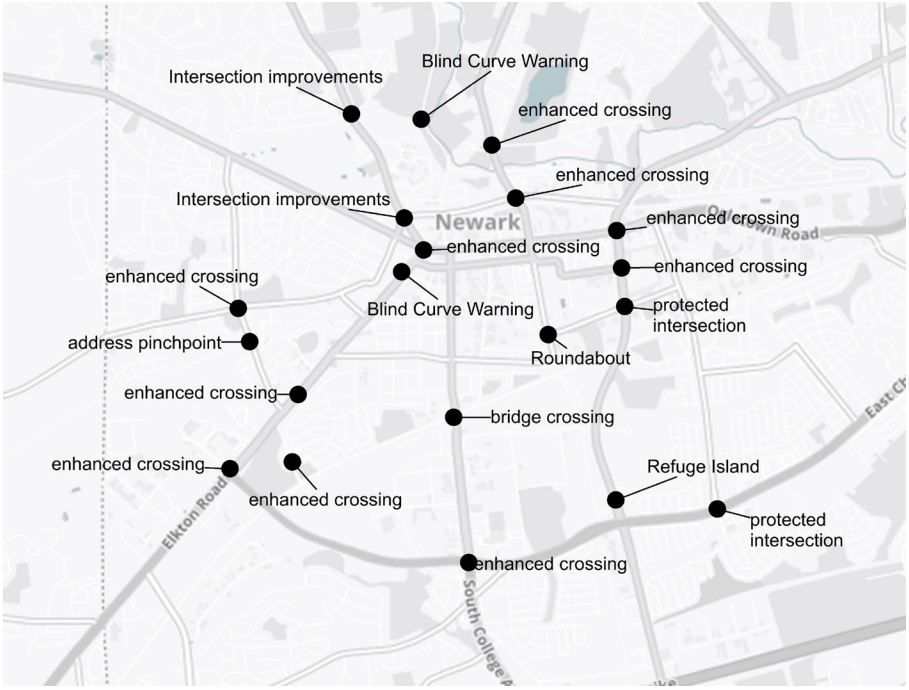

Newark Bicycle Plan
Recommended Network
Path
Protected Lane
Contraflow Lane
Buffered Lane
Bike Lane
Bike Boulevard
Advisory Lane
Sharrow
Existing 2025 Network
Path
Protected Lane
Contraflow Lane
Buffered Lane
Bike Lane
Bike Boulevard
Advisory Lane
Sharrow
None
Hopkins Rd
Pomeroy Trail
Creek Rd
Wedgewood Rd – Paper Mill Path
New London Road
North College Ave / Creek Rd
Paper Mill Road
Newark Reservoir Trail
White Clay Creek - Capital Tr
Windsor
Country Club Drive
Newark Country Club
Casho Mill Road
Casho Mill Approach
Baylor Drive
Dallam Road
Pomeroy Trail Connector
Old Paper Mill
Capitol Trail
McKees Creek View Connector
Creek View Rd
Cleveland Avenue
Newark
East Main Street
Ogletown Road
Delaware Avenue
Delaware Circle
Library Avenue
Hillside Road
Barksdale Road
South Main Street
Lovett
Academy Street
Apple Road
Orchard Road
East Park Place
Hall Trail
Marrows Road
Elkton Road
Chrysler Avenue
Gravenor Ln
Suburban Drive
Hall Trail Extended
Phillips Park
South College Avenue
Farm Lane
STAR Campus
SR 4 / Christina Parkway
SR 4 / East Chestnut Hill Road
Marrows Ext
Elkton Road
Elkton Road
Hall Extended Phase 2
Otts Chapel Road
Welsh Tract Road
Folk Park Connector
Delaware Turnpike
I-95 crossing
Library Avenue

CENTRAL NEWARK INSET



INTERSECTION AND SPOT IMPROVEMENTS: Thoughtful Design at Intersections and Obstacles

Bicycle facilities are often interrupted at intersections. Challenging intersections should be upgraded to improve how bicyclists, pedestrians, transit vehicles, and drivers interact.

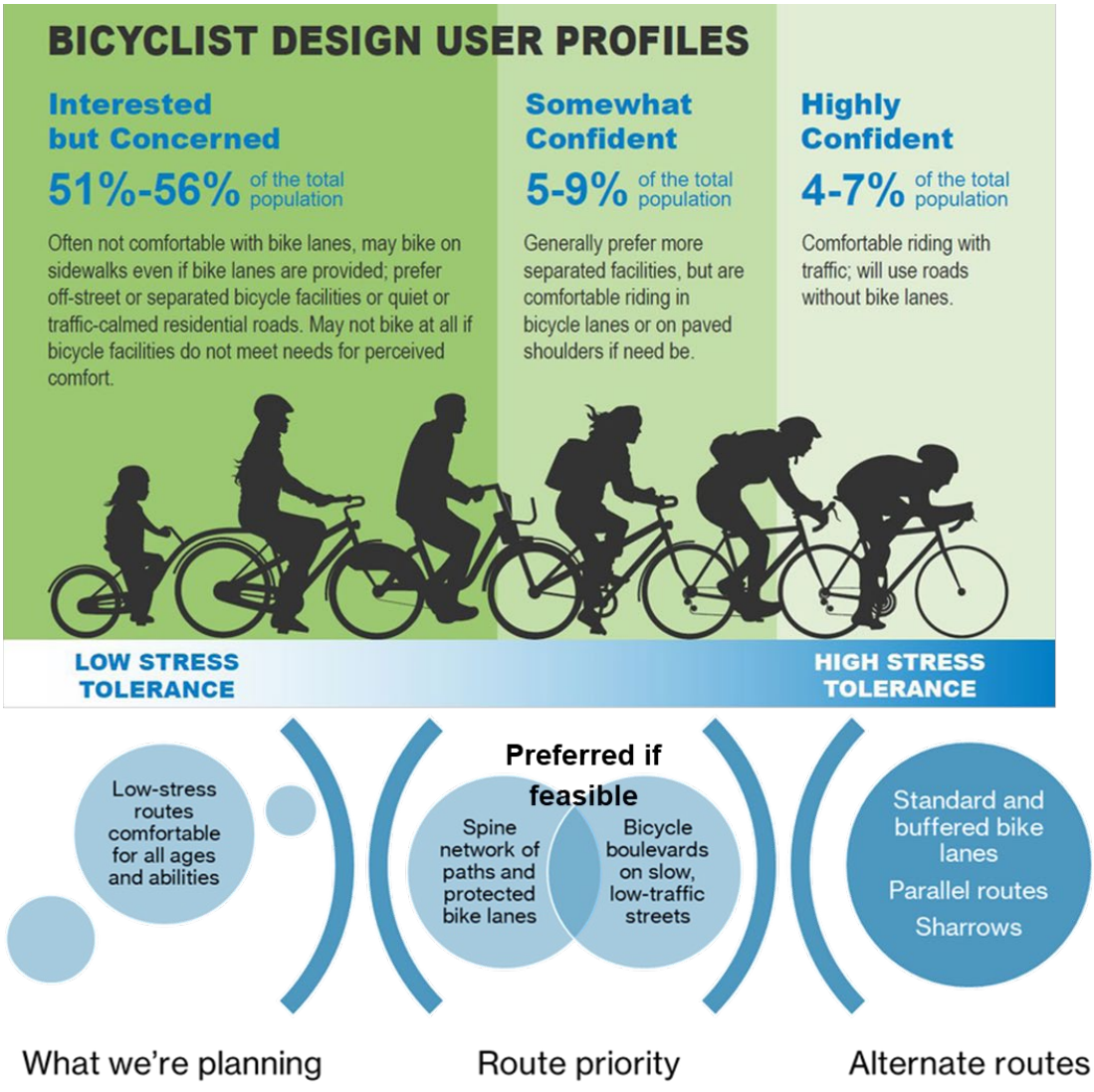


FACILITY SELECTION

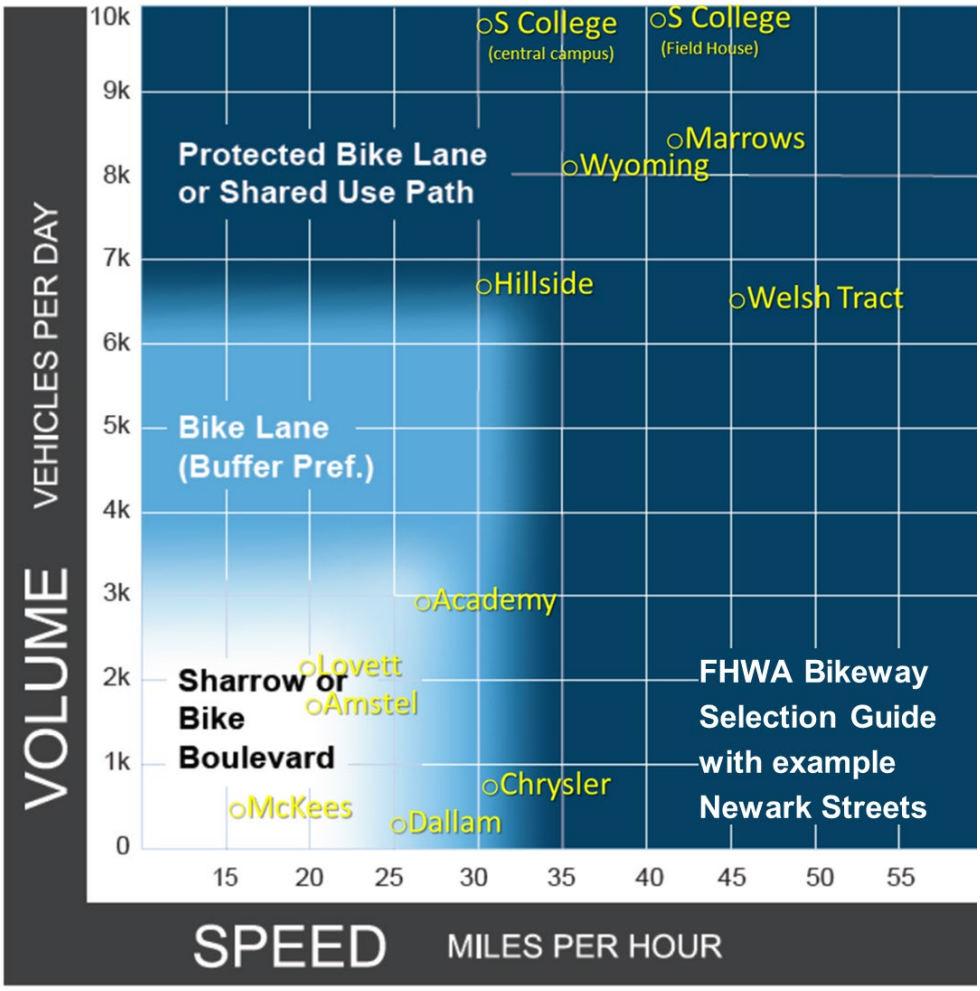
Selecting the appropriate bicycle facility type is critical to creating a safe, comfortable, and connected network for people of all ages and abilities. Facility type recommendations are based on the following principles:

- Safety and Comfort for All Ages and Abilities – Prioritize designs that create low-stress routes and encourage more community members to ride.
- Context Sensitivity – Match facilities to the street's traffic volume, number of lanes, width, complexity (driveways, line of sight, conflict points), actual vehicle speeds, land use, and adjacent activity levels.
- Network Connectivity – Fill critical gaps in the bicycle network to provide continuous, direct, and legible routes.
- Opportunity and Access – Ensure investment in facilities that serve underserved neighborhoods and key destinations.
- Sustainability – Select durable, low-maintenance designs that support long-term operational needs.

Low stress routes are preferred if feasible. If not, alternative routes or higher stress facility types should be considered.



Which facilities are low stress depends on the street's context. Below, the Federal Highway Administraton (FHWA) Bikeway Selection Guide is overlaid with example Newark streets. Additional details may be found in the appendix.



Average annual daily traffic and 80th percentile speeds are sourced from Streetlight Data, estimated from navigation-GPS and other location-based data from connected cars, trucks, and location apps collected on an "opt-in" basis.


PATH


PROTECTED LANE


BIKE BLVD

Usually low stress

In evaluating speed, it is helpful to use projected or actual speeds, rather than posted speeds.


CONTRAFLOW


ADVISORY LANE


BUFFERED LANE


BIKE LANE


SHARROW

May be high stress depending on traffic volumes and speeds

Since the 2024 Newark Bicycle Plan, designs that were previously new and experimental are now accepted and even common. Meanwhile, newer facility types are emerging.

Paths

Path provides a community far more than just a means of transportation. A path is a route shared by pedestrians, bicycles, wheelchair users and often other nonmotorized users. They provide direct links between destinations with fewer street crossings than sidewalks and bike lanes. Children and novice bicyclists find paths safe places to learn to ride, and people of all ages find them a convenient place to recreate. In Newark, paths generate tremendous community pride for residents and draw visitors from the surrounding region.

Paths may be **sidepaths** built adjacent to streets or **off-road** through parks or open space. Paths should be a minimum of 10 feet wide to allow two-way shared use, with 12 feet recommended as the minimum for most facilities. Where there are space constraints, the path may narrow to 8 feet but should be accompanied by warning signs. Sufficient clearance along the sides and overhead is needed with a minimum of 2 feet on each side and a 10-foot clear zone overhead.

Additional elements can enhance a path's design, including:

- Access points with directional signs on how to reach the path. Paths that are built away from the street may be hard for potential users to find without directional signs.
- Build path to a standard that will allow heavy maintenance equipment and emergency vehicles. This higher upfront cost will result in a longer lasting path with lower maintenance expenses.
- Limit the number of street crossings. The joy of using a path is having a direct route away from interaction with vehicle traffic.
- Identify and address potential safety issues. If a path is likely to be used for commuting and shopping trips, lighting is needed for year-round use. Paths in more remote locations may benefit from having emergency blue-light phones.
- Consider the sight distances for bicycles. Sharp turns or heavy vegetation may limit faster moving cyclists from seeing oncoming bikes or pedestrians.

Path: *A multi-use bicycle and pedestrian path separated from vehicular traffic by an open space, barrier, or curb. Paths may be within the street right-of-way or an independent right-of-way, such as on an abandoned railroad or along a stream-valley park. Paths typically accommodate two-way travel and are open to pedestrians, bicyclists, in-line skaters, wheelchair users, joggers, and other nonmotorized users. To safely accommodate a range of users, multi-use paths should be a minimum of 10 feet wide (but may be less in constrained conditions) and 12 feet or more where there are higher pedestrian volumes.*

Sidepath: *A path within the roadway right-of-way or near the road within an easement for multi-use nonmotorized travel. Sidepaths should be a minimum of 10 feet wide (but sidewalks may be substituted in constrained conditions). Sidepaths are appropriate in areas with low pedestrian volumes, volumes greater than 6,000 vehicles/day and/or speeds greater than 25 mph.*

Trail: *Newark is a destination for mountain bikers riding the natural surface trails in White Clay State Park, Middle Run, Iron Hill, and Fair Hill. These are valuable recreational amenities but are not a focus of this Plan.*

- For sidepaths, a 5-foot buffer from the street is desirable, or a physical barrier should be considered. Buffers may be a planted strip, a shoulder or a bike lane. Sidepaths work best when driveways are infrequent.
- Asphalt is the most common surface; however, concrete, recycled-asphalt millings or stone dust are alternatives, though asphalt millings and stone dust may add ongoing maintenance requirements.
- Intersections with streets need careful design.
- Provide amenities for path users. Amenities include trailheads, public art, maps, interpretive kiosks, water fountains, bike parking, benches, restrooms, and other features to make the facility unique to Newark.

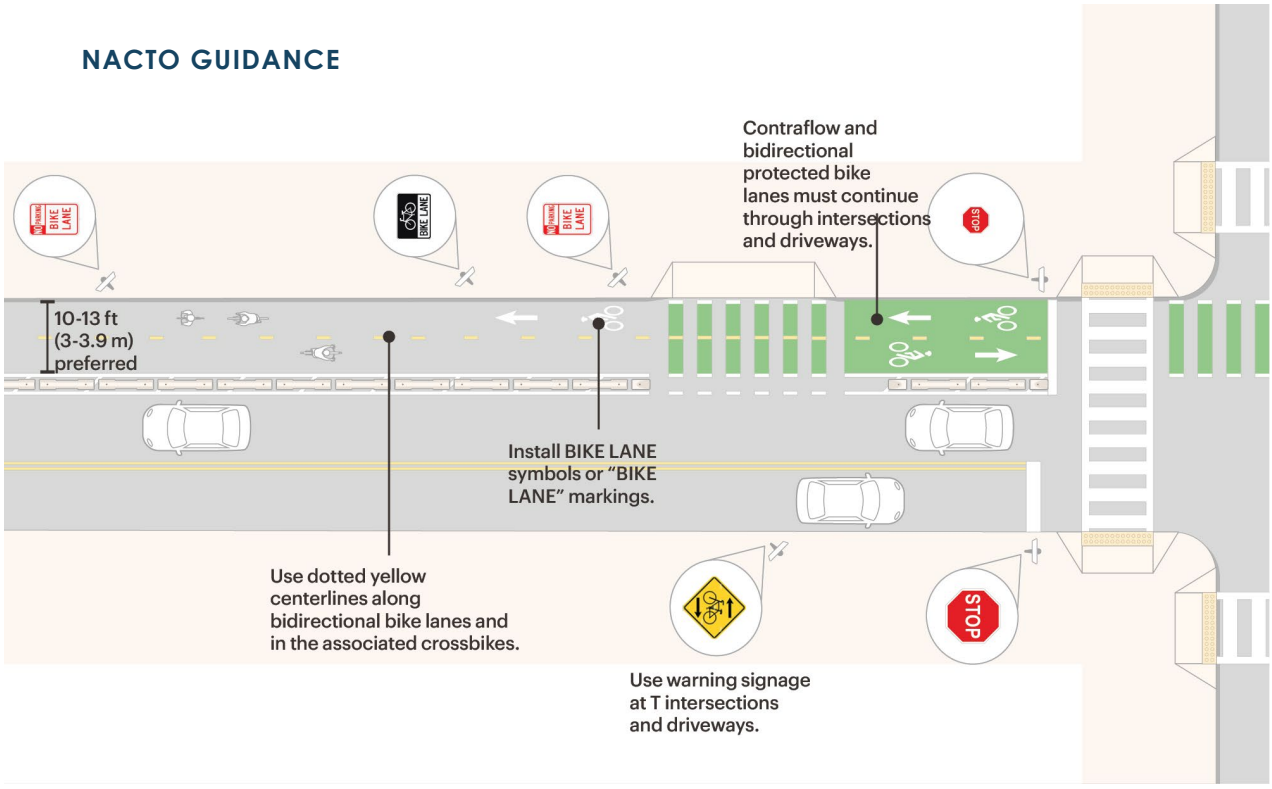
Use of bollards should be limited to locations where intrusion by motor vehicles is a likely problem. Bollards should be a bright color such as yellow and have reflective paint or tape. When possible, bollards should be located outside the path itself, and a clear 5-foot width should be maintained.

In 2014, one of the critical missing links to bicycling in downtown Newark was the lack of an adequate westbound bike route through downtown. Delaware Avenue has since 2022 been reconfigured to include a two-way, separated bike lane known as a protected bike lane. Also, since 2014, protected bike lanes have been added to the engineering standards contained in the AASHTO Guide, and expanded guidance has been provided in the NACTO Urban Bikeway Design Guide and FHWA reports[3].

ACCORDING TO THE FHWA, CONVERTING TRADITIONAL OR FLUSH BUFFERED BICYCLE LANES TO A SEPARATED BICYCLE LANE WITH FLEXIBLE DELINEATOR POSTS CAN REDUCE CRASHES UP TO 53% FOR BICYCLE/VEHICLE CRASHES.

Protected Bike Lane: *A protected bike lane, also known as a separated bike lane or cycle track, is a designated bicycle lane physically separated from motorized traffic by a barrier, like a curb, bollards, or parked cars. They are within the roadway but are physically separated from motor vehicle traffic and distinct from the sidewalk. Facilities may be one-way or two-way, and may be at road level, at sidewalk level, or at an intermediate level. As an exclusive bike facility, protected bike lanes are preferable to paths in areas with high pedestrian volumes.*

NACTO GUIDANCE



[3] American Association of State Highway and Transportation Officials Bicycle Guide; North American cities and transit agencies (NACTO) Urban Bikeway Design Guide; FHWA Planning and Design Guide

Designated bicycle lanes can increase safety and promote proper riding. They define the street space for all users and discourage cyclists from riding on the sidewalk. Bicycle lanes help to increase bicyclists' comfort and confidence on moderately busy streets. They also provide a visual reminder for motorists to be aware of bicycles and improve the predictability of bicycle/motorist positioning and behavior.

BICYCLE LANES ARE APPROPRIATE ON STREETS WITH 6,000 OR FEWER VEHICLES PER DAY AND SPEEDS OF 25 MPH OR SLOWER.

Signs showing "Wrong Way" and "Ride with Traffic" can be installed on the back of signposts to promote proper direction riding. Bicycle lanes serve to increase total capacity of a street while visually narrowing wide pavement to help slow speeding traffic.

R5-1b

R9-3c

Bicycle lanes are most appropriate on arterial and collector streets where the moderate speeds and traffic volumes warrant greater separation for safety and comfort. Depending on the speed and volume of traffic, the recommended minimum width is 4-6 feet for bike lanes. Additional width is needed when there is on-street parking so that cyclists can avoid car doors. A maximum width of 7 feet is preferred, because wider bike lanes may get blocked by delivery vehicles, turning cars, etc.

Buffered Bicycle Lane with Colored Bicycle Lane

Bicycle Lane: *A portion of a road that has been designated for preferential or exclusive use by bicyclists by pavement markings and, if used, signs. The preferred width is 5 feet, or 6 feet when on-street parking is present.*

Buffered Bicycle Lane*: A type of bicycle lane that includes a designated buffer space, typically created with painted lines or other markings, between the bike lane and adjacent travel lanes or parking areas. This buffer provides extra space and separation for cyclists, enhancing their safety and comfort.*

Contraflow Bicycle Lane: *A dedicated bicycle lane on a one-way street that allows cyclists to travel in the opposite direction of the one-way traffic flow.*

Colored Bicycle Lanes*: Colored pavement increases the visibility of the bicycle lane and is particularly suited for potential conflict areas where the bicycle lane crosses driveways, highway ramps, and intersections.*

Left-side Bicycle Lanes*: Bicycle lanes placed on the left side, particularly on one-way streets with heavy delivery or transit use, frequent parking turnover on the right side, high volumes of right turns by motor vehicles, or high volumes of left turns by bicyclists*

Retrofitting bicycle lanes onto existing streets presents challenges. The recommended bicycle lanes should be incorporated into land-use development projects or transportation projects when these occur. Retrofitting bicycle lanes is least expensive when done at the same time as street resurfacing and restriping. Retrofitting bicycle lanes may be achieved with:

- Remarking shoulders as bicycle lanes. This presents the easiest conversion because sufficient width is in place. Special care must be taken to redesign facilities at intersections and where shoulders are eliminated due to turning lanes.
- Narrowing the width of motor vehicle lanes. Many existing streets have wider lanes than guidelines suggest, which could be narrowed to allow for bike lanes. Design guidelines allow for 10-foot lanes in nearly all contexts found in Newark.
- Reducing the number of motor vehicle lanes. Road diets, such as those on South Main Street and Cleveland Avenue, reduce the number of travel lanes to provide space for bicycle lanes.

Instructional flyer on use of contraflow lane

- Parking reduction or narrowing. While an 8-foot parking lane is desirable, a 7-foot parking lane will accommodate most vehicles and, when combined with lane narrowing, provides space for bike lanes. Due to the high demand for parking in Newark, this plan does not recommend eliminating on-street parking except in small, very limited locations where it cannot be avoided.
- Widening the street to add bicycle lanes. This option can be quite costly and is only recommended on high-volume streets without width to mark bike lanes.

Wide bike lanes often experience illegal parking which creates dangerous conditions for bicycling

BICYCLE BOULEVARDS

Newark's low-volume streets that can connect bicycle lanes and paths to complete the low-stress network of bicycle facilities. When enhanced as bicycle boulevards, facilities promote their use for trips by bicycle while reducing excess and speeding vehicle traffic. These "quiet" streets benefit residents and improve safety for all street users. Bicycle boulevards are designed to give bicycle travel priority using signs, pavement markings, and speed- and volume-management measures to discourage through trips by motor vehicles and create safe, convenient bicycle crossings of busy arterial streets.

BICYCLE BOULEVARDS ARE APPROPRIATE ON STREETS WITH 2,000 OR FEWER VEHICLES PER DAY AND SPEEDS OF 20 MPH OR SLOWER.

> ***Bicycle Boulevards:*** *Using a mix of signs, pavement markings, and traffic-calming measures, bicycle boulevards discourage through trips by motor vehicles, create safe, convenient bicycle crossings of arterial streets, and give bicycle travel priority. Bicycle boulevards may be used on streets with low motorized traffic volumes and speeds.*

Elements may include:

- Signs and pavement markings on routes that are easy to find and follow.
- Traffic calming measures as described in the Newark Traffic Calming Plan:
    - Measures to slow speeding traffic such as mini-circles, bump-outs, or speed tables.
    - Measures to reduce traffic cut-through, including forced turn islands, medians, and diverters
- Bicycle-oriented intersections. At minor street crossings, this might include replacing 4-way stop signs with mini traffic circles. Major crossings with signals should include bicycle signal detection and actuation. Supplemental signs and markings, median refuge islands, and bicycle signals might also be considered.
- Naming and branding the corridor can promote use of the boulevard. Similarly, green stormwater management and enhanced landscaping further define the character.

Specific streets and designs should be developed through a collaborative process that includes the City, adjacent residents, emergency-response officials, and the bicycling community.

City of Newark 2023 rendering showing traffic calming, green infrastructure, and sharrows for a Chrysler Ave Bicycle Boulevard

Orchard Road Mini-circle demonstration project. A mini-circle is a small raised or painted island at an intersection, designed to slow down traffic and reduce crashes in residential areas by forcing drivers to yield and navigate at lower speeds.

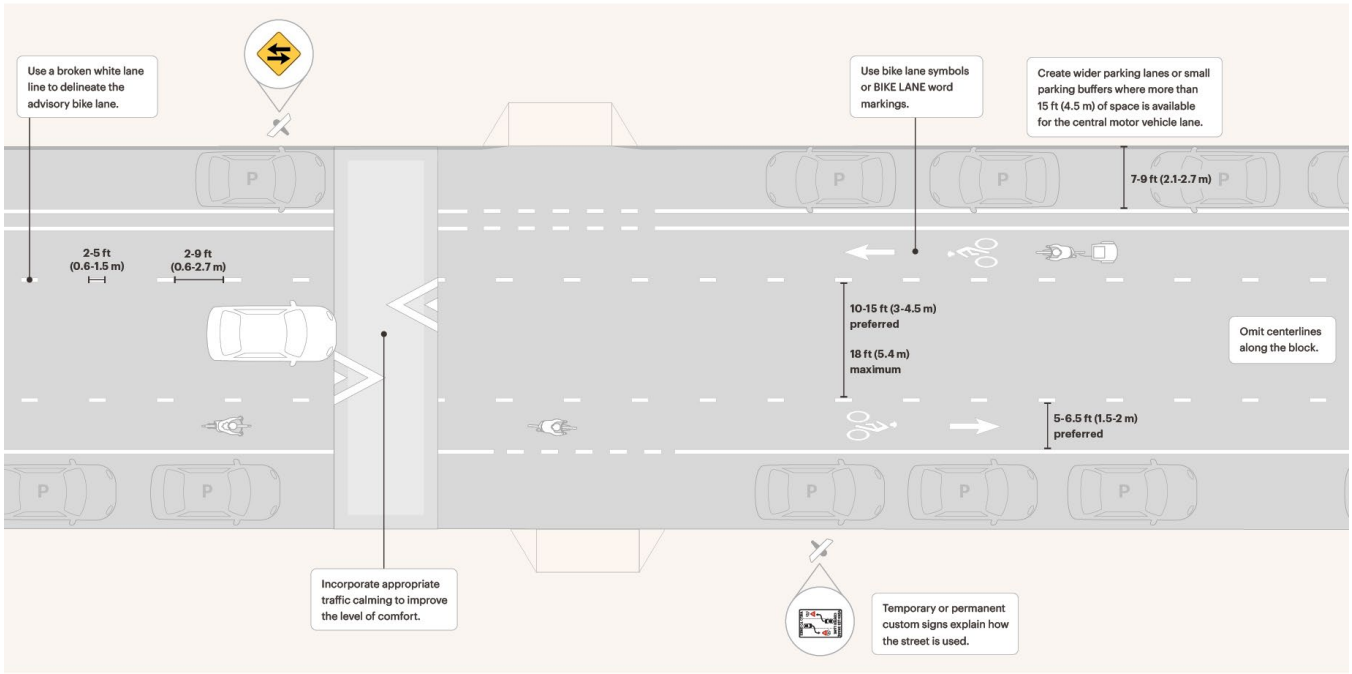
Advisory bike lanes are defined by a narrow central vehicle lane and dashed space for bicycles and sometimes pedestrians on each side of the street. Because of the narrow central lane, motor vehicles operate in yield conditions and use the advisory bike lane to pass oncoming cars when the space is clear of bicyclists and pedestrians.

ADVISORY LANES ARE APPROPRIATE ON STREETS WITH 2,000 OR FEWER VEHICLES PER DAY AND SPEEDS OF 20 MPH OR SLOWER.

> ***Advisory Lane:*** *Used on very low-speed, low-volume streets, advisory lanes provide a narrow central vehicle lane for two-way l and dashed space for bicyclists and sometimes pedestrians on each side of the street.*

Advisory bike lanes are used on streets that are too narrow to accommodate both marked bike lanes and conventional general travel lanes in two directions, but where some defined nonmotorized space is useful.

NACTO DESIGN SUGGESTIONS



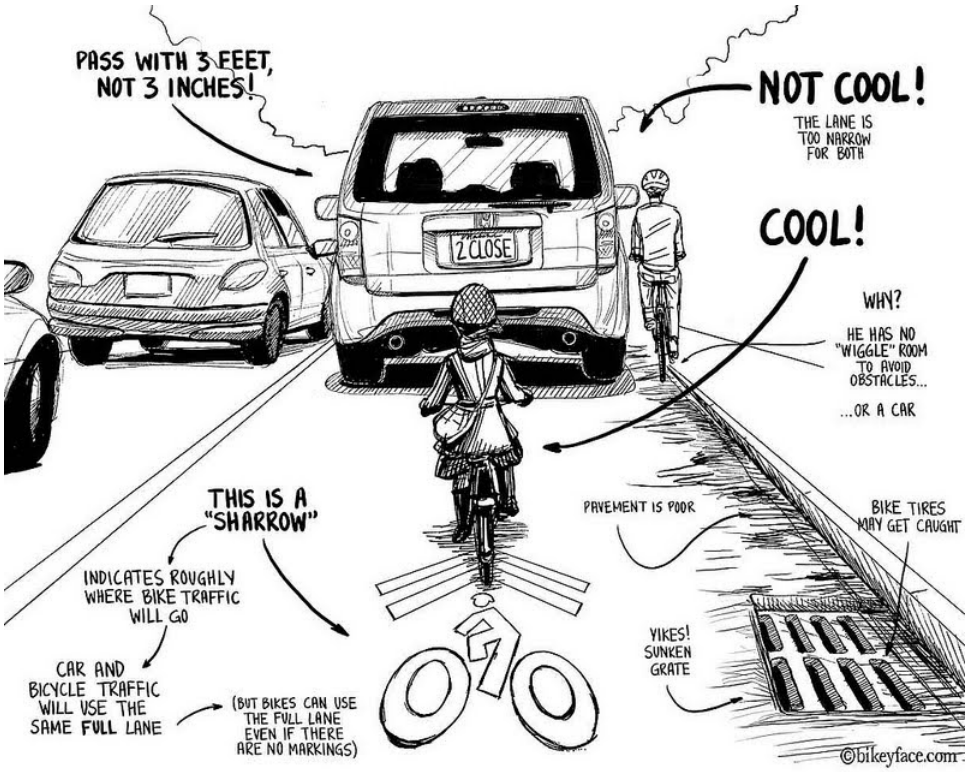
SHARROW OR SHARED LANE MARKING

Shared-lane markings, commonly known as "sharrows," are street markings used to indicate a shared lane for bicycles and automobiles on streets without sufficient width for bicycle lanes. Used to enhance the safe travel of bicycles and motor vehicles in the same traffic lane, sharrows help position bicyclists within the lane and alert motorists to the presence of bicycles. Along streets without on-street parking, sharrows should be 4 feet from the curb or edge of street.

SHARROWS ARE APPROPRIATE ON STREETS WITH 2,000 OR FEWER VEHICLES PER DAY AND SPEEDS OF 20 MPH OR SLOWER.

Higher speed and volume locations in Newark where sharrows are currently in use should be evaluated for lower stress alternative designs.

Sharrows or Shared-Lane Markings: *On urban roads without sufficient width for bicycle lanes, sharrows are a pavement marking showing a bicycle with a chevron that is placed in the travel lane. Sharrows serve to assist bicyclists with proper lane positioning relative to the curb and on-street parallel parking in lanes that are too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane, alert road users of the lateral location bicyclists are likely to occupy within the lane, encourage safe passing of bicyclists by motorists, and reduce the incidence of wrong-way bicycling.*



With on-street parking present, sharrows should be at least 11 feet from the curb or at least 2.5 feet from the edge of the parking lane. This shows cyclists the correct position to ride to avoid car doors. The use of "Bikes May Use Full Lane" signs are recommended to further clarify proper use of the facility.

Source: https://bikeyface.com/

Without the enhanced features of a bicycle boulevard, facilities with sharrows tend to have higher motor vehicle speeds than ideal.

PROTECTED INTERSECTION

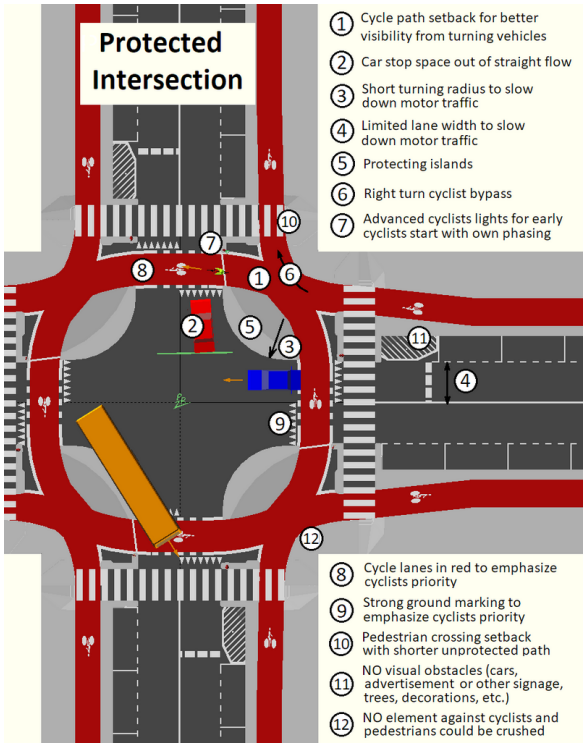
Protected intersections are an emerging Dutch-inspired best practice in the 2014 Plan. They enhance the protection and visibility of both cyclists and pedestrians waiting to cross, reduce bicyclist and pedestrian stress, reduce crossing distances, and slow motor vehicles for improved safety. Elements include:

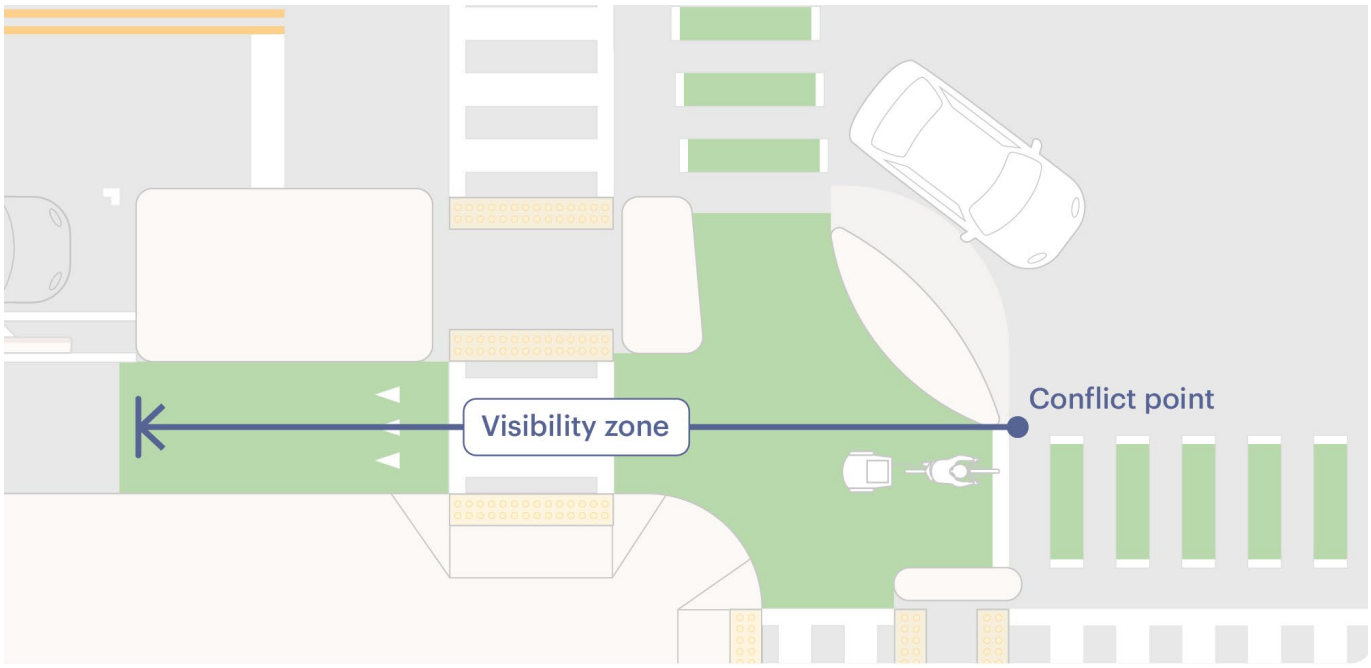
> ***Protected Intersection**: A type of intersection design that prioritizes the safety of cyclists and pedestrians by providing physical separation from motor vehicle traffic through the intersection. This design aims to minimize conflicts between different modes of transportation by creating dedicated spaces and clear right-of-way space.*

- **Bicycle Lane Extension through Intersections.** Extends the bike lane with pavement markings so cyclists have a clear, visible path, reducing stress and improving driver awareness.
- **Bicycle Signals & Signal Phasing.** Dedicated bike signals separate bike movements from car traffic. They can be activated manually or automatically.
- **Leading Bicycle/Pedestrian Interval (LBI).** Gives bikes and peds a head start at signals—several seconds before cars—so they can establish themselves in the intersection first.
- **Curb Radius Reduction.** Tightens corners to slow turning vehicles and increase pedestrian safety by shrinking turning speed and enlarging waiting space.
- **Curb Extensions (or Bulb-outs).** Extends the sidewalk to reduce pedestrian crossing distance, improve visibility, and slow turning cars.
- **Two-Stage Bicycle Turn Boxes.** Allows cyclists to safely make left turns in two steps—no merging across traffic needed.
- **High-Visibility Crosswalks.** Bold crosswalk markings make crossings clearer to drivers and safer for pedestrians, especially at unsignalized or midblock locations.
- **No Turn on Red Signs.** Prevent right-turn-on-red where it creates conflicts with bikes/peds. Can be static or changeable by time or signal phase.

Protected intersections are designed to prioritize the safety of bicyclists and pedestrians, but also create a more predictable and organized environment for drivers too:

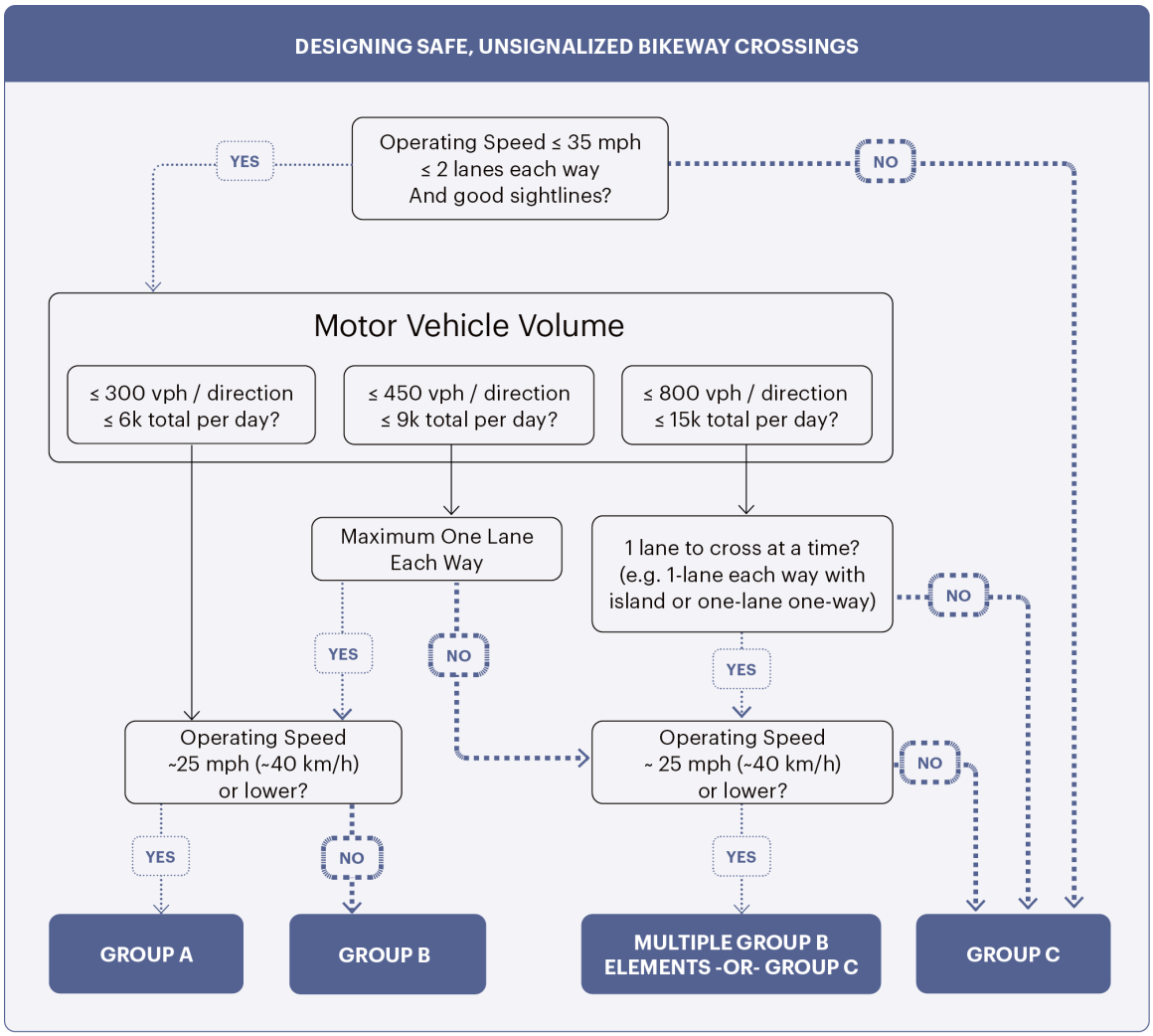
- **Clear Separation of Modes:** Dedicated space and signals for bicyclists and pedestrians reduce unexpected interactions and improve traffic flow.
- **Fewer Conflict Points:** Eliminate common turning conflicts, especially with right-turning vehicles,making movements safer and more straightforward.
- **Improved Visibility and Decision-Making:** Improves sight lines, so drivers can more easily see and yield to pedestrians and bicyclists, reducing last-minute decisions.
- **Reduced Turning Speeds:** Tighter curb radii promote safer turning behavior, lowering the risk of crashes.
- **More Predictable Intersections:** With designated spaces and movements for all users, intersections become more intuitive, reducing stress and confusion.





Source: NACTO

NACTO provides the following guidance for crossing improvements:



GROUP A	GROUP B	GROUP C
→ Neighborhood traffic circle → Crossbike → Gateway treatment → Diverter	→ Raised crosswalk → Raised intersection → Approach speed hump → Gateway treatment → Hardened centerline / Lane line → Rectangular Rapid Flashing Beacon (RRFB) → Mini-roundabout → Corner island → Curb extension → Sidewalk extension	→ Stop control → Hybrid beacon → Half-signal → Roundabout

Bike Box with Dotted Lines

Intersections, including crossings of driveways, streets, and pathways with bicycle facilities should denote a clear right-of-way and manage interaction with pedestrians and motorists. Intersections may include elements such as colored pavement, signs, medians, bicycle signal detection, and pavement markings. Limiting the mixing between bicyclists and other modes helps to reduce the risk of crashes and increase bicyclist comfort. Required elements at an intersection depend on the bicycle facility type, other traffic, and land use. Intersections can be enhanced with the following features.

Two-Stage Turn-Queue Boxes

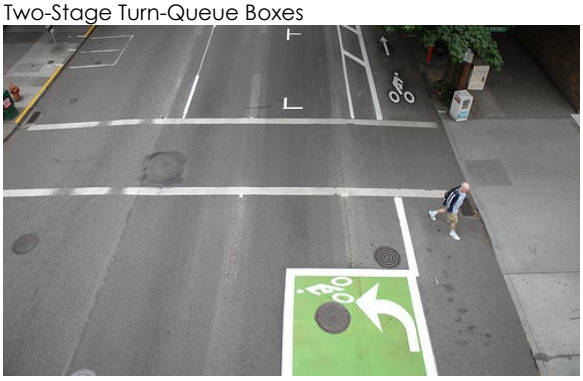


Photo: http://bikeportland.org

Bike Boxes: Bike boxes increase the visibility of bicyclists, reduce signal delay, facilitate left turns, help prevent "right-hook" conflicts with turning vehicles at the start of the green cycle, and reduce turning-vehicle encroachment into the bike lane. As one-way streets, East Main Street and Delaware Avenue may be particularly suited for bike boxes to assist turning bicycles to be more visible.

Dotted Lines: Dotted or dashed lines, sometimes combined with sharrows, may be used at intersections to guide a clear path for cyclists.

Two-Stage Turn-Queue Boxes: At multi-lane signalized intersections from a right-side cycle track or bike lane, or right turns from a left-side cycle track or bike lane, two-stage turning boxes help to simplify turns. Turn-queue boxes may also be used at midblock crossing locations.

Bicycle Lanes/Turn Lanes: Through movements should be accommodated for bicyclists where the bike lane is interrupted by a right-turn lane. Where space does not exist for a full bike lane to continue, Newark should coordinate with the DelDOT pilot project to evaluate the best pavement markings.

Bicycle Signals: Bicycle signals signify specific light cycles and movements for cyclists. Signals would be needed for the proposed cycle track facility and may also be beneficial at some pathway crossings or bicycle boulevards. Options include a full stop or flashing lights, actuated either manually by a push-button or passively, through detection. Bicycle-signal actuation should be accompanied by an appropriate sign (MUTCD R10-22) and pavement markings.

Mid-block Crossing Enhancements: Mid-block and un-signalized crosswalks should be designed with added elements to increase their visibility. Options can be used individually or combined and might include:

Enhanced signs

High Intensity Activated Crosswalks (HAWK)

Rectangular Rapid Flashing Beacon

In-street yield to pedestrian sign

Median refuge island

Raised crosswalk

Photos:
www.pedbikeimages.org/Burden

BICYCLE-ORIENTED LAND USE

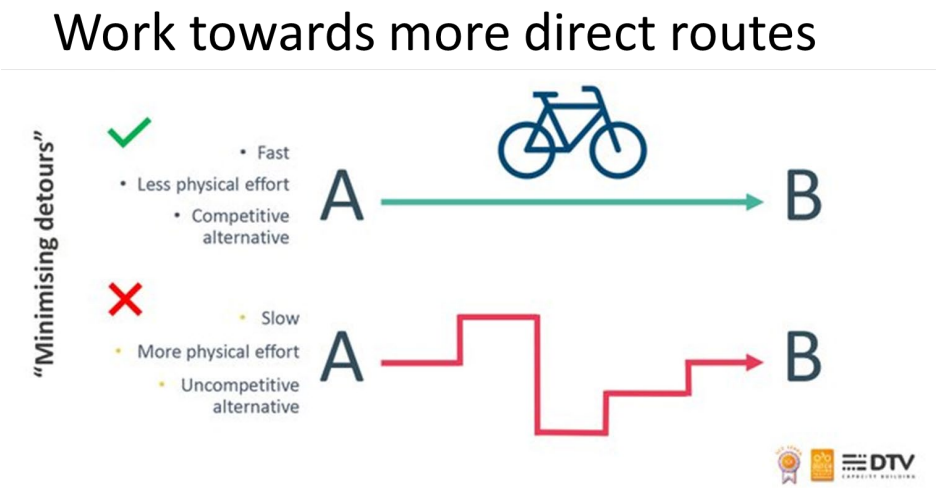
Bicycle-oriented land use integrates urban design, development patterns, and infrastructure investments to create a built environment that supports safe, convenient, and attractive cycling for transportation, recreation, and access to destinations. In Newark, aligning land use planning with bicycle network development will help reduce vehicle dependency, encourage healthy lifestyles, and strengthen local economic vitality.

Newark's mix of dense residential neighborhoods, a vibrant downtown, and the University of Delaware campus offers a strong foundation for short bicycle trips. However, land use patterns can either encourage or discourage bicycle use depending on connectivity, proximity of destinations, and the comfort of the cycling environment.

Supportive measures include:

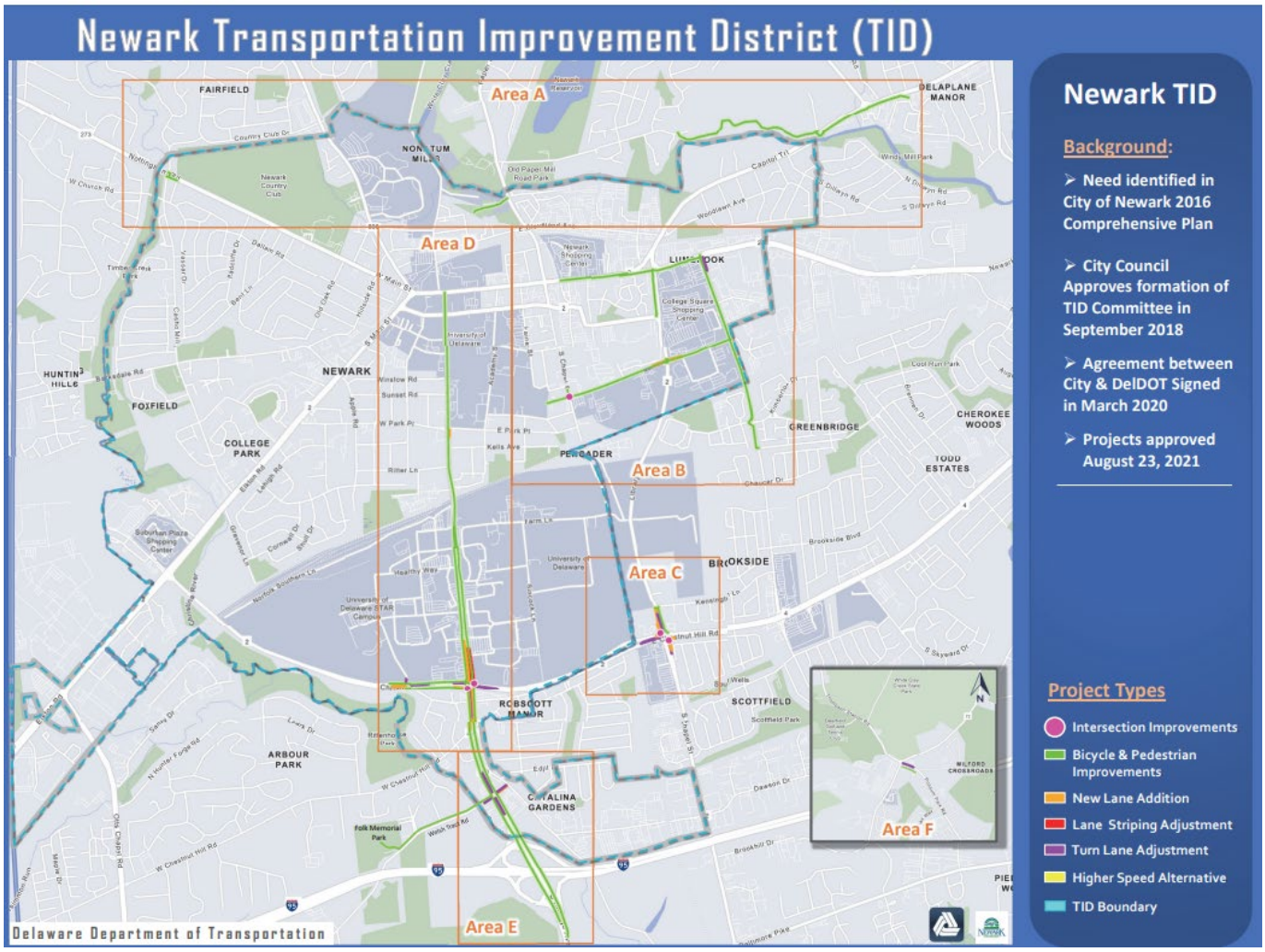
- Compact, Mixed-Use Development: Encourage land uses that cluster housing, employment, shopping, and services within short cycling distances (1–3 miles) to increase the practicality of daily trips by bike.
- Direct Routes: Provide pedestrian and bicycle access between multifamily and commercial properties by opening fences and obstructions that require longer, higher stress routes.
- Infill and Redevelopment: Prioritize redevelopment of underutilized parcels in locations already served by the bicycle network to reduce trip distances and strengthen existing infrastructure investments.
- University Integration: Coordinate with the University of Delaware to ensure land use decisions on and around campus maintain high bicycle access and avoid creating barriers through building placement, parking facilities, or restricted access zones.
- Bicycle Parking and End of Trip Facilities: Encourage secure, covered, and conveniently located bicycle parking in all new multi-family residential, commercial, and institutional developments. Encourage showers, changing rooms, and lockers in larger employment centers to support bicycle commuting.
- Street-Oriented Design: Require buildings to face and engage the street with minimal setbacks, creating active, human-scale environments that improve perceived safety for cyclists.

- Car Parking Management: Limit excessive surface parking and encourage shared parking to reduce sprawling layouts that are difficult to navigate by bicycle.
- Activity Centers: Ensure all major activity centers — Downtown, STAR Campus, Newark Shopping Center, and transit hubs — are connected to the bicycle network with low-stress, all-ages-and-abilities facilities.
- First/Last Mile to Transit: Provide protected or low-traffic bicycle routes to DART bus stops, transit hubs and the train station.
- Neighborhood Connectivity: Use small-scale connections (alleys, side paths, easements) to improve access between neighborhoods and destinations where the street network is discontinuous.
- Affordable Housing near Bicycle Corridors: Support housing policies that maintain affordability in areas with strong bicycle connectivity, reducing displacement pressures and ensuring all income groups benefit from safe cycling access.
- Destination Diversity in All Neighborhoods: Promote safe cycling access to grocery stores, schools, healthcare, and employment centers.
- Conduct a Bicycle Access and Land Use Audit to identify where high-demand destinations lack safe cycling connections.



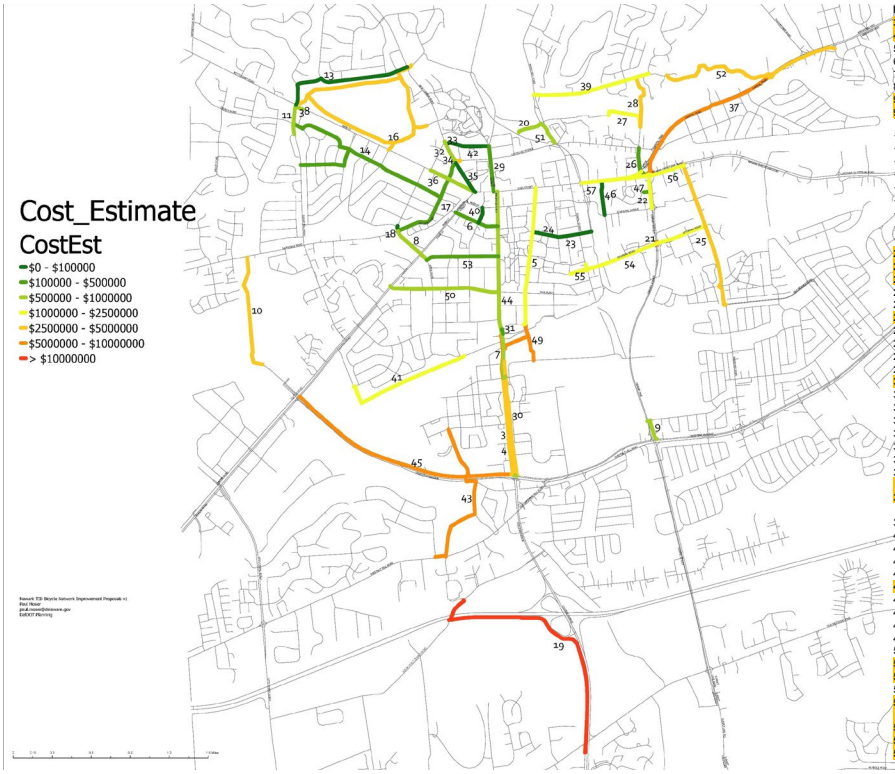
NEWARK TID

In addition, Newark and DelDOT should continue to monitor, implement and update the Newark TID and the bicycle/pedestrian projects it contains.



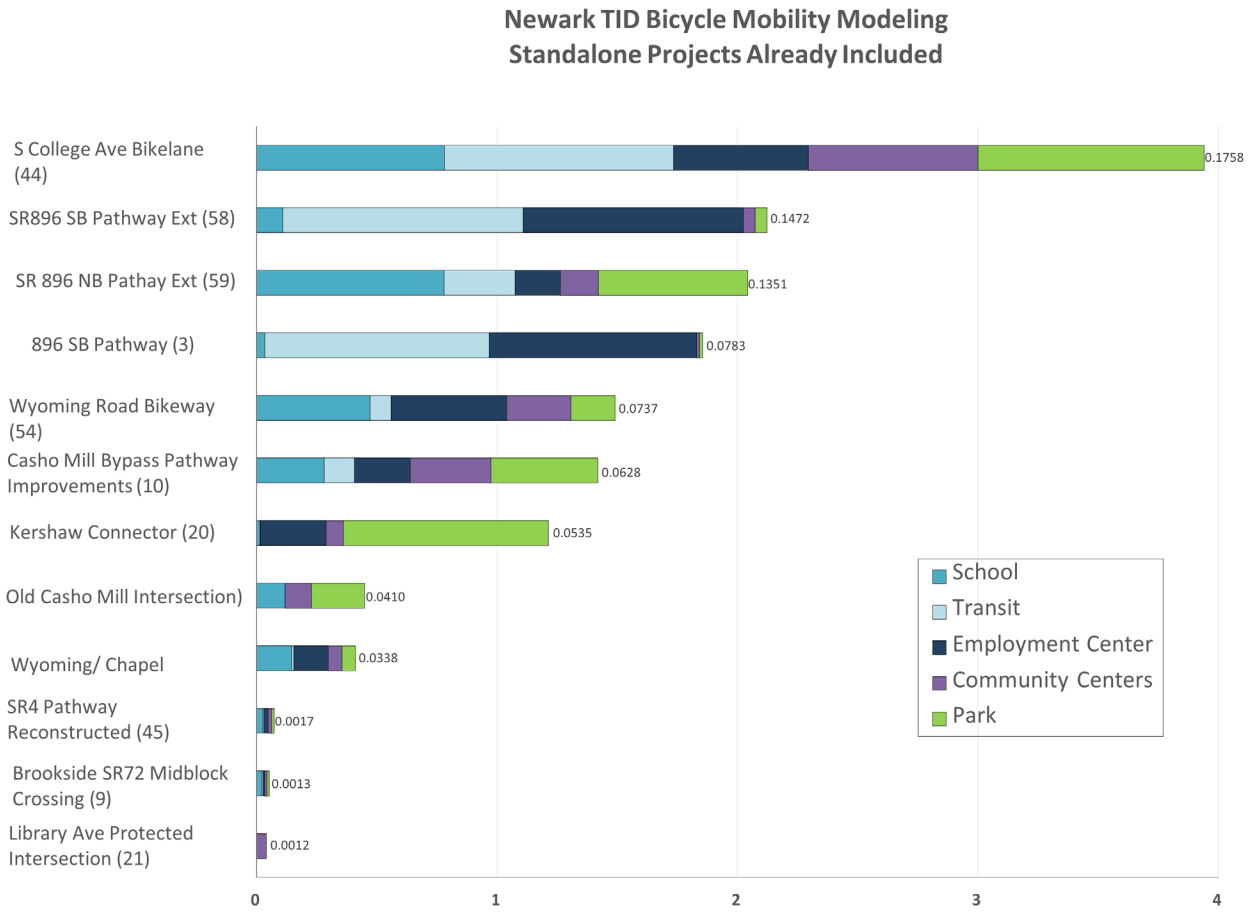
More information is available at https://deldot.gov/Programs/transportation-improvement-districts/.

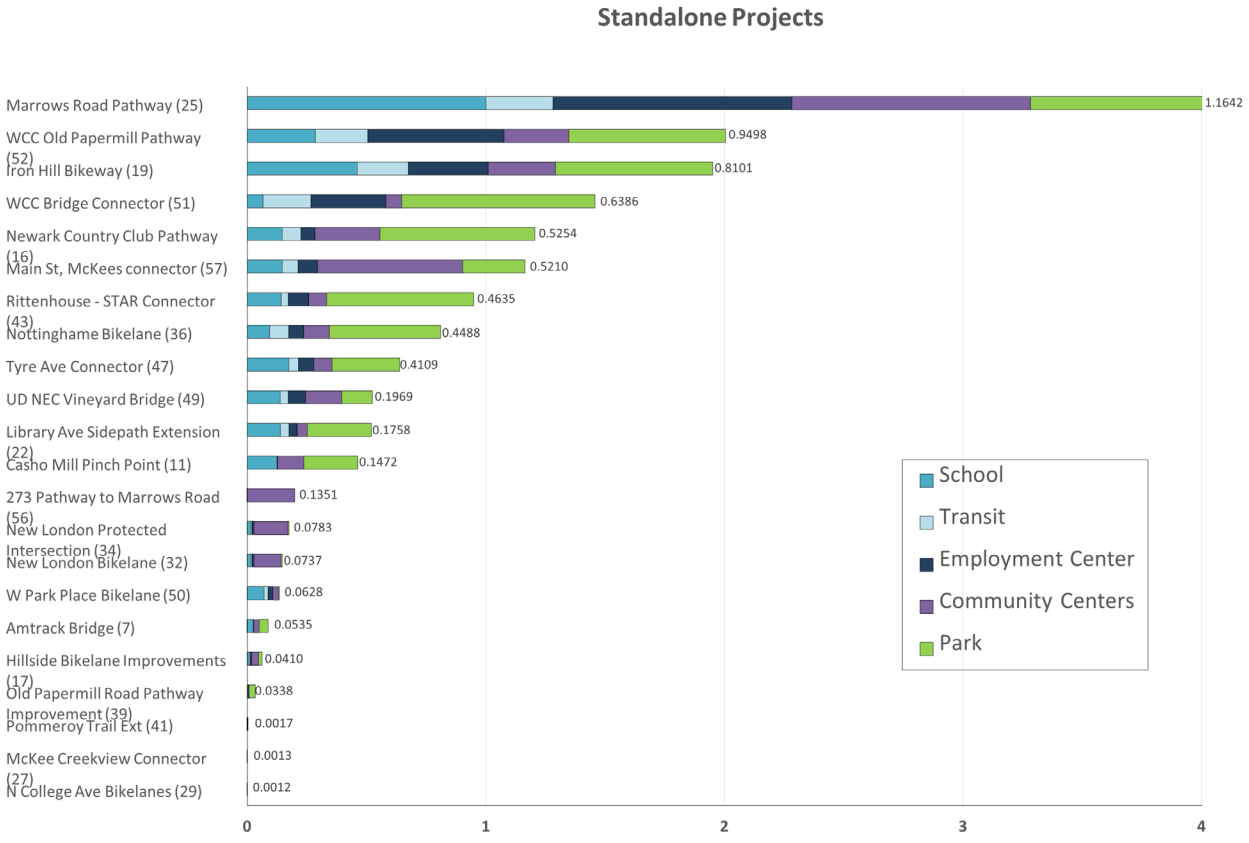
The TID evaluated a variety of bicycle improvements, with those highlighted in gold being included in the adopted TID. More feasible or beneficial projects not included in the TID have been included in this Plan's recommendations.



PROJECT	PROJ_NAME	Facility
3	896 SB Pathway	Pathway
4	896 SB Pathwayl Improvements	Pathway
5	Academy Street Traffic Calming	Bicycle Boulevard
6	Amstel Bikelane	Bikelane
7	Amtrack Bridge	Pathway
8	Apple Road Sidepaths	Seperated
9	Brookside SR72 Midblock Crossing	Intersection Improvement
9	Brookside SR72 Midblock Crossing	Pathway
10	Casho Mill Bypass Pathway Improvements	Pathway
11	Casho Mill Pinch Point	Seperated
13	Country Club Sharrows	Sharrows
14	Dalum Bikelane	Bicycle Boulevard
16	Golf Pathway	Pathway
17	Hillside Bikelane Improvements	Bikelane
17	Hillside Bikelane Improvements	Bikelane
18	Hillside Connector	Pathway
19	Iron Hill Bikeway	Pathway
20	Kershaw Connector	Pathway
21	Library Ave Protected Intersection	Intersection Improvement
22	Library Ave Sidepath Extension	Pathway
23	Lovette Bike Boulevard	Bicycle Boulevard
24	Lovette Bikelane	Bikelane
25	Marrows Road Pathway	Pathway
26	McKee Bike Lane	Contra-flow Bikelane
27	McKee Creekview Connector	Pathway
28	McKee OPM Bridge	Pathway
29	N College Ave Bikelanes	Bikelane
30	NB 896 Pathway Improvements	Pathway
31	NEC Bridge Access Improvemnts	Pathway
32	New London Bikelane	Bikelane
33	New London Crossing Islands	Intersection Improvement
34	New London Protected Intersection	Intersection Improvement
35	New London Sharrows	Sharrows
36	Nottinghame Bikelane	Bikelane
37	Old Capitol Trail Sidepath	Pathway
38	Old Casho Mill Intersection Approach Connector	Pathway
39	Old Papermill Road Pathway Improvement	Pathway
40	Orchard Bikelane	Bikelane
41	Pommeroy Trail Ext	Pathway
42	Ray St contra-flow bikelane	Contra-flow Bikelane
43	Rittenhouse - STAR Connector	Pathway
44	S College Ave Bikelane	Bikelane
45	SR4 Pathway Reconstructed	Pathway
46	Tyre Ave Bikelanes	Bikelane
47	Tyre Ave Connector	Pathway
49	UD NEC Vineyard Bridge	Pathway
50	W Park Place Bikelane	Bikelane
51	WCC Bridge Connector	Pathway
52	WCC Old Papermill Pathway	Pathway
53	Wilson Bicycle Boulevard	Bicycle Boulevard
54	Wyoming Road Bikeway	Seperated
55	Wyoming/ Chapel Intersection Improvements	Intersection Improvement
56	273 Pathway to Marrows Road	Pathway
57	Main St, McKees connector	Protected Bikelane

Analysis for the TID development also assessed accessibility gains from these improvements.





PUBLIC TRANSIT

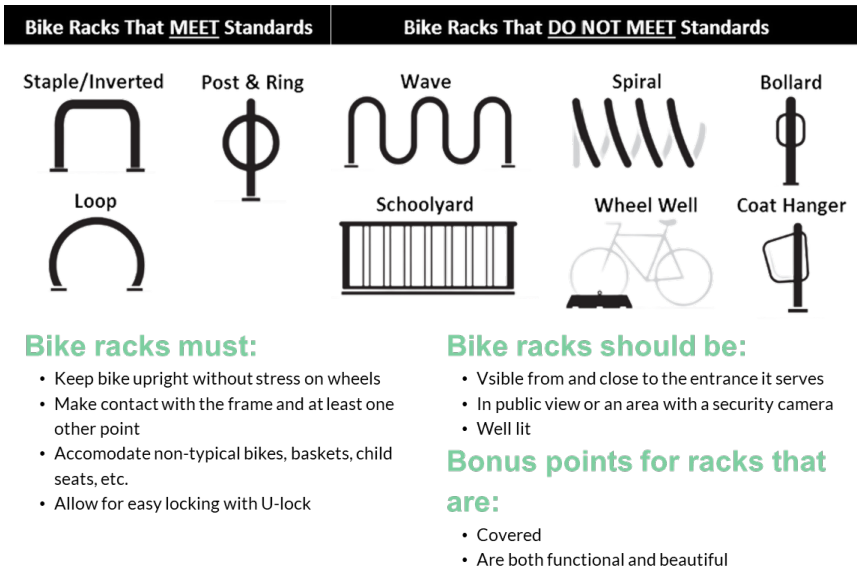
Bicycle and transit work in tandem to extend the distance of car-free trips. DART First State and University buses have bike racks that can accommodate two bikes per bus.

Recommendations include:

- Prioritize low stress bicycle routes to bus stops and the train station, particularly ones with busier ridership.
- Coordinate designs so that bus operations and bikeways reinforce—not conflict with—each other.
- Wayfinding: Sign and mark direct, low-stress routes from bikeways to transit stops with clear distances and estimated ride times.
- Improve bicycle access across South College Avenue bridge over Amtrak.
- Use floating bus stops with bike bypasses, curb-height protected lanes, and curb management to reduce conflicts.
- Queue Jumps & Signals: Where a bus lane intersects a protected bike lane, provide short bus queue jumps and bicycle signals to separate movements.
- Stop Consolidation: Consolidate closely spaced stops to reduce bus pull-outs across bike lanes and improve travel time.
- Right-Turn & Bus Merge Management: Protection through intersections (concrete islands/markings) and separate signal phases to avoid hook conflicts.
- Curb Management: Designate loading, rideshare, and delivery zones separate from bike lanes and bus boarding areas; include time-of-day rules.
- Bike-on-Transit Support: Publicize bike-on-bus and bike-on-rail rules; add platform markings for roll-on areas where applicable; expand front-rack capacity on buses where demand warrants.
- Safety Campaigns: Co-branded bus/bike safety messaging (yield to people cycling at bus bypasses; cycling speeds at islands; bus blind-spot awareness).
- Map transit network + low-stress bike network to promote first/last-mile access.

BICYCLE PARKING

As part of the 2014 Plan, Newark amended the bicycle parking zoning requirements to ensure new parking provided as part of the land development process meets design and quantity requirements.



As part of development of this plan, a parking inventory was made for commercial centers, social service centers, key community destinations, and municipal parks. An online parking finder includes an interactive map of parking, along with a photo, number of spaces, and whether the design meets standards.

- Newark Bike Parking Inventory identified 323 bike rack locations: https://www.wilmapco.org/22232-2/
- University Bike Parking Inventory identified 462 bike rack locations: https://udel.maps.arcgis.com/apps/mapviewer/index.html?webmap=a2f29ef9a81c49e5b301b79d299f96de

PLACES WITH PARKING	Bike Parking - Y/N	Compliant Design - Y/N	Covered - Y/N	Number of Racks	Approx Spaces
Community					
George Wilson Center	Y	Y	N	1	2
Newark Free Library	Y	N	N	1	11
Newark Municipal Building	Y	Y	N	7	20
Newark Senior Center	Y	N	N	1	10
De 896/4 Park & Ride	Y	Mix	Mix	1	13
Newark Transit Hub	Y	Y	N	4	12
Thomas R. Carper Newark Station	Y	N	Y	16	32
Newark Train Station/Newark History Museum	Y	Y	Y	12	24
Commercial					
Brookside Shopping Center	Y	N	Y	1	5
East Main Street	Y	Mix	Mix	45	156
Fairfield Shopping Center	Y	Y	Mix	4	8
Newark Shopping Center	Y	Y	Mix	7	63
Park & Shop	Y	Mix	Mix	11	30
Pencader Plaza	Y	N	N	1	8
Shoppes At Louviers	Y	N	N	3	21
South College Ave — SR 4 – I-95	Y	Mix	N	5	15
South Main Street	Y	Mix	N	11	51
Suburban Plaza	Y	N	N	4	34
The Grove	Y	Y	N	117	234

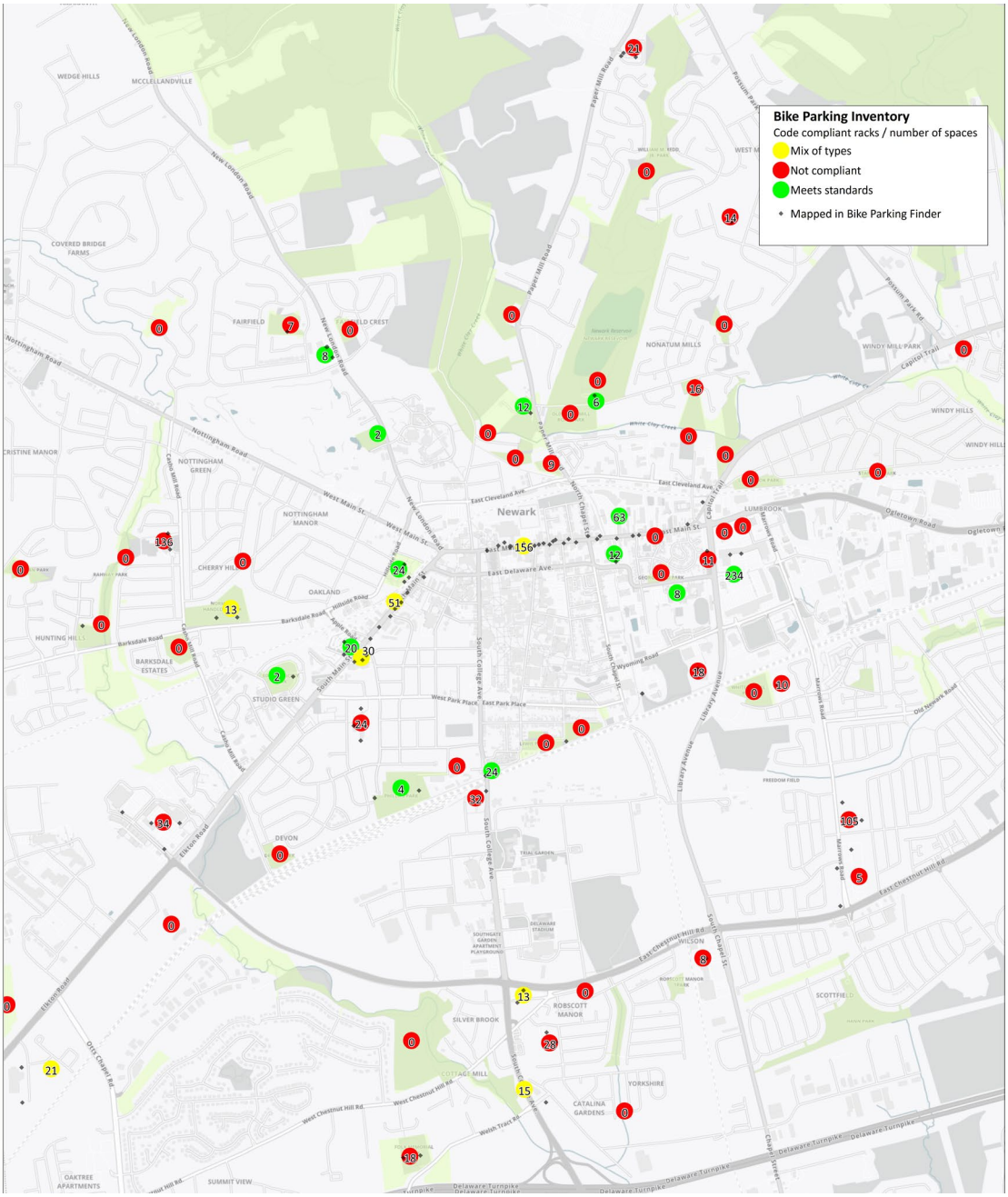
Schools					
Brookside Elementary School	Y	N	N	2	105
Downes (John R.) Elementary School	Y	N	N	7	136
Maclary (R. Elisabeth) Elementary School	Y	N	N	1	14
McVey (Joseph M.) Elementary School	Y	N	N	2	28
Newark Charter School	Y	Mix	N	6	21
Newark High School	Y	Y	N	4	8
The College School	Y	N	N	2	18
West Park Place Elementary School	Y	N	N	4	24
Parks w/ vehicle parking and/or bike parking					
CURTIS MILL 225 Paper Mill Rd.	Y	Y	N	6	12
EDNA C. DICKEY 60 Madison Dr.	Y	Y	N	1	2
FAIRFIELD 491 Stamford Dr.	Y	N	N	1	7
FOLK PARK 98 Welsh Tract Rd.	Y	N	N	2	18
HILLSIDE PARK 151 Forest Lane	Y	Y	N	12	24
JAMES HALL TRAIL	Y	N	N	3	27
NORMA B. HANDLOFF 1000 Barksdale Rd	Y	Mix	N	3	13
OLAN THOMAS 89 Paper Mill Rd.	Y	N	N	1	9
PHILLIPS 101 B St.	Y	Y	N	2	4
PRESTON'S PLAYGROUND 250 Old Paper Mill Rd.	Y	Y	N	3	6
POMEROY TRAIL	Y	Y	Mix	7	14
Parks w/out vehicle parking and/or bike parking					
KARPINSKI 345 Old Paper Mill Rd.	Y	N	N	2	16

Places without parking:

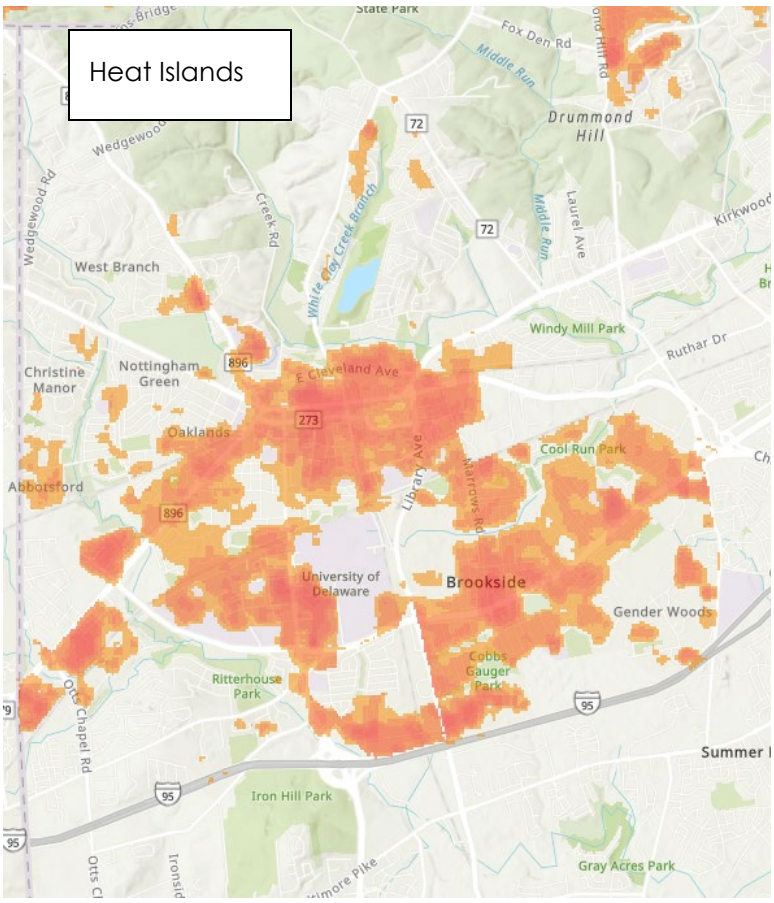
Community
Division of Social Services/Robscott Building
Floyd I. Hudson State Service Center
Newark Housing Authority
Post Office (Ogletown Road)
Commercial
Possum Park Mall
Schools
Newark Center for Creative Learning
Parks w/ vehicle parking and/or bike parking
ELAN 2 Blue Hen Dr.
FAIRFIELD CREST 20 Winfield Dr.
KELLS 201 Kells Ave
KERSHAW 197 Paper Mill Rd.
LEWIS 727 Academy St.
LUMBROOK 100 Woodlawn Ave.
LEROY C. HILL Barksdale & 1001 Casho Mill Rd.
NEWARK RESERVOIR 240 Old Paper Mill Rd.
RITTENHOUSE 228 West Chestnut Hill Rd.
WM M REDD, JR 500 Paper Mill Rd.
Parks w/out vehicle parking and/or bike parking
COLEMAN 42 Country Hills Dr.
COVERDALE 371 Paper Mill Rd.
DEVON 46 Cornwall Dr.
DOROTHY P. MILLER 111 Capitol Trail
DOUGLAS D. ALLEY 420 Douglas D Alley Dr
GEORGE READ 315 Delaware Cir.
HIDDEN VALLEY 120 W Mill Station Dr.
IRON GLEN 1150 Elkton Rd.
MARGARET ALLEN MEMORIAL PARK
MCKEES 100 McKees Ln.
OLD PAPER MILL PARK 219 Old Paper Mill Rd.
ORVILLE A. CLARK 10 White Clay Dr.
RAHWAY 922 Rahway Dr.
RIDGEWOOD GLEN Shenandoah Dr.
STAFFORD 420 Stafford Ave.
WHITE CHAPEL 300 White Chapel Rd.

RECOMMENDATIONS

- Establish bicycle retrofit program to install bike racks at priority locations with no racks or incompliant racks.
- Encourage long-term parking (secure indoor or covered storage) based on land use type.
- Provide incentives for businesses to install sheltered racks, lockers, or bike rooms.
- Partner with University of Delaware to expand secure indoor bike storage for students and staff.
- Integrate Newark and University parking inventory.
- Ensure racks are installed in well-lit, visible locations.
- Collaborate with Newark Police for bike registration and anti-theft education campaigns.
- Create an inspection program to identify damaged or missing racks and abandoned bikes.
- Use an online reporting tool for residents to suggest new rack locations.



Bicycling is a key strategy for achieving Newark's sustainability and climate resilience goals. The City of Newark's Sustainability Plan (2019), the State of Delaware's Climate Action Plan (2021), and the WILMAPCO Regional Transportation Plan all prioritize shifting from single-occupancy vehicles to reduce greenhouse gas emissions, improve air quality, and support compact, resilient development. By investing in a safe, integrated bicycle network, Newark can advance these goals while providing additional benefits in public health, responsible fiscal management, and urban livability. Sustainable design improves quality of life by creating appealing public spaces that foster walking, cycling, and social interaction.



Source: Trust for Public Land. Statistics over a 30-year period show extreme heat is the leading cause of weather-related deaths in the United States. Extreme heat exacerbated by urban heat islands can lead to increased respiratory difficulties, heat exhaustion, and heat stroke. These heat impacts significantly affect the most vulnerable—children, the elderly, and those with preexisting conditions.

ENVIRONMENTAL BENEFITS

- **Greenhouse Gas Reduction:** The transportation sector accounts for approximately 19% of GHG emissions in Newark, according to the 2022 Community and Municipal Greenhouse Gas Inventory Report. Shifting short local trips from automobiles to bicycles directly reduces emissions and supports Newark's contribution to statewide climate targets.
- **Energy and Air Quality:** Bicycling requires no fossil fuels and eliminates localized air pollutants, including particulate matter, ozone precursors, and nitrogen oxides. Prioritizing bicycling helps Newark align with state and regional strategies for meeting Clean Air Act requirements.
- **Stormwater Management and Heat Mitigation:** Incorporating green infrastructure into bikeway design (e.g., permeable pavements, tree trenches, bioretention planters, and vegetated buffers) advances stormwater permit compliance and reduces urban heat island effects.

LIFECYCLE AND RESOURCE EFFICIENCY

Compared to car infrastructure, bicycle facilities use fewer materials, result in less impervious surface, and cost less to maintain. Design should emphasize:

- Durable, low-maintenance materials such as thermoplastic striping, concrete separation curbs, and modular delineators.
- Adaptive reuse of existing rights-of-way (e.g., road diets, lane conversions) to minimize embodied carbon in construction.
- Incorporating recycled materials where feasible.

SUSTAINABLE LAND USE AND MODE INTEGRATION

Bicycle infrastructure supports Newark's Comprehensive Development Plan V and state-level Complete Communities principles by facilitating compact, mixed-use, and transit-supportive development patterns. Design and policy considerations include:

- Ensuring seamless connections to DART transit stops, Newark's rail station, and university shuttles to promote multimodal trips.
- Coordinating with University of Delaware campus sustainability plans.
- Continue to promote Green Building best practices that relate to bicycle access, amenities, and storage.

COMMUNITY RESILIENCE

A transportation system that supports bicycling is more resilient to disruptions in fuel supply, energy price fluctuations, and infrastructure damage. Bicycles can operate even during power outages, fuel shortages, or extreme weather events that make other modes less viable. This flexibility helps ensure mobility for essential trips in emergencies. Considerations include:

- Equitable distribution of high-quality bicycle facilities to underserved neighborhoods.
- Year-round maintenance (snow/ice clearance, debris removal) to ensure reliability.
- Emergency planning for active transportation as a redundancy in disaster response scenarios.

STREET TREES

As bicyclists experience the city at a slower pace and closer to the street environment, the presence of trees, plantings, and stormwater features significantly improves comfort, safety, and perception of place. Street trees provide multiple benefits for people on bikes, the city environment, and the climate:

- **Shade and comfort:** Trees lower surface and air temperatures along bikeways, reducing the urban heat island effect. Shaded paths make bicycling safer and more pleasant, especially in summer.
- **Air quality improvement:** Tree canopies filter pollutants and particulate matter, creating cleaner air along corridors with higher bicycle and pedestrian activity.
- **Safety benefits:** Research shows tree-lined streets calm traffic, leading to lower speeds and fewer severe crashes. For cyclists, this creates a safer riding environment.
- **Biodiversity and aesthetics:** Street trees enhance the beauty of Newark's neighborhoods, support bird and pollinator habitats, and reinforce community pride in the public realm.
- **Tree trenches and planters:** Continuous tree trenches along bikeways allow for healthy tree growth, stormwater absorption, and shaded corridors.

GREEN INFRASTRUCTURE

Integrating green infrastructure into bikeway design strengthens Newark's commitment to both sustainability and livability. Green infrastructure can be integrated into bikeways and intersections to manage stormwater, reduce flooding, and provide ecological services.

- **Bioswales and rain gardens:** Curbside bioswales along cycle tracks or buffered lanes capture runoff from streets, filtering pollutants before they reach the Christina River and White Clay Creek.
- **Permeable pavement:** Side paths, shared-use paths, and bike parking areas can incorporate permeable materials that reduce runoff while maintaining accessibility.
- **Green buffers:** Landscaped buffers between bikeways and vehicle lanes both protect cyclists from traffic and provide opportunities for stormwater capture and native plantings.

SUPPORTIVE POLICY AND PROGRAMS

Creating a safe and welcoming environment for bicyclists in Newark goes beyond building infrastructure. It takes people: teaching, encouraging, protecting, and empowering people who ride. Newark is committed to improving bicycling through programs that reach **all users**—children, adults, motorists, and law enforcement—through education, encouragement, enforcement, and maintenance.

VISION ZERO AND SAFE SYSTEMS APPROACH

Vision Zero Commitment

Newark embraces the Vision Zero philosophy — the belief that traffic deaths and serious injuries are preventable, not inevitable. This approach shifts the focus from blaming individuals for mistakes to designing a transportation system that anticipates human error and minimizes the severity of crashes. The City's goal is to eliminate all traffic fatalities and severe injuries by prioritizing safety in planning, engineering, education, enforcement, and evaluation.

Safe Systems Approach

The Safe Systems Approach is a shift in our approach to transportation needed to achieve Vision Zero.

The Old Way	Safe System Approach
Prevent crashes	Prevent deaths / serious injuries
Improve human behavior	Design for human mistakes
Control speeding	Design for appropriate speeds
Individuals are responsible	Share responsibility
Enforce traffic laws	Design self-enforcing facilities
React based on history	Proactively address risks

Safe Speeds

- Slow speeds reduce crash severity
- Connect land use and transportation for slower speeds in places with heavy bike, pedestrian, and transit use

Safe Streets

- Retrofit to reduce risks
- Separate bikes and walkers from higher-speed traffic
- Provide safe places to cross
- Reduce conflict points with access management and intersection design

Safe People

- Build a culture of safety
- Teach safe behavior
- Protect all--people who walk, use mobility devices, bike, use transit, or drive
- Plan for children and older adults who have increased vulnerability

Safe Vehicles

- Upgrade fleet vehicles to use enhanced safety features
- Make safe bikes and vehicle ownership accessible to all income levels
- Note that people walking and biking lack the safety technology of modern vehicles

Safe Responses

- Use targeted enforcement
- Equip EMS with tools to save lives
- Improve post-crash reporting to better understand causes

Newark should use proven safety measures to work towards eliminating fatal and serious injury crashes:

APPROPRIATE SPEEDS:

- Risk of pedestrian death:
  - at 30 mph – 45%
  - at 20 mph – 5%
- Speed limits of 15-20 mph are safer for streets with high number of people walking and bicycling and neighborhood streets
- Establish better policies for speed setting such as NACTO
- Synchronize signals for efficient travel on slower corridors

DESIGN FOR SAFETY:

- Conduct walkable and bicycle community workshops for community input on redesigns
- Design bikeways for all ages and abilities based on roadway context (speeds, volume, width, land use)
- Review street lighting to make sure bicycle lanes and crossings are well illuminated

DON'T FORGET THE CROSSINGS:

- Roundabouts and protected intersections at busy intersections—roundabout have been shown to reduce fatal and injury crashes by 78% compared to signals
- Bike boxes to put cyclists ahead of cars
- High visibility crosswalks
- Leading pedestrian and bicycle signal timing give pedestrians and bikes a 3-7 second head start
- Bicycle / pedestrian refuge islands
- Rectangular rapid flashing beacons

ENFORCEMENT

- Speed camera enforcement
- Enforcing speeds by police presents challenges of personnel cost, fleeing vehicles, and biased enforcement
- Prioritize roadway design retrofits over long-term enforcement so speeds are self-enforcing

Application to the Newark Bicycle Plan
The Bicycle Plan integrates Vision Zero principles into all recommended projects and policies. This includes:

- **Prioritizing Safety in Project Selection**
  - Using crash data and risk analysis to identify high-injury network segments for targeted safety upgrades.
  - Aligning bicycle infrastructure investments with Newark's High Injury Network to address the most dangerous locations first.
- **Designing for All Ages and Abilities**
  - Applying NACTO and FHWA guidance to ensure facilities are comfortable for novice riders, children, and seniors — not just experienced cyclists.

    - Increasing separation between bicyclists and high-speed or high-volume traffic.
- **Integrating Speed Management**
    - Recommending traffic calming strategies on local streets.
    - Supporting citywide speed limit reviews to align with safe speeds for vulnerable road users.
- **Strengthening Data-Driven Decision-Making**
    - Work towards incorporating near-miss reporting, community input, and real-time monitoring in addition to crash statistics.
    - Coordinating with the Newark Police Department, DelDOT, and University of Delaware for consistent, high-quality data sharing.
- **Creating a Culture of Safety**
    - Building awareness campaigns that frame safety as a shared responsibility.
    - Partnering with local schools, employers, and community groups to promote safe riding and driving practices.

Long-Term Vision
By embedding Vision Zero and the Safe Systems Approach into the Bicycle Plan, Newark can create a transportation network where no loss of life is acceptable, and every person — whether biking, walking, or driving — has the same right to travel safely.

The use of electric-assist bicycles (e-bikes) and electric scooters (e-scooters) is rapidly increasing. They offer a low-cost, low-emission alternative to driving. E-bikes extend the range for riders of all ages and abilities and are more affordable than car ownership. Delaware law regarding e-bikes (and pending signature for scooters) is summarized as follows:

Category					
	Class 1 E-bike	Class 2 E-bike (throttle)	Class 3 E-bike	Low Speed Scooter	Motor Scooter
Max Assisted Speed	20 mph	20 mph	28 mph	15 mph	>15 mph
Helmet Required	Age 0-17	Age 0-17	All Ages	Age 0-18	-
Motorized Sidewalk Use?	No	No	No	No	No
Motorized Path Use?	Yes	Yes	Yes	Yes	No
Ages	All	All	Age 16+	Age 14+	Age 18+ with license

Scooter requirements are still pending signature by the Governor as of July 2025. Newark has jurisdiction over a bicycle or multi-use path may prohibit the operation of an e-bike or low speed motorized scooter if the local authority or state agency finds, after notice and a public hearing, that the restriction is necessary for safety reasons or compliance with other laws or legal obligations.

Most existing bicycle infrastructure is compatible with e-bikes and e-scooters; however, higher speeds can create conflicts in narrow shared-use paths. Recommendations include:

ADOPT CLEAR REGULATIONS

- Adopt clear local regulations, either aligning city code with Delaware e-bike and scooter laws or providing Newark-specific modifications with appropriate education.

INTEGRATE INTO VISION ZERO STRATEGY

- Address safety concerns related to mixing with pedestrians and slower cyclists.
- Consistently enforce speed and sidewalk riding regulations.
- Incorporate e-bike/e-scooter crash data collection and monitoring into the city's safety programs.

ENCOURAGE RESPONSIBLE USE

- Increase public awareness of e-bike and e-scooter rules.
- Ensure infrastructure designs accommodate higher micromobility speeds safely.
- Partner with UD, businesses, and community groups to deliver targeted safety education campaigns.
- Promote helmet use, visibility gear, and defensive riding skills.

EXPAND SECURE PARKING AND CHARGING

- Provide designated parking and charging facilities.
- Install e-bike-capable racks and e-scooter corrals in high-demand areas (Main Street, UD campus, transit hubs).

EXPLORE SHARED MICROMOBILITY PROGRAMS

- Evaluate feasibility of a publicly- or privately-operated e-bike/e-scooter share system.
- Ensure equitable station placement in underserved neighborhoods.

CONSIDER INFRASTRUCTURE DESIGN IMPLICATIONS

- Provide wider bicycle lanes or buffered facilities to accommodate higher operating speeds.
- Maintain smooth pavement to reduce crash risk at higher speeds.
- Include signage indicating permitted facilities for micromobility devices.
- Implement design treatments (colored pavement, signage) at intersections and high-pedestrian areas.

EXPAND TRANSPORTATION OPPORTUNITY

- Work with micromobility operators to offer discounted or subsidized memberships for low-income residents.
- Provide rebates for e-bike purchases.

SUSTAINABILITY

- Integrate charging infrastructure into renewable energy strategies.
- Pilot solar-powered charging stations at public facilities.

Training the Next Generation: Child Cyclist Programs

Children are Newark's future cyclists. Programs focus on teaching safe riding skills, encouraging helmet use, and increasing access to bicycles and repair knowledge:

- **Safe Routes to School:** Encourages walking/biking to school with improvements like school-area safety improvements, signs, bike racks, and education.
    - Activities: Walk/Bike to School Day, Bicycle Trains, Walker/Biker punch cards, and school assemblies.
    - *Existing Example:* Downes Elementary improved pick-up/drop-off traffic flow, added bike racks, and saw 400+ participants in their annual Walk to School Day and broad participation in their annual Bike to School Day. School area improvements were identified during a walking/bicycling audit that included parents, students, school officials and transportation professionals. In 2021, this resulted in buffered bike lanes to the school and pedestrian refuge islands/crosswalks for safer access.
    - *Next Steps:* Expand program to all schools within Newark.
- **Bike Rodeos:** Fun learn-to-ride events hosted by DelDOT, BikeNewark, NBP, police, or civic groups.
    - Activities: Safety skills obstacle courses that offer on-bike learning to teach safety skills and increase rider comfort.
    - *Existing Example:* Each year, approximately 140 4th and 5th graders at Downes Elementary take part in a two-day Bike Rodeo led by DelDOT.
    - *Next Steps:* Expand program to all schools within Newark.
- **Bike and Helmet Distribution:** Making sure that all Newark youth have access to a safe, rideable bicycle and helmet, regardless of their family's income.
    - Activities: Helmet distribution program, Earn-a-Bike, Free Bike Program, Kids Bike Swap
    - Existing Example: Newark Bike Project accepts nominations for free bikes from social service agencies, schools, churches, medical providers, and other community partners. This program distributes bikes to those in need—both adults and youth—and sometimes have given bikes to entire families. Funding is limited and only approximately 12 bikes are distributed each year.
    - Next Steps: Explore expanding distribution of bikes and helmets. Ideas include:
        - **Helmets:** Partnering with DelDOT, schools, or Newark Police to provide helmets to children who need them.
        - **Earn-a-Bike**: Kids learn bike mechanics, safety, and confidence by building their own bike.
        - **Kids Bike Swap:** Facilitate affordable, community-driven exchanges of outgrown bikes.
- **Youth Bicycle Clubs and Rides:** Organized events can encourage young people (and possibly their families) to get out riding.
    - *Activities:* Bike camps, family fun rides, community and school-based clubs.
    - **Existing Examples:** City of Newark Parks and Recreation partners with area bike shops each summer to offer summer camps for youth aged 10–15 about bicycle repair and riding. White Clay Creek State Park offers summer mountain bike camps. Delaware Interscholastic Mountain Biking League periodically offers League Try-It Rides in Newark.
    - **Next Steps:** Expand social and educational opportunities with a set schedule of annual events focused on bicycling. Potential partners include schools, bike clubs, and parks agencies.

Ride Smart: Programs for Adult Bicyclists

- **Public Awareness Campaigns**: "See It Both Ways" helps everyone learn safe behavior from both the cyclist and driver perspective.
- **Bicycle Safety Checkpoints**: Four events a year offering lights, tune-ups, helmet fittings, and one-on-one safety tips.
- **League of American Bicyclists Effective Cycling Classes**: Learn crash avoidance, road rules, and practical cycling skills. Future classes should be expanded and offered through Parks & Rec and UD.
- **Health + Mobility**: Partner with the medical community and the Senior Center to promote cycling as healthy, accessible mobility. Offer workshops and incentives for seniors (trikes, e-bike safety, etc.).
- **New Rider Education**: Offer training for beginners.

It's a Two-Way Street: Educating Motorists

- **Driver-Focused Campaigns**
    - Emphasize mutual respect and safety.
    - Share the benefits of biking: reduced congestion, better air quality, stronger communities.
- **Key Messages**
    - Give 3 feet when passing.
    - Watch for cyclists at intersections and driveways.
    - Bicycles may use full lane.
    - Bicycles = Transportation, not toys.

On the Beat: Law-Enforcement as Safety Partners

Police officers are a key part of bicycle education, enforcement, and encouragement.

- **Training & Perspective Shift**
    - Educate officers on cyclists' rights.
    - Bust common myths ("cyclists should stay out of the way," etc.).
    - Clarify rules around full-lane use, sidewalk safety, and traffic flow.
- **Targeted Enforcement Priorities**
    - *Cyclists:* riding against traffic, failure to yield, no lights at night
    - *Motorists:* unsafe passing, harassment, speeding, distraction, parking in bike lane
- **Creative Tools**
    - Reasonable fine structure
    - Education-based alternative to citations

- Register bikes at local shops and events

Access to Affordable Bikes

Newark Bike Project refurbishes unwanted bicycles to provide affordable bikes to the community and free bikes to those in need. In addition, Newark Bike Projects DIY repair program pairs people needed repairs with trained mechanics to teach how to fix your bike.

Myth	Reality
"Roads are for motor vehicles."	**Roads accommodate all modes of transportation.**
"Slow vehicles are unsafe."	**Slower speeds can be safer.**
"The 'right' of speed."	**All slow-moving vehicles, including bicycles, have the right to use the road.**
"Cyclists should stay out of the way."	**Riding too close to the edge can be dangerous.**
"Bike lanes are always safer."	**Bike lanes can create risks, such as being hit by opening car doors.**
"Cyclists on paths are safest."	**Behavior on paths may not be regulated, leading to conflicts.**
"Cyclists impede traffic by riding in the lane."	**Reasonable speed laws apply to all vehicles, including non-motorized ones.**

Encouragement & Events: Getting More People on Bikes

- **Bike to Work Day & Beyond**: Partner with UD, local businesses, and city staff to keep the momentum going year-round with contests, incentives, and commuter amenities.
- **Trail Town Promotion**: Newark is positioned perfectly as a hub for regional trail tourism. Market its trail assets to draw in visitors and boost local spending.
- **International Recognition**: Apply to become an IMBA "Ride Center" to promote Newark's trail system as world-class.
- **Bike Share**: Support UD Cycles' pilot and expand it citywide to key destinations like downtown and transit hubs.
- **Community Rides**: Host themed rides (costume, charity, glow rides), partner with local businesses and nonprofits, and provide free safety gear.

AREA-WIDE FACILITY RECOMMENDATIONS AND POLICIES

WAYFINDING/SIGNING PROGRAM: Continue to maintain and expand low-stress wayfinding system as network develops.

COMPLETE STREETS POLICY: Complete Streets are streets designed for and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, emergency vehicles and transit riders of all ages and abilities must be able to safely move along and across a complete street. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time and make it safe for people to walk to and from train stations. According to the National Complete Streets Coalition, an ideal complete streets policy:

- Includes a vision for how and why the community wants to complete its streets.
- Specifies that "all users" include pedestrians, bicyclists, and transit passengers of all ages and abilities, as well as trucks, buses and automobiles.

- Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
- Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
- Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
- Is adoptable by all agencies to cover all streets.
- Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
- Directs that complete streets solutions will complement the context of the community.
- Establishes performance standards with measurable outcomes.
- Includes specific next steps for implementation of the policy.

The DelDOT Complete Streets policy applies to all state-maintained streets—most of Newark's major streets. Newark has also adopted a complete streets policy. Implementation plans for both the DelDOT and Newark policies are still needed.

FUNCTIONAL ART: Public infrastructure can be decorative to improve aesthetics and sense of place and draw attention to bicycling. Functional art might include murals on blank walls and traffic signal boxes that would otherwise be prone to graffiti. The signal box below, from Palo Alto, Calif., is an example of a using the space to promote reduced energy use; similarly, Newark could use signal boxes to promote bicycle safety in a decorative fashion. Decorative bicycle racks and benches offer other opportunities to inject Newark's personality into the bicycle network.

MAINTENANCE

ORGANIZATIONAL STRATEGIES

City of Newark and DelDOT share management responsibility for facilities in Newark, with Newark responsible for the maintenance of off-road routes and city streets and DelDOT responsible for state

streets. The managing agencies need to develop a planned maintenance management system for the network. The elements of this system should include

- Inventorying the routes and its related facilities
- Setting of maintenance goals and standards for the quality of maintenance
- Developing the tasks necessary to achieve maintenance quality levels
- Assigning the maintenance tasks to designated groups or individuals
- Monitoring the quality of the work
- Implementing a control system for tracking accomplishments and relevant costs
- Evaluating the maintenance management program

Effective maintenance requires that an individual be delegated responsibility for this function. Because maintenance is a major program that is related to greenway, sidewalk, and bicycle route safety, attractiveness, and image as well as in affecting potential liability for crashes, it should be a function of a paid staff person. This person would oversee maintenance management operations, coordinate volunteerism, work with the employees and volunteers who do maintenance, develop a maintenance program, track costs, and project future requirements.

Developing an effective maintenance management system is an on-going process with more effective maintenance methods and techniques developed through experience. It will be important for people to recognize that creativity and experimentation with various approaches will help to improve maintenance operations.

The overriding maintenance program goal for the networks should be to provide for safe, clean, attractive routes for all users.

ON-ROAD BICYCLE ROUTE MAINTENANCE REQUIREMENTS

Bicycle routes need regular sweeping and maintenance so that they remain safer for users. Approximately half of bike crashes are from falls, often caused by poorly kept street surfaces and debris. Critical maintenance includes regular sweeping and periodic restriping.

Primary activities include:

- Inspections—2 x per year
- Sweeping—as needed
- Pavement sealing, potholes—as needed-15 years
- Culvert and drainage-grate inspection—before winter and major storms
- Pavement-marking replacement—1-3 years
- Sign replacement—as needed

OFF-ROAD ROUTE MAINTENANCE REQUIREMENTS

A description, frequency, and general comments for each activity are outlined. Both short-term periodic maintenance tasks (such as mowing) and long-term tasks (such as trail resurfacing) are provided. A discussion of key maintenance tasks follows.

Vegetation Management: The principal purpose of a vegetation management program is to keep the trail clear of vegetation, both horizontally and vertically, to permit the safe passage of greenway users. Control of vegetation is also required to help keep swales and drainage structures clear of debris and to minimize mechanical damage by tree roots to trail structures such as walls and bridges.

In addition to these basic functional criteria, vegetation management can also address the following objectives:

- Enhance the aesthetic quality of the greenway.
- Maintain or enhance desirable views from the greenway.
- Minimize long-term maintenance.
- Encourage diverse native-plant communities.

The following vegetation-management practices should be employed.

- Mowing: Herbaceous material should be mown three to four times a year, a minimum of four feet from the trail edge. A flail-type mower is recommended as rotary types blow the screenings off the trail.
- Herbicide use: Herbicides may be used selectively to remove vegetation from the trail surface on an annual basis, as required. Sunny areas are the most susceptible to weed growth. Weeds should be treated promptly, before the integrity of the trail is affected.
- Woody-vegetation control: Trees and shrubs should be controlled by an annual mowing of the entire width of graded rail-bed. Removal of woody vegetation to this width should minimize the need for frequent mechanical or hand pruning to maintain adequate horizontal and vertical clearances. Selective removal or "limbing up" of trees should also be scheduled to maintain or create desirable views from trail. Trees and shrubs should also be kept clear of all drainage structures, bridges, and walls that may be subject to mechanical damage by tree roots.
- Invasive vines: Moreover, vegetation control should include removal of invasive vines, such as poison ivy. A continuing effort to remove poison ivy, whose growth often increases after clearing, from the trail area will make the trail and its immediate environment more "user-friendly."

These recommendations are guidelines. Site-specific conditions as well as aesthetic issues must also be considered. For example, it may be desirable to leave trees in certain areas within the graded rail-bed to provide shade or reduce the linear monotony of the trail corridor. The shade provided by a dense overhead canopy might be well worth the additional maintenance activity created by leaves and branches on the trail.

Litter and Trash: Litter problems tend to occur at access points/trailheads to greenways. These areas are more intensively used and often by individuals who are not avid greenway users. Providing trash receptacles offers only a partial solution to this problem and, in fact, creates a new one. Some greenway managers recommend that trash receptacles not be provided because, in their experience, it tends to generate non-trail user trash.

This problem would appear to be on the increase as trash pickup fees continue to increase. Several managers reported that, as a group, greenway users seem to be willing and accustomed to "packing out" their trash, reducing the need for trashcans at access points. Costs for such receptacles are shown, however, in our cost estimate. The design of bollards and gates at trail-access points will help to limit dumping from vehicles while retaining access for trail users.

Vandalism and Graffiti: Vandalism tends to be concentrated at the most accessible part of a greenway, specifically access points. The Delaware and Raritan Canal State Park staff anticipates a yearly replacement cycle of about 10% of the total number of access-control gates along that trail. These gates, as well as other custom fabricated items subject to vandalism and wear, are purchased in quantity to reduce costs.

Past experience shows bridge overpasses often attract graffiti, and some repainting of the bridges should be included in a yearly maintenance program. Painting of the overpasses, as has been done in some locations in the past, is a good way to denote the greenway, and make these structures less attractive to vandals. Alternatively, initial application of an anti-graffiti coating will make cleaning easier.

Facility Surface Maintenance: Asphalt is most often used on multi-use pathways because of its long-term cost effectiveness and desirable appearance. Special paving, crushed stone and natural surfaces will require much more maintenance.

Drainage Structures: If structures such as pipes, inlets, and swales are not properly restored during the construction phase, increased maintenance costs will result from continuous periodic maintenance of the structures and possible damage to the greenway due to poor drainage or erosion. This problem continues to plague the managers of the Delaware and Raritan Canal Trail in New Jersey.

PARTNERS FOR BETTER BICYCLING

Newark should continue to work with and expand the team of stakeholders working to advance the ideas and recommendations in the Plan. Partners include:

- Planning and Implementing:
  - City of Newark Planning
  - City of Newark Public Works
  - City of Newark Police
  - University of Delaware
  - DelDOT
  - DART First State
  - New Castle County
  - Schools
  - WILMAPCO
- Advocacy
  - BikeNewark
  - BikeDelaware
  - Delaware Greenways
- Bicycling
  - Newark Bike Project
  - White Clay Bicycle Club
  - Delaware Trailspinners
  - Trek
  - Wooden Wheels
- Champions
  - Newark City Council
  - Newark Partnership
  - Newark Committees—Planning Commission, Diversity and Inclusion, Conservation
  - Rideshare Delaware

FUNDING AND IMPLEMENTATION PLAN

Federal Funding Programs

TRANSPORTATION ALTERNATIVES PROGRAM

The Transportation Alternatives Program (TAP) offers funding opportunities to help expand transportation choices and enhance the transportation experience. TAP activities must relate to surface transportation and fall into one or more of the following categories, most related to bicycle improvements:

- Construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation

- Construction, planning, and design of infrastructure-related projects and systems that will provide safe routes for non-drivers, including children, older adults, and individuals with disabilities to access daily needs
- Conversion and use of abandoned railroad corridors for trails for pedestrians, bicyclists, or other non-motorized transportation users
- Recreational trails program (administered by DNREC)
- Safe Routes to School program

In Delaware, projects require a 20% funding match.

SAFE ROUTES TO SCHOOLS

The SRTS program provides funds to substantially improve the ability of primary and middle school students to walk and bicycle to school safely. While the SRTS program still exists in Delaware, the funding has been combined with TAP funds. Planning and infrastructure assistance still remain available. The purposes of the program are as follows:

- To enable and encourage children, including those with disabilities, to walk and bicycle to school
- To make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging a healthy and active lifestyle from an early age
- To facilitate the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity (approximately 2 miles) of primary and middle schools (grades k-8)

NATIONAL RECREATIONAL TRAILS PROGRAM

Funded under TAP, the Recreational Trails Program provides funds to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, and equestrian use.

Funds may be used for:

- Maintenance and restoration of existing trails
- Development and rehabilitation of trailside and trailhead facilities and trail linkages
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails (with restrictions for new trails on federal lands)
- Acquisition of easements or property for trails and operation of educational programs to promote safety and environmental protection related to trails

CONGESTION MITIGATION AND AIR QUALITY PROGRAM (CMAQ)

CMAQ is available for "non-attainment areas" that do not meet federal air-quality standards. New Castle County is designated as moderate non-attainment for ozone and fine particulate matter (PM2.5). CMAQ provides for projects that improve air quality and reduce congestion. This includes improvements to pedestrian and non-recreational bicycle transportation infrastructure that contribute to a reduction in travel by single-occupant vehicles.

WILMAPCO TRANSPORTATION IMPROVEMENT PROGRAM (TIP)/DELDOT CAPITAL TRANSPORTATION PROGRAM (CTP)

The WILMAPCO TIP and DelDOT CTP contain all state and federal transportation–funded projects in the region for four and six years, respectively. The programs contain an area-wide Pedestrian and Bicycle Improvements project that funds a variety of on- and off-road facilities.

Delaware Funding Programs

Delaware funding programs may be used to match federal funds, subject to state program guidelines.

COMMUNITY TRANSPORTATION FUND (CTF)

CTF funding provides a fixed amount of funds annually to each State Senator and Representative to be used as they and their constituents believe is best for transportation improvements within their district. Legislators may also fund their own project ideas, and they have the option of banking a portion of their yearly CTF budget for up to three years in order to fund a larger transportation improvement.

www.deldot.gov/information/pubs_forms/brochures/pdf/ctf_brochure.pdf

DELAWARE LAND AND WATER CONSERVATION TRUST FUND GRANT PROGRAM

The trust fund was created to provide permanent and steady funding for park land and greenway conservation and outdoor recreation facility development. City and county governments and park districts may apply for grant funding under this program. Grants may be awarded for projects such as land acquisition, greenway corridor acquisition or development, and planning and design of parks or trails.

DELAWARE BICYCLE AND PEDESTRIAN FUNDING POOL

Program provides funding for bicycle and pedestrian transportation through an annual grant program.

Cycling Infrastructure Innovation Grant

The Delaware Bicycle Council awards small Bikeway Innovation Grants to communities all over Delaware to fund project ideas designed to make family-friendly bicycle network improvements that will enable more people to safely get where they want to go using a bicycle.

NEWARK MUNICIPAL FUNDING

Newark's annual capital and operating budgets contains funding to improve and maintain bicycle facilities. These funds can be used to match federal transportation funds and other funding sources.

QUICK BUILD AND PILOT PROJECTS

Quick Build projects are low-cost, rapid-deployment bicycle and pedestrian improvements that can be implemented within months rather than years. They allow Newark to test new ideas, respond to urgent safety needs, and deliver visible progress while larger capital projects are in planning or design. These treatments use materials such as paint, signage, flexible delineators, modular curb elements, and temporary planters, enabling the City to evaluate effectiveness before committing to permanent infrastructure.

Benefits

- **Speed:** Can be installed in weeks or months instead of multi-year timelines.
- **Flexibility:** Designs can be adjusted or removed based on performance and community feedback.
- **Cost-Effectiveness:** Utilizes low-cost, easily sourced materials to maximize impact per dollar.
- **Community Engagement:** Demonstrates tangible improvements and builds public support for long-term projects.
- **Data Collection:** Provides real-world performance data to inform permanent design solutions.

Candidate Locations

Quick Build treatments in Newark should prioritize:

- **High-crash corridors and intersections** identified through crash analysis and Vision Zero priorities.
- **Gaps in the existing bicycle network** where low-cost connections can dramatically improve safety and connectivity.
- **School and University routes** to encourage active transportation for students.
- **Downtown and neighborhood commercial areas** where improved bike facilities support economic vitality and reduce conflicts with pedestrians and vehicles.

Example Quick Build Treatments

- **Pop-up protected bike lanes** using flex posts, paint, and modular curb barriers.
- **Intersection safety improvements** such as painted curb extensions, hardened centerlines, and bicycle boxes.
- **Advisory bike lanes** for low-volume streets where full-width bike lanes aren't feasible.
- **Shared street conversions** with signage, pavement markings, and traffic calming elements.
- **Rapid crosswalk enhancements** such as high-visibility markings, in-street yield signs, and temporary refuge islands.
- **Wayfinding signage** to guide cyclists to key destinations and connect network segments.

Implementation Process

- **Project Identification** – Based on crash data, network gaps, and community input.
- **First Responder Involvement** – Work with police and fire personnel to ensure the project will not impede emergency response.
- **Concept Design** – Simple, easily deployable layouts prepared by City staff with community input.
- **Community Engagement** – Short feedback cycles using social media, pop-up events, and direct outreach.
- **Installation** – Conducted by City crews and/or volunteers.
- **Monitoring & Adjustment** – Collect traffic counts, speed data, and user feedback to refine the design.
- **Decision on Permanency** – If the project is successful, transition to durable infrastructure in future capital programs.

PRIORITIZATION OF RECOMMENDATIONS

Public outreach feedback indicated a preference for immediately going after "low-hanging fruit"—those projects that can be implemented most affordably and programs that can be done through existing agency and organizational resources. For infrastructure improvements, this is most easily accomplished by coordinating with other land-use and transportation activities:

- **Coordination with the Land-Development Process:** One of the methods by which the Plan will be implemented is through development or redevelopment projects. The implementation of this Plan depends, in part, on land-use regulations to control the manner in which bicycle and pedestrian facilities are included. Land-use regulations can encourage/require provision of pathways and bike lanes as part of the land-development process, just as they require provision of streets and sidewalks. Likewise, bicycle racks and other end-of-trip facilities are easiest to accomplish when are of initial planning.
- **Coordination with Multimodal-Transportation Projects:** In addition to coordinating with the land-development process, the Plan will also be implemented through multimodal-transportation projects funded through the WILMAPCO Transportation Improvement Program. The U.S. DOT policy—*Accommodating Bicycle and Pedestrian Travel*—states:
    - Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:
        1. Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.
        2. The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding 20% of the cost of the larger transportation project.
        3. Where sparse population or other factors indicate an absence of need.

A more proactive approach may be warranted for higher-priority infrastructure projects identified by the implementing agencies—DelDOT, City of Newark, and University of Delaware—in coordination with the Newark community and Newark Bicycle Committee. The Plan recommends emphasis be placed on ***Nonmotorized Transportation Priority Areas.***

PROXIMITY TO MAJOR ATTRACTIONS	○ Within ¼ mile of shopping or commercial land use ○ Within ¼ mile of a park, trail, library, or community center ○ Within 1 mile of a school ○ Within ¼ mile of a transit stop ○ Within municipality
FILLS A GAP	○ Completes gap in non-motorized transportation network ○ Completes portion of regional greenway, e.g., East Coast Greenway
POPULATION AFFECTED	○ Composite population and employment density (8+ units/acre) ○ Environmental justice/transportation justice (areas with concentrations of minority and low-income/elderly, persons w/disability and zero-car households)
SAFETY	○ Concentration of pedestrian and bicycle crashes *[Up to 4 points depending on number of crashes and crash rate]*
OTHER IMPACTS	○ Private development approved for adjacent portion of block(s) ○ Strong community support ○ Right-of-way available

EVALUATION

Progress toward meeting the goals of this Plan should be evaluated by the City of Newark, WILMAPCO, and Newark Bicycle Committee on an annual basis using qualitative and quantitative measures and updated periodically to reflect changing conditions and priorities. Goals and evaluation measures should include number of trips, route implementation, parking supply, policy changes, crashes, and user satisfaction.

FOR MORE INFORMATION VISIT

www.wilmapco.org/BikeNewark

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