

Moving Forward 2055

Connecting Communities, Creating Opportunities

APPENDIX C ACTIVE TRANSPORTATION PLAN



NYMTC Regional Transportation Plan
Adopted on September 5, 2025

MOVING FORWARD 2055

APPENDIX C: ACTIVE TRANSPORTATION PLAN



prepared by

NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

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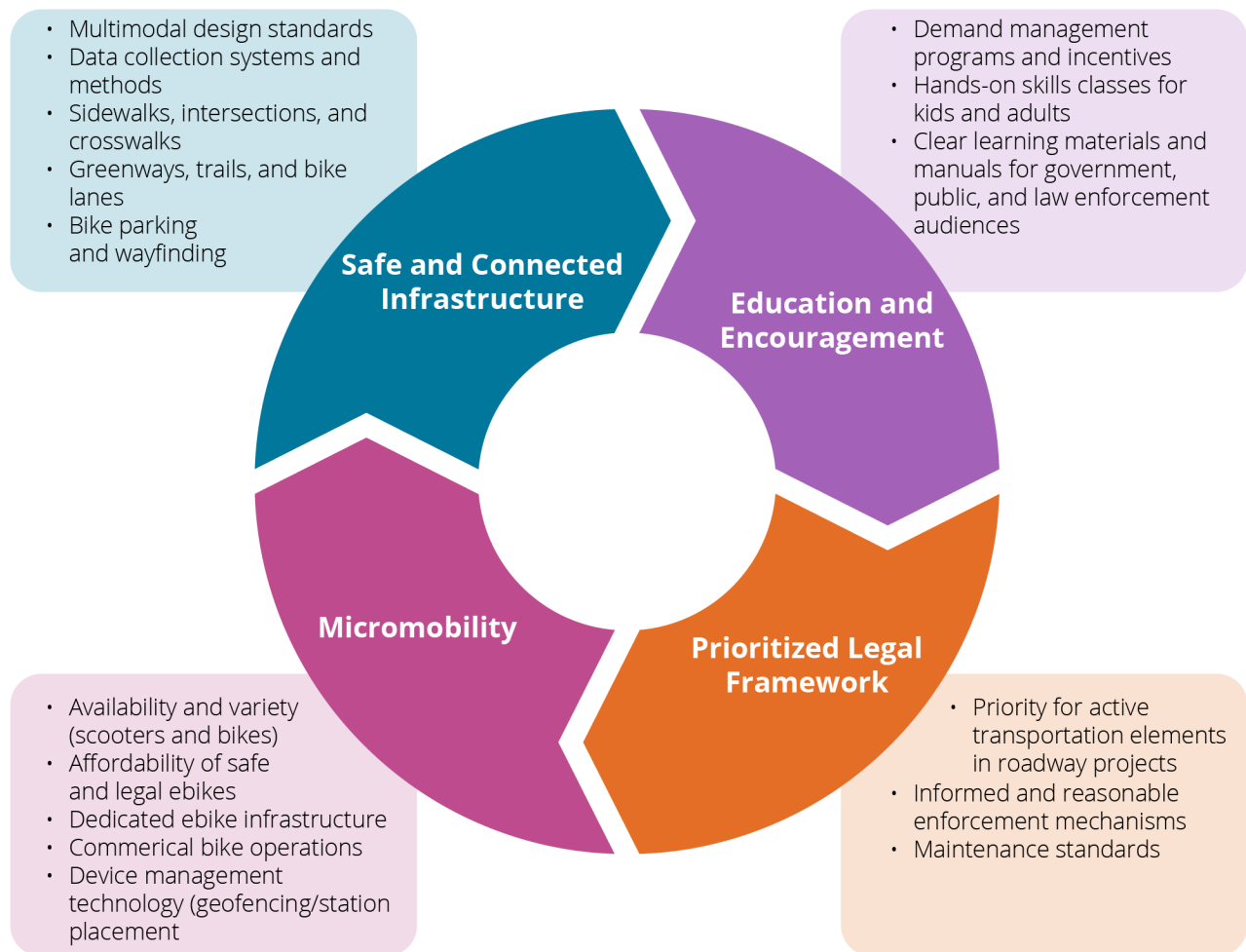
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PLAN CONTEXT: REFRAMING THE PLAN

1.1 ACTIVE TRANSPORTATION OVERVIEW

Walking, bicycling, and micromobility continue to expand as viable means of both transportation and recreation. In response to increased consumer demand, and development of both infrastructure and policy, this Plan expands on previous iterations of the NYMTC's regional transportation plan's "Pedestrian-Bicycle Element" to establish a more comprehensive Active Transportation Plan. This Plan outlines a new framework for supporting active transportation—including bicycling, walking, and micromobility—across the 10-county region (referred to as the NYMTC planning area) in accordance with the *Moving Forward 2055* Shared Vision goals to address specific opportunities and emerging safety concerns. A comprehensive active transportation network includes safe and connected infrastructure, education and encouragement, micromobility, and a prioritized legal framework. These components are further described in Figure 1.1. For more information on the geographic data presented, refer to the Moving Forward 2055 interactive map [here](#).

Figure 1.1 Key Components of an Active Transportation Network



1.2 ALIGNMENT WITH THE SHARED VISION FOR REGIONAL MOBILITY

The Shared Vision for Regional Mobility that serves as the strategic framework of *Moving Forward 2055* (see Chapter 1 of *Moving Forward 2055*) recognizes the potential of active transportation as a powerful strategy to achieve the region's transportation goals. Given this vision, the region seeks to establish and maintain a transportation system for which:

Safety and security are maximized for people and goods across all uses and modes.

- » Active Transportation **makes streets safer for all roadway users** by applying complete street design principles to prioritize safer roadways and intersections through a safe system approach. A central tenant of this approach is that correct design invites correct use, meaning that roadway design promotes self-enforcement of safe behavior.
- » Proactively promoting active transportation requires training materials and programs reflective of today's multimodal transportation landscape, and tailored to different modes—including drivers, pedestrians, cyclists, and micromobility users.

Infrastructure is maintained and improved in a sustainable manner.

- » Active transportation can **adaptively reuse existing infrastructure to be responsive to current/future community needs**—including roadways, utility corridors and underutilized public rights-of-way—to reconnect communities and improve accessibility across all modes. Some locations that support high volumes of bicycle, pedestrian and micromobility activity, indicate high volumes of bicycle/pedestrian crashes, and/or represent crucial gaps in connectivity should be prioritized for investment including, but not limited to land acquisition, building new structure, and trail paving.

Resiliency is supported through mitigating, adapting to, and responding to chronic and acute stresses and disruptions.

- » Active transportation enhances the regional transportation network by **increasing travel options and redundancies**.

1-3

Congestion is mitigated through investments and technology in support of healthier communities, more seamless travel, improved quality of life, and regional economic competitiveness.

- » Reducing vehicle miles traveled is a proven congestion relief strategy. Active transportation **facilitates a reduction in congestion by fostering mode shift to lower impact modes for short trips** to everyday destinations as well as first and last mile connectivity with transit.

Land use decisions are encouraged in support of strategic transportation enhancements and improving modal choices.

- » Active transportation is **adaptive to varying land-use and community context** with a variety of policy, design, and programmatic tools to address the needs of urban and rural settings. Active transportation elements—such as bike parking and wayfinding systems—can contribute to a vibrant public realm and promote economic development in commercial areas. Similarly, areas with lower vehicle ownership rates can loosen parking mandates, which can help reduce housing costs.

Fairness in transportation is advanced and access to opportunities is improved for all communities.

- » Active transportation **fosters fair mobility**, particularly in areas with limited alternatives to cars. By enhancing first and last mile connectivity, bicycling, walking, and micromobility can extend the reach of transit systems, and expand transportation choices for people of all ages and abilities in communities with the greatest mobility needs.

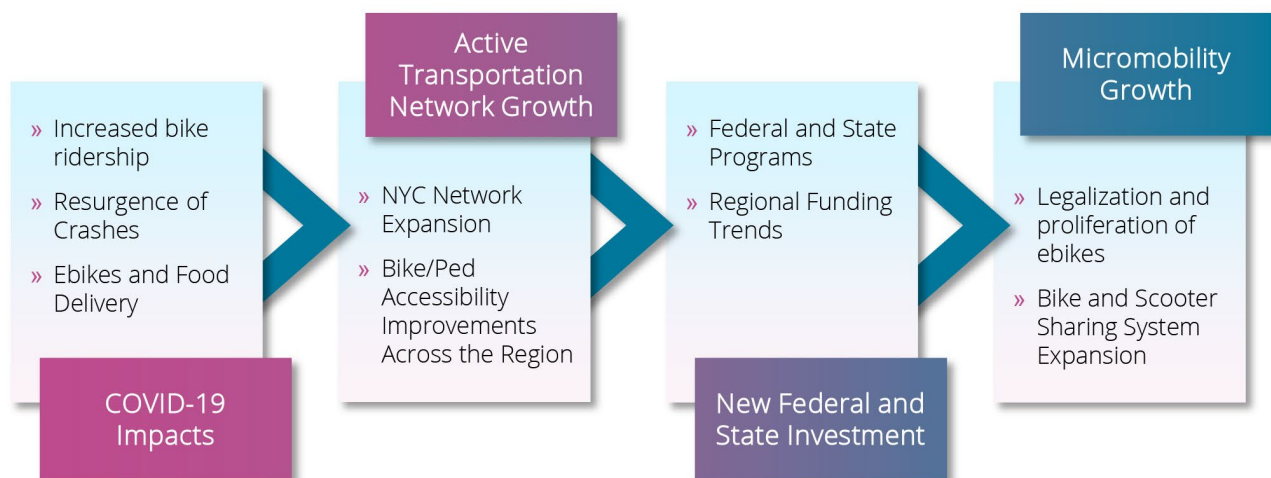
Environmental impacts—including harmful air pollutants—are significantly reduced through technology applications, increased use of greener travel options, and improved system efficiency.

- » Active transportation **combats pollution** by providing an alternative to car trips.

1.3 THE CHANGING ACTIVE TRANSPORTATION LANDSCAPE

The active transportation landscape has changed dramatically since the development and publication of *Moving Forward*, NYMTC's last plan, in September 2021. As networks of bicycle lanes, greenways and pedestrian infrastructure have expanded across the NYMTC planning area, new conveyances and supporting equipment—such as ebikes and secure bicycle parking facilities—and unprecedented funding opportunities have incentivized communities to embrace policy and design measures promoting active transportation. For more information on ebikes and bike parking locations, refer to the *Moving Forward* 2055 interactive map [here](#). The Coronavirus disease 2019 (COVID-19) pandemic necessitated shifts in travel needs, including causing a surge in walking and bicycling for everyday trips. This section examines each of these factors, and their impact on the current active transportation landscape across the region.

Figure 1.2 Active Transportation Market Factors

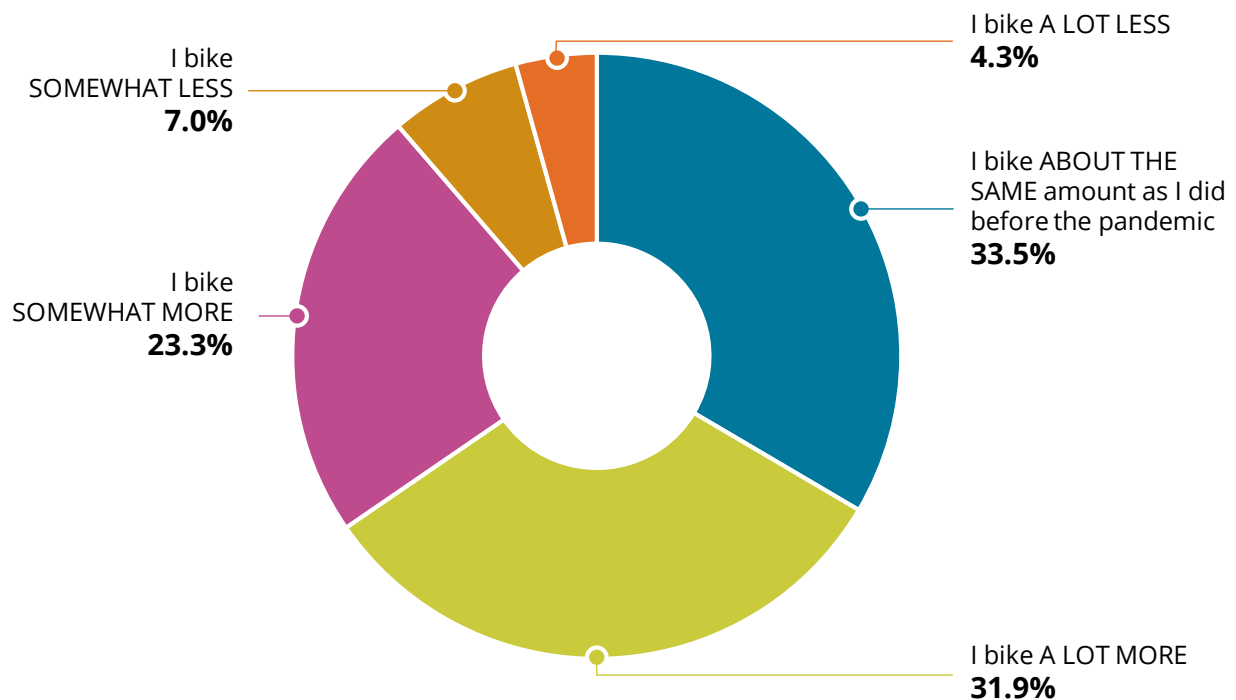


1.3.1 COVID-19 IMPACTS

INCREASED BIKE RIDERSHIP

Bicycle ridership has increased dramatically since the COVID-19 pandemic. According to the 2023 New York Cycling Census¹ (NYCC)—89 percent of respondents within the NYMTC Planning area indicated that they bike just as much or more than they did before the onset of the pandemic.

Figure 1.3 Post-COVID-19 Ridership Frequency in the NYMTC Planning Area



Source: 2023 New York Cycling Census.

According to NYC DOT's Cycling in the City Report, New York City specifically has seen a significant rise in the number of daily bicycle trips each year since 2009, and 94 percent growth between 2012 and 2022. Since 2017, annual cycling trips have grown 25 percent from 178.8 million in 2017 to 222.7 million in 2022. Since 2019, New York City's East River bridges—all high-volume bicycle and pedestrian linkages between Manhattan, Queens, and Brooklyn—have seen a collective rise in average daily ridership each year with an overall increase of 57 percent.

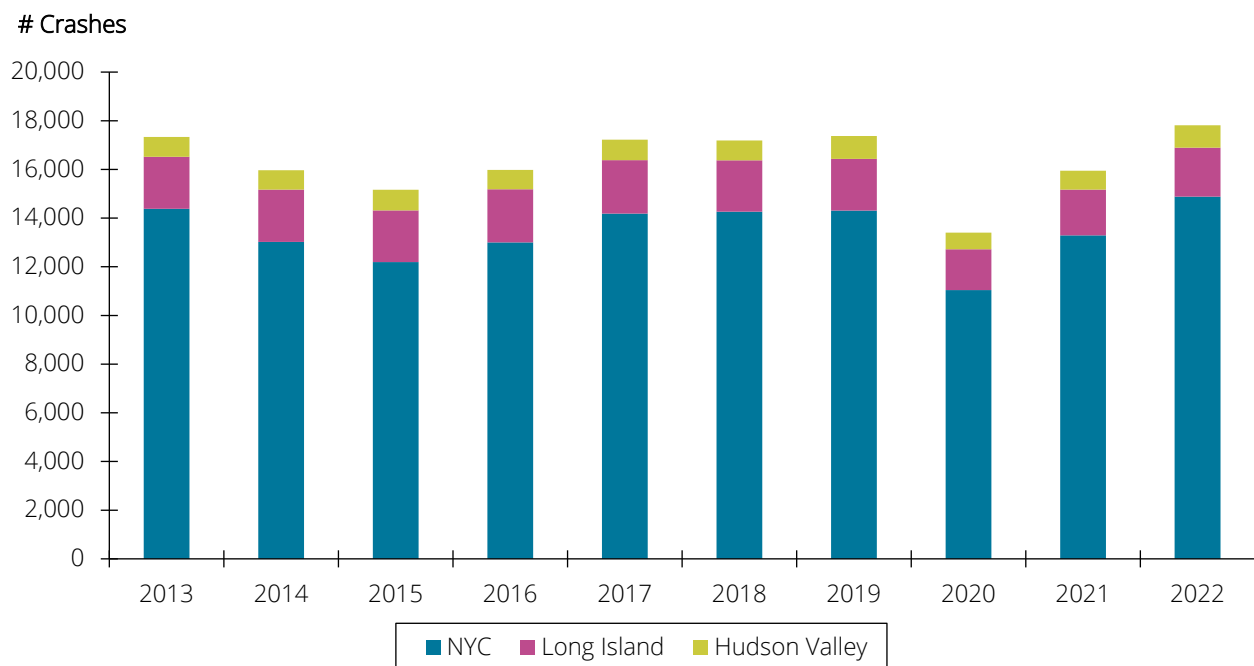
Outside of New York City, the Mario Cuomo Bridge shared use path is a major active transportation corridor connecting Rockland County and Westchester County across the Hudson River. According to the New York State Thruway Authority, since its opening in June 2020, more than 750,000 people have used the 3.6-mile path, with an annual average ridership of approximately 125,000 bikers and walkers. For more information on bike routes, refer to the Moving Forward 2055 interactive map [here](#). While quantitative data on bike and pedestrian volumes elsewhere throughout the NYMTC planning area is sporadic, many jurisdictions have

anecdotally noted an observed increase in the number of people biking and walking which supports growing regional demand for active transportation infrastructure and underscores the need for a more robust data collection framework on bicycle, pedestrian, and micromobility activity.

PANDEMIC IMPACTS ON SAFETY

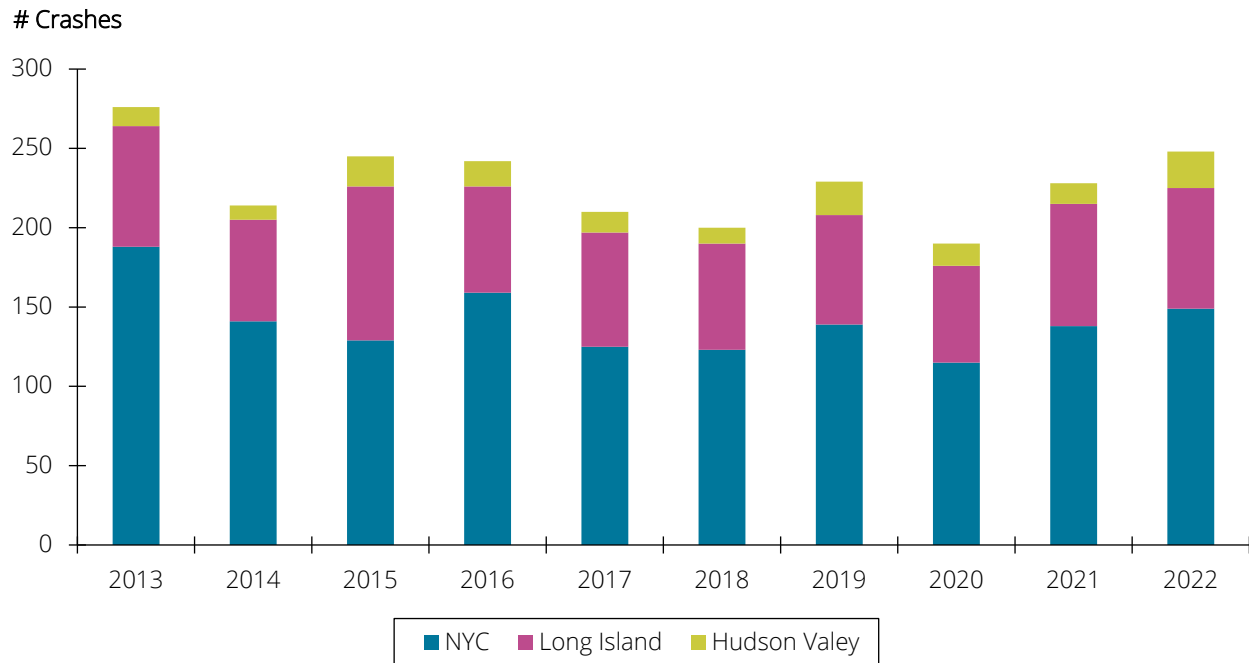
Crashes involving cyclists and pedestrians reached a 10-year low in 2020 following mandatory stay at home orders at the onset of the COVID-19 pandemic but quickly surged back up reaching a 10-year high in 2022, as shown in Figure 1.4.

Figure 1.4 Total Crashes by Subregion, 2013–2022



Source: NYSDOT CLEAR Crash Data Viewer.

Bicycle and pedestrian fatalities have increased across the entire NYMTC planning area since the onset of the COVID-19 pandemic. For more information on bike and pedestrian facilities, refer to the Moving Forward 2055 interactive map [here](#). The most dramatic increase was in New York City, where fatal crashes increased 30 percent from a 10-year low in 2020.

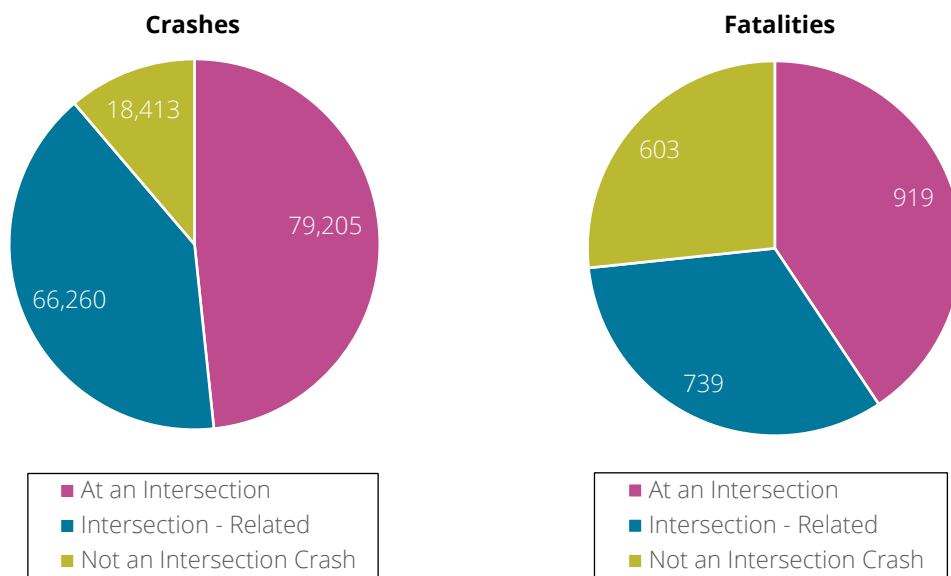
Figure 1.5 Fatal Crashes by Subregion, 2013–2022

Source: NYSDOT CLEAR Crash Data Viewer.

Weather is not a significant factor influencing crashes, with nearly three quarters (74 percent) of total bicycle and pedestrian crashes and 72 percent of bicycle and pedestrian fatalities between 2013 and 2022 occurring in clear conditions.²

The vast majority (88 percent) of all bicycle and pedestrian crashes, and nearly three quarters (73 percent) of fatal bicycle and pedestrian crashes in the NYMTC planning area, occurred at or near an intersection, as shown in Figure 1.6. This is a strong indication of a broad design context that does not prioritize active modes and presents significant safety challenges for walkers, bikers, and micromobility users in the roadway. Specifically, lack of visibility at crossings, poor state of good repair, limited lighting, wide crossings with no median refuge, and other factors can all contribute to conflicts between cars and active modes.

Figure 1.6 Total Pedestrian and Bicycle Crashes and Fatalities at Intersections (2013–2022)



Source: NYSDOT CLEAR Crash Data Viewer.

EBIKES AND FOOD DELIVERY

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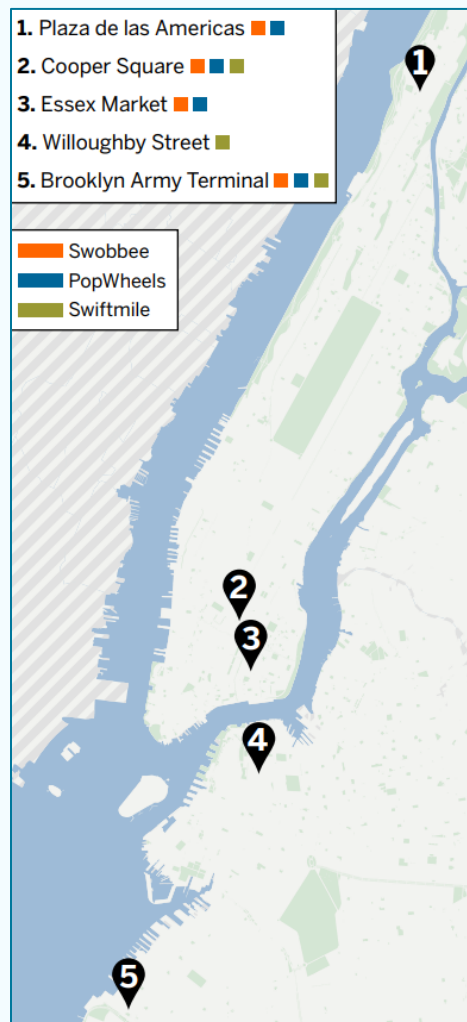
Demand for food delivery has grown significantly in the past 10 years, accelerated by the growth in delivery apps such as DoorDash, UberEATS, Grubhub and others, along with the impact of the pandemic. Beginning in 2020, millions of New Yorkers flocked to these apps as mandated lockdowns and uncertainty around public health conditions limited individual mobility. There are approximately 61,000 independent food delivery workers in New York City, and roughly 56 percent are dependent on ebikes and motorbikes.³ Ebikes are significantly more expensive than traditional pedal bikes, representing a significant economic barrier for many New Yorkers. In New York City, this economic disparity forces individual cyclists—particularly delivery workers who rely on bicycles for employment—to seek out unsafe (non-UL certified)⁴ ebikes that don't conform to the three-class system established in the 2020 NYS ebike law.⁵ Unsafe ebikes have flooded into the market contributing to numerous safety issues including fires and dangerous roadway interactions. Ebike charging hub pilots have emerged to address this issue. In tandem, private, shared micromobility systems have emerged to provide ebike access to delivery workers.

CASE STUDY | Lessons from NYC DOT's Public Ebike Charging Pilot

In February 2024, NYC DOT announced the Ebike Battery Charging Pilot. Focused on commercial cyclists, this six-month program that deployed ebike battery swapping cabinets—provided by Swobbee and PopWheels—and charging docks—provided by Swiftmile—at five locations (as shown in the map). NYC DOT recruited 118 food delivery workers with Arrow Model 9 and Model 10 ebikes, offering free charging as an incentive. This pilot yielded several findings including:

- » Battery swapping lockers for commercial cyclists outperformed charging stations by a significant margin with 12,100 battery swaps, and only 1,300 charging dock sessions throughout the course of the project.
- » There was a 35 percent decrease in at-home ebike battery charging among participants throughout the pilot.
- » Battery charging options near high densities of restaurants were the most frequently used, with 59 percent of all activity coming from a single pilot location in the East Village.
- » These services were generally popular with the majority of users expressing interest in paying for a monthly subscription to the service following the pilot.

These important findings illustrate the potential of publicly available battery charging options, especially for commercial cyclists.⁶



1.3.2 ACTIVE TRANSPORTATION NETWORK GROWTH

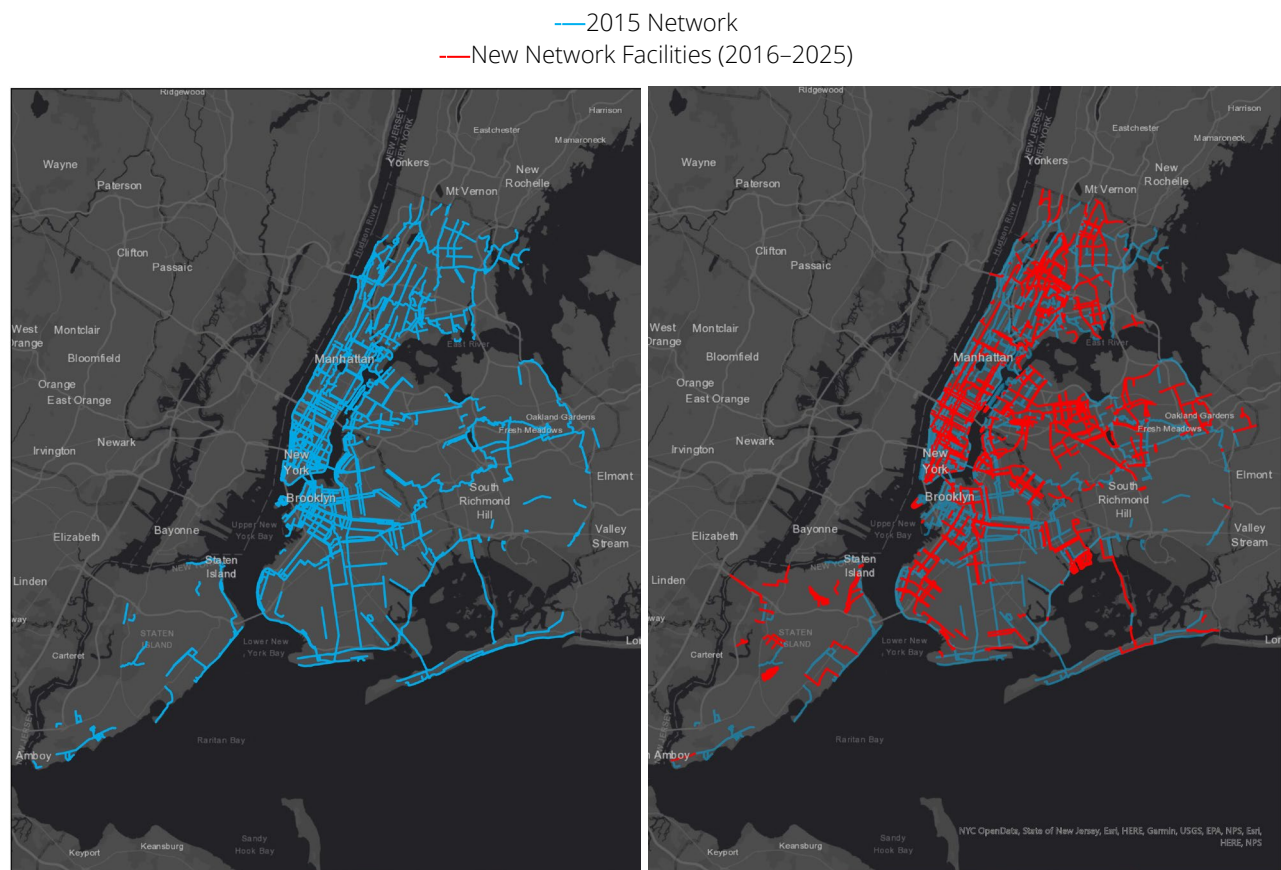
BICYCLE FACILITIES

New York City has seen particularly dramatic growth in its on-road bicycle network. Since 2014, over 479 miles of bike lanes and 180 miles of protected bike lanes have been built.⁷ For more information on bike lanes and routes, refer to the Moving Forward 2055 interactive map [here](#). A snapshot of the City's bike network in 2015 compared to 2024 as shown in Figure 1.7 illustrates extensive growth in the outer boroughs, particularly in northern Queens and in the Bronx. Much of this expansion transects neighborhoods defined by NYMTC as Communities of Concern as well as other designations, including Potential Environmental Justice Areas (PEJA) by the New York State Department of Environmental Conservation.⁸ In addition to network expansion, many existing bicycle facilities have been redesigned for enhanced safety.

Figure 1.7 New York City Bicycle Network Growth, 2015–2024

Existing Network In 2015

Existing Network in 2025



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Source: NYC DOT.

The 2020 opening of the Empire State Trail (EST) tied together the Hudson River Greenway in Manhattan and the Putnam Greenway in the Bronx with the North and South County Trails in Westchester, and the Putnam and Maybrook Trailways in Putnam County. In addition to tying these regional trails together, the EST provided broader connections to 750 miles of connected offroad trails and on-road bike routes, making it the largest statewide trail in the country connecting New York City with Albany, Buffalo, and Plattsburgh. The EST represents a central spine in the State, serving as a catalyst for future expansion, particularly to communities and counties lacking these increasingly popular micromobility corridors. The opening of the EST invites communities along the route to bolster local connections with the trail by investing in safer bike routes, wayfinding and crossings leading to the right-of-way. County trail stewards help to identify and prioritize regional connections between the EST and other existing trails, as is the case in Westchester County with the Maybrook trail (see Section 2).

One major challenge with the EST is its current terminus in Battery Park, which cuts off the entirety of Long Island, home to more than 40 percent of the State's entire population. In response, a grassroots-led initiative called the Long Island Greenway (LIG) was launched to address this issue. This significant regional trail initiative is currently under development and will extend the EST 175-miles from Battery Park to Montauk.

This is currently the only planned extension of the EST, and a critical asset in a region of the State that consistently ranks highest in terms of crashes and suffers from high levels of congestion as well as a severe deficit of bicycle and pedestrian infrastructure (see Section 2).

Figure 1.8 New York Empire State Trail



Source: <https://empiretrail.ny.gov/>.

While the Long Island Greenway is still in development, other projects on Long Island have expanded access to active transportation infrastructure. The completion of the North Shore Rail Trail in 2022 marked the culmination of more than a decade of planning to convert a former Long Island Railroad corridor into a 10-mile paved multiuse path between Port Jefferson Station and Wading River on Long Island's North Shore. This trail is one piece of Suffolk County's Hike and Bike Master Plan. This project includes a comprehensive map of both the existing on-road and off-road bike and pedestrian network as well as a proposed network of over 1,200 miles of additional facilities. For more information on bike routes, refer to the Moving Forward 2055 interactive map [here](#).

In addition to the Empire State Trail and Long Island Greenway, the East Coast Greenway is an ongoing effort to create an off-road walking and biking route from Maine to Florida by connecting and expanding existing trails, including routes through the 10-County New York Planning Region. The East Coast Greenway route spans approximately 54 miles across 10 existing trails, bridges and greenways throughout

Westchester, the Bronx, and Manhattan. The East Coast Greenway Alliance works with partner organizations through the New York City Greenways Coalition and other partnerships to advocate for the expansion of the East Coast Greenway route and connecting trails.

Figure 1.9 East Coast Greenway



Source: [East Coast Greenway](#)

Currently, the East Coast Greenway's interim on-road routes take advantage of lower volume streets wherever possible; however, "many of the current on-road connections, including those on the Greenway's interim routes, have little or no special provisions for cyclists or pedestrians."⁹ This effort represents an opportunity to help NYMTC members to identify opportunities for off-road and lower-stress on-road active transportation infrastructure particularly in Manhattan and the Bronx. For more information on bike routes, refer to the Moving Forward 2055 interactive map [here](#).

ACCESS TO CROSSINGS

The NYMTC planning area is home to some of the world's largest and busiest water crossings. These critical pieces of infrastructure facilitate essential connections that drive regional economic activity, social mobility,

and shape daily transportation behaviors. In recent years, many bridges have been retrofitted or rebuilt with enhanced accommodation for cyclists and pedestrians. Several major examples follow:

- » **George Washington Bridge North Walk:** As part of a \$2 billion “Restoring the George” program, the Port Authority of New York and New Jersey addressed pressing bridge access issues and improvements to the pedestrian and bicycle experience that included Americans with Disabilities Act (ADA)-compliant access ramps with the elimination of stairways and constricted turns on steep access ramps, introduction of spacious entry plazas and viewing platforms, and safety fencing along ramps and main span sidewalks. The agency widened the areas around the constrained passageways through the bridge towers to eliminate sharp turns, improve visibility, and provide additional overlook areas. Since its opening in February of 2023, daily usage peaked three months later in May 2023 with more than 5,000 users. The North Walk’s enhancements are set to be replicated on the bridge’s south side, which is currently undergoing a similar reconstruction through the bridge’s rehabilitation program that includes replacement of the bridge’s steel suspender ropes on the south side. Once the suspender rope replacement project is completed and construction of the south sidewalk ends, pedestrians will enjoy exclusive access on the South Walk, while the North Walk will become a dedicated bicycle path to separate both groups with more space and enhanced safety.
- » **Cross Bay Bridge Bicycle Accommodations:** In October 2022—leading into the January 2023 publication of the [MTA’s ‘Extending Transit’s Reach’ Strategic Action Plan for Bicycles, Pedestrians, and Micromobility](#)—the agency lifted a ban prohibiting cyclists from using the 10-foot-wide path on the Cross Bay Bridge connecting Broad Channel and Rockaway, Queens. Despite the addition of bicycle lane markings on the path, cyclists were still instructed to walk their bikes on the southern end of the bridge, where the steep grade prevented safe pedaling access. In the fall of 2024, the MTA completed a capital project to replace this sloped grade with an ADA-compliant ramp utilizing gentle switchbacks. Now the bridge is fully accessible to cyclists without any dismount requirements.
- » **The Path: The Shared Use Path on the Governor Mario M. Cuomo Bridge:** From its opening in 1955 to its closure and demolition in 2017, the Tappan Zee Bridge was a significant mobility and economic driver in the Hudson Valley, providing a vital connection between Rockland and Westchester counties. Between 1955 and 1960, the population in Rockland grew 50 percent from its primarily rural agrarian roots. The population boom led to increased use and congestion on the bridge, which coupled with design issues significantly increased maintenance needs. This original bridge was exclusively designed for vehicular traffic with no accommodations for cyclists and pedestrians. By 2009, the New York State Thruway Authority determined that the bridge required replacement. The new Governor Mario M. Cuomo Bridge includes a 3.6-mile shared-use path on the north side of the span, with six scenic overlooks, and a 12’ bidirectional right-of-way for cyclists and pedestrians. This shared use path officially opened on June 15, 2020. Since then, it has seen more than 750,000 visitors.
- » **Brooklyn Bridge Bike Lane:** The Brooklyn Bridge is consistently a high-volume corridor connecting cyclists and pedestrians between the Financial District and downtown Brooklyn. Prior to the fall of

2021, cyclists and pedestrians shared the elevated promenade in both directions. Between 2008 and 2015, evening pedestrian trips increased by 20 percent, and total weekend pedestrian trips increased by 275 percent. In that same timeframe, morning bicycle trips increased 66 percent and evening bicycle trips increased by 93 percent. Conflicts emerged between these modes as higher numbers of cyclists and pedestrians shared the width-constrained promenade which varies between approximately 13' and 17' at various points along its span. NYC DOT repurposed a lane of vehicular traffic on the Bridge's Manhattan-bound side to establish a protected, bidirectional bike lane exclusive for cycling to address the growing challenge for bicycle and pedestrian users which officially opened on September 14, 2021, with an immediate surge in usage.

- » **Henry Hudson Bridge Improvements:** The Henry Hudson Bridge, connecting between Spuyten Duyvil in the Bronx and Inwood Hill Park in Manhattan, has undergone improvements, including a new bike and pedestrian path, roadway rehabilitation, and upgrades to the bridge's infrastructure, such as electrical substations and toll plazas. Specifically, the MTA created new entrances and repurposed a painted roadway shoulder to widen the path.

1.3.3 NEW FEDERAL/STATE INVESTMENT

An unprecedented level of State and Federal funding has become available for active transportation facilities and programs, as well as complete streets projects during the past five years.

FEDERAL FUNDING PROGRAMS

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In November 2021, the Infrastructure Investment and Jobs Act (IIJA) was signed into law. In addition to broadband, energy, public transit, water systems, and other major infrastructure sectors, this generational legislation drastically increased available funding for active transportation projects, including a 70 percent increase for the Transportation Alternatives Program (TAP) from approximately \$850 million to an average of \$1.44 billion per year nationwide. In addition to the expansion of TAP, the IIJA also reauthorized the Congestion Mitigation and Air Quality Improvement Program (CMAQ) which provides \$13.2 billion in funding over five years for transportation projects and programs to help meet the requirements of the Clean Air Act. The IIJA also established several new programs:

- » **Carbon Reduction Program:** The IIJA established the Carbon Reduction Program, which provides \$6.4 billion in formula funding over five years for States to develop carbon reduction strategies and for projects to reduce transportation carbon dioxide pollutants, including traffic management, public transportation, pedestrian facilities, alternative fuels, and port electrification.
- » **Congestion Relief Program:** Similarly, the IIJA also established the Congestion Relief Program which provides \$250 million in discretionary grants over five years to advance innovative, integrated, and multimodal solutions to congestion relief in the most congested metropolitan areas with populations greater than 1,000,000.
- » **Safe Streets and Roads for All Program:** The Safe Streets and Roads for All (SS4A) program, was authorized at \$5 billion over five Federal fiscal years. SS4A provides resources for planning projects and infrastructure implementation as well as behavioral and operational initiatives to prevent death

and serious injury involving all roadway users—including pedestrians, cyclists, public transportation users and operators, micromobility users, motorists and commercial vehicle operators.

- » **Reconnecting Communities Pilot Program:** The IIJA also created the Reconnecting Communities Pilot (RCP) Program which seeks to reverse the negative impacts of past transportation infrastructure decisions. This program prioritizes low-income communities by improving access to jobs, education, healthcare, food, nature, and recreation. This program provides \$50 million for planning grants, \$150 million for construction grants, and \$30 million for technical assistance through FY2026.
- » **Active Transportation Infrastructure Investment Program:** The IIJA also created the Active Transportation Infrastructure Investment Program (ATIIP), a discretionary program authorized at \$44.5 million to develop safe and connected active transportation facilities and networks. ATIIP will support projects that plan, design, and construct safe and connected active transportation networks such as sidewalks, bikeways, and trails that connect destinations such as schools, workplaces, residences, businesses, recreation areas, and medical facilities within a community or metropolitan region.

Looking ahead to 2055, it is unclear whether future Federal transportation reauthorization bills will maintain this level of funding for active transportation and complete street projects or continue some or all programs. NYMTC member agencies are encouraged to take advantage of these programs; particularly for large scale projects.

STATE FUNDING PROGRAMS

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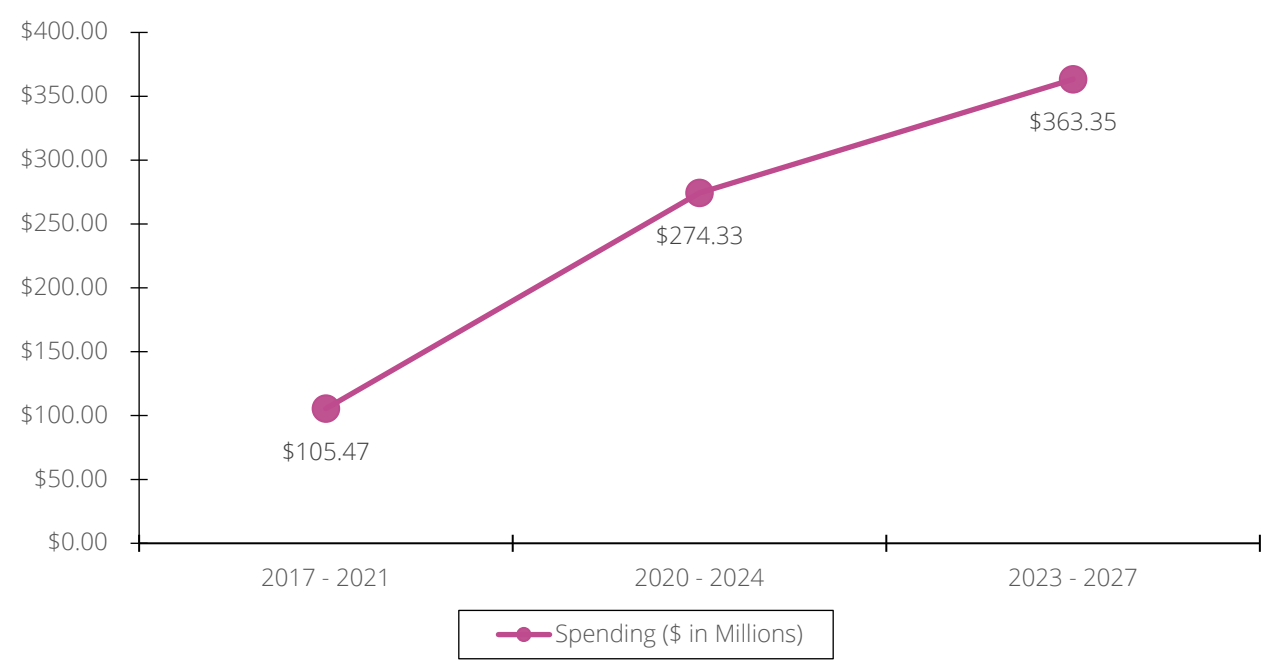
- » New York State Complete Streets Project Funding Legislation—S.3897/A.8936-A was signed by Governor Kathy Hochul in 2022 to develop “Complete Streets”—a holistic approach to street design that supports cyclists, walkers and transit riders of all ages and abilities. This legislative package provides increased funding for “Complete Street” projects. Specifically, this increases the State’s contribution to the non-federally funded portion of Complete Street projects to 87.5 percent.⁹
- » In 2024, the New York State Energy Research and Development Authority (NYSERDA) launched the Clean Mobility Program. This program includes \$32 million for planning and demonstration/pilot projects to 1) improve first mile/last mile access and connections to public transportation; 2) demonstrate innovative public and shared transportation options at a community scale, with a focus on underserved communities; and 3) provide options for those who cannot/do not want to own personal vehicles but live in areas with limited public transportation. \$3 million of this program is allocated for implementation projects in the Bronx.¹⁰
- » **Creating Healthy Schools and Communities (CHSC)** is a public health grant administered by the New York State Department of Health. This grant uses a community-based participatory approach to increasing opportunities for physical activity and improved nutrition for people across ages to reduce the underlying causes of obesity, diabetes and other chronic diseases by building on existing community assets and public-private coalitions. Specifically, CHSC implements evidence-based physical activity and nutrition strategies to increase access to healthy, affordable foods and

opportunities for safe physical activity for all. Among the subject areas this grant addresses are “Activity-Friendly Routes to Everyday Destinations” that help community organizations plan and implement strategies to support local active transportation. Grantees in New York have used this grant to fund many active transportation projects across New York State, including trail connections, increased proximity to everyday destinations and improved pedestrian and bicycling infrastructure.

ACTIVE TRANSPORTATION FUNDING TRENDS

Federally funded projects with active transportation components have steadily increased across the NYMTC planning area. An examination of NYMT’s three most recent transportation improvement program (TIP) cycles reveals a 160 percent increase in programmed funding for bike/ped-related projects between 2017 and 2024. The current TIP covering 2023–2027 continued this trend with another 32 percent increase in funding for active transportation initiatives as illustrated in Figure 1.10.

Figure 1.10 NYMTC Active Transportation Funding Trends



Source: NYMTC.

It is important to note that this figure above only represents a portion of the total funds supporting active transportation, as it only depicts funds exclusively attributed to active transportation projects. Total regional investment in Active Transportation projects is significantly higher than what is reflected in this data as initiatives like on-road bike lane implementations and sidewalk enhancements are often embedded within broader infrastructure and safety projects, making their exact cost difficult to accurately document. Uncertainty with Federal funding programs may also have an impact on future funding levels for active transportation in the region.

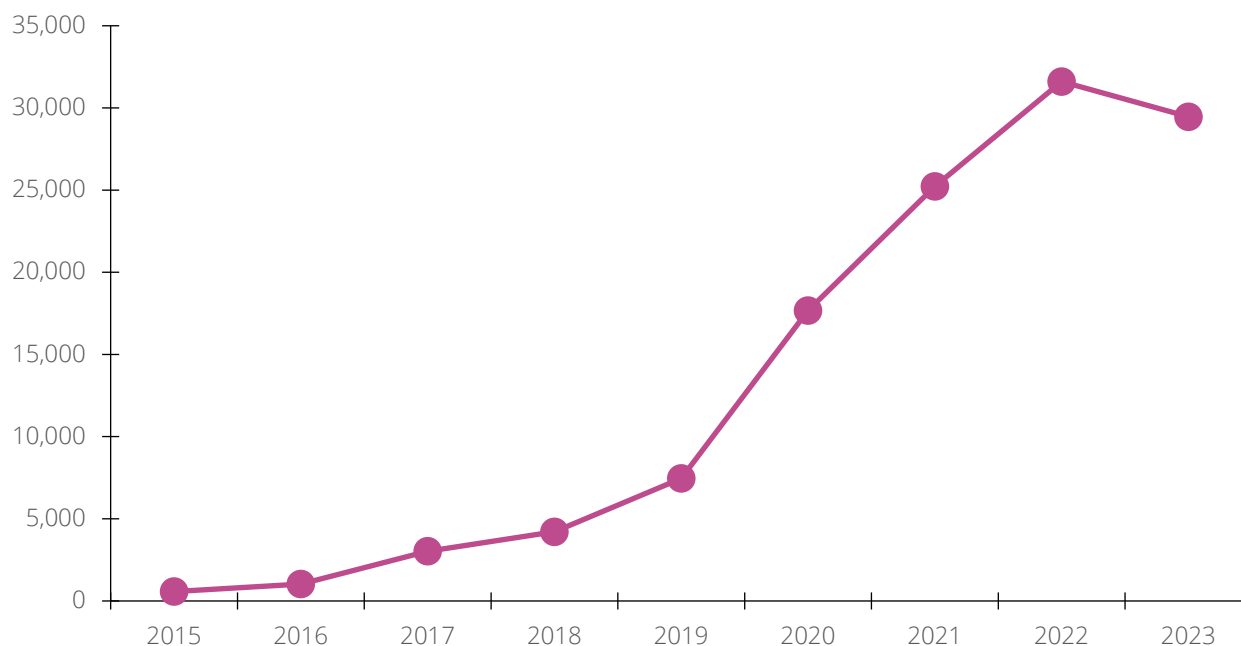
1.3.4 GROWTH IN MICROMOBILITY

LEGALIZATION AND PROLIFERATION OF EBIKES

In 2020, New York State Vehicle and Traffic Law § 1242 established a three-tiered classification system for ebikes and legalized the use of some classes on State right-of-way where the posted speed limit is under 30 mph. The law also banned the use of Class 3 ebikes (those capable of 20+ mph speeds) outside of New York City and established an age restriction preventing anyone under 16 from using an ebike across the State. Most notably, this law leaves regulation of ebikes up to local jurisdictions, which has created inconsistencies from one municipality to the next, with some communities choosing not to regulate while others allow disparate classifications. This is particularly challenging given cross jurisdictional facilities—creating confusion for users, law enforcement and even pedestrians, and acts as a potential barrier to increased utilization by both bicycle commuters and recreational cyclists.

Ebike sales have skyrocketed since the COVID-19 pandemic, as shown in Figure 1.11. In the United States, between 2019 and 2022 the number of ebikes sold jumped 325 percent, from 124,000 to 527,000 units sold in a single year, representing a growing shift in mode share between nonmotorized and electric bicycles. This trend was also seen in New York State where ebike sales rose 324 percent from just under 7,500 units in 2019 to over 31,000 in 2022.

Figure 1.11 NYS Estimated Ebikes Sold, 2015–2023



Source: People for Bikes.

In 2024, Governor Hochul signed Legislation to encourage the safe use of ebikes and lithium-ion batteries. Specifically, the law requires UL certification for micromobility batteries sold in NYS and to develop training materials for first responders and consumers as it relates to safe charging and battery fires. In addition, this

legislative package requires retailers to provide consumers with an owner’s manual when selling an ebike and requires law enforcement to report crashes with ebikes and/or scooters to the department of motor vehicles. The law also requires retail entities to affix a notice on any bicycles with electric assist and micro-mobility devices reminding riders to always yield to pedestrians and follow traffic laws alongside red tag reminders to unplug chargers when not in use. This legislative package establishes penalties for noncompliance ranging from \$250–\$1000 per offence.

EXPANSION OF SHARED MOBILITY

New York City’s Citi Bike is the largest bike share system in North America and the most significant micromobility system in the NYMTC planning area, with 2,112 stations and a fleet of 33,976 conveyances in 2024. In 2020, Citi Bike introduced ebikes into its fleet, which represented 5 percent of the total fleet. The ebike subfleet has grown significantly; ebikes comprise 42 percent of the total fleet by 2024 and that number is clearly growing—indicating a distinct preference for speed and convenience despite a greater per ride cost. In addition to fleet size and composition, Citi Bike availability has continued to expand geographically. For more information on Citi Bike bike share stations, refer to the Moving Forward 2055 interactive map [here](#).

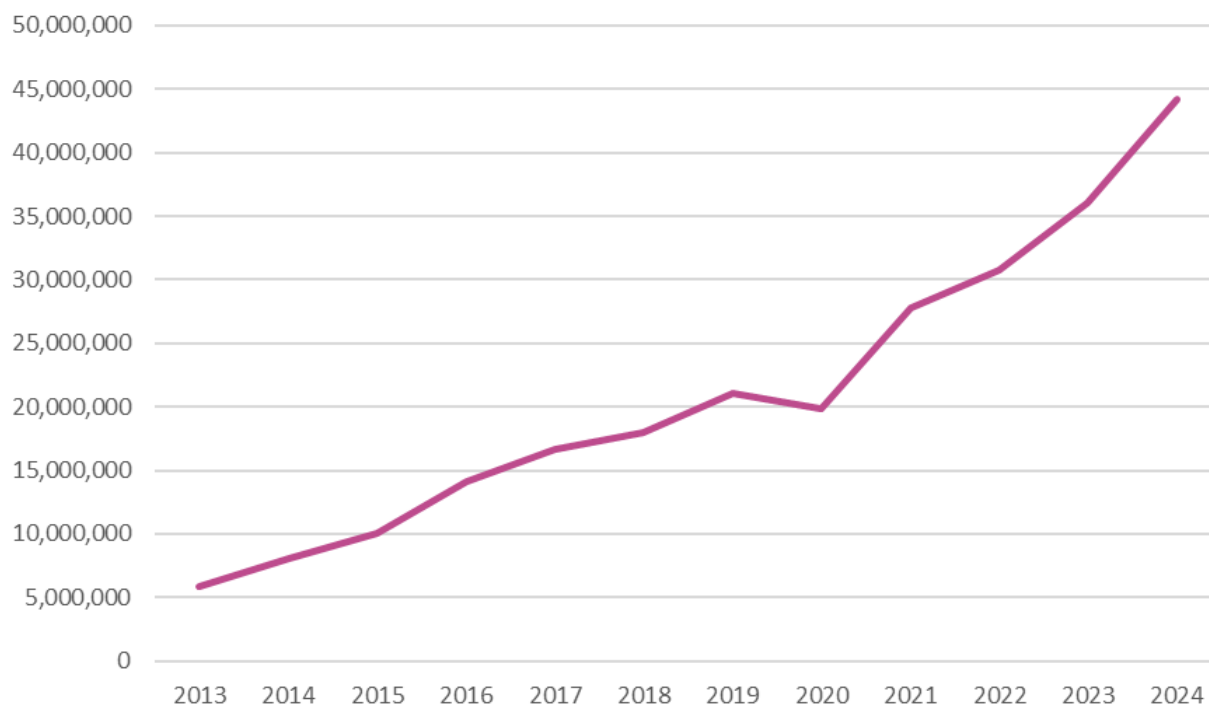
Figure 1.12 New Neighborhoods with Access to Citi Bike, 2019–2024



Source: Lyft.

Citi Bike's size centralized regional geography in New York City and utilization profile—including residents, commuters, and visitors—makes the system's ridership a lead indicator of demand for shared micromobility within the NYMTC planning area. Ridership on the system has risen steadily every year since its launch, growing more than sevenfold from 5.8 million rides in 2013 to approximately 44 million rides in 2024, as shown in Figure 1.13. In addition to the expansion of Citi Bike in New York City, Bike share customers also have access to the Citi Bike System in Jersey City and Hoboken.

Figure 1.13 Citi Bike Annual Ridership, 2013–2024



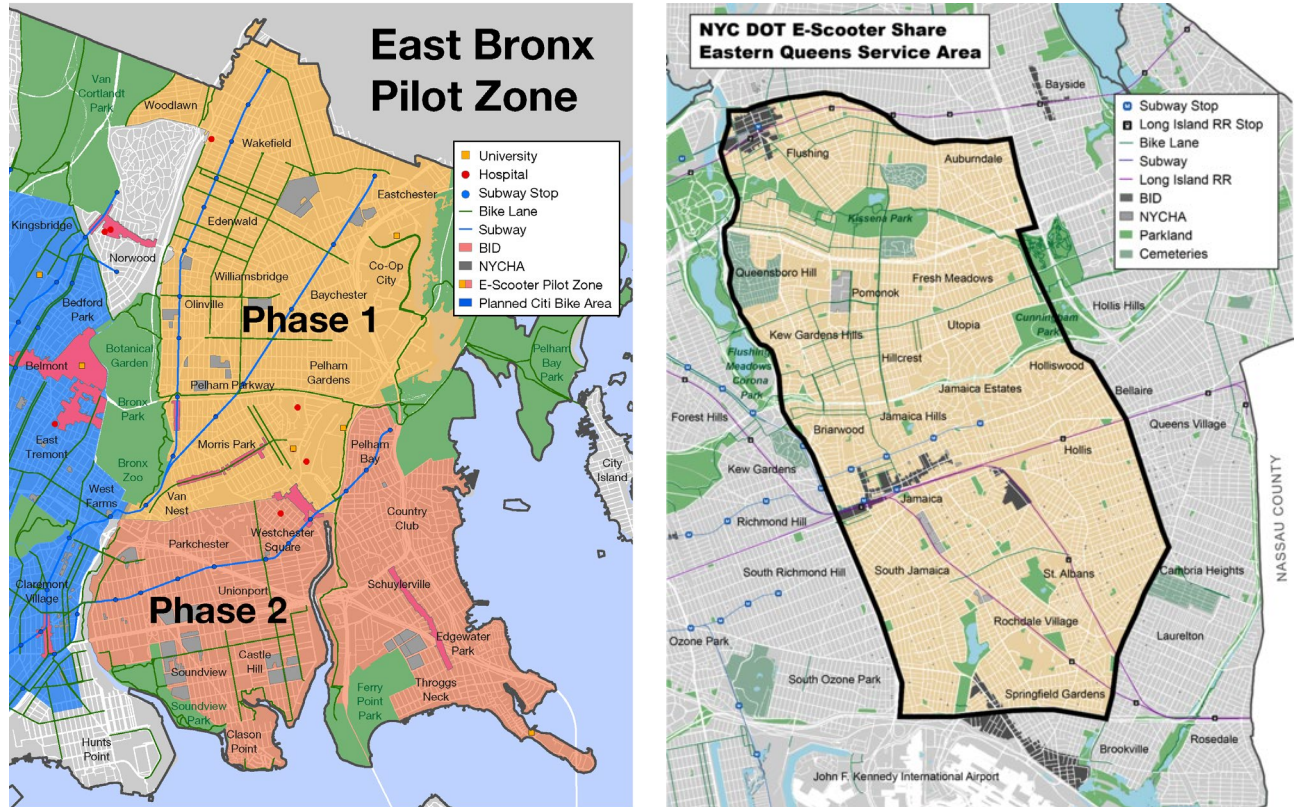
Source: Lyft.

DOCKLESS ESCOOTER PROGRAMS

In August of 2021, NYC DOT launched a pilot Escooter sharing system in the East Bronx. The first phase of this program launched with approximately 3,000 scooters provided by three private micromobility operators—including Lime, Bird and Veo—across neighborhoods north of East Tremont Avenue and East of the Bronx River until the Hutchinson River Parkway.¹¹ The system later expanded to include a total of 6,000 scooters serving Soundview and Throgs Neck.¹² More than 160,000 riders have taken more than 4.1 million trips in the East Bronx since the program launch. In addition to high ridership, the pilot has proven very safe with less than one crash per 10,000 trips since the program was launched. Based on the success of this program, NYC DOT expanded the pilot program to include eastern Queens in June of 2024. This expansion area is approximately 20 square miles—from Flushing and Auburndale in the north, to Rochdale Village and Springfield Gardens in the south.¹³



Figure 1.14 NYC DOT E-scooter Pilot Phasing and Service Areas



Source: NYC DOT.

Several bike share systems are active on Long Island. Bethpage Ride and Pedal Share—both operated by Pedalshare Inc.—oversee bikes in 52 locations across 10 municipalities and the Farmingdale State College Campus as shown in Figure 1.15.¹⁴

Figure 1.15 Bethpage Ride, and Pedal Share Locations



Source: Suffolk County Department of Economic Development and Planning.

Between November of 2023 and July of 2024, the number of system users increased by approximately 14 percent and the number of average daily rentals increased by 30 percent. In addition to these systems, Stonybrook University developed and launched a bike library system in 2011 with 25 bicycles and locks that were purchased by the University and made available for student use. Based on the popularity of this system the University hired Bixi to formalize the system and launched the Wolf Ride Bike Share in spring 2013. Today the system has grown to include 14 solar powered bike stations and 98 bicycles and is currently operated by Lyft which acquired Bixi in 2023.¹⁵ For more information on Citi Bike bike share stations, refer to the Moving Forward 2055 interactive map [here](#).

The Village of Ossining launched an Ebike share pilot program on August 26, 2024, operated by Drop Mobility in partnership with the nonprofit Shared Mobility, Inc. This initial pilot continued through late November of 2024, and included 50 ebikes for residents and visitors of Ossining. After evaluating the pilot, the ultimate goal of the program is to expand the fleet to 300 ebikes throughout the Village of Ossining and several surrounding River Towns in Westchester County.¹⁶

In addition to these formal bike and scooter sharing systems, unregulated dockless bike share systems—including Whizz and Joco Bikes—have emerged in New York City targeting **commercial delivery cyclists and gig workers**. While these systems may address concerns around access to safe, legal, and affordable ebikes for lower income populations, they also present design challenges and potential safety concerns, particularly relating to potential battery combustion, as it relates to vehicle management. Specific legal, regulatory and design guidance is essential to capitalizing on the potential benefits of these systems, while maintaining safety for all roadway users and residents.

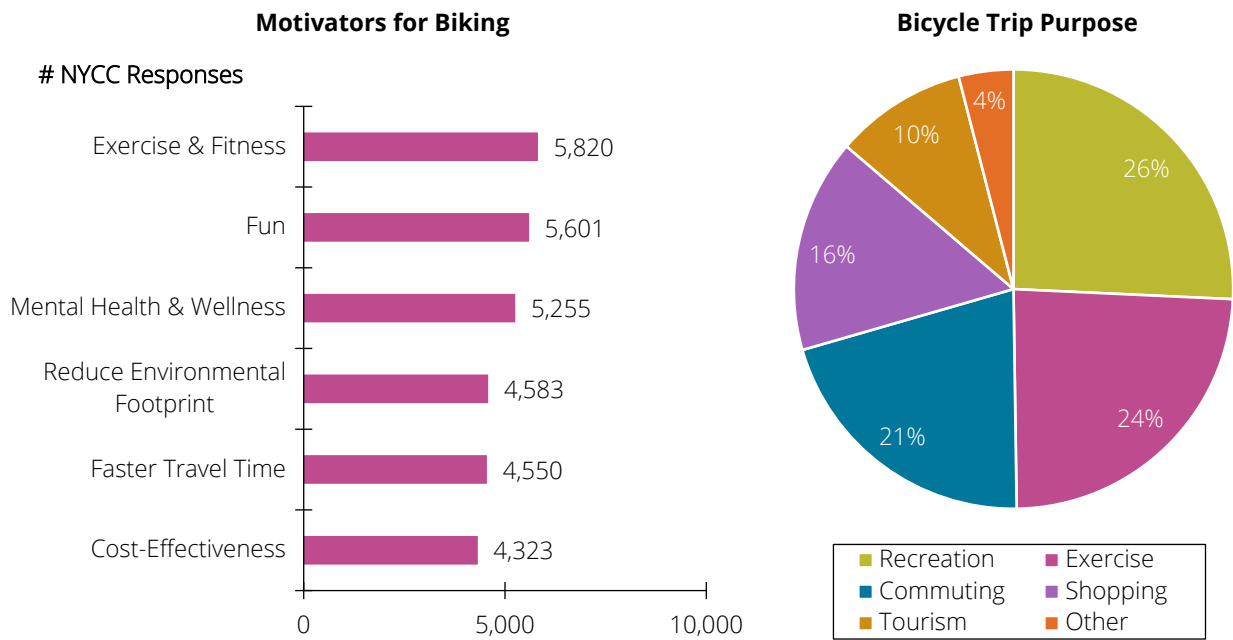
1.3.5 CONSUMER PREFERENCES, BARRIERS, AND OPPORTUNITIES

This Plan draws on data from the 2023 New York Cycling Census (NYCC) which is the largest statewide survey of cyclists ever conducted in the United States with more than 5,800 respondents across the New York Metro Region and 13,700 across the entire State as the first large-scale qualitative dataset on consumer attitudes as they relate to cycling. Although not a random sample of the target population that can be considered statistically representative, the NYCC data can be considered broadly to define key themes, as can the input received through the topical forums. These themes include the following motivators and barriers to biking as well as infrastructure ratings as described below.

MOTIVATORS AND BARRIERS TO BICYCLING

NYCC respondents from the NYMTC planning area reported several motivations to use their bicycles, with the top three being 1) exercise and fitness; 2) recreation; and 3) mental health and wellness. Though somewhat less proportionally, other reported motivators include reducing transportation pollution, faster travel time, and cost-effectiveness. The most frequently reported bicycle trip purposes include recreation, exercise, commuting and shopping, as described in Figure 1.16.

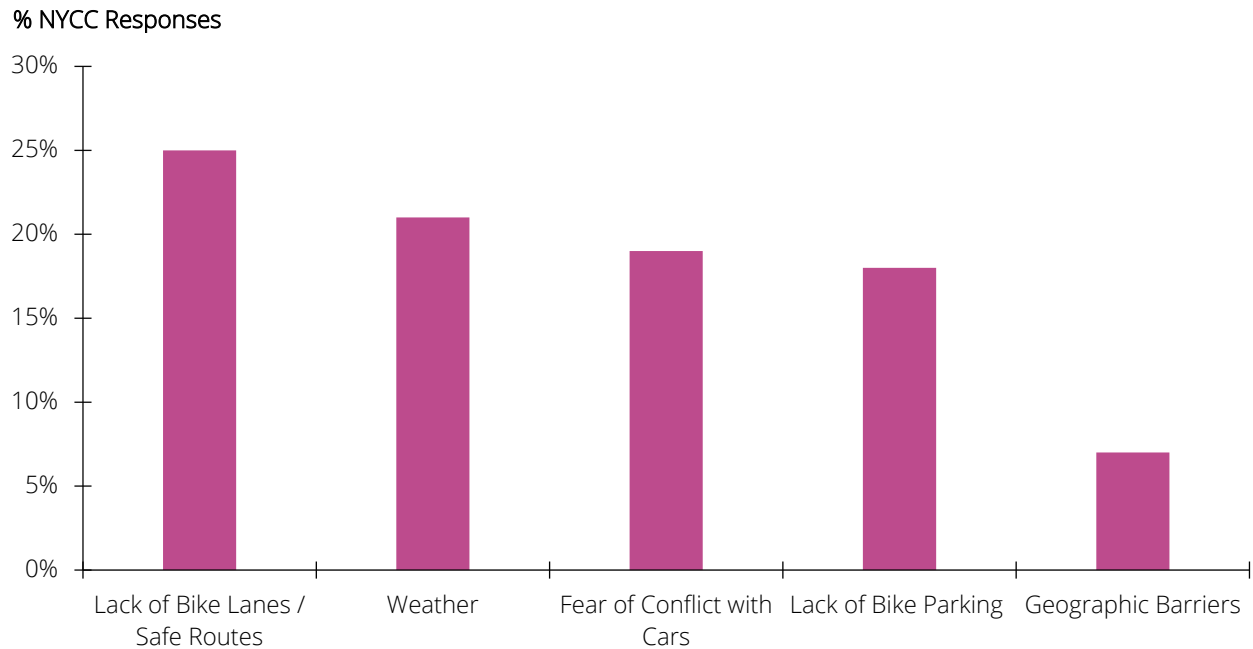
Figure 1.16 Bicycle Trip Characteristics



Source: NYCC.

According to the NYCC, the top five barriers to bicycling in the region include 1) a lack of bicycle infrastructure and safe routes; 2) weather; 3) fear of conflicts with cars; 4) lack of adequate bicycle parking at important destinations; and 5) geographic barriers such as hills and bridges. This information is summarized in Figure 1.17.

Figure 1.17 Barriers to Bicycling

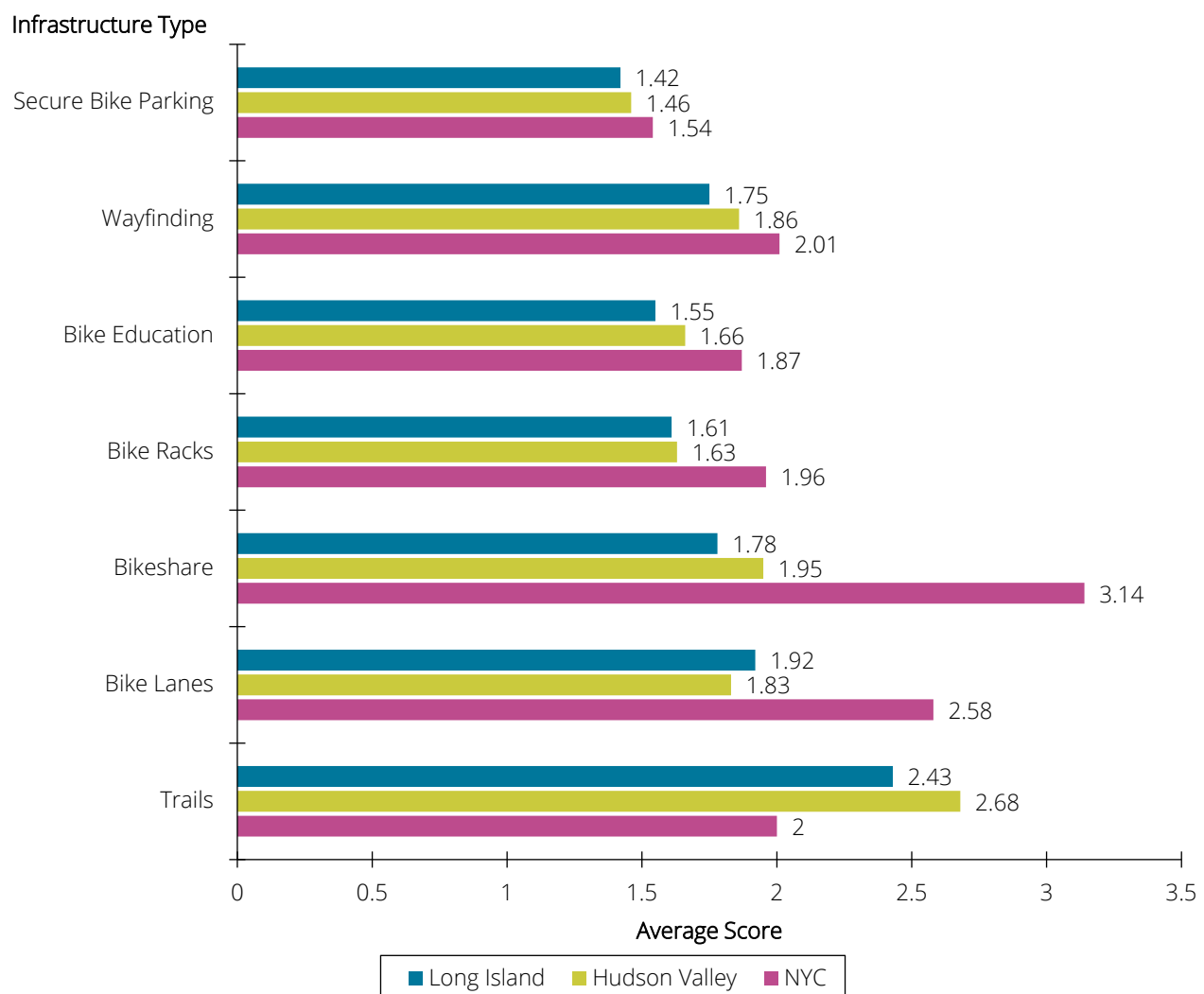


Source: 2023 New York Cycling Census.

INFRASTRUCTURE RATINGS

NYCC respondents from the NYMTC planning area rated various components of their local active transportation network from “poor” to “excellent” as shown in Figure 1.18. Components rated include trails, bike share services, bicycle racks, bicycle education programs, bicycle lanes, wayfinding information and signage, and secure bicycle parking. The ratings reported vary between the three subregions (New York City, Lower Hudson Valley, Long Island) that comprise the NYMTC planning area. In New York City, respondents indicated that bike share was the highest-ranking infrastructure category followed by bike lanes. This difference in ratings reflects the availability of bike share services and the scale of the bicycle lane network in New York City in comparison to surrounding counties, where cyclists are more likely to rely on trails rather than more limited on-road bicycle infrastructure. Respondents ranked secure bike parking as the worst of all infrastructure elements across the entire NYMTC planning area, likely a result of a lack of available options such as bike lockers, indoor storage rooms, or secure access cages. For more information on available bike facility locations, refer to the Moving Forward 2055 interactive map [here](#).

Figure 1.18 Infrastructure Ratings by Sub Region (1 Poor–5 Excellent)



Source NYCC.

1.3.6 MOVING FORWARD 2055 TOPICAL FORUMS

During the development of this Plan, a series of two virtual topical forums (four unique public outreach events) were held during spring and summer 2024 on the topics of Active Transportation and Micromobility. These sessions provided valuable insights into consumer attitudes and preferences throughout the region. They were supplemented through an online survey tool. More information on the forums and survey is available within *Moving Forward 2055* Appendix H. As with the NYCC, this input is not representative of the larger population.

Comments and concerns gathered through these approaches generally fell into four categories, including active transportation infrastructure and network development; micromobility and ebikes; first- and last-mile connectivity with transit; and safety and enforcement—as described below:

» **Active Transportation Infrastructure and Network Development:**

In alignment with the respondents' inputs from the NYCC, lack of bike lanes and sidewalks throughout the region was the reported concern of a significant margin of those providing input, indicating a general concern with bicycle and pedestrian infrastructure in the NYMTC planning area. Specifically, contributors reported a need for more bicycle lanes and sidewalks. Protected bicycle lanes—those physically separated from vehicular traffic—were preferred by those providing input.

» **Micromobility and Ebikes:**

The respondents generally expressed positive reactions to bike share systems in the NYMTC planning area and indicated a desire for expansion. While participants generally expressed positive enthusiasm and recognized opportunity regarding the growing use and availability of ebikes, conversely, safety concerns were reported around ebike charging and vehicle speeds. Some respondents also reported a need for information relating to ebike classifications, and guidance on proper regulation and enforcement. Respondents also expressed a desire to expand safe charging infrastructure and the exploration of design solutions that promote separation of ebike infrastructure from conventional bike lanes.

» **Transit Connectivity:**

Better access to transit was a theme reported through the outreach process. Respondents reported a desire to walk and/or bicycle the first and last mile to bus and rail transit options. Despite this interest, many reported not feeling safe doing so because of infrastructure conditions, citing specific safety concerns about connectivity and a lack of adequate crossings and paths in the vicinity of transit hubs and stations. In addition to routes, safe and weather-protected bike storage is essential to New Yorker's contemplating to use a bike for the first and last mile particularly at commuter railway stations, where bicycle will be left unattended for long periods of time.

» **Safety, Enforcement, and Education:**

Reported concerns about pedestrian and bicycle safety underpinned each of the above topics. Respondents also expressed concerns about enforcement as it relates to both motorists and users of active transportation modes. Specifically, some respondents wanted to see more enforcement to mitigate aggressive driving behavior, speeding, and vehicular intrusion (mainly parked vehicles) into

bike lanes and sidewalks. Other respondents expressed concern about ebike and escooter operation, citing observations about these vehicles moving at high speeds on sidewalks or ignoring traffic regulations. This reported concern underscores the need for additional active transportation infrastructure, public education for all roadway users, and exploring dedicated infrastructure for micromobility conveyances. There was also a desire to expand targeted and age-appropriate education for all types of roadway users.

1.4 FIVE THEMATIC PILLARS FOR THE FUTURE

Given the assessment above of current conditions, this Active Transportation Plan is organized around five thematic pillars as described below:

- » **Core Infrastructure Enhancements:** Large-scale projects with significant implications for regional active transportation connectivity to develop the core infrastructure elements of a regional active transportation network.
- » **Complete Streets and Transit Connectivity:** Local efforts to adapt infrastructure to support active transportation, including first- and last-mile integration with mass transit.
- » **Active Micromobility:** Planning for all aspects of micromobility, including bike share, ebikes and escooters, cargo bikes, and shared scooter programs.
- » **Performance Management:** Regional performance indicators for active transportation systems using data methods and systems to track these metrics over time to provide key insights into ongoing local and regional planning efforts.
- » **Policy and Program Development:** Policy and/or programmatic support and leadership to expand active transportation across the region.

2

CORE INFRASTRUCTURE ENHANCEMENTS

Active transportation infrastructure has been significantly expanding at both the local and regional levels since the 1990s. On-street improvements, such as protected bike lanes, curb extensions and high-visibility crossings have enhanced safety and comfort for cycling and walking, while elevating these modes as viable means of day-to-day transportation. Off-road, the expansion of existing trails and construction of new shared use paths and greenways have formed the arteries of a more robust active transportation network and provided vibrant spaces for people to walk, run, jog, ride, and play. As these increasingly vital assets continue to extend from dense urban cores to rural areas, lateral connections should be prioritized to provide connectivity between suburban communities. With increased demand, and increasing levels of Federal, State, and local funding opportunities for active transportation, the NYMTC planning area is poised to continue to expand on these improvements, and progress toward a safe and connected system serving the diverse needs of all regional users of transportation.

The following core infrastructure enhancements are a foundation for a safe and connected regional active transportation network. These are large-scale projects that span multiple communities and have broad regional significance in terms of safety and connectivity for cyclists, pedestrians and micromobility. For more information on these projects, refer to the Moving Forward 2055 interactive map [here](#). These projects are major ‘spines’ of a robust regional active transportation network and include:

» **Long Island Greenway:** The Long Island Greenway (LIG) is a 175-mile extension of the Empire State Trail from Battery Park in lower Manhattan, through Brooklyn and Queens, across the length of Long Island all the way out to Montauk. The LIG will connect 27 key communities and 26 existing parks as well as 46 train stations and 60 bus routes. The greenway will be 60 percent off-road in Nassau and Suffolk counties, offering travel between these communities—or all the way out of the city for those seeking a longer adventure. The LIG is currently divided into five sections:

- Section 1: Eisenhower Park to Brentwood State Park, 25 miles
- Section 2: South Fork, Riverhead to Montauk, 50 miles
- Section 3: Riverhead to Brentwood, 40 miles
- Section 4: Riverhead to Orient Point, 35 miles
- Section 5: Manhattan Connection, 38 miles

To date, \$28.865 million in Federal and State funding and an additional \$2.050 million in local matching funds for a total of \$30 million has been secured to advance various aspects and segments of the LIG. Currently, a 25-mile section of the LIG from Eisenhower Park to Brentwood State Park is in the final design phase in preparation for construction. In 2023, Suffolk County was awarded \$3.815 million in FY23 RAISE funding for 100 percent Planning and Design of the easternmost section of the LIG from Riverhead to Montauk. Construction on Section 1 is anticipated to begin in 2026.

Figure 2.1 Long Island Greenway



Source: The Trust for Public Land.

This project provides regionally significant benefits as a central active transportation spine for Long Island. These benefits include:

- At present, safe and protected shared-use infrastructure is sorely lacking across Long Island, and the LIG will provide a longitudinal, mostly off-road active transportation and recreation resource spanning Nassau and Suffolk Counties.
 - The LIG is a crucial missing link in the world class 750-mile-long Empire State Trail terminating in Battery Park, unfortunately leaving out more than 40 percent of New York State's population.
- » **New York City Greenway Expansion Plan:** New York City is the regional core with access to both the Hudson Valley and suburban Long Island. In 2022, the City was awarded a Federal RAISE grant to 1) envision future New York City greenways and analyze, prioritize, and study potential greenway segments; 2) develop five early action implementation plans for key corridors across New York City; and 3) build a citywide long-range cyclist and micromobility user volume estimation model. In October 2023, the City announced early action corridors that collectively represent 60 miles of new and existing greenways. These corridors include the Queens Waterfront, from Gantry Plaza State Park to Little Bay Park (16 miles); Historic Brooklyn, from Coney Island to Highland Park (12 miles); Staten Island Waterfront, from Goethals Bridge to Verrazzano Bridge (10 miles); South Bronx, from Randall's Island Park to SUNY Maritime (15 miles) and; Southern Queens, Spring Creek Park to Brookville Park (7 miles). The New York City Economic Development Corporation (NYCEDC), in coordination with NYC DOT and the Department of Parks and Recreation is developing these priority active transportation corridors.
- » **NYMTC Palisades Shared Use Path Study:** The completion of the Governor Mario M. Cuomo Bridge Shared Use Path (SUP) created a spectacular new crossing over the lower Hudson River for walkers and cyclists for the first time in nearly 90 years. Before this path opened in 2020, the closest water crossing to the George Washington Bridge for active transportation was the Bear Mountain Bridge, nearly 40 miles to the north. The Cuomo Bridge SUP, along with the ongoing upgrades to the George Washington Bridge shared use paths, are expected to increase bicycle traffic along the U.S. 9W corridor between these two bridges. The feasibility of enhancing this connection between the two bridges is currently under investigation through the Palisades Shared Use Path Study.
- The creation of new North to South connectivity within Rockland County.
 - Exploration of connections between a major trail and communities to the west throughout Rockland County.
 - Create Interstate connections between two major active transportation thoroughfares (the George Washington Bridge North Walk and the Mario M Cuomo Bridge SUP).
 - This proposed trail also enables a stronger, farther reaching link for Rockland County Residents to access Metro-North Railroad on the East side of the Mario Cuomo Bridge shared use path.

Figure 2.2 New York City Greenway Expansion Plan



Source: NYC EDC.

- » **Rockland County Riverway Trail:** Independent of this investigation, in 2022, Rockland County initiated a separate feasibility study for a 21-mile trail alignment along the Hudson River connecting the Hamlet of Palisades to Bear Mountain in Stony Point. This study, which included extensive public engagement, identified a complete trail alignment as well as opportunities for amenities, gathering spaces and numerous aesthetic elements. The broader purpose of this project is to leverage active transportation infrastructure to enhance nonmotorized connectivity across the county as well as drive tourism and economic development.
- » **Tarrytown-Kensico Trailway/Bikeway Plan:** In 2016, Westchester County published the Tarrytown-Kensico Trailway/Bikeway Plan, an ambitious project to establish an east/west trail connection between the Hudson River—and a link to the Hudson River Valley Greenway—and the Bronx River

Parkway Reservation at Kensico Dam Plaza. When in place, this greenway will provide connections to four existing north/south trailways including:

- The Westchester County Hudson RiverWalk
- New York State's Old Croton Aqueduct Trail
- The North and South County Trailways (now part of the Empire State Trail)
- The County's Bronx River Parkway Reservation Pathway

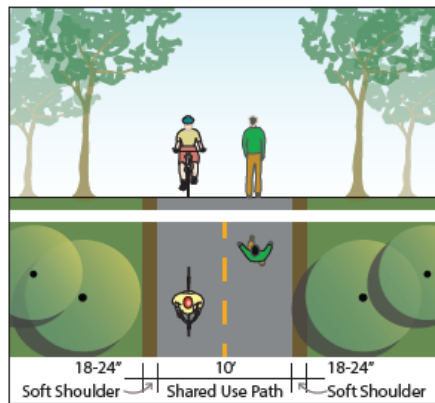
In addition to these trails, the proposed trail alignment will also connect with Westchester Community College and Westchester County's Valhalla Campus at Grasslands Reservation. The 2016 plan proposes an eight-mile multiuse trail alignment traversing the towns of Mount Pleasant, Greenburgh, and the villages of Tarrytown and Sleepy Hollow, along with schematic plans, design recommendations, and implementation strategies.¹⁷

This trail will provide numerous regional benefits as a central active transportation spine in the lower Hudson Valley including:

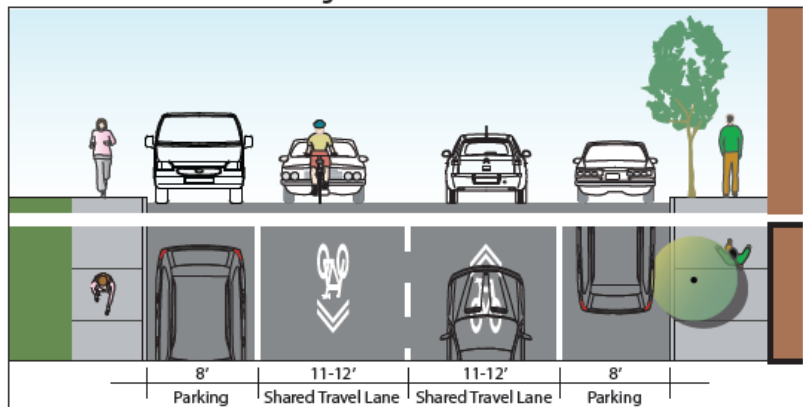
- Connection between at least four regional north to south trails
- Enhance connectivity with Metro-North Railroad and BeeLine Stations

Figure 2.3 Typical Cross Sections of Various On- and Off-Road Sections of the TKT

Detail 1: Shared Use Path



Detail 2: Shared Lane Marking



Source: Westchester County.

2.1.1 ACTION ITEMS

Strategy	Description	Time Horizon
Support projects aimed at planning, designing, and implementing regionally significant Active Transportation Projects	These four regionally significant active transportation projects above represent major trail and/or greenway elements throughout the region. These projects will address critical missing links, including east to west connections in Westchester and Long Island, a core north to south waterfront route through Rockland County (connecting the George Washington Bridge North Walk and the Cuomo Bridge Shared Use Path) and gaps in New York City's outer borough greenway network. NYMTC members will support initiatives and/or grant applications aimed at advancing portions of or the entirety of these projects.	Ongoing
Establish a vision for a connected regional active transportation Network	NYMTC members will work with local jurisdictions to identify additional active transportation projects to create a more comprehensive vision for off-road projects. These will include both trails and greenways as well as major on-road projects such as protected greenways and cycle tracks providing connectivity to downtown commercial business districts, transit and other key destinations throughout the region.	Ongoing



3

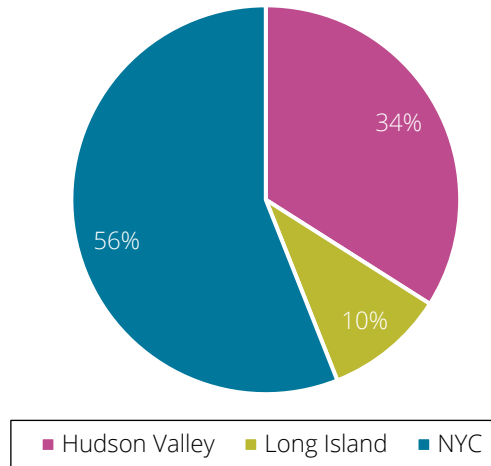
COMPLETE STREETS AND TRANSIT

The purpose of this section is to survey active transportation projects across the region with a focus on local improvements. This section addresses bike parking as a major point of concern throughout the NYMTC planning area and expand on active first and last mile connectivity with transit. Maintenance of active transportation and complete street infrastructure is also addressed in this section.

3.1 REGIONAL PROJECT HIGHLIGHTS

As noted in Section 1.3.3, Federal and State active transportation funding has increased dramatically since 2017. Currently, there are 71 projects in the workplan that are either explicitly or pedestrian and/or bicycle focused or have a significant active transportation component.

Figure 3.1 Pedestrian/Bike Projects by Subregion



Four of these projects in New York City are designated as fiscally-constrained, or funded using Federal resources, and include the Commercial Street Section of the Brooklyn Waterfront Greenway, and the South Bronx Greenway Development from Southern Boulevard to 138th street as well as New York City's Safe Access for Electric Micromobility (SAFE Micromobility) program. Together, these projects represent a combined budget of approximately \$59 million programmed through 2029. Most programmed projects are 'vision' projects, or those with a formal plan or concept but no additional funding for design or construction. Cost estimates are only available for three vision projects.

Specific projects, programs and studies recommended for funding in the fiscally constrained element of *Moving Forward*, as well as those recommended for future consideration in the speculative vision element of the Plan, appear in Appendix A.

3.2 PRIORITIZING SAFETY AND CONNECTIVITY FOR ALL USERS

Streets and roadways throughout the 10-county region are public spaces with potential to encourage economic development, reduce transportation-related pollution, facilitate placemaking, and bolster public health. Adopting a complete street or well-rounded approach to roadway design—one that approaches streets as multimodal arteries that enable safe access for all users—is an essential strategy toward these achieving these goals and reaching the highest and best use of these vital thoroughfares.

Walking, biking, rolling, and other modes of active transportation are a central focus of this effort, as each mode expands transportation choice and access to key destinations across rural and urban communities. Whether it is a downtown commercial sidewalk, a rural side path, or even a parking lot, pedestrian

infrastructure serves an important role in reducing conflict between cars and people. Recognizing that every New Yorker in the 10—County Region is a pedestrian at some point in their journey, communities should prioritize walkability both in denser land use contexts, and transition points between modes (such as intersections and transit stops). In addition to expansion and maintenance of shared use paths and sidewalks, optimizing the pedestrian experience should include considerations such as lighting, shade trees, landscaping, and other amenities like seating. Complete Streets as a design strategy will manifest differently in communities across the region based on land use, existing transportation network features and overall context. Decisions about context-sensitive measures to prioritize pedestrians, cyclists and other vulnerable users should be data-driven and responsive to local needs.

3.2.1 ACTION ITEMS

Strategy	Description	Time Horizon
Support Daylighting at Intersections Across the Region	The concept of “daylighting” refers to increasing visibility at intersections by clearing obstructions like parked cars or vegetation that block sightlines (for drivers, pedestrians, and other modes). NYMTC members are encouraged to implement daylighting solutions wherever possible, particularly in areas with high volumes of pedestrian traffic such as commercial corridors or urban neighborhoods. Intersections with high instances of crashes should be prioritized for daylighting in tandem with other design solutions such as raised crosswalks, curb bumps and signage to further enhance safety.	Ongoing
Work toward a 15-minute connectivity model	Denser urban areas should strive to ensure that key destinations and services are generally within a 10–15-minute walk or bike ride for all residents.	Ongoing
Prioritize bicycle and pedestrian network transition points throughout the region	Complete street design solutions should not stop at a community’s boundary. NYMTC members should work collaboratively to ensure consistency across a broader regional network, and land uses. Recognizing that active transportation infrastructure varies in different land use contexts. For example, wide shoulders and or side paths along rural roadways should gradually transition to sidewalks and bike lanes as they approach denser urban areas.	Ongoing
Identify opportunities to implement low/no car zones.	Reducing or eliminating vehicle traffic in certain areas can enhance safety for bicycles and pedestrians. NYMTC members are encouraged to consider implementing these zones as land use permits to prioritize safety. Low traffic zones are ideally paired with packages of active transportation infrastructure like speed bumps, roadway murals and asphalt markings. Closed streets—such as park drives, or secondary commercial throughfares—can be closed on a periodic basis (ex. Weekends, special events, school pick up/drop off) or permanently depending on the surrounding roadway context.	Ongoing

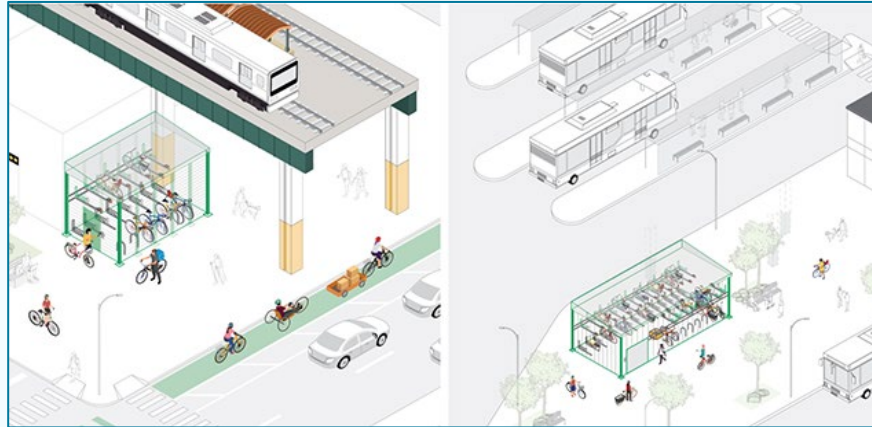
3.3 EXPANDING BIKE PARKING

As active transportation infrastructure continues to expand throughout the NYMTC planning area, there is a growing need for safe storage for bicycles at key destinations, especially transit. According to the NYCC, the lack of bicycle parking at important destinations is one of the top four barriers to using bicycles reported by respondents throughout the NYMTC planning area. Creating safe, secure, and attractive bicycle parking near everyday destinations, and key regional trip generators encourages cycling by instilling both a sense of accommodation and security for the choice of using a bicycle. For more information on bike parking, refer to the Moving Forward 2055 interactive map [here](#). There are a variety of considerations for communities when prioritizing locations, designs, and quantity of bicycle parking and storage. These can include:

- » **Accessibility, Visibility and Attractive Design:** Bicycle parking that looks enticing and conveys a sense of security should—whenever possible—be near the entrance of a selected destination to enable seamless access. Line of site visibility also adds a sense of security.
- » **Placement:** Bike parking facilities should be intuitively positioned close to the entrances of key destinations and along paths of travel for cyclists. Bike racks and/or secure bike parking facilities should be sited in convenient locations that also minimize conflict with pedestrians and other modes.
- » **Duration and Use Cases:** The duration users will need to store bicycles should be considered. Users storing for more than two hours will most likely value security and shelter over the convenience and ease of short-term storage.
- » **Capacity:** The amount of bicycle storage at a location should reflect the anticipated volume of cyclists, based on the number of existing cyclists, as well as additional storage to accommodate latent demand—people who would use bicycles if enough quality storage were made available.
- » **Placemaking:** Design can be considered for bicycle storage while maintaining its functional purpose to enhance the streetscape and foster a unique sense of place. Designs can also reflect and bolster historical or culturally significant identifiers within a location or community.
- » **Maintenance & Operations:** Jurisdictions must have clear policies and procedures related to the utilization of bike parking facilities—such rules governing the removal of abandoned bikes—as well as plans for routine assessment, cleaning, and reporting of issues. Partnerships with businesses and large employers also represent an opportunity for communities to address some of these concerns.

CASE STUDY | Secure Bicycle Parking Program, New York City

In May of 2024, NYC DOT announced a new program to launch a network of 500 “secure” bicycle parking facilities to be implemented by 2030. Secure parking includes a variety of small- and high-capacity secure parking facility designs, with enclosed and open-air units both at the curbside and off-street. Locations will be prioritized with initial locations at transit hubs, in areas with high volumes of ebikes and cargo bikes, co-locations with ebike charging facilities, and long-term storage in denser residential areas that may lack space for in-home storage.



Two example designs for high-capacity bike parking facilities.

Source: NYC DOT.

3.3.1 ACTION ITEMS

3-5

Strategy	Description	Time Horizon
Incorporate bicycle parking and storage based on best practices	Bicycle parking and storage are essential features within an active transportation network, since these features assure users that they will have a safe and secure space to store their bicycles once they arrive at key destinations. NYMTC members will prioritize projects that accommodate bicycle parking and storage conveniently situated near the entrance to key transit facilities and along commercial corridors.	Ongoing
Establish a regional bicycle parking/storage inventory	Outside of New York City, very little data exists on the location and condition of existing bicycle parking and storage facilities elsewhere in the NYMTC planning area. NYMTC can support efforts to consolidate existing data in a centralized, publicly available database. NYMTC can also recommend and encourage standard data collection best practices for this purpose to promote regional consistency.	Long-Term
Establish a bicycle storage design pilot program	Bicycle storage at destinations can serve a dual purpose as both a functional element and a placemaking tool. By installing bicycle parking and storage with sculptural design elements, communities can introduce public art to the streetscape which contributes to a unique sense of place. Toward this end, NYMTC members can support a pilot sculptural bicycle storage program, working with local jurisdictions to solicit local contextually appropriate designs for fabrication and installation. This pilot can also serve as an opportunity for public engagement, including local art communities, through the design solicitation process.	Short-Term

3.4 CONNECTING WITH TRANSIT

The trip between a transit stop or station, and an origin/destination point (like home, school, work, or a commercial center) is referred to as the first and/or last mile. The actual distance of the first and last mile varies by mode. General guidance from FHWA and other entities recommends an ideal walking distance ranging between 0.25 and 0.5 miles from transit, pedal bike trips between 0.5 and 3 miles, and ebike trips extending up to

5 miles. Enabling active modes within these walk and bike catchment areas carries significant potential to improve local roadway safety, mitigate congestion, reduce vehicular pollution, and enhance public health.

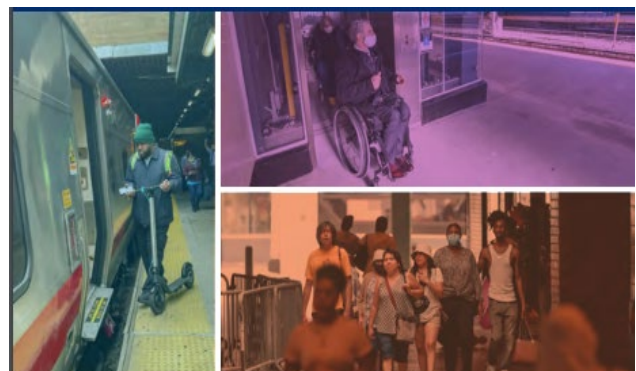
In 2021, New York State legislation directed the MTA to prepare and submit to the legislature a Strategic Action Plan to improve bicycle and pedestrian access at its bridges, stations, and other facilities. Considering growth of active transportation as well as the emergence of micromobility technologies, the MTA recognized this as an opportunity to expand access to existing services and facilities, increase customers' mobility choices and increase access to the regional transit system.

In January 2023, the MTA published [Extending Transit's Reach: MTA's Strategic Action Plan for Bicycles, Pedestrians, and Micromobility](#), an unprecedented framework to improve integration between the transit system and cyclists, pedestrians and micromobility users. The Plan is organized into five main action strategies, including safe routes to transit; station access and mobility; multimodal integration; demand management; and policy, program administration, and performance management. Within less than a year of the Plan's publication, MTA coordinated with NYC DOT to install bike racks at 34 subway station entrances, ensuring that as of the end of 2024, 100 percent of stations have bicycle racks within 100 feet of an entrance. In addition, MTA is working to install additional bicycle parking at 13 Metro-North stations, six Long Island Rail Road (LIRR) stations, and one LIRR employee facility.¹⁸ MTA also incorporated front-of-bus bike racks on three key Select Bus Service (SBS) routes that cross three bridges operated by MTA Bridges and Tunnels including the Q44, S79, and M60.

“If the community wants to reduce the negative impacts of cars, make it easier and safer to walk to mass transit.”

—Moving Forward 2055 Survey Respondent

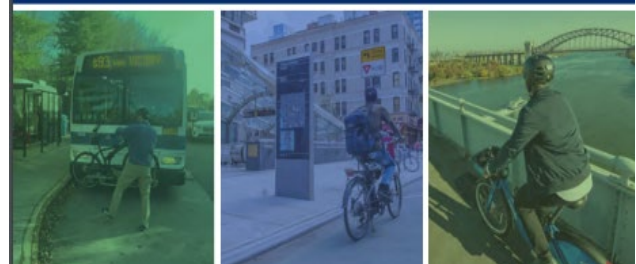
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Extending Transit's Reach:

MTA's Strategic Action Plan to Promote Bicycle, Pedestrian, and Micromobility Access to MTA Facilities

 Metropolitan Transportation Authority



In 2024, the New York State Energy Research and Development Authority published a complimentary study titled *Extending Transit, Completing New York's First and Last Mile*.¹⁹ This statewide investigation compiled New York's first large-scale dataset on current transit agency practices as they relate to active transportation. This study includes data from more than 40 transit agencies across the State, including major bus systems like the Westchester Bee-Line System, Nassau Inter-County Express (NICE), Suffolk Transit, and Transport of Rockland. This study identified several opportunities for bus transit systems to expand existing practices and increase active first and last mile connectivity with transit. These opportunities included 1) Building more bike parking at transit facilities; 2) Encourage active connections for customers with resources and incentives; 3) Build better data systems around bicycling at transit stops; 4) Embrace and accommodate ebike mobility; and (5) Integrate biking and walking into agencywide GHG reduction goals.

3.4.1 ACTION ITEMS

Goal	Description	Time Horizon
Establish a regional 'Racks for Transit' program to ensure that transit stations and centers includes bicycle storage.	Given that lack of storage at transit stations and centers, there is a significant opportunity to enhance first- and last-mile connectivity between transit and active transportation in the NYMTC planning area. NYMTC can work with members to procure bike racks and manage a establish a program that distributes them to municipalities with commuter rail stations. This will help increase the availability of bicycle storage at transit locations, with the goal of ensuring that every commuter rail station in the NYMTC planning area has bike racks available for commuters.	Short-Term
Enhance data collection around first- and last-mile connectivity between active transportation and public transit	Data collection related to first- and last-mile connectivity is sporadic, and inconsistent. NYMTC members can use electronic data collection methods—such as automated counters on exterior-mounted bike racks on buses—to reduce burdens on transit operators, provide a more reliable and accurate indicator of user behavior and lay the groundwork for future targeted planning efforts. NYMTC can also coordinate the inclusion of questions related to active transportation within the framework of existing customer surveys and other data collection engagements.	Medium-Term
Promote active first- and last-mile connectivity.	NYMTC can coordinate user-friendly and graphically rich online webpages to promote resources available to transit customers, including policies and safety tips, bicycle storage locations and capacities near transit stops and stations, and bike share information with links to other local resources.	Ongoing
Enhance transit stop safety and accessibility	NYMTC member agencies should work collaboratively to ensure bus and rail transit stations are as accessible as possible. Strategies such as providing ADA-compliant sidewalks to bus stops with seating and weather protection help make transit more accessible to transit customers of all ages and abilities. Additional measures, like dedicated lighting at shelters and wayfinding further expand accessibility with a safer user experience.	Ongoing

3.5 TRACKING THE CONDITION OF ACTIVE TRANSPORTATION INFRASTRUCTURE

There is limited and inconsistent data on the condition of active transportation infrastructure available, making it difficult to accurately forecast and plan for maintenance needs and costs for elements such as sidewalks and bike lanes at the regional scale. For more information on current active transportation infrastructure, refer to the Moving Forward 2055 interactive map [here](#).

3.5.1 ACTION ITEMS

Goal	Description	Time Horizon
Establish a regionwide active transportation infrastructure inventory	Sporadic and/or uncoordinated data collection makes it difficult to understand existing conditions, prioritize investments and forecast maintenance needs/costs. NYMTC can work with members to establish a regional framework for active transportation facility categorization based on AASHTO guidelines. In addition, NYMTC can work with members to establish a series of consistent methodological recommendations including key data points and condition assessment framework to promote consistent tracking across the region.	Short-Term
Establish a centralized sidewalk and bicycle lane inventory	NYMTC can work with members to establish a regional database of existing on- and off-road bicycle facilities and sidewalks by requesting datasets from its members. NYMTC can analyze this data to identify gaps and categorical inconsistencies.	Medium-Term
Develop forecasts for active transportation infrastructure preservation	Based on collected data on current conditions, forecast preservation needs for bicycle lanes, sidewalks, trails, and other active transportation elements across the NYMTC planning area.	Medium-Term



4

MICROMOBILITY

The emergence of micromobility technologies and conveyances across the NYMTC planning area has expanded the scope and scale of active transportation. This section will provide an overview of the technologies and conveyances that are currently in use in differently scaled communities. In addition, this section will outline ways that NYMTC can support the growth of micromobility and its place in the active transportation system. Given the rapidly evolving nature of the micromobility landscape in the 10-county region, the Plan's focus is 1) providing technical resources to support the growth of micromobility systems; and 2) supporting regional coordination amongst member agencies and micromobility systems/vendors.

4.1 REGIONAL MICROMOBILITY NETWORKS AND OPPORTUNITIES

FHWA broadly defines micromobility as “small, low-speed, human or electric-powered transportation device that people use to get to and from a destination, including bicycles, scooters, electric-assist bicycles (e-bikes), electric scooters (e-scooters), and other small, lightweight, wheeled personal conveyances.”²⁰

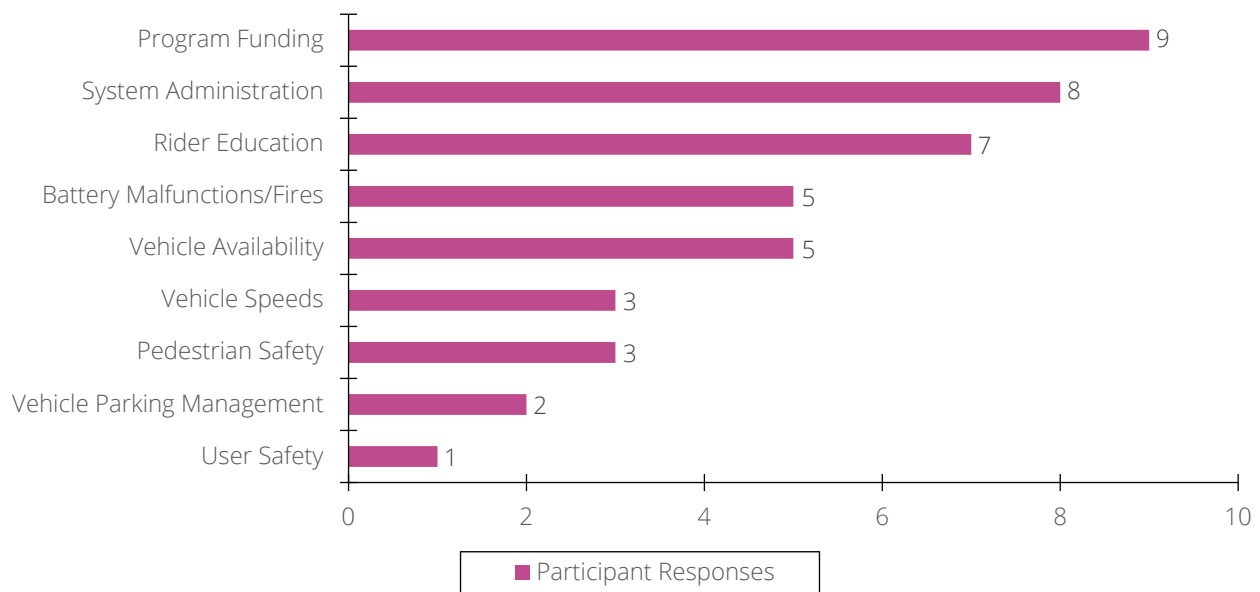
This differs from New York State’s more restrictive legal definition which only encompasses “electric scooters; self-balancing, two nontandem wheeled devices; skateboards, and unicycles.” This definition explicitly excludes ebikes, which are defined separately in NYS Vehicle & Traffic Law Section 102-C under a three-tiered classification system as described below. While this definition of micromobility provides important administrative context for local regulatory compliance and policy-making, for the purpose of this Active Transportation Plan, and in accordance with FHWA’s definitions, micromobility will refer to three specific modes: 1) shared motorized and nonmotorized bicycle and scooter systems; 2) ebikes; and 3) motorized and nonmotorized cargo bicycles and tricycles.²¹ For more information on regional micromobility options, refer to the Moving Forward 2055 interactive map [here](#).

“I purchased an ebike during pandemic and it has TRANSFORMED my travel patterns and bike usage!”

—New York Cycling Census respondent

4.1.1 USER ATTITUDES AND CONCERNS

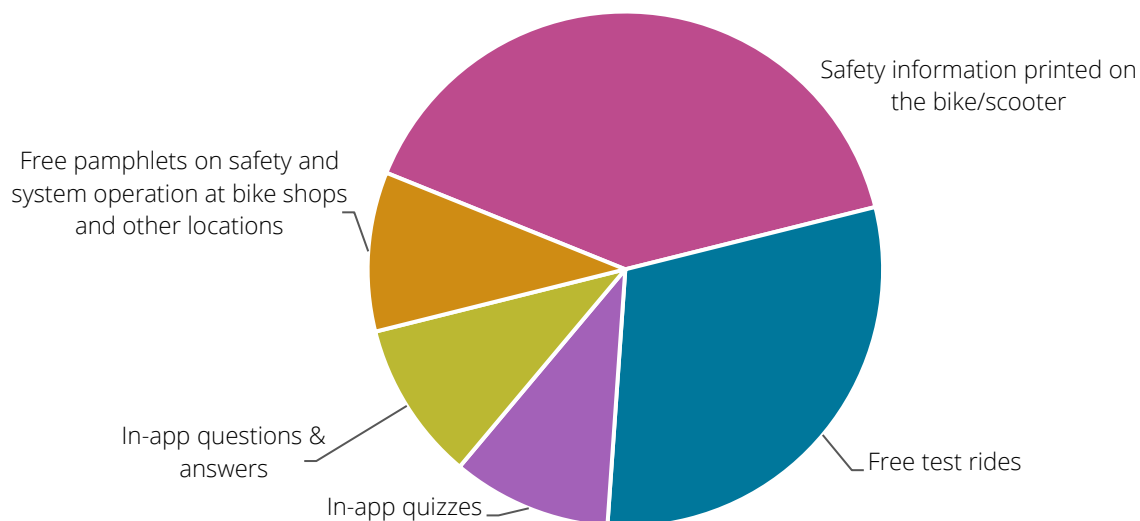
Over the development of this Plan, NYMTC held two topical forums (four unique public outreach events) on active transportation and micromobility. Participants included representatives from public-sector agencies and a mix of private citizens, transportation industry professionals and advocates. Despite some significant safety concerns, topical forum participants expressed general excitement about micromobility within the NYMTC planning area. The biggest concerns (Figure 4.1) were program funding, bike/scooter share system administration and rider education, along with ‘other’ external factors applicable to all modes of active transportation, including fear of conflict with motor vehicles and a general lack of safe infrastructure.

Figure 4.1 Micromobility Concerns

Source: NYMTC Topical Forums.

Respondents expressed a strong desire for additional education relating to micromobility options. When asked about what types of education would be most helpful (Figure 4.2), forum participants indicated that safety information on the conveyances, and free test rides in a controlled environment would be most helpful to facilitate greater regular use of micromobility options as part of meeting routine daily transportation needs.

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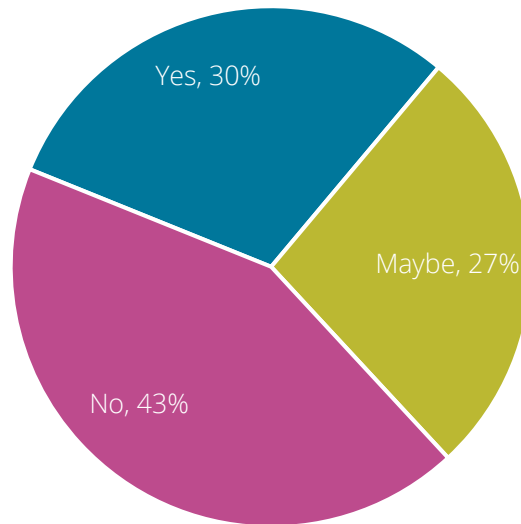
Figure 4.2 Micromobility Education Desires

Source: NYMTC Topical Forums.

In addition to the topical forum, NYCC participants indicated an opportunity to expand micromobility through new conveyance types and availability. More than half (57 percent) of respondents indicated that an ebike would definitely or potentially enable them to cycle more often, as shown in Figure 4.3.

Figure 4.3 Ebikes and Likelihood of Bicycle Usage

Would an ebike make you more likely to bike?



Source: 2023 New York Cycling Census.

4.2 SHARED BICYCLE AND SCOOTER SYSTEMS

Shared bicycle (i.e., “bike share”) systems are programs, both for profit and not-for-profit, that provide bicycles and/or scooters for shared public use. For more information on bike share systems, refer to the Moving Forward 2055 interactive map [here](#). The use and future development of these systems are important elements of the active transportation system that benefit the NYMTC planning area by:

- » **Reducing Congestion:** Increasing the availability of motorized and nonmotorized bicycles and scooters will attract users and increase the likelihood that these conveyances will become a viable and routine mode of active transportation for short trips.
- » **Proxy Data for Regional Bike Ridership Volumes and Travel Patterns:** As discussed earlier in Section 3 of this Appendix, very little regional data is available on active transportation mobility patterns. The technology-driven nature of bike and scooter sharing systems enables the public or private operators of these systems to provide trip frequencies and trip origins and destinations. This data could represent a very vivid snapshot of where and how often people are using various active modes of transportation and can help target program expansion while enhancing more efficient system operations.
- » **Reducing Pollution caused by Transportation:** Pollutants in the atmosphere can create negative public health impacts and environmental damage. Examples of notable pollutants include carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.²² The combustion of fossil fuels such as gasoline and diesel to transport people and goods was the largest source of pollution caused by CO₂ in 2022 in the U.S.²³ In New York City, Citi Bike trips are estimated to circumvent about 1.8 million pounds of CO₂ each month.²⁴

- » **Improving Public Health:** Bicycle and scooter sharing systems require varying levels of physical movement on the part of users, which contributes to more active, healthy lifestyles. In New York City, Citi Bike riders burn around 196 million calories each month.²⁵
- » **Increased Mobility and Accessibility:** shared systems across the country have either introduced or are quickly adding ebikes and e-scooters to their shared conveyance fleets, which reduces physical demands as barriers to use by a broad range of people. These motorized conveyances also increase the accessibility of areas and destinations formerly limited due to distance. Given the expense of buying an ebike for personal use, sharing systems offer access to these vehicles at affordable prices, thus reducing barriers to active mobility and potentially extending the range of individual trips. Shared systems can be dock-based or dockless as described below:

Figure 4.4 Dock-based and Dockless Systems



Dock-based systems rely on physical docks aligned within municipal right-of-way. These docks provide physical parking spots for bicycles and create a defined set of origins and destinations within a community.

While many dock-based systems rely on solar technology to power their locking mechanisms and user interface, some may require a hard-wired utility hookup.



Dockless systems rely on GPS tracking to enable users to pick up and park shared bikes, ebikes and e-scooters anywhere within a defined program area. While these systems do not require physical docks, administrators rely on 'geofencing' to define operational limits, manage parking, and encourage safe riding behavior. Municipalities can reinforce geofenced parking with physical corrals (including painted boundaries, planters, and other low-impact features), and either offer incentives or require mandatory parking within those zones.

In addition to these technology-intensive systems, 'bike libraries' have also emerged as a rapid implementation strategy for micromobility in smaller communities, universities, and/or neighborhood scale. Bike libraries address a major barrier to micromobility by enabling anyone, including unbanked individuals,²⁶ to have access to bikes—often at no cost—without the need for payment infrastructure.

CASE STUDY | Brookhaven Bike Borrow Program and Peninsula Bike-lending—Long Island, NY

In September 2024, Comsewogue Public Library launched the Bike Borrow Program, becoming the first library in Suffolk County to offer bicycles to patrons. As part of NYSDOT's Statewide Mobility Services program, the Town of Brookhaven partnered with the Long Island Bicycle Cooperative to offer four refurbished bikes to adults with a valid library card for up to two weeks at a time. In addition to supplying the bikes, the Long Island Bicycle Cooperative—a 501(c)3 community bike shop—will maintain and repair the bikes. The goal of this program is to promote cycling as an alternative means of transportation in Port Jefferson Station, a community identified as having unmet local transportation needs. In Nassau County, Peninsula Public Library launched its own bike library program with the same support from NYSDOT's statewide mobility services program and the Long Island Bicycle Cooperative. This system also utilizes four refurbished bikes provided by the co-op, which will continue to maintain these vehicles.

Source: Sustainable Libraries Initiative.

4.2.1 ACTION ITEMS

Strategy	Description	Time Horizon
Develop and maintain a regional inventory of all micromobility systems in the NYMTC planning area	Currently, there is no central database containing the sizes, locations, fleet composition, and ridership for every formal bike sharing system in the region. This makes it difficult to analyze micromobility adoption at a regional level. Compiling this information will serve as a benchmark for micromobility and encourage municipalities to learn from other communities and institutions that have already launched systems. Developing this database will assist in planning for future system expansions, and new launches as well as the prioritization of investment to seed micromobility system pilots.	Medium-Term
Develop a model RFP and best practice documents for procuring micromobility vendors	Administering a bike and/or scooter sharing vendor is a potential barrier to entry for many municipalities throughout the region. NYMTC can work with members to develop a model Request-for-Proposals (RFP) to solicit micromobility services from qualified vendors. This document will include recommended data reporting requirements, as well as operational performance requirements to ensure vendors are maximizing safety and service for users. This model RFP will include a 'how to' user guide to help municipal officials understand the complexities of managing a micromobility system.	Short-Term
Develop fare payment integration between shared systems and public transit	Intermodal connectivity in the NYMTC planning area is complex, particularly when transferring between transit lines administered by different jurisdictions. Although some integration of fare payment systems has been achieved, differences between fare systems still exist and create friction for users. This extends to bicycle and scooter sharing systems. Despite the benefit of shared micromobility vehicles positioned at or near transit stops, adding an additional payment method represents a barrier to utilization. NYMTC can coordinate with members to develop a mobility as a service (MaaS) platform to seamlessly integrate the user fare payment experience between bike and scooter sharing systems and transit services.	Long-Term

4.3 PERSONAL EBIKES AND ESCOOTERS

The number of ebikes and scooters in the NYMTC planning area has grown dramatically since the onset of the COVID-19 pandemic as New Yorkers explored alternatives to driving. Ebikes reduce barriers to bicycling by expanding the distance users can ride and addressing physical barriers to cycling while maintaining approximately 70 percent of the exercise benefits from use of a nonmotorized conveyance.²⁷ Prior to 2020, legal ambiguity disincentivized retailers from selling ebikes of any type, thereby limiting wide-scale adoption of ebikes.

Ebikes and scooters can improve life for thousands of New Yorkers by mitigating common barriers to active transportation, including hills, physical exertion, distance, and arriving to work or other destinations sweaty. This enables healthy physical activity for New Yorkers of all ages and abilities in place of single occupancy vehicle trips, conserving both time and money for consumers while contributing to reduced regional congestion and lower transportation-related pollution per capita. The compact design and foldability of scooters makes them attractive in denser urban areas with multiunit apartment buildings and limited storage space. Ebikes are also a vehicle for promoting local economic development and sustainable freight movement.

Despite extensive benefits, and demonstrated success in other countries, ebikes are significantly more expensive than traditional pedal bicycles, representing a significant economic barrier for many in the NYMTC planning area. As noted previously, this has contributed to the proliferation of unsafe, non-UL certified ebikes—particularly in New York City—which have been directly linked to numerous public safety concerns as it relates to improper charging, and roadway conflicts. According to respondents from the topical forums, and those from the NYCC, the most frequent concerns regarding ebikes and scooters are vehicular speed and battery charging.

In addition to concerns around batteries and charging, ebikes and scooters are heavier and can sustain higher speeds for longer than a traditional pedal bicycle. A 2023 study released by the Consumer Product Safety Commission found micromobility injuries have been increasing each year since 2017 at an average rate of 23 percent each year.²⁸ This increase in injuries correlates with the dramatic increase in ebike sales and ridership and is not necessarily an indicator of unsafe operation. Increasingly, New Yorkers across the region have expressed interest in dedicated infrastructure and more informed law enforcement relating to ebike usage.

Separated facilities for ebikes and small-scale electric conveyances are still an exploratory concept but have been actively investigated in locations with ample space and high pedestrian and bicycle volumes, like Central Park as discussed below.

CASE STUDY | Exploring Dedicated Ebike Infrastructure in Central Park

In 2024, the Central Park Conservancy released a report in partnership with the New York City Parks Department (NYC Parks), and NYC DOT examining current usage patterns on the park's main drives and making recommendations to both modernize and optimize the park's transportation infrastructure. As part of the report's public engagement process, survey respondents ranked 'a separated lane for faster bikes/e-vehicles' as the number one strategy to make the Park's drives safer for all users. Recommendations include the consistent allocation of space between users to provide space for faster users (particularly ebikes); better separation between pedestrians, cyclists, and higher speed users with specific iconography and color treatments; and new policies to enforce specific rules for micromobility vehicles, including where they should operate.

DRIVE EXISTING CONDITIONS



DRIVE PROPOSED CONDITIONS



4-8

4.3.1 ACTION ITEMS

Strategy	Description	Time Horizon
Develop a resource guide and webinar series for local officials and planners	Micromobility is a hot topic in the NYMTC planning area and beyond, and NYMTC can compile national, State, and local best practices applicable to the unique landscape in the NYMTC planning area. NYMTC can establish a digital resource guide with regional case studies, testimonials, and lessons learned from existing systems in the region, as well as sharing national best practices.	Short-Term

Strategy	Description	Time Horizon
Promote regional ebike policy adoption and consistency	The State's legalization of ebikes leaves specific regulation up to local municipalities, creating inconsistency with laws that may vary from one community to the next, with many municipalities simply leaving them unregulated. NYMTC can share information with partners on ebike policy options consistent with member direction and law enforcement feedback.	Short-Term
Develop pilot ebike incentive programs to lower the cost barrier to ebike use and ownership	Ebikes are expensive and their costs represent a significant barrier to use, particularly for low-income New Yorkers. NYMTC can support initiatives aimed at reducing the cost of ebikes, while prioritizing underserved populations. Ebike subsidies taking various forms have been highly successful internationally with nearly 300 active programs in Europe at national, regional, and local levels such that ebike sales now outpace traditional pedal bike sales.	Medium- Term
Promote dedicated on-road ebike and scooter facilities where design permits	Separation of use between ebikes, pedestrians and pedal bikes is optimal where space exists to accommodate this highly desired approach. Recognizing that right-of-way constraints on most trails and roadways throughout the 10-County region make this a challenge, NYMTC can support this strategy on high-volume shared use paths, and greenways. NYMTC can recommend that this separation of use be considered in the design of future projects where physical geometry permits.	Ongoing
Promote expansion of charging infrastructure for ebikes and scooters	The NYC DOT ebike charging pilot demonstrates the viability of battery swapping technology to support ebike dependent commercial cyclists and address public safety concerns relating to battery charging fires. NYMTC can support the expansion of this program with an emphasis on dense commercial districts where food delivery will be in high demand. In addition, NYMTC can coordinate the exploration of other areas where battery swaps and/or charging docks may be beneficial such as trail heads. NYMTC can also facilitate partnerships with private commercial developers to explore how this technology can be integrated into commercial bicycle storage areas.	Ongoing

4.4 ELECTRIC CARGO BIKES

The added hauling capacity of ebikes has major impacts for sustainable freight mobility throughout the region. Distinct from conventional ebikes (discussed above) and used for commercial purposes (like food deliveries), an electric cargo bike can be a bicycle, tricycle, or pedal-powered four-wheeler with an electric assist motor that is specifically designed to carry goods. Some companies have outfitted workers with three-wheeled trailers which carry storage bins and are attached to an ebike.

Figure 4.5 Cargo Bike Types and Models



Long-tailed Cargo Bikes



Bakfiets



Front Container Cargo Bike



Rear Cargo Tricycles



Cargo Trailer



Quadracycle

Electric cargo bikes for freight movement can provide many benefits to businesses, consumers, and workers:

- » Electric cargo bikes do not require a license to operate. While formalized education around vehicle operation, and loading/unloading procedures is essential, this lowers a key barrier to entry for workers in the goods transportation industry providing additional job opportunities throughout the region.
- » Electric cargo bikes can use bicycle infrastructure, reduce congestion on the roadway, and facilitate more efficient flow of goods. While there are safety concerns between larger ebikes and traditional pedal cyclists related to operating in shared space, new design solutions can address this problem with designated loading zones and dedicated ebike infrastructure with available space on the roadway.
- » Electric cargo bikes require significantly less parking and storage space than traditional freight vans and trucks. This has implications both on the roadway—by reducing traditional obstructions like double parking—and for businesses, reducing the amount of garage space required to maintain a fleet of vehicles.

- » Personal (noncommercial) cargo pedal bikes and ebikes like Bikfiets and Long-tails can be used to provide child transportation and carry higher volumes of groceries for individual New Yorkers.

Many of the same issues with personal ebikes—including charging, regulatory consistency and safety concerns due to increased speed/mass—also apply to electric cargo bikes. An expansion of safe charging infrastructure is essential for growth in this sector. Subsidies and pilot projects are slowly reducing concerns about range anxiety, and the cost for the initial purchase of the bikes for freight carriers. In addition to these issues, the enabling legislation for ebike utilization in New York State limited the width of ebikes to 36.” This limits the type of bikes that can be used, and the amount of goods that can move per vehicle.

CASE STUDY | E-Cargo Bike Program and Safety Standards, New York City

In 2019, NYC DOT launched a Commercial Cargo Bike pilot which, by 2021, enabled commercial cargo carriers (including UPS, DHL, Amazon, FedEx, Reef Technologies, and NPD Logistics) to test 350 permitted cargo bikes. This test established initial operational rules for vehicles, including width requirements for bike lanes, speed limitations, mandatory data sharing, and required operator education. The rules also enabled enrolled cargo bikes to load and unload wherever commercial vehicles can and at designated cargo bike corrals.²⁹ As a result of this program, in 2022, cargo bikes made more than 130,000 trips, delivering over five million packages, and saving over 650,000 metric tons of CO₂, the equivalent of pollution generated by 1.6 billion miles driven by an average gas-powered passenger vehicle. In 2024, NYC DOT established safety standards and allowed the use of e-cargo bikes on New York City streets.³⁰ The new rules serve to:

1. Expand the legal definition of “bicycle” to include “pedal-assist bicycle.”
2. Define “commercial bicycle” as a bicycle used to transport commercial goods.
3. Establish new “Commercial Bicycle Loading Only” zones—to allow dedicated space at the curb for cargo bikes to load and unload goods.



In tandem with these new rules, NYC DOT is working to install delivery “microhubs,” where trucks can safely offload to smaller, greener alternatives such as cargo bikes.

Generally, consolidating freight in central distribution centers reduces the need for large trucks on the road, and enables smaller modes like electric cargo bikes to make final deliveries for the first and last mile. In New York City, Local Law 166 (2021) was adopted to support micro-distribution centers (microhubs) for distributing goods via sustainable modes, requesting information from entities engaged in these practices to share their insights, and requiring NYC DOT to develop a pilot program.³¹

As discussed in Chapter 3 of *Moving Forward 2055*, co-locating microhubs near rail and ferry terminal facilities would greatly extend the range of this concept and enable fewer truck trips. Also see the *Moving*

Forward 2055 Freight Plan, Appendix D, for more information. Unpermitted private micromobility systems have emerged for delivery cyclists. This has increased low-cost access to legal, electric bikes. Because of limited regulations for these entities, issues have emerged in relation to parking management. This issue requires additional research and coordination with private micromobility delivery providers to address these issues and allow communities to capitalize on the potential benefits of this service.

4.4.1 ACTION ITEMS

Strategy	Description	Time Horizon
Support rules to expand the allowable width of ebikes for commercial operations	The enabling legislation that legalized the use of electric bikes at the State level, and codified the classification system, also established the legal definition of an ebike, limiting the width to 36." This reduces the types of vehicles that can be used for large-scale first and last mile freight delivery, and the amount of goods that can be moved per trip using electric cargo bikes. NYMTC members can provide resources and best practices to coordinate local efforts to establish rules that broaden the legal definition of ebikes to enable higher volumes of freight movement via sustainable modes.	Ongoing
Promote the development of microhubs and freight consolidation centers	Consolidating freight movement reduces congestion and harmful air pollutants by reducing trips for large trucks. NYMTC can promote the creation of drop-off centers for bulk freight deliveries and promotes the use of smaller scale active micromobility to fulfill shipment of goods for the first and last mile.	Ongoing
Research best practices in training programs for commercial cyclists moving freight bicycles	Much like CDL training requirements for commercial trucks, electric cargo bikes have different operational characteristics which require additional training for safe operation. Best practices in training nationally can be researched for these commercial cyclists operating higher-volume cargo bikes and enforced by freight carriers. This would include both vehicle operation as well as loading and unloading requirements within any given jurisdiction.	Short-Term
Expand regulation for private shared micromobility vendors targeting commercial cyclists	NYMTC can coordinate the individual efforts of its members to develop a pragmatic regulatory framework for commercial bike share systems. This includes operator requirements as well as a package of design tools—such as mandatory parking corrals—to better manage these vehicles on sidewalks.	Medium-Term

5

PERFORMANCE MANAGEMENT

The performance of the developing active transportation system in terms of safety, accessibility, and effectiveness can be tracked through a regional 'scorecard' that establishes a performance management framework with specific key performance indicators to track active transportation across the region. Many of the datasets and systems required to achieve this do not currently exist and will require the establishment of new systems to capture and report on these metrics. These metrics are further discussed in Chapter 3 of *Moving Forward 2055*.

The performance management framework must be built from currently existing data at the local, regional, State, and Federal levels. The ultimate goal is to compile and supplement existing data and data collection to help in planning and decision-making, both short- and long-term on a regional basis, not in a project-specific approach. This approach provides greater insight into network performance rather than reporting on project progress.

5.1 CURRENT ACTIVE TRANSPORTATION DATA LANDSCAPE

Today, agencies and municipalities within the NYMTC planning area rely heavily on crash data as a primary metric for decision-making about active transportation infrastructure, policies and programs. Crash data on bicycle and pedestrian collisions resulting in injuries, fatalities, and/or property damage—typically available from NYSDOT’s Crash Location and Engineering and Analysis & Reporting (CLEAR) data viewer or directly from local police departments—is the only reliable regionwide dataset on active modes. While using this data prioritizes safety, focusing on the number of cyclists killed or seriously injured (KSI), it fails to capture the multifaceted economic, public health and environmental conservation benefits of bicycling, walking and micromobility. Crash data also represents a transparency barrier in that the CLEAR data is not available to the public due to privacy concerns. This makes it difficult for agencies with fewer resources, private-sector employers, and individuals to use this data to address pressing safety issues.

Bicycle and pedestrian volumes are available but mostly confined to a few select locations throughout the region such as the East River Bridges and the Hudson River Greenway. This data is available via screen line counts, which provides a seasonal snapshot of volumes but does not necessarily account for varying factors that may impact travel patterns such as roadway closures, weather, and special events. Micromobility systems, such as Citi Bike and Bethpage Ride have built-in tracking technologies that provide a proxy for ridership volume, but this data is confined to the geographic footprint of each system. The American Community Survey (ACS) administered by the U.S. Census Bureau does provide data on commuting patterns, including mode of travel, time, and distance. The low proportion of bicycle and pedestrian mode share compared with cars makes it difficult to draw workable conclusions that can translate into policy and design development.

New datasets are emerging. In 2023, the NYCC was published. This comprehensive statewide survey was the largest ever conducted in the United States, yielding more than 13,700 responses across every county in the State. This qualitative, consumer-driven dataset provides unprecedented insights into preferences and barriers as it relates to bicycling from 5,800 respondents across the NYMTC planning area.

5.2 ESTABLISHING A NEW FRAMEWORK

Table 5.1 provides a performance management framework for around six areas, including:

- » Bicycle and Pedestrian Volumes
- » Micromobility Usage
- » Consumer Insights
- » Traffic Safety
- » Economic Impacts
- » Environmental Impacts

Each area has several specific key performance indicators (KPI) to provide a variety of perspectives for each topic, as well as more holistic inputs for local and regional planning efforts. For more information on routes described below, refer to the Moving Forward 2055 interactive map [here](#).

Table 5.1 Performance Management Indicators

Key Performance Indicator	Description	Required Data Systems
Bicycle and Pedestrian Volumes		
Understanding active transportation travel patterns is crucial for NYMTC member agencies to identify challenges and opportunities and for prioritizing investments in bicycle, pedestrian, and micromobility infrastructure. The purpose of this performance management category is to vastly expand the availability of bicycle and pedestrian volume data throughout the region, particularly at key bicycle and pedestrian linkages such as the George Washington Bridge, The Mario M Cuomo Bridge Shared Use Path, the East River Bridges, the East River Greenway, and sections of the Empire State Trail.		
# of bikes/peds on primary thoroughfares	Bicycle and pedestrian volume at major bridge crossings, greenways and trails (Ex. East River Bridges, Cuomo Bridge Shared Use Path, etc.).	» Network of fixed automated counters on major corridors. » Recommended methodologies for secondary corridors including but not limited to seasonal screen line counts, periodic video analytics and a variety of other manual or technology-focused strategies. » Library of modular bicycle and pedestrian counting tools (ex. pole mounted cameras, pneumatic tubes calibrated for bikes, etc.) made available to NYMTC members.
# of bikes/peds in Downtown centers and communities of concern	Bicycle and pedestrian volumes on commercial thoroughfares and local main streets.	
Traffic Safety		
Bicycle and pedestrian crashes are the most frequently used and widely available metrics used to prioritize bicycle and pedestrian investments for planners and decision-makers. These important metrics should continue to be tracked and reported, but within the context of a broader performance management framework.		
# of cyclists seriously injured	How many cyclists or pedestrians were seriously injured in crashes—broken down by the county, and/or other geographic boundaries as appropriate?	» Access to NYSDOT’s statewide CLEAR Crash database.
# of pedestrians seriously injured		
# of bicycle fatalities	How many cyclists or pedestrians were killed as a result of crashes by county?	
# of pedestrian fatalities		
Economic Impact		
Active transportation increases access to jobs and promotes increased spending from consumers, particularly in low-income communities where vehicle ownership presents a hardship. The purpose of this performance management category is to establish new metrics and track the economic impact of active transportation infrastructure. These metrics seek to address both job access and economic performance.		
Percentage of people biking to work	Share of commuters walking or biking to work.	» American Community Survey. » Sales tax rolls coupled with special data analysis (corridor-specific).
Percentage of people walking to work	Share of commuters walking to work.	

Key Performance Indicator	Description	Required Data Systems
\$\$ of sales tax revenue on bike corridors	What are the annual sales tax receipts in major commercial throughfares with bike lanes?	» Business Owner Surveys.
Regional Connectivity		
The utility of bicycle and pedestrian infrastructure, as well as the subsequent return on investment, is dependent on connectivity with everyday destinations that consumers can readily connect with. The purpose of this performance management category is to track the growth of the regional active transportation network in terms of accessibility to key locations like transit facilities, parks, and schools.		
% of population with access to bike infrastructure	What proportion of the population is within 0.5 miles of a trail or bike lane?	» Spatial data analysis combined with Census on the Map tool.
# schools with direct access to bike infrastructure		
# parks with direct access to bike infrastructure	How many parks, schools, and transit stops are within 0.5 miles of a trail or bike lane?	
# transit stops with direct access to bike infrastructure		
Regional Consumer Insights		
Barriers to walking/bicycling	What are consumer attitudes about various active transportation elements in the 10-County region?	» Questions integrated into the existing household travel survey.
Bicycle trip purposes	For what purpose are New Yorkers using a bicycle?	
Ebike propensity	Are consumers more likely to bike with the assistance of an ebike?	
Impressions of Safety	How safe do New Yorkers feel biking/walking in their community?	
Infrastructure Ratings	How do New Yorkers rate the quality of bicycle and pedestrian infrastructure across the region?	
Environmental Impacts		
Transportation accounts for the largest share of pollution caused by CO ₂ in the New York Metro region, and New York State as a whole. While New York City is an outlier in terms of high transit usage, single occupancy vehicles are the predominant mode of transportation throughout the rest of the region. Active transportation represents a tangible strategy for reducing pollution from vehicle trips by providing no/low carbon mobility options. The purpose of this performance management category is to track the impact of bicycle and pedestrian trips throughout the region through the amount of carbon saved from trips that likely would have otherwise been made by a gas-powered vehicle.		
CO ₂ equivalency from bike/ped trips	How much vehicular carbon would be emitted if bike/ped trips were made by car?	» Origin and destination data tracking for active transportation modes. » Average harmful air pollutants caused by single occupancy vehicles per mile. » Demand management program enrollment. ¹
CO ₂ equivalency from micromobility trips.	How much vehicular carbon would be emitted if bike share and scooter trips were made by car?	

Key Performance Indicator	Description	Required Data Systems
Micromobility¹ As a fast-emerging mode, micromobility provides a wealth of data on active transportation patterns with built-in data capabilities. The purpose of this performance management category is to track the reach of micromobility both in terms of trip volume/frequency as well as access to existing and new systems.		
Total # of shared micromobility conveyances operating in the region	How many ebikes, pedal bikes, scooters, and electric vehicles are operating in the area?	» Central database with General Bike Share Feed Specification (GBFS) data from all regional bike share vendors. GBFS is a real-time data specification used by micromobility vendors that describes the current status of a mobility system.
Total Number of micromobility trips	How many trips were taken within a micromobility system broken down by mode (where multiple types of vehicles are available)?	
Total # Number of people with access by micromobility systems	Population of Census blocks where micromobility vehicles are located or a system provides coverage. For a dock-based system, this would include census blocks where docking kiosks are located. For dockless systems, this would include Census blocks within the system's geofenced boundaries.	» This will require analysis based on micromobility ridership and system data as discussed above.
Population within a 10-minute walk of shared micromobility systems	How many individuals are within 0.5 miles (an approximate 10 minute walk) of a bike share kiosk. For dockless systems, this analysis would require a snapshot of AM peak vehicle distribution locations, as well as geofenced parking locations.	

¹ As technology continues to evolve and provide more accurate automated tracking of bike/ped trips taken in place of cars, demand management programs represent an interim solution to produce accurate data on voluntary mode shift to active transportation. Demand management programs would enable the verification of mode shift with voluntary enrollment, incentives, and reporting.

5.2.1 ACTION ITEMS

Strategy	Description	Time Horizon
Active Transportation Data System	NYMTC can undertake a regional study to establish the foundation of a comprehensive active transportation data framework based on the metrics proposed in this plan. This will include the identification of critical bicycle and pedestrian corridors throughout the region as well as permanent data collection technologies for these locations. In addition, this study will identify secondary aspects of regional interest (e.g., employment centers, downtown centers, transit hubs) with recommended methodologies and data collection frequencies.	Short-Term
Increase Access to Traffic Safety Data	Currently, NYSDOT maintains the CLEAR Crash Database detailing all vehicular crashes that occur across New York State. This data is invaluable in helping communities identify areas with high incidents of crashes by mode and severity as well as other relevant factors (such as time of day, lighting conditions, DUI, etc.). Due to privacy concerns, and other factors, this database is not currently available to the public, making it difficult for advocates, businesses, and allied organizations outside the public sector to review and make use of this information. NYMTC will work with NYSDOT to develop a means to anonymize this data and address other issues to make the basic crash severity and location data available to the public by mode.	Medium-Term
Annual Active Transportation Scorecard	Once data systems are established throughout the region to track bicycle and pedestrian volumes, as well as other key data points, NYMTC will begin publishing a regional report on bicycle and pedestrian data annually.	Medium-Term



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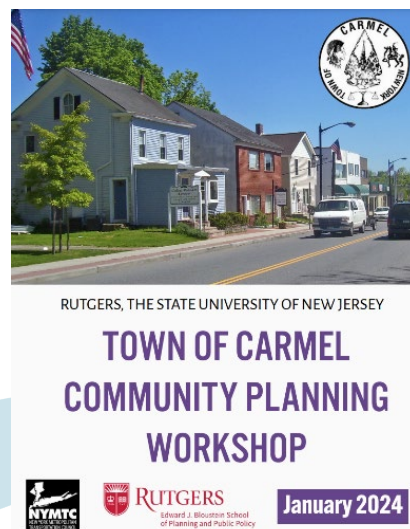
PROGRAM DEVELOPMENT

The purpose of this section is to identify resources and programs where NYMTC can address emerging issues and catalyze opportunities as identified throughout this plan.

6.1 RESOURCE DEVELOPMENT, AND TECHNICAL TRAINING FOR MUNICIPALITIES

Many communities outside of New York City do not have the resources or design expertise to facilitate active transportation. Several initiatives have emerged to address this issue. In 2018, the New York State Energy Research and Development Authority (NYSERDA) supported the development of a Complete Street and Active Transportation training curriculum for municipal planning boards and elected officials. Additional funding provided by the New York State Department of Health (NYSDOH) facilitated more than 13 local training workshops from 2019 through 2023 within the NYMTC planning area.

In addition to this program, NYMTC's Community Planning Workshop program has reached more than 175 people across five communities since 2022. This program is designed to provide technical and planning assistance to municipalities across the New York metropolitan area. These workshops support local communities by facilitating discussions on improving transportation infrastructure, walkability, bike safety and traffic management, all while aligning with NYMTC's long-range transportation plan. The program gathers input to guide Complete Street projects, fostering safer, more connected, and sustainable urban environments through public engagement activities such as surveys, workshops, and interactive mapping tools, with an outreach effort culminating in a report with recommendations for street improvements and funding opportunities.



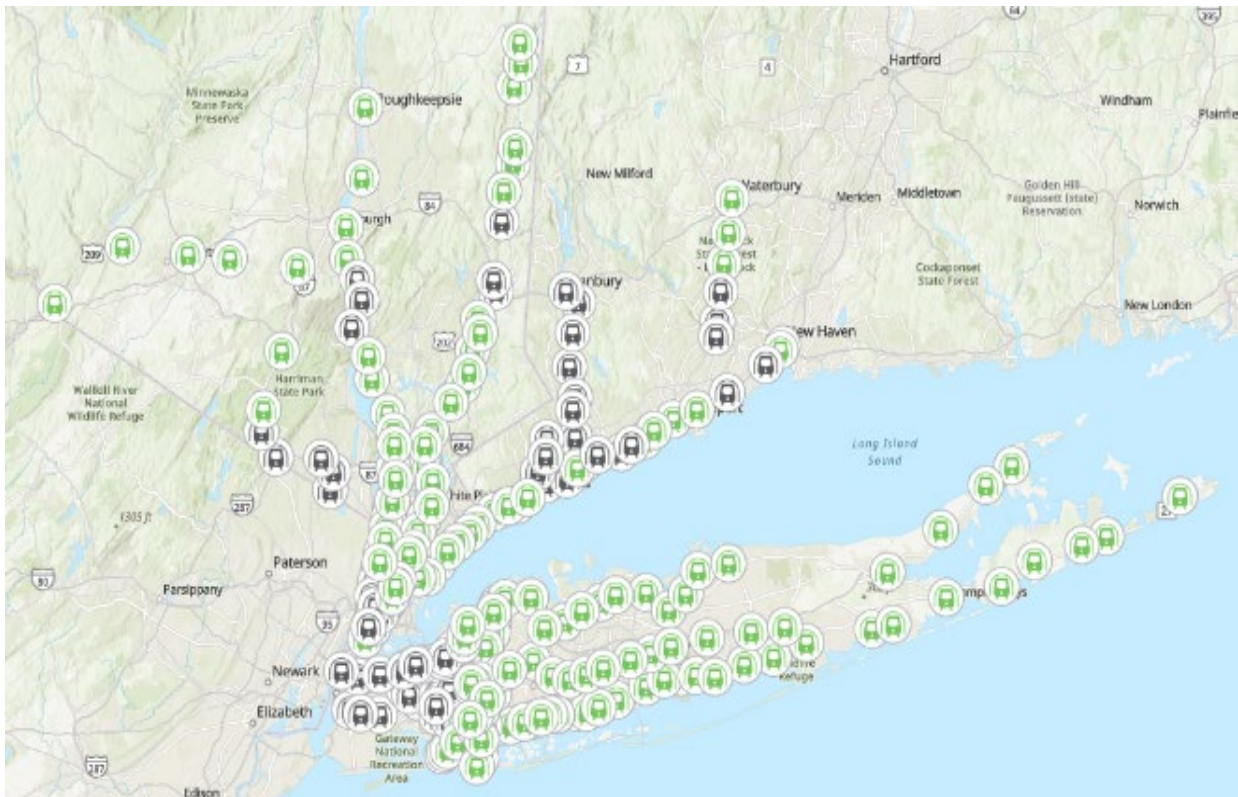
In 2023, the MTA published its First Mile/Last Mile (FMLM) Toolkit,³² a NYMTC-funded planning tool that encourages improved, fair and environmentally-friendly access to Long Island Rail Road (LIRR) and Metro-North Railroad commuter rail stations.

MTA's First Mile Last Mile Toolkit is a digital resource that includes:

- » An interactive GIS Map of local transit networks, geographic features and land use layers.
- » Extensive station data (e.g., ridership, service, intermodal connections).
- » Data Analysis Tools (e.g., access gap, prosperity, cost-benefit).
- » Pilot program development and State/Federal grant assistance.
- » Designated MTA staff to assist with toolkit use and project planning.

NYMTC is able to expand on these efforts by supporting the distribution of existing resources—such as the MTA's First Mile Last Mile Toolkit—and develop new opportunities for training and technical assistance to facilitate innovative pilot projects. For more information on the resources shown below, refer to the Moving Forward 2055 interactive map [here](#).

Figure 6.1 MTA's First Mile Last Mile Toolkit



Source: [MTA's First Mile Last Mile Toolkit](#)

6.1.1 ACTION ITEMS

Strategy	Description	Time Horizon
Promote Regional Pilot Demonstration Projects	Many communities across the 10-county region have implemented flexible pilot programs to test complete street concepts. This strategy allows local communities to tailor complete street design solutions to their specific local contexts and adjust based on observations and community feedback. Pilot projects allow communities to test new concepts such as bike lanes, curb extensions, enhanced crossings and other complete street design tools. These small-scale implementations enable the public to observe the safety, traffic calming, and placemaking benefits of complete streets. These projects are designed to be temporary—with elements like paint, flexible bollards, and moveable curbs—enabling communities to tangibly experience potential changes before actual full-scale implementation.	Ongoing
Develop a technical assistance program	NYMTC can establish a technical assistance program to help communities to access more active transportation investment in the region.	Medium-Term
Expand Community Planning Workshop Program	NYMTC can continue to market and expand its existing community workshop program to reach more municipalities.	Short-Term
Develop a Technical Webinar Series	<p>The NYMTC planning area is filled with innovative best practices across a wide variety of active transportation topics. This presents an opportunity for NYMTC to help communities of all scales expand their understanding of design and policy issues, while learning from nearby peer municipalities. NYMTC will program a regional webinar series on a variety of emerging topics including but not limited to:</p> <ul style="list-style-type: none"> » Federal funding » Micromobility » Coordinating with State right-of-way » Other topics selected by members » Opportunity to highlight innovative pilot programs <p>NYMTC will solicit case studies on these topics from regional agencies, experts, and vendors.</p>	Medium-Term

6.2 SUPPORTING CONSUMER-FOCUSED EDUCATION

In addition to developing active transportation infrastructure, NYMTC can support safe and legal consumer behavior through education for all roadway users including cyclists, pedestrians, micromobility users and private and commercial drivers. It is important to note that education is not a punitive measure in lieu of enforcement, but rather a proactive strategy to ensure that all roadway users understand the rules and realities of a shared multimodal streetscape.

The NYMTC planning area is rich with innovative programs to promote traffic safety and the adoption of transportation options. Suffolk County-based nonprofit Vision Long Island has a mobile 'traffic garden' program which enables the organization to visit schools and lay down a temporary streetscape for children to practice safe cycling in a safe environment.

What is a traffic garden?

A traffic garden is a small-scale streetscape that mimics a variety of roadway conditions that enable young cyclists and pedestrians to practice in a safe, controlled, off-road environment. Traffic gardens can be installed on school playgrounds, parks, or other areas with flat solid surfaces where cars are prohibited. Most traffic gardens are installed using painted markings on the ground but can be supplemented with modular traffic signs—which can be placed in various configurations—remote traffic lights, and other elements like potted plants. Pop-up traffic gardens are also possible using vinyl roadway banners, cones, and modular signs.



New York City-based nonprofit organization, Bike New York has developed and implemented a citywide bike education center model. In partnership with park administrators, the organization has placed 12 cargo containers with fleets of bicycles as well as safety and repair equipment at accessible locations in all five boroughs of New York City. These sites provide a series of free hands-on learning for adults and children throughout the year with a range of different classes.

Educating cyclists alone only impacts a small segment of roadway users, as the vast majority of New Yorkers in the region—mostly outside of New York City—rely on driving as their primary mode of transportation. Changes to the roadway network—mainly the introduction of new designs and micromobility—have transformed the regulatory framework governing the streetscape. While general rules of the road remain the same, protected bike lanes, pedestrian plazas, and other features, have changed the way the roadway is used by different modes. Added inconsistency with ebike regulation makes it challenging for policy-makers and law enforcement to regulate active transportation in relation to cars.

The New York State Drivers manual has limited information on bicycle and pedestrian mobility and does not account for a wide variety of multimodal design features drivers may encounter throughout the region. While hands-on driver training may address this issue, the variety of roadway conditions student drivers may encounter is entirely dependent on the types and density of the active transportation infrastructure that has been implemented in any given community. If no bike lanes exist in a town, then student drivers will not be exposed to them. Learning materials for drivers across the 10-County region need to reflect the realities of the evolving multimodal streetscape. This may include information such as mixing zones for cyclists in protected bike lanes and turning vehicles as well as recommending safe passing for cyclists and other vulnerable roadway users. In addition to cyclists, pedestrians and drivers, law enforcement plays an important role in advancing street safety.

6.2.1 ACTION ITEMS

Goal	Description	Time Horizon
Develop a Regional Traffic Garden Program	NYMTC members can allocate resources for traffic gardens throughout the region and enable a wide variety of different stakeholders to take advantage of the resources.	Medium-Term
Develop an Active Transportation Education Program	NYMTC members can support local organizations or stakeholders to establish small bike fleets and a bench of instructors for hands-on training at centralized locations.	Medium-Term
Support more robust driver education	NYMTC members can partner with driving schools and automobile trade groups to provide guidance on emerging roadway infrastructure and its impact on driving behavior. In addition, NYMTC members can work with these stakeholders to devise a series of public service announcements and billboard ads to expose drivers to multimodal roadway conditions.	Ongoing
Coordinate collaboration with law enforcement to expand understanding of multimodal roadway operations and micromobility	NYMTC members will support collaborations with police academies and local police departments to provide more robust information on ebike classifications, and the proper use [and enforcement] of active transportation infrastructure.	Short-Term



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MOVING FORWARD TO 2055 & BEYOND

From protected bike lanes to painted pedestrian plazas, NYMTC member agencies have, in recent years, pioneered many active transportation design solutions that are now commonplace across the country. The strategies proposed in this Active Transportation Plan are designed to support and expand innovative practices and methods to routinize active transportation for any trip purposes.

The expansion of a connected regional active transportation network, new data sets and systems, informed regulation to grow and manage micromobility, and new programs to support municipalities in active transportation development will open new avenues for increasing public transit usage, enhancing public health outcomes, reducing traffic congestion and harmful air pollutants, and maintaining economic vitality across the NYMTC planning area. NYMTC can continue to underpin and monitor new and emerging infrastructure, policy, and programmatic initiatives that help realize the great potential of active transportation by broadly expanding opportunities in the long-term, including but not limited to:

- » **Federal funding for Active Transportation Projects:** Continued application of Federal funding to support **the development of active transportation and** advancements in related data systems that will facilitate more informed planning and policy decisions about bicycling and walking.
- » **Incentivizing the private sector:** The active role of private property owners and developers is essential to incentivize tenants, employees, and residents to use active modes and help accommodate active transportation services and conveyances. NYMTC can explore and support strategies to leverage public-sector mechanisms that encourage private property owners to include active transportation amenities as well as battery charging mechanisms for tenants, residents, and employees.
- » **Optimizing micromobility:** More bicycle and scooter sharing systems is an inevitability in the NYMTC planning area as more communities express interest in the potential benefits of micromobility. Existing systems are poised to expand as new technology—specifically advances in geofencing—enhance the ability for communities to manage micromobility vehicle parking in real time. In less dense areas of the region, counties, or coalitions of local governments may come together to establish connected cross jurisdictional programs to reduce administrative costs and incentivize third-party vendors to deploy equipment. In addition to growth in ebike fleets and escooters among emerging micromobility systems, accessible vehicles—such as three-wheeled scooters and tricycles—would expand access to micromobility for all New Yorkers. In tandem, the affordability of personal ebikes will increase, as new subsidy pilots are launched and increasing vendor competition drives the price for consumers at the point of sale. Commercial ebikes can also have a major impact on goods movement in the region by enabling the consolidation of freight from large trucks into centralized drop offs and smaller-scale modes distributing deliveries for the first and last mile.
- » **Preserving long-term quality of the regional active transportation system:** The ongoing quality, safety, and integrity of active transportation infrastructure is essential to facilitating higher bicycle, pedestrian, and micromobility mode share as the network continues to grow throughout the region. Regardless of what agency owns or operates an active transportation facility, trails, greenways, shared use paths, sidewalks, and bike lanes facilitate a broad array of uses, including transportation, recreation, tourism, and others, and should be maintained as such. More comprehensive data on bicycle and pedestrian facility conditions will enable local governments to better plan and allocate resources for both routine and capital maintenance. In addition, this information will help prioritize roadways and sidewalks for repair and identify opportunities for replacement or a reevaluation of aging facilities for potential upgrades based on changing travel patterns and demand. In addition to

periodic inventories to maintain accurate datasets, the region would also benefit from better grassroots reporting mechanisms for reporting unsafe bike lane and/or sidewalk conditions.

- » **Formalize education programs in schools:** While some public agencies sponsor helmet giveaways and the production of safety materials, the vast majority of hands-on bicycle and pedestrian education programs in the 10-county region are currently driven by nonprofit organizations and limited in scope. Jurisdictions throughout the region should work to partner with local school districts to integrate traffic safety into physical education curriculums. Exposing children to multimodality and practical safety skills at an early age introduces active transportation as a viable means of transportation and shapes a lifetime of travel behaviors. This model has proven extremely effective in other countries with much higher bicycle and pedestrian mode share.
- » **Developing active first- and last-mile connections with transit:** The decision to bike the first/last mile requires a seamless, frictionless experience for transit customers. This Plan recommends a series of strategies to accomplish this. Expanding secure bike parking at transit stops and stations throughout the region will provide customers with confidence that they will have safe, secure areas to store their bicycles for long periods of time. A transit customer should be able to use the same fare card or transit mobile app to use these new facilities to create a seamless user experience. Similarly, transit customers should be able to step off a bus or train and use the same payment infrastructure to take advantage of ebike and/or scooter sharing systems in any community throughout the region. With multiple payment systems across many different public agencies and micromobility vendors, this is a significant technical challenge, but one that will benefit both transit systems and micromobility program ridership.
- » **Experimenting today for the multimodal design standards of tomorrow:** NYMTC members will continue to test new policy concepts and infrastructure design solutions to address active transportation barriers. The unique scale and features of the NYMTC planning area require that this innovation continues as new technologies and travel patterns emerge.
- » **Congestion Relief Zone (Congestion Pricing):** The launch of Congestion Pricing in Manhattan could bring significant shifts in regional transportation patterns as consumers consider the costs of driving versus transit and/or active modes when entering the region's densest central business district. As the long-term impacts of this shift remain to be seen, the volume of active modes entering the zone may increase and should continue to be monitored so trends can be identified.

Applying Active Transportation Infrastructure in different land use contexts: Complete Street design principles and active transportation are not just urban transportation solutions. These same principles can be applied in rural settings to calm traffic and enable safer travel to everyday destinations in any community context. Training and resources should be made available and specifically tailored to lower density communities to raise awareness of how design tools such as wide sidewalks, pedestrian lanes, neighborhood-scale roundabouts, and side paths can be used to enhance safe mobility for all in any context.

ENDNOTES

- ¹ Separate from the United States Census and the American Community Survey, the 2023 New York Cycling Census is the largest independent statewide survey of cyclists ever conducted in the U.S. with more than 13,700 respondents from every county in NYS. Respondents in the 10-County New York Metro Region comprise more than 40 percent of this nonrepresentative dataset. While data from this randomized, publicly distributed survey While the data cannot be used as the basis for precise regional trend analysis, it provides broad insights on the attitudes and preferences of a large sample of cyclists throughout the 10-county region.
- ² Refers to conditions without precipitation, limited visibility or other weather-related factors that would impede visibility or vehicular operation.
- ³ <https://www.nyc.gov/assets/manhattancb3/downloads/calendar/2024/Delivering-Justice-Report-2024.pdf>.
- ⁴ Underwriters Laboratories (UL) is an independent safety organization that tests and certifies batteries to ensure they meet safety standards and are reliable for consumers.
- ⁵ N.Y. Veh. & Traf. Law §§ 34-D, 102-c, 114-e, 125, 1238, 1242, 1243.
- ⁶ <https://www.nyc.gov/html/dot/downloads/pdf/safer-charging-safer-deliveries.pdf>.
- ⁷ <https://climate.cityofnewyork.us/subtopics/bikes-and-pedestrians/>.
- ⁸ <https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5>.
- ⁹ <https://www.governor.ny.gov/news/governor-hochul-signs-legislative-package-support-pedestrians-bikers-and-transit-riders>.
- ¹⁰ <https://www.nyserda.ny.gov/All-Programs/Clean-Mobility-Program>.
- ¹¹ <https://welcome2thebronx.com/2021/08/17/nycs-first-e-scooter-share-program-launches-today-in-the-bronx/>.
- ¹² <https://www.welcome2thebronx.com/2022/11/15/citing-millions-of-rides-and-strong-safety-record-east-bronx-shared-e-scooter-program-to-become-permanent/>.
- ¹³ <https://qns.com/2024/07/dot-launches-e-scooter-program-eastern-queens-successful-east-bronx-pilot/>.
- ¹⁴ <https://www.ridepedalshare.com/stationmap>.
- ¹⁵ Source: Stonybrook University Mobility and Parking Services.
- ¹⁶ Source: Village of Ossining.
- ¹⁷ <https://planning.westchestergov.com/images/stories/reports/TarrytownKensicoTrail2016.pdf>.
- ¹⁸ https://apps.cio.ny.gov/apps/mediacontact/public/view.cfm?parm=55E6BC0B-F6BF-F3B7-89A3CDCF1BF0E4DF_563F3423-F74E-DA2D-7B014B68912BDB37.
- ¹⁹ <https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/Research/Transportation/23-26-Extending-Transit—Completing-New-Yorks-First-and-Last-Mile-acc.pdf>.
- ²⁰ <https://www.fhwa.dot.gov/environment/micromobility/>.
- ²¹ Though different from the State's legal definition, this approach more closely aligns with both public understanding—as demonstrated through topical forums—and FHWA's definition of micromobility.
- ²² New York State Greenhouse Gas Inventory: 1990–2022

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- ²³ <https://www.epa.gov/ghgemissions/carbon-dioxide-emissions>.
- ²⁴ <https://citibikenyc.com/blog/powered-by-people>.
- ²⁵ Source: Lyft.
- ²⁶ References individuals without bank accounts.
- ²⁷ Source: People for Bikes.
- ²⁸ <https://www.cpsc.gov/s3fs-public/Micromobility-Products-Related-Deaths-Injuries-and-Hazard-Patterns-2017-2022.pdf>.
- ²⁹ <https://www.nyc.gov/html/dot/downloads/pdf/commercial-cargo-bicycle-pilot-evaluation-report.pdf>.
- ³⁰ <https://www.nyc.gov/html/dot/html/pr2024/e-cargo-bike-on-city-streets.shtml>.
- ³¹ <https://www.nyc.gov/html/dot/downloads/pdf/microhubs-pilot-report.pdf>.
- ³² <https://gis.mta.info/apps/hq/fmlm-web/>.