



# Appendix 2 | Pedestrian and Bicycle Plan

1. Introduction
2. Background Information
3. Objectives for Regional Pedestrian and Bicycle Improvements
4. Regional Strategies for the Improvement of Pedestrian and Bicycle Transportation
5. Inventory of Bicycle Facilities
6. Recommended Pedestrian and Bicycle Projects



# 1. INTRODUCTION

The Pedestrian and Bicycle Element of *Plan 2045* establishes five broad objectives that are influenced by, and compatible with the overall *Plan 2045* strategic goals discussed in Chapter 1. These five objectives are:

- > Improve pedestrian and bicycle safety;
- > Enhance the pedestrian and bicycle network;
- > Support the creation of sustainable communities;
- > Support economic development;
- > Contribute to the improvement of public health.

This Ped-Bike Element outlines a number of strategies that support these objectives and further enhance the pedestrian and bicycle transportation system. Additionally, this report presents background information such as demographics, travel data, existing facilities and plans for pedestrians and bicyclists in the ten counties of the NYMTC planning area. An inventory of existing on-road and off-road bicycle facilities are provided at the end of this appendix (Tables A2.4 through A2.15).

The background data for the Ped-Bike Element was compiled from the “Means of Transportation to Work” tables from the 2000 U.S. decennial Census as well as the 2010 and 2015 ACS Five-Year Estimates. It is important to note that *Plan 2045* compares two different datasets: the decennial Census, which is an actual count, and the ACS, which is an estimate that inherently carries a margin of error.

Walking and bicycling are integral parts of life in the NYMTC planning area, providing residents with the means for commuting and travel for recreational purposes. According to the 2015 American Community Survey (ACS) Five-Year Estimates for 2011-2015, 8.4 percent of the daily commuters in the region either walk or ride a bicycle as a means of travel to work. In 2000, this figure was 6.9 percent. Transit commuting typically includes a walking component, and represents an additional 42 percent of the commuter trips in the NYMTC planning area.

## 2. BACKGROUND INFORMATION

### NEW YORK CITY

New York City aims to broaden and improve access to the bike network by expanding the network into neighborhoods where bike infrastructure is lacking; completing gaps in the network to improve connectivity; creating strong new connections from neighborhood streets to high quality on-street and off-street protected paths, especially those in parks and along the waterfront; providing safe connections to bridges and major destinations (commercial, tourist and recreational); and, building more protected facilities to make the network more accessible to a wider variety of user types.



Citi Bike Station at W 63 St and Columbus Ave  
Photo Source: NYC DOT

## NEW YORK CITY DEMOGRAPHICS

New York City has been growing steadily over the past decade, with strong growth in all five boroughs. In 2015, the ACS Five-Year estimates showed that New York City had a population of over 8.4 million people - an increase of five percent compared to the population in the year 2000. New York City represents 43 percent of New York State's population.

Employment in New York City has grown substantially since 2000, with a 20 percent growth in the number of workers. During the same period, transit as a primary journey-to-work transportation mode also increased substantially, showing a 29 percent growth. Since the year 2000, commuter cycling in New York City has nearly quadrupled (337 percent) as stated in the *OneNYC* plan. The introduction of loop induction counters in 2014 has permitted NYC Department of Transportation (NYC DOT) to conduct continuous, daily counts on the East River Bridges without the use of human surveyors. Automated counters reduce the variability found in single counters by averaging each weekday in the month with no precipitation into a single average, excluding holidays. For a 12-hour period sampled between April and October 2015, NYC DOT screenline counts found that each day, an average of 15,394 trips were made over the four East River Bridges (Ed Koch Queensboro, Williamsburg, Manhattan and Brooklyn Bridges).<sup>1</sup>

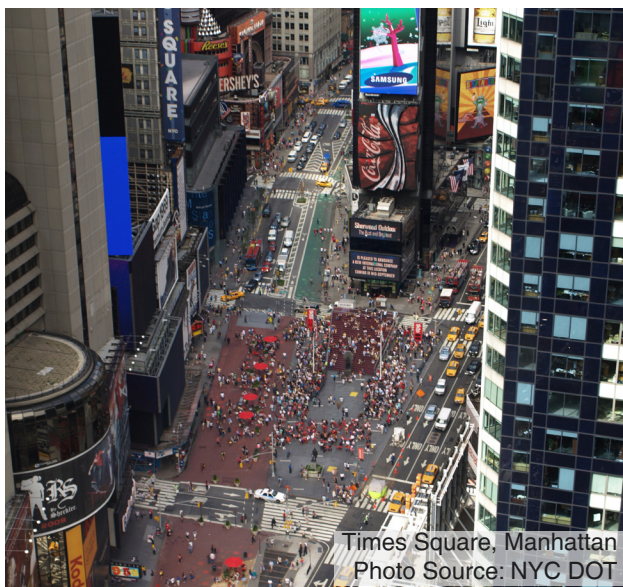
Furthermore, the New York City Department of City Planning has collected annual bicycle volumes along several existing bicycle lanes and greenway paths in Manhattan since 1999, usually during the fall season. On a typical weekday in 2016, nearly 17,500 on-street bicycle riders were recorded at ten bicycle lanes during 12 consecutive hours (7AM to 7PM). Bicyclists' volume at different locations along the greenway paths nearly reached 8,000; when joined by walkers, rollerbladers, and skateboarders, the total of users came to 15,736 during the peak hours of the day.<sup>2</sup>

## EXISTING PEDESTRIAN AND BICYCLE FACILITIES

*Pedestrian Facilities* - New York City can be described as one of the nation's great walking cities, with world class streets helping to attract millions of tourists ever year (in 2014 more than 56 million tourists visited New York City<sup>3</sup>). In addition, many of the 789 bridge structures maintained by NYC DOT have amenities for pedestrians and bicyclists. There are 3,400 modern bus shelters throughout the five Boroughs as part of the consolidated street furniture franchise.

Since 2007, NYC DOT has helped reclaim underutilized street space for public use, creating plazas in neighborhoods across the city, from Times Square in Manhattan to Fordham Plaza in the Bronx and New Lots in Brooklyn. NYC DOT's CityBench program offers comfortable, well-designed seating for bus stops and retail corridors, and streetscape improvements including leaning bars and NYC DOT's Public Art Program enliven city streets. NYC DOT's Way-finding System helps pedestrians navigate various and unique neighborhoods. In addition, NYC DOT is also committed to improving accessibility for all New Yorkers, including installing at least 75 accessible pedestrian signals each year and expanding its in-house pedestrian ramp program.

NYC DOT replaces more than two million square feet of sidewalk a year, helping to enrich the pedestrian experience for visitors and residents.



Times Square, Manhattan  
Photo Source: NYC DOT



***Bicycle Facilities*** - For over a decade, New York City has been building a citywide network of bicycle lanes, shared lanes and on-and off-street bike paths. In June 2009, NYC DOT accomplished an unprecedented goal of building 200 miles of bicycle facilities in all five boroughs within three years, nearly doubling the citywide on-street network. NYC DOT's Strategic Plan 2016 pledges to build 50 miles of bike routes a year and expand the network of protected bike lanes by at least ten miles, double the previous target. In 2012, 25.8 miles were added, with an additional 51.9 miles and 65.9 miles installed in 2013 and 2014, respectively. By September 2015, New York City had reached over 1,000 miles of the bicycle network, including on-street and off-street facilities, in all five boroughs. Nearly four out of every ten miles (38 percent) is protected from traffic, either on or off street, while an additional 37 percent of the network is comprised of exclusive bicycle lanes. Of these protected mile total, more than 41 lane miles are on-street bicycle lanes physically separated from vehicle traffic (mileage of bicycle facilities by borough/county shown in Table A2.4).

The NYC Bike Map is updated annually with new bicycle routes and includes laws and tips for safe riding. NYC DOT distributes close to 375,000 copies every year to bike shops, universities and colleges, libraries and community boards. The map is also available online and via digital media.

NYC DOT's CityRacks Program has installed over 24,000 bicycle racks (48,000 parking spaces) between 1996 and 2015, and since 2010, has installed 19 sheltered bicycle parking structures which feature the New York City Bike Map and other bicycle related advertisements and campaigns.



Mini CityRack  
Photo Source: NYC DOT

## INITIATIVES

***Vision Zero*** - As described in Chapter 5 of *Plan 2045*, Vision Zero was launched in February 2014 in recognition that traffic crashes are not “accidents,” but rather preventable incidents that can be systematically addressed and prevented. In its first Action Plan, Vision Zero aims to make streets safer and eliminate death and serious injury on New York City streets through 63 agency-led initiatives that fall into the following four categories: 1. Public dialogue and education; 2. Law enforcement; 3. Street design changes; and 4. Legislation.

In addition to street design changes that make streets a safer environment for pedestrians and bicyclists (for example, high-visibility crosswalks, clearer lane markings, shortening crossing distances), Vision Zero has an important public awareness campaign aspect that improves consciousness and interactions between drivers, bicyclist and pedestrians. In 2014, NYC DOT launched the “Your Choices Matter” campaign, a focus-group tested approach utilizing graphic and powerful images to get the attention of New Yorkers and emphasize the serious consequences of dangerous driving choices. The campaign integrates findings from Borough Safety Action Plans to provide informative messaging and visualizations of dangerous scenarios, drawing attention to the specific actions that can cause fatalities on our streets – namely speeding, failure to yield, and distractions. The media placement strategy is demographically and geographically targeted to key audiences through bus shelters, newsstands, bus tails, billboards, and gas station pumps as well as high profile venue sponsorships, online, radio and television advertisements. These paid media efforts are reinforced by retail-level interactions with NYC DOT and New York Police Department (NYPD) staff. Vision Zero Street Teams canvas the five boroughs to speak with roadway users about safety at key intersections and corridors. Teams also distribute campaign branded materials at many citywide events and venues.

Enforcement tools such as red light cameras, speed boards, and increased enforcement have also been implemented as part of the action plan to improve safety for all street users, including bicyclists and



pedestrians. NYC DOT's Vision Zero campaign especially calls attention to fatal consequences of speeding, and has taken a unique approach to speed boards by installing them in coordination with Street Team educational interventions and targeted NYPD enforcement efforts.

In February 2015, the City released the Vision Zero One Year Report, which reported on the effectiveness of Vision Zero initiatives in achieving its goal of eliminating death and serious injury. The 25 MPH speed limit, a signature Vision Zero policy, has helped make New York City's streets safer, particularly when combined with expanded enforcement of dangerous moving violations such as speeding and failure-to-yield to pedestrians. New, safer street designs and configurations, extensive public outreach and communications, and a sweeping legislative agenda that increases penalties for dangerous drivers are promoting a safer City. By the end of 2015, traffic fatalities on New York City streets were at their lowest levels since 1910 when the City first began keeping records. The One Year Report also detailed an additional 40 initiatives to advance the goal of Vision Zero. Vision Zero utilizes data to identify strategies, problematic locations, and to monitor the performance of implemented strategies.

Vision Zero encompasses many of the Strategies described earlier in the Appendix, and serves as the overarching framework in which New York City is making improvements to its pedestrian and bicycle network. However, the following sections will discuss other pedestrian and bicycle initiatives that are being carried out in New York City.



*Strategic Plan 2016* - NYC DOT's Strategic Plan 2016 outlines the agency's goals to create safer streets, improve mobility and transportation choices, and a cleaner environment, and reduce the impact on global climate.<sup>4</sup> The Plan includes 105 initiatives. Some of the major objectives in the plan included: expanding cycling which includes creating at least ten miles of new protected bike lanes each year and planning for Citi Bike Phase 3; implementing bus rapid transit lines and improving bus speeds by creating at least 20 Select Bus Service (SBS) routes; and creating safer streets.

NYC DOT is making streets safer by simplifying complex intersections, discouraging excessive vehicle speeds, adding bicycle lanes, making pedestrians and cyclists more visible, and shortening pedestrian crossing distances at high-crash Vision Zero priority locations. The City has also been making progress on the Vision Zero Great Streets program. Announced in March 2015, the program will remake four outer borough streets with high pedestrian fatality rates — Queens Boulevard, Fourth Avenue and Atlantic Avenue in Brooklyn, and the Grand Concourse in the Bronx. The Great Streets program will rethink and redesign these major corridors to prevent serious crashes, enhance New Yorkers' mobility, increase accessibility, and contribute to each neighborhood's vitality. The design of intersections and corridors will rely on insight provided through engagement with neighborhood residents, small business owners, elected officials, and community leaders.

Data-driven, rigorous law enforcement that combats dangerous driving behavior helps to reduce traffic fatalities and serious injuries. The NYPD has focused on enforcement of especially hazardous violations. Each week at TrafficStat, the NYPD's Chief of Transportation meets with NYPD executives to outline, review, and manage the NYPD's traffic program. In 2015, the NYPD issued nearly 40,000 Failure to Yield violations, nearly triple what had been issued annually between 2011 and 2013, prior to Vision Zero, and over 134,000 speeding violations, a 75 percent increase compared to the average between 2011 and 2013. In 2015 DOT completed installation of 140 speed cameras in authorized zones, with close to 1.5 million violations issued since the program began in 2014. On average, speeding declined by 50 percent at fixed camera locations.



***Bicycle Facilities*** - The objectives of NYC DOT's Bicycle Network Development (BND) Program are to implement and maintain New York City's on- and off-street bicycle network; improve bicycling safety; enhance bicycle access to bridges and mass transit; and institutionalize bicycling by gaining support from the public and private organizations. Earlier sections describe components of the BND Program, for example new lane miles, innovative new designs to increase safety and accessibility for cyclists on city streets, collecting annual bicycle ridership data, conducting bike safety events, and distributing free copies of the NYC Bike Map.



***Greenways*** - A partnership between the City of New York and National Parks has led to greenway projects in and around the city's national parks, and the advancement of various opportunities to plan, improve, and extend greenways around the five boroughs.

A priority in New York City is to reclaim public access to the city's 520 miles of waterfront. The Manhattan Waterfront Greenway (a joint City and State project) is part of this effort, connecting detached paths into a continuous 32-mile mixed-use path circumnavigating Manhattan along the shoreline. Several agencies, including the City departments of City Planning and Parks & Recreation, NYC DOT, and New York State Department of Transportation (NYSDOT), worked together to plan, design and implement this greenway. An important future step is to complete the greenway path and fill in a major gap along the East River shoreline between E. 38th Street and E. 60th Street. Other collaborators include the New York City Department of Economic Development Corporation, and the East Midtown Waterfront Project, in partnership with the City Department of Parks & Recreation and NYC DOT.<sup>5</sup>

The Brooklyn Waterfront Greenway is a planned 14-mile pedestrian and bicycle route connecting communities along Brooklyn's waterfront from Greenpoint to Sunset Park. The Brooklyn Waterfront Greenway Implementation Plan was released June 22, 2012, following a years-long visioning and planning process conducted in collaboration with Brooklyn Greenway Initiative and Regional Plan Association. The planning process included extensive collaboration with the community, soliciting input about best routing options and design treatments. The implementation plan includes the finalized route, implementation framework, and funding estimates for the 23 capital projects that will complete the Greenway (as funding becomes available). More than five miles of Greenway, including sections in Williamsburg, Brooklyn Bridge Park, and along Columbia Street, are already in place and welcoming large numbers of visitors. In addition, capital Greenway sections along West Street began in Spring 2016 and the Flushing Avenue segment began in early 2017.



A master plan for the Bronx River Greenway was completed by the Bronx River Alliance in 2006, and at current, runs for ten miles along the Bronx River—the City’s only true river—from the Westchester County border through the heart of the borough, to the industrial Hunts Point and Soundview neighborhoods, where the river empties into the Long Island Sound.

Over the past decade, several waterfront parks have also opened in the South Bronx: Hunts Point Riverside Park (2007), Concrete Plant Park (2009), and Starlight Park (2012). While much of the Greenway runs through parkland, there are several locations along the route where there are gaps between park paths, in addition to obstacles connecting to neighborhoods adjacent to the Greenway due to highways and rail lines. Recent work has worked towards making these connections. In 2013, the City Department of Parks & Recreation completed a connection between Starlight Park and Westchester Avenue as part of Starlight Park Phase 1, while Phase 2 will extend past Westchester Avenue to Concrete Plant Park. Phase 2 has been broken into different stages, the first of which began in October 2016. The second stage recently completed design in 2017.

In 2017, NYC DOT will extend the two-way protected bike lane previously installed on Bruckner Boulevard from Whitlock Avenue to Bryant Avenue in 2013 to connect to the two-way protected bike lane that was installed on Bruckner Boulevard from Hunts Point Avenue to Longwood Avenue in 2016. Currently, NYC DOT is designing the construction of a Greenway link between Starlight Park and West Farms Rapids, and continues to work with Parks & recreation to improve

on-street connectivity between parks along the Greenway and to ensure safe bicycle and pedestrian access to the Greenway from neighborhood streets.

The Jamaica Bay Greenway is a planned 28-mile network of pedestrian and bicycle paths connecting communities along the Jamaica Bay waterfront to more than 10,000 acres of city, state, and federal parkland. More than ten miles of the Greenway already exist, serving roughly 100,000 local and regional visitors annually. NYC DOT, in partnership with the National Park Service (NPS), NYC Department of Parks & Recreation (DPR), and Regional Plan Association (RPA), led a community-based process to develop an implementation plan for the Jamaica Bay Greenway, which was released in 2016. Also in 2016, NYC DOT added two-way protected bike lanes connecting Marine Park to the Jamaica Bay Greenway at Flatbush Avenue, and conventional bike lanes connecting East New York to the Greenway at Pennsylvania Avenue. Several additional projects are currently in scoping or design.

The South Bronx Greenway Plan, released in 2006 by the City Economic Development Corporation, provides a framework and series of recommendations for actions to create sustainable connections between the waterfront and the residential and business communities in the Hunts Point peninsula. The improvements proposed in the plan will vastly improve access to the waterfront, provide much-needed recreational opportunities, improve transportation safety, and enhance the network of bike and pedestrian paths on the South Bronx peninsula while providing opportunities for compatible economic development. When completed, the Greenway will





link existing and new parks through a network of waterfront and on-street routes. It will encompass 1.5 miles of waterfront greenway, 8.5 miles of inland green streets, and nearly 12 acres of new waterfront open space throughout Hunts Point and Port Morris. It will not only create new connections to and along the waterfront, but also serve as a model for how and why sustainable infrastructure can be successfully accomplished within a challenged community.

The Economic Development Corporation recently completed construction of two major Greenway projects: Food Center Drive, a new path in Hunts Point Terminal Market and the Randall's Island Connector, which provides new and improved access to Randall's Island from the South Bronx. In 2016, NYC DOT installed a two-way protected bike lane along Bruckner Boulevard between Hunts Point Ave and Longwood Avenue. In 2017, NYC DOT will install protected bike lanes connecting Bruckner Boulevard at East 138th Street to Randall's Island, while the greenway segment from Longwood Avenue to East 138th Street is currently in planning and scoping phases.

The Queens Waterfront Greenway, when complete, will be a 10.6-mile path along the borough's East River and Long Island Sound shorelines. It will connect the neighborhoods of Hunter's Point, Long Island City, Ravenswood and Astoria in western Queens with Steinway, Jackson Heights and East Elmhurst in northern Queens. In 2006, the City departments of City Planning and Parks & Recreation released the Queens River and North Shore Greenway Master Plan, laying out a vision for the Queens Waterfront Greenway. The design and development of project sections is an ongoing collaboration between the NYC DOT, Parks & Recreation and the local community. Parks & Recreation recently improved and constructed paths in Astoria Park, Rainey Park, and Queensbridge Park.

In 2013, the City installed a two-way protected bike lane along Vernon Boulevard connecting the new paths in Astoria Park and Rainey Park. In 2016, NYC DOT installed two-way protected bike lanes to improve access in and around Astoria Park. Additional sections of the Greenway will continue to be developed and implemented as community support builds and funding sources become available.

In 2015, NYC DOT began construction on the two-way protected bike lane across the Pulaski Bridge. This project includes a reallocation of roadway space to better accommodate bicycle and pedestrian traffic on the bridge by installing a nine-foot wide two-way protected bicycle lane on the west side of the bridge roadway separated from southbound vehicle traffic by jersey barriers and re-designating the path on the west side of the bridge for pedestrian use only. The protected bike lane opened in May 2016.

In 2015, NYC DOT launched a one-year, community-driven planning process to increase safety and mobility for pedestrians and bicyclists traveling between the Bronx and Manhattan across the 13 Harlem River bridges. Through workshops, surveys, and mobile outreach, combined with technical analysis, NYC DOT is identifying community preferred transportation improvements to create a continuous cross-borough user experience, incorporating bridge paths, approaches, wayfinding and lighting. The final product of this process is the Harlem River Bridges Access Plan to be released in 2017 and used to guide future investment and seek funding for capital projects. NYC DOT is currently developing designs for the priority short-term projects identified in the plan.



Pulaski Bridge  
Photo Source: NYC DCP

***Rail-to-Trail*** - In New York City the preservation and adaptive reuse of the Highline in the Chelsea neighborhood has proven to be an incredible success. The abandoned rail line has been converted into an elevated landscaped trail with scenic views of the Hudson River. The Highline opened to the public in June 2009 and currently stretches from Gansevoort Street to West 34th Street. City figures cited by the New York Post show that the Highline has generated \$2 billion of private investment, 12,000 new jobs and 29 development projects since opening in 2009.<sup>6</sup>



***Bike Share*** - Citi Bike, the New York City Bicycle Sharing program was launched in May 2013 and is operated by NYC Bike Share LLC and sponsored by Citi Bank and MasterCard. Citi Bike provides access to a network of over 6,000 bicycles distributed at over 300 stations in Manhattan and Brooklyn. To date usage of the system has exceeded 20 million trips. In 2015 NYC DOT and NYC Bike Share began an expansion process that will see the network grown to 12,000 bicycles at over 700 stations by the end of 2017. Citi Bike will reach additional neighborhoods in Manhattan, Brooklyn and Queens with this expansion. The program is funded by user fees and private sponsorship.<sup>7</sup>

Bike Share trips are an extension of the transit system and provide needed first and last mile connection. This is further expanded with the presence and usage of several Citi Bike dock stations located at or near transit hubs such as Times Square, 34th Street - Penn Station, Atlantic Avenue Terminal Mall, etc.

***Transit*** - In September 2015, MTA New York City Transit (NYCT) began a year-long Bike & Ride pilot that installed bike racks on a dedicated fleet of buses that serve the S53 and S93 routes, which run between Staten Island and the Bay Ridge section of Brooklyn over the Verrazano-Narrows Bridge. The two lines were chosen for their access to current and planned bicycle paths, ridership and routes, which serve a major college campus where bicycling is a popular commuting option. During the pilot, NYCT will test the use of three types of front-mounted racks, each of which can fit up to two non-collapsible conventional bicycles. The racks have a mechanism that secures the bicycle in place during transit. Customers are responsible for loading and unloading their own bicycle by following instructions that are affixed to the racks.

NYC DOT addresses the issue of pedestrian safety and circulation around subway entrances and bus stops through programs like Safe-Routes-to-Transit.<sup>8</sup> By improving pedestrian safety and access to transit, this program encourages more walking and transit use.

***Zoning and Land Use*** - The Bicycle Access to Office Buildings Law permits tenants and employees to bring bicycles into buildings where they work. The law applies only to commercial office buildings with at least one freight elevator and does not apply to residential buildings. The passage of this legislation was meant to facilitate an increase in bicycle commuting by providing bicyclists with the opportunity to securely park their bicycles in or close to their workplaces.<sup>9</sup> Any tenant or subtenant can request from the owner or building manager the provision of bicycle access or parking. While the request may be denied in some instances, the law establishes a process whereby bi-cycle parking must be openly discussed and considered.

The supply of indoor bicycle parking will increase due to zoning ordinances and local laws that institutionalize such facilities. In April 2009, the New York City Council approved the Department of City Planning's bicycle parking zoning text amendment, which requires indoor, secure bicycle parking in new developments, enlargements and residential conver-



sions. The zoning text applies to residential, community facility and commercial buildings (including public parking garages and accessory parking lots) in all zoning districts. The zoning ordinance requires that new or converted residential buildings with more than ten units must provide one bicycle parking space per two dwelling units. Furthermore, new or enlarged commercial buildings must provide one space for every 7,500 square feet of office space. Commercial tenants and community facilities must provide bicycle parking based on the floor area occupied by use. New enclosed accessory group parking located in public parking garages with 35 or more vehicle parking spaces are required to have one bicycle parking space for every ten vehicle parking spaces. To ensure that these new requirements do not encumber new developments, the required bicycle parking spaces may be excluded from the calculation of the building's floor area.

*Street Design* - In addition to encouraging sustainable modes of transportation by improving safety and mobility, NYC DOT will continue to foster pedestrian and bicycle activity through inviting and active streetscapes. The design of streetscapes will continue to incorporate green design by standard practice, such as green planted pedestrian refuge islands and recycled asphalt. Specific programs in support of this include Public Plazas, Street Seats, Urban Art Program, and building upon and connecting the Greenway systems. NYC DOT is also focusing on improving accessibility for all users, including people with disabilities.

Public spaces also have a dual purpose in that they play an indispensable and vital role in local communities as residents and visitors travel through different neighborhoods, public spaces provide a place to relax, connect with friends and family and enjoy the community. This street life encourages economic development, increases safety and brings vibrancy to communities. Some examples of public spaces in the region included Street Seats, public plazas and rail-to-trail conversions many of which are often created from underutilized public spaces.

*Street Seats* - Street Seats, formerly known as Pop-Up Cafés, first appeared in New York City in the

summer of 2010. These types of open seating areas are popular in Europe and have been established in Canada, California, Washington, Oregon and Pennsylvania. For the pilot program in New York, NYC DOT partnered with two Lower Manhattan businesses. Street Seats expands throughout the city every year as new businesses apply to participate. As of the 2015 season, there were nine Street Seats transforming underused streets into vibrant, social public spaces during the warm weather months.<sup>10</sup>

The cost of the design, construction, installation/removal and maintenance of each Street Seat location is paid for by the sponsoring business. NYC DOT now offers a standard design that is licensed to successful applicants, which eliminates most design costs. Additionally, technical assistance and necessary safety improvements to the roadway, such as the application of traffic markings to the street and installation of flexible bollards are provided.

*Public Plazas* - Public plazas make a vital contribution to the principal functions of the public right of way, they contribute to a safe, walkable and equitable New York City whilst ensuring utility, building and public transit access. Critically, plazas facilitate the transfer of social, economic and cultural exchanges at the pedestrian scale. The NYC Plaza Program has redefined how public space projects are identified and delivered with cities both nationally and internationally looking to NYC DOT to learn from and replicate its successes. As an application based program, community engagement and empowerment is at the heart of the program. From identifying sites through to managing events and investing in maintenance it is the role of NYC DOT's community partners that makes the NYC Plaza Program unique and what sets it apart from other public space initiatives.<sup>11</sup>

With the support of *OneNYC*, the NYC Plaza Program will continue to transform neighborhoods throughout the city by enhancing pedestrian safety, promoting healthy lifestyles by providing access to open space, promoting civic engagement, and boosting local economies. The program prioritizes neighborhoods that lack of open space, with active retail and transit, and with low to moderate income levels. Approximately 73 plazas are currently in some phase of



Flatiron Plaza, Manhattan  
Photo Source: NYC DOT

design, planning, or construction. Of these, 56 are currently open to the public. Existing plazas include Times Square (Manhattan), Fordham Plaza (Bronx), and Willoughby Plaza (Brooklyn).

*Art Program* - The purpose of DOT Art is to enliven the city's streetscape through colorful murals, light projection, and sculptures. These temporary public art installations promote and encourage the public to experience New York City's streets in new ways. NYC DOT partners with community-based organizations and individual artists to facilitate the installation of art work on public plazas, medians, traffic triangles, sidewalks, step streets, jersey barriers and construction fences. Other types of temporary installations include art projections and lighting projects on bridges, viaducts, and archways.<sup>12</sup>

*Education and Training* - NYC DOT introduced the Safe-Routes-to-Schools Program to promote walking and bicycling to school, reduce traffic congestion and improve air quality near schools, and promote a healthy lifestyle among school children by facilitat-

ing the planning, development, and implementation of projects that make walking and bicycling safe and appealing. Safe-Routes-to-Schools operates at the federal, state and local levels and focuses on four major components known as the "5 Es": engineering, enforcement, education, and emergency services.<sup>13</sup> A comprehensive Safe Routes to Schools program should contain elements of each factor listed above.

NYC DOT prioritized 135 elementary and middle schools that had the highest accident rates. Each of the priority schools underwent a thorough study that included outreach to the principal, meetings with parents and other interested parties, the collection and analysis of data concerning traffic conditions, a review of the students' travel patterns, and the development, evaluation, and approval of comprehensive short- and long-term pedestrian safety improvements. Some of the implemented improvements include new traffic and pedestrian signals, exclusive pedestrian crossing times, traffic calming treatments such as speed bumps and speed boards, high visibility crosswalks, and new parking regulations. The short-term safety improvements at the first 135 priority schools have been completed and the capital construction on long-term improvements has begun at many of the schools. NYC DOT has analyzed the latest citywide pedestrian and vehicular crash data and identified a second group of 135 priority schools, which includes public, private, and parochial elementary and middle schools. Reports have been completed for 75 of the second group priority schools.

Since Vision Zero was launched in 2014, NYC DOT has been focusing on quickly implementing safety projects on streets near schools in Vision Zero priority areas. The agency's School Safety Unit has implanted dozens of capital projects with dozens more in the planning and construction stages. In addition, the unit has expanded its planning capacity so as to better develop in-house projects. In 2017 School Safety will implement intersection and corridor safety projects that will improve safety for students at more than 50 schools.



Motor vehicle crashes are the leading cause of preventable death for New York City children between the ages of 5 and 14 years old.<sup>14</sup> Children are at risk as they walk to and from school, ride in cars and buses, and ride bicycles, often without the supervision of an adult. Safety City is another traffic safety program for school children that uses a simulated realistic New York City streetscape to teach children about traffic safety through hands-on experience. The first Safety City program opened at P.S. 92 in Central Harlem in 1990. In the years following the program's inception, the number of children admitted to Harlem Hospital for motor vehicle-related injuries declined by 50 percent.



In addition to Safe-Routes-to-Schools and Safety City, NYC DOT also provides interactive, multi-session programs to children in grades K-12 in high risk communities, as well as parent safety workshops in schools and health centers across the five boroughs. The annual We're Walking Here contest integrates pedestrian safety educational activities into math, science and other classroom curricula. More intensive art residency programs spread awareness of traffic safety issues through peer-to-peer education and reach the larger community with student-created signs, murals and banners addressing safety concerns. Bike-to-School programs combine biking encouragement with bike safety education.

Safe-Streets-for-Seniors is a program that identifies areas with a high senior citizen population and a high incidence of crashes, then develops and im-

plements measures to improve safety for seniors at these locations, including outreach and education. Older adults also participate in NYC DOT's pedestrian safety walking clubs, identifying safe routes and practicing pedestrian safety skills while they walk.

Since launching the program in 2008, NYC DOT has addressed senior pedestrian safety issues in 37 Senior Pedestrian Focus Areas (SPFAs) in the five boroughs. The original 25 SPFAs were selected based on the density of senior pedestrian (age 65+) crashes resulting in fatalities or severe injuries in a five-year period. In 2012-2013, the program expanded to include twelve new areas. They were identified using a similar methodology as the original areas, but also involved new variables such as senior trip generators, concentrations of senior centers, and senior housing locations. NYC DOT evaluates pedestrian conditions in these neighborhoods from a senior's perspective and implements safety improvements, such as extending pedestrian crossing times at crosswalks to accommodate slower walking speeds, constructing pedestrian safety islands, widening curbs and medians, narrowing roadways, and installing new stop controls and signals. In 2017, the program is planning to announce four new areas in Brooklyn, the Bronx, and Queens.

Since the program began, annual senior pedestrian fatalities have decreased 16 percent citywide, from an average of 65 senior fatalities per year between 1999 and 2007 to an average of 54 between 2008 and 2016. Since 2009, 165 Street Improvement Projects (SIPs) have been implemented within the SPFAs citywide. Of the total, 105 SIPs have at least two years of post-implementation crash data available for analysis. Analyzed together, these 105 projects have produced a 9 percent decrease in total injuries and a seven percent reduction in injury crashes.

The Safe-Routes-to-Transit Program facilitates improvements to pedestrian and vehicular circulation around subway entrances and bus stops to provide safe and convenient access to mass transit. The program consists of three components: 1) Bus Stops under the EIs (elevated subway structures) to improve pedestrian and driver safety and the circulation at locations underneath elevated subway structures;

2) Subway-Sidewalk Interface (SSI) to improve safety and to relieve congestion on sidewalks and intersections next to subway entrances; and 3) Sidewalks-to-Buses to create or improve sidewalks, crosswalks, and other parts of the walking environment around bus stops where walking is currently difficult.

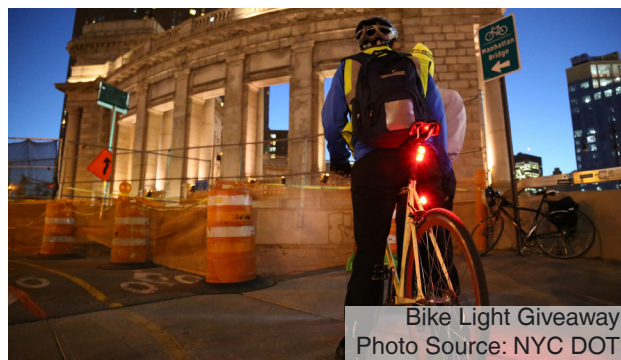
In 2015, the Street Ambassador Program was launched to raise New Yorkers' awareness and understanding of innovative street designs by engaging the public directly during the planning, implementation and post-implementation stages of projects that deliver bicycle lanes, pedestrian plazas, Select Bus Service, and safer intersections and corridors to the streets of New York City.

Bike Smart is a multi-faceted safety education campaign focused on traffic laws and safety. The Campaign includes a helpful handbook with information on making your cycling safer and easier, including tips on using newer bike facilities. NYC DOT Street Ambassadors encourage proper biking behavior by educating riders about traffic laws and providing safe riding tips. They also discuss proposed street improvement projects, gather community feedback, and distribute branded promotional items. Hallmark programs, which include *Ring in the Spring* and *Lighten Up – Fall Bike Light Giveaway*, serve as educational opportunities through the distribution of required equipment. A *Look for Cyclists* public service announcement runs on NYC Taxi TV to address the issue of “dooring” – striking a passing cyclist in the action of opening a vehicle door – by raising awareness among vehicle passengers. Bike Smart includes a comprehensive commercial cyclist component, including a guidebook to assist businesses that use bicycles for commercial purposes.

NYC DOT holds interactive workshops for business owners about the commercial bicyclist law. At a forum, business owners can learn about the law and keep their employees safe, and also get a free sample of equipment required for commercial bicyclists. NYC DOT's Safety Education and Outreach Division sponsors Bike-to-School programs. Over 100,000 free helmets have been provided by the division's helmet fitting and distribution program.

**Enforcement** - In New York City, the average daily number of red light running events observed at each red light camera location has declined by 85 percent. In addition, reportable right-angle crashes at signalized intersections have declined by 59 percent citywide since the launch of the program and severe injuries from such crashes have declined by 73 percent. Both Nassau and Suffolk counties have implemented the red light camera safety program and have installed cameras at more than 40 intersections.<sup>15</sup>

**Data Collection** - Bicycle access to bridges is critical to the establishment of a successful bicycle network. This is particularly relevant in New York City, where a huge proportion of daily commuter trips are made over the East River bridges to and from midtown and lower Manhattan. Data collection has allowed NYC DOT to understand bicycle volumes and demand on infrastructure, as mentioned earlier, the four East River bridges serve an average of 15,000 cyclists on a typical weekday during a 12-hour period (7AM – 7PM). In the year 2000, according to NYC DOT's In-Season Cycling Indicator, a typical weekday volume of 2,000 bicyclists was recorded on the bridges. As NYC DOT has worked to improve bicycle connections over the past decade, including to these bridges, the typical weekday volume of bicyclists increased to approximately 15,000 by 2014. This dramatic increase is indicative of the positive effect that infrastructure improvements can have on ridership levels. As previously mentioned, in 2014 the introduction of loop induction counters has permitted NYC DOT to conduct continuous, daily counts on the East River bridges without the use of human surveyors. Automated counters reduce the variability found in single counts by averaging each weekday in the month with no precipitation into a single average, excluding holidays.





## NYSDOT REGION 11

NYSDOT's Region 11 consists of New York City's five boroughs and owns 53 pedestrian bridges city-wide crossing over the highways. Region 11 has established policies, procedures and strategies to ensure that pedestrian and bicycle needs are accommodated at the early stages of project development. One such strategy is the Complete Streets legislation signed into law by Governor Cuomo which requires NYSDOT to facilitate improved joint use of roadways by all users, including pedestrians, motorists, and bicyclists. It is NYSDOT's policy to consider the accommodation of pedestrians, including persons with disabilities, during the earliest scoping stage of all projects.

Region 11's approach is such that consideration of pedestrian needs should include, at a minimum, a presumption that pedestrians will be accommodated, unless pedestrian access is prohibited by law, deemed unfeasible based on anticipated use, and/or an absence of need is determined. Highways and streets where bicyclists are permitted should provide for safe and convenient bicycling. Not every highway or street requires the provision of bicycle facilities in order to improve bicycling conditions. The project scoping and design approval documents clearly identify where facilities for bicyclists are needed and should be provided.

## INITIATIVES

*Network Development* - Projects of interest that are in development or have been implemented to enhance the City's pedestrian and bicycle network are as follows:

- > Bronx River Greenway (Phase 2, Planned) – Region 11 completed Phase 1 of the Bronx River Greenway in January 2013, which extended the Greenway by just under a mile from 177th Street to 174th Street on the east side of the Bronx River, and from 174th Street to 172nd Street on the west side of the river. This segment is a key link in the 23-mile greenway from Westchester's Kensico Dam in the north to the Bronx's Soundview in the south. It features Starlight Park, as a major active recreation hub in the South Bronx.

Phase 2 will be constructed by the City Department of Parks & Recreation with Region 11 providing funding and technical assistance for the design and construction phases. The planned project will construct approximately 0.75 miles of pathway between Concrete Plant and Starlight Parks as well as two bicycle/pedestrian bridges. It will open the Greenway to thousands of South Bronx residents and complete 1.8 miles of contiguous off-street trail from Bruckner Boulevard and East 177th Street, providing easy access to the full Bronx River Greenway system.

- > Kosciuszko Bridge Replacement Pedestrian and Bicycle Connection (Planned) - This bridge is a vital link in New York City's transportation network, carrying a 1.1-mile segment of the Brooklyn-Queens Expressway (I- 278) over Newtown Creek between Morgan Avenue in the borough of Brooklyn and the Long Island Expressway interchange in the borough of Queens. As one of New York City's few north-south interstates, the Brooklyn-Queens Expressway serves commuter and local traffic, as well as a significant amount of commercial traffic that is prohibited from neighboring parkways. Taking advantage of the bridge reconstruction, the project will feature a new walkway/ bikeway. It would as well expand the New York City bicycle network by creating a new north-south connection, linking the neighborhoods in Brooklyn and Queens and providing a dedicated route for alternative means of transportation. It would be approximately one mile in length, connecting to Meeker Avenue near Van Dam Street in Brooklyn and to the existing pedestrian walkway over Laurel Hill Boulevard in Queens.
- > Route 9A Walkway and Bikeway (Partially Completed) - The five- mile long Route 9A walkway and bikeway runs along western edge of Manhattan, from Battery Place to West 59th Street. It connects the East River walkway/bikeway at Battery Park (southern tip of Manhattan) to the Riverside bikeway in

the north. The bikeway is designed and designated as a Class I bikeway and is 16-feet wide (except few stretches where it is not feasible to attain full width). It is physically separated from Route 9A roadway/vehicular traffic by a planted/ landscaped buffer. This walkway/bikeway facility invites users not only to enjoy the scenic esplanade, but also provides access to major attractions along the riverfront, like the Intrepid Sea Air Space Museum, several ferry terminals, Chelsea Pier recreational/ sport facility, September 11th Memorial, Jewish Heritage Museum and so on. The users will also enjoy the Hudson River Park along the entire route equipped with rest areas, dog runs and several recreational facilities. It is considered one of the busiest bikeways in the nation and also the location for several events like a marathon. There are designated areas along the route to learn to ride a bicycle, bicycle rentals and several bicycle racks. It is also used for daily commute to and from the nation's financial hub (Wall Street/ World Financial Center). Last but not least, it is also used, shared, and enjoyed by skateboarders and rollerbladers.

- > Major Deegan Expressway Bridge over Mosholu Parkway (Pedestrian Walkway – Under Construction) - A substantial portion of the Major Deegan Expressway Bridge over Mosholu Parkway in the Bronx will be replaced to ensure structural integrity and motorist safety. However, the project also proposes to replace the existing pedestrian walkway on the west side of the bridge with a six-foot wide pedestrian walkway. It will run the entire length of the bridge on the southbound side. The walkway will be connected to the trails below with a new ADA accessible ramp. To the south, the trails lead to Van Cortlandt Lake and the southern entrance of the park. To the north, the walkway connects with a trail that leads to the Old Croton Aqueduct Trail.

- > Ocean Parkway Corridor Pedestrian and Bicycling Safety Improvement Project - New traffic and pedestrian signals will be installed at some intersections along Ocean Parkway, along with signal timing modifications to existing signals, upgrading curb ramps to meet ADA standards and upgrading signs and pavement markings.
- > 151st Street Construction of a New Pedestrian Bridge over Amtrak and the Henry Hudson Parkway - This is a \$24.4 million contract to construct a new pedestrian/bicyclist bridge at 151st Street in Manhattan that will improve community access to the Hudson River waterfront, including the Fort Washington and Riverside Parks, and the Manhattan Waterfront Greenway, a 32-mile walkway/bikeway that will circumnavigate the island of Manhattan. The project will consist of a 270-foot-long signature steel arch bridge that will span over the Henry Hudson Parkway and the Amtrak train tracks at 151st Street; and an ADA compliant ramp on each side of the span. The design of the east side ramp along Riverside Drive will include stone-faced retaining walls to match the existing stone overlook. The west side ramp, on the river side, will feature a modern design. The project also includes new landscaping and lighting. Bio-swailes with natural retention will be used to absorb runoff. The signature steel arch design was reviewed and approved by the NYC Public Design Commission.

*Bike Share* - As part of the Route 9A project, and in coordination with NYSDOT and Hudson River Park Trust, NYC DOT identified and implemented the Bike Share Program on several locations along the route. NYSDOT and the Hudson River Park Trust continuously monitor and implement improvements to the bikeway as situation demands or as part of their adjacent development projects for betterment of users and community in general to enjoy.



## PORT AUTHORITY OF NEW YORK & NEW JERSEY INITIATIVES

*Network Development* – Port Authority projects that are in development or have been implemented to enhance the pedestrian and bicycle network in and around New York City include:

- > Staten Island Bridges Projects - Two major projects by the Port Authority of New York and New Jersey will also incorporate enhanced connections for pedestrians and cyclists traveling between Staten and adjacent communities in New Jersey. One project is the Bayonne Bridge Navigational Clearance Project, which includes widening the existing mixed use path for pedestrians and cyclists from six feet to 12 feet. The other project is the Goethals Bridge Replacement Project, which includes a new 10-foot mixed use path for pedestrians and cyclists. Both projects currently under construction. The projected completion date is 2019 for the Bayonne Bridge and 2018 for the Goethals Bridge.
- > George Washington Bridge Restoration Project (under construction) - As part of an ongoing project to replace the suspender ropes and rehabilitate the main cables of the George Washington Bridge, the Port Authority of New York and New Jersey will also make improvements to the existing pedestrian and cyclist pathways. Specifically, the project will remove existing stairs on the north sidewalk and provide ADA-compliant access on both sidewalks, with enhanced safety for pedestrians and bicyclists on the approaches. The project will also include improved railings and lighting on the sidewalks. Construction will require long-term closure of the sidewalks (one side at a time), but the sequencing has been determined to minimize impacts to cyclists. Closing the north sidewalk first allows for the removal of the stairs before shifting bicyclists from the south sidewalk. Construction completion is anticipated in 2024 and will ultimately allow a separation of uses, with pedestrians on the south sidewalk and cyclists on the north sidewalk.

FIGURE A2.1: EAST COAST GREENWAY IN THE NEW YORK METROPOLITAN REGION



Source: East Coast Greenway Alliance



## NYSDOT REGIONWIDE INITIATIVES

*Network Development* - At the regional level, NYSDOT's work includes expanding and upgrading the bicycle network along New York State highways, providing additional signage, pavement markings, shoulder repair, and bicycle friendly drainage grates.

The East Coast Greenway (ECG) has an important role in promoting the vision of connecting across county lines the local trails of the NYMTC planning area into a continuous route. The ECG has no jurisdiction over the greenway path system in the region, but it generally partners with local, state and national agencies and organizations to strategically work on establishing a traffic-free multi-user trail linking cities from Maine to Florida. So far 30 percent of off-road paths have been designated as part of the East Coast Greenway.

As a result of new policies and incentives, indoor and outdoor bicycle parking facilities are increasing across the NYMTC planning area. One way to increase bicycle facilities is through legislation, as evidenced in the cities of New Rochelle and New York City.

*Street Design* - This work includes the installation and upgrade of sidewalk curb ramps and sidewalk segments to meet current ADA and NYSDOT standards. For example, sidewalks can be installed to fill in gaps of less than a half-mile between segments of existing sidewalks, as long as extensive drainage improvements are not required. Curbs, signs and paving within the area of work may also be replaced, along with other site improvements. Crosswalks can also be re-striped to link curb ramps where required.

NYSDOT's work includes expanding the pedestrian network along state highways, which includes sidewalks, crosswalks, curb ramps, and pedestrian signals. This work is being accomplished through Capital Rehabilitation and Reconstruction projects, Pavement Maintenance projects, and through the SEQRA (State Environmental Quality Review Act) Review process which requires private development along the State highway system to provide ADA compliant pedestrian facilities.

*Data Collection and Analysis* - NYSDOT manages a crash database for the state of New York called the Safety Information Management System (SIMS), which includes roadway crash data collected by local police departments and the NYS Department of Motor Vehicles. NYSDOT also provides access to the crash data through the Accident Location Information System (ALIS) which visually displays crash locations and information on a map and is a powerful tool for safety analysis.

## LONG ISLAND

Long Island's bicycle facilities comprise 480 miles of bicycle facilities. These include 11 miles of on-road bicycle facilities in Nassau County and 372 miles of on-road bicycle facilities in Suffolk County. Additionally, Nassau County has nearly 64 miles of off-road shared use paths and Suffolk County has 33 miles of off-road shared use paths.

Long Island's bicycle facilities fall under multiple jurisdictions including the New York State Department of Transportation (NYSDOT), New York State Office of Parks, Recreation, & Historic Preservation, the State University of New York at Stony Brook, Nassau and Suffolk counties and local municipalities.



Hofstra Mitchell Field Bike Path  
Photo Source: NYMTC



## NASSAU COUNTY DEMOGRAPHICS

According to the 2015 ACS Five-Year Estimates, Nassau County has a total of approximately 1.35 million residents, an increase of 1.5 percent compared to the population in 2000. The ACS estimated that in 2015, more than three-quarters of Nassau County workers drove to work (around 498,950 workers of 653,650 total workers), while another 106,000 or 16 percent used public transit. Nearly 1,400 (or 0.2 percent) and 17,500 (or 2.7 percent) were estimated to bike and walk to work, respectively. Since 2000, there were notable increases in public transit and ferry commuters. Walking and bicycle commuter numbers also increased slightly.

## EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Nassau County has 11 miles of on-road bicycle routes and 64 miles of off-road shared use paths. A compilation of bicycle facilities by ownership is shown in Tables A2.6 and A2.7.

In 2014, the City of Long Beach issued an RFP for a bicycle share program operator. Social Bicycles (SoBi) was granted the contract, and launched a pilot program in May 2015.<sup>16</sup> A successful pilot led SoBi to double the number of bicycles from 100 to 200, and to install new stations and expand existing ones. In support of continuing the success of bicycle share and general use of bicycles, the City of Long Beach also increased the number of bike racks at the Long Beach Long Island Rail Road (LIRR) station, and has embarked upon several initiatives, including the development of a bicycle map to inform bicyclists of recommended routes and to inform the City of network development opportunities. The City has passed Complete Streets legislation (along with other municipalities in Nassau County), and is working on implementing streetscape improvements on its main commercial road, Park Avenue. The City also maintains existing facilities by regularly repainting existing Sharrows (shared bike lanes).<sup>17,18</sup>

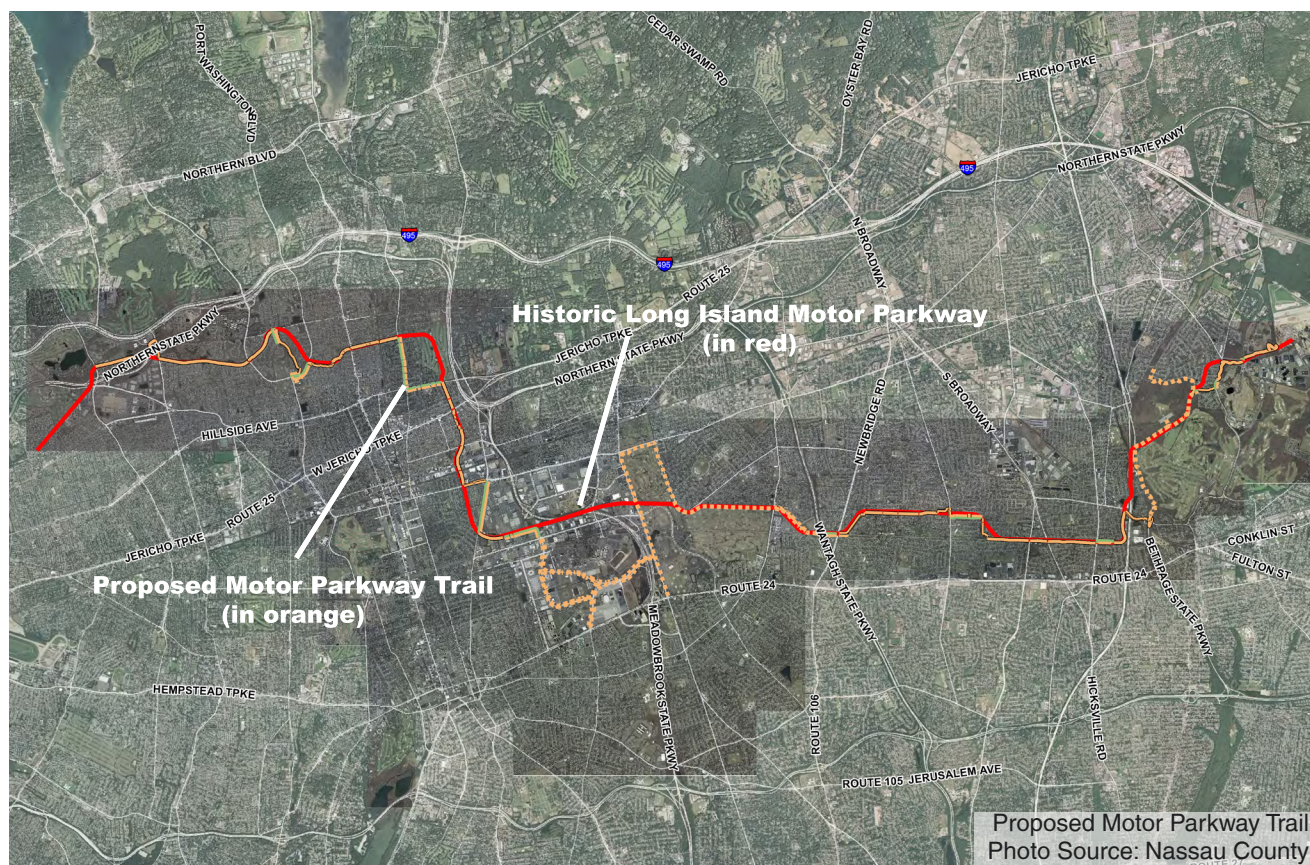
Bicycle racks are available at many LIRR stations. Bicycle lockers are available at the following Nassau County LIRR stations: Baldwin, Bellmore, Farmingdale, Hicksville, Lynbrook, Long Beach, Massapequa,

Rockville Centre and Wantagh stations. As of April 2012, the Towns of Hempstead and Oyster Bay; and the Villages of Lynbrook and Rockville Centre are managing and operating their own bicycle lockers that were provided by NYSDOT, which has operated the bicycle locker program on Long Island since 1999. Since 2011, local municipalities have agreed to take over ownership, operation and maintenance of the bicycle lockers. At the Long Beach LIRR station, bicycle parking capacity has tripled in recent years, and use is at capacity during peak hours.

## INITIATIVES

*Network Development* - Nassau County continues to improve upon its bicycle and pedestrian network with many projects aimed at increasing the use of these non-motorized travel modes. The development of exclusive bikeways in Nassau County has primarily been oriented toward recreation use.

The recent completion of a paved shared-use pathway connecting major institutional, cultural, entertainment and recreation uses in the Nassau Hub serves as the centerpiece of the County's bicycle infrastructure initiative. Nassau County is planning to design and construct another 2.2-mile segment of the Long Island Motor Parkway Multi-Use Trail. This segment would be the eastern most section of the trail, beginning at the Bethpage Bikeway in Bethpage State Park and ending at the Old Bethpage Restoration Village County Park. Linking the new 2.2-mile segment to the existing Bethpage Bikeway Expansion, a major north/south non-motorized multi-use trail, would add a new level of multi-use trail connectivity in eastern Nassau County. This new segment would also link cultural destination centers, such as Old Bethpage Restoration Village and Bethpage State Park, to schools, colleges, parks, multiple communities, and centers of commerce, such as the Nassau Hub. Old Bethpage Restoration Village is a historical and educational park in Nassau County and home to the Annual Long Island Fair, the Museum of American Armor, as well as a collection of historical houses, barns and buildings dating back to 1765. Bethpage State Park is a world class nature and sporting facility and has hosted major national events such as the U.S PGA Open and the Barclays Cup golf tournaments.



In recent years, Nassau County has undertaken an initiative to design and construct bikeways that connect land uses, destinations, attractions and employment centers. The Town of North Hempstead has expanded, and continues to expand, its bicycle network as part of various planning initiatives undertaken to increase safety and access for cyclist infrastructure. Guided by certain aspects of the New Cassel Urban Renewal Plan and updated Vision Plan for New Cassel, in 2013 the Town finished a Complete Streets project along a 1.3-mile segment of Prospect Avenue between Brush Hollow Road and the Wantagh State Parkway overpass. The right-of-way was retrofitted with various traffic calming features, wider sidewalks, decorative and vegetated medians and east/westbound dedicated bicycle lanes. The project complements the mixed-use redevelopment along the Prospect Avenue corridor. Also in New Cassel (in keeping with Vision Plan recommendations), as part of the LIRR Expansion Project roadway/rail grade separations, ADA-accessible pedestrian sidewalks and bicycle paths are being planned for underpasses at Urban Avenue and School Streets. The entire New Cassel network will be highlighted in a proposed wayfinding initiative for the hamlet in 2018.

The City of Long Beach's limited land area and a relatively high population density (in comparison to other Long Island communities) has limited its parking supply, encouraging City residents and visitors to use public transportation, walking and biking to move around the city and beyond. According to ACS commuter data, Long Beach residents commute by bicycle at a rate double the national average and uses public transportation four times the national average. Non-motorized initiatives are thus important to the City, which has installed Sharrows on certain streets, recently expanded its bicycle rack network, and is working on a Bicycle Master Plan, in which roadway markings and dedicated and protected bicycle lanes will be incorporated based on specific criteria. The City intends to coordinate with Nassau County in these efforts, and has secured New York State funding for some projects in their plan. The City is also focusing on Complete Streets projects to improve conditions for pedestrians.



***Bike Share*** - In addition to the bike share in Long Beach, Nassau County hopes to soon have bicycle rentals available at both Cedar Creek Park in Seaford and Eisenhower Park in East Meadow, to further advance the Fit Nassau Initiative, which aims at promoting a healthy lifestyle for local residents. Cedar Creek Park is next to a 5 mile paved bicycle Wantagh Parkway Shared Use Path that runs south along the Wantagh State Parkway to connect with the Ocean Parkway Shared Use Path at Jones Beach. Eisenhower Park has approximately 20 miles of paved bicycle paths for residents to enjoy.<sup>19</sup>

***Transit*** - To enhance access to transit, bicycles are allowed aboard LIRR trains at most times outside of rush hours and major holidays. A one-time \$5.00 purchase of a lifetime bicycle permit is required for each bicycle boarding the train. As a relatively new bus system, the Nassau Inter-County Express (NICE) is becoming more familiar with its riders' needs and a bicycle program may be considered in the future. Long Beach Transit however, has buses equipped with bicycle racks.

Nassau County has sought to implement Transit Oriented Development (TODs) through innovative funding partnerships. Nassau's Long Island Rail Road station areas and transit-served commercial corridors are appropriate candidates for TOD and mixed-use zoning. Through recent and ongoing community planning initiatives, downtowns and traditional central business districts are being identified as focal points for redevelopment and revitalization that will foster walkability, vibrancy, entertainment, recreation, housing alternatives and a reduction in reliance on the automobile. These community planning initiatives have yielded significant progress as many municipalities in Nassau County have adopted new zoning legislation and implemented planning tools to foster and catalyze pedestrian-friendly, compact development around nodes of public transit. These municipalities include the cities of Glen Cove and Long Beach, the towns of Hempstead and North Hempstead, and the villages of Farmingdale, Freeport, Great Neck Plaza, Hempstead, Mineola and Westbury.

***Zoning and Land Use*** - All new zoning ordinances require that new residential, commercial or mixed-use construction be built to enhance the pedestrian experience by locating parking areas in the rear of buildings, providing incentives to construct streetscape amenities and pedestrian safety improvements. Many of the codes incorporate shared-parking provisions to reduce the size of new parking areas and excess curb-cuts. The Village of Hempstead has adopted the first downtown form-based zoning overlay code in Nassau County that will require new development to conform to design standards that focus on the public street realm and the pedestrian scale. Looking ahead, it will require the continued collaboration and coordination among community stakeholders and local, state and federal governments to realize the true potential of Nassau's central business districts as pedestrian-friendly centers of suburban life.

***Street Design*** - Nassau County participated in the Safe-Routes-for-Seniors program by developing a project that addresses senior safety issues along the stretch of Hempstead Turnpike that runs through the Elmont and Franklin Square communities.

In addition, the Nassau County Legislature adopted Complete Streets legislation in 2013 that requires the Department of Public Works to consider all potential roadway users in the design of major right-of-way improvement projects. The County will soon be looking to seek public input on developing guidelines for implementing the legislation and views this effort as an important step in developing complete streets design guidelines.

***Education and Training*** - Nassau County operates the Safety Town program in Eisenhower Park at East Meadow. The program is geared towards children ages seven-to-nine and facilities simulate miniature towns that are built at one-third scale and include intersections with traffic signals, an overpass, and tunnels. The purpose of these replica facilities is to instruct and give schoolchildren training in pedestrian and bicycle safety. Based on a ten-year analysis of bicycle crashes in Nassau County, officials have determined that a child who received training at Safety Town was ten times less likely to be involved

in a bicycle than one who did not.<sup>20</sup> Nassau County also introduced a “Walk Safe Nassau” program.

*Enforcement* - In May 2012 in response to a pedestrian fatality on Hempstead Turnpike. This initiative aims to educate the public about safety, issues and disseminates information about child safety seats, the dangers of Driving While Intoxicated (DWI), and teen driving.<sup>21</sup>

The TraCS (Traffic and Criminal Software) program has been growing in use among police agencies across the NYMTC planning area. Through this software, accident reports are now recorded on a computer in the patrol car at the scene of the accident. The police departments of many towns and villages within the counties outside of New York City participate in this program, including the Village of Lynbrook (Nassau County). It has been successful according to the New York State Police due to continued efforts and coordination with other agencies such as New York State Department of Motor Vehicles and NYSDOT.<sup>22</sup> Additionally, both Nassau and Suffolk counties have also implemented the red light camera safety program as an enforcement tool, and have installed cameras at more than 40 intersections.

## SUFFOLK COUNTY DEMOGRAPHICS

The 2015 ACS Five-Year Estimates reported that Suffolk County had a population of just over 1.5 million residents in 2015, a nearly six percent increase from 2000. Most Suffolk County workers drove to work (87 percent, or nearly 630,000 of 722,000 total workers). 6.5 percent of workers used public transit, while 0.2 percent biked, and 1.6 percent walked to work. Since the 2000 Census, pedestrian and public transit commuters increased by around 3 percent each, while bicycle commuters increased by 13 percent.

## EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Suffolk County has 372 miles of on-road bicycle routes and 33 miles of off-road shared use paths, representing 97 percent of on-road bicycling facilities on Long Island. Detailed listings of these facilities are shown in Table A2.9 through Table A2.11 in section 6 of this appendix. Suffolk County can support an extensive bicycle network because a significant portion of the state highway system, especially in central and eastern Suffolk County, have stretches of roadway with a five-foot shoulder or greater that can readily accommodate bicycle facilities. Several towns in Suffolk County including Brookhaven, Riverhead, Southold and Southampton, have been proactive in designating bike routes and adding bike lanes to their street network. The Town of Brookhaven has utilized roadway resurfacing projects to incorporate bicycle lanes on its roadways where there is sufficient width to support a bike lane without removal of on street parking.

## INITIATIVES

*Network Development* - *Connect Long Island* is a comprehensive regional transportation and development plan that lays the groundwork for an innovation economy and long-term economic growth in Suffolk County and across the Long Island subregion by supporting TOD and building supporting transportation infrastructure. The plan coordinates land use with transportation planning and envisions the development of existing and future walkable, transit-oriented downtowns including East Farmingdale, Heartland in the Town of Islip, Huntington Station,



Ronkonkoma, Wyandanch, Patchogue, and Riverhead – all of which will have strong, new north-south public transportation connections to one another, the LIRR, and universities, research centers, job centers and parks and open space across the County.

The Innovation Zone component of *Connect Long Island* applies these principles to the Nicolls Road corridor, which will be converted into a multimodal corridor with a designated BRT lane and a parallel hiking/biking trail – creating the first direct north-south public transportation connection between the Port Jefferson, Ronkonkoma and Montauk LIRR lines. The plan will additionally link all regional assets along the corridor, including Stony Brook University and Medical Center, Suffolk County Community College, St. Joseph's College, the Ronkonkoma Hub, Long Island MacArthur Airport, the Davis Park Ferry to Fire Island and hundreds of acres of park land. The parallel hiking/biking trail will be the longest hiking trail on Long Island, spanning almost the entire width of the island, from Stony Brook University to the Fire Island ferries in Patchogue and providing residents easy access to desired recreational activities as well as the 25 percent of Suffolk County that is preserved open space and parkland.

In 2012, the County adopted a comprehensive Complete Streets policy, which established a framework to evaluate the feasibility of implementing enhancements to pedestrian, bicycle, and public transportation facilities during the planning of any County project. Dovetailing with this initiative, the County Legislature voted in June 2014 to establish a Complete Streets Implementation Fund - an amendment to the County's 2015-2017 Capital Program that will provide a yearly funding allotment to redesign the County's roadways to more safely accommodate pedestrians, cyclists, transit users and motorists, beginning in 2016 and continuing each subsequent year.

The Suffolk County Industrial Development Agency contracts with the Regional Plan Association (RPA) in an effort to promote downtown walkability and revitalization through modifications to existing land use and streetscapes. As of December 2014, the RPA has worked with municipalities such as the villages

of Amityville and Lindenhurst and along the length of the entire Route 110 Corridor to create community based visions that encourage transit-oriented development, address pedestrian safety at crossings, expand and enhance sidewalk infrastructure and safe bike paths, and enhance signage and wayfinding to public transportation nodes.

**Bike Share** - In March 2013, the State University of New York at Stony Brook kicked off its Wolf Ride Bike Sharing program. Stony Brook University students, faculty, staff and visitors may purchase a subscription to Wolf Ride in annual, monthly, weekly and daily terms for the first 60 minutes of each use. The new bikes can be used to travel throughout the sprawling campus and are intended for travel between two station locations instead of using a car and thereby reduce congestion and vehicle emissions. There are currently four stations and 45 bicycles available for use.<sup>23</sup>

**Transit** - As described above, major initiatives such as *Connect Long Island* will enhance walkability and access to transit, which will encourage pedestrian and bicycle trips. One such initiative has taken place in Wyandanch, where an Intermodal Plaza and Roadway Network project is being constructed to establish bus pick-up and drop-off locations and to provide bicycle storage adjacent to the LIRR station. The creation of the plaza will help reduce the amount of traffic around the train station. Other measures included in the project are a reconfigured roadway that will provide the street network required to re-route truck traffic out of the downtown area. At the user level, transit users are encouraged to make bicycle connections by bicycle racks on Suffolk County Transit buses. Transit riders can utilize free bike racks on all Suffolk County Transit fixed route buses, and can look forward to added capacity bike racks as Suffolk County replaces its bus fleet with new fuel efficient and clean hybrid electric buses. Similar to Nassau County connections to transit by bicycle in Suffolk County are allowed aboard the LIRR with the purchase of a permit.

**Street Design** - Safety for pedestrians and bicyclists remains a priority in Suffolk County. A Complete Streets policy was adopted by the County in 2012.

Dovetailing with this initiative is the Complete Streets Implementation Fund - an amendment to the County's 2015-2017 Capital Program that will provide a yearly funding allotment to redesign Suffolk County's roadways to more safely accommodate pedestrians, cyclists, transit users and motorists, beginning in 2016 and continuing each subsequent year.

In Smithtown, a \$26.8 million safety, mobility, and environmental improvement project for NY Route 347 was implemented. This project is the first in a series of corridor projects planned to improve safety for motorists, bicyclists and pedestrians, reduce travel delays and enhance the environment and visual character of the area. NY Route 347 is being transformed into a modified boulevard and suburban greenway for 15 miles between the Northern State Parkway and NY Route 25A (North Country Road) in the towns of Smithtown, Islip and Brookhaven.

Plans are also underway for pedestrian improvements in the Village of Southampton, which has created a Vision Plan for increasing walkability. The plan calls for additional crosswalks, pedestrian paths and protected bicycle paths. Common automobile parking areas will be created to encourage pedestrians to park and walk. Permeable paving treatments will be installed along the curb to improve the stormwater drainage. Lastly, ground floor retail uses will be developed along two central corridors in the Village.

*Education and Training* - Suffolk County operates a Safety Town program in Holtsville Ecology Park in the Town of Brookhaven.<sup>24</sup> Like Nassau County's Safety Town program, the program is geared towards children ages 7 to 9 years old, and facilities simulate miniature towns to instruct and give schoolchildren training in pedestrian and bicycle safety.

## **NYS DOT REGION 10**

NYS DOT Region 10 office in Hauppauge, New York is responsible for maintaining state roadways and bridges and preserving their safety and operation. Region 10 is also involved in pedestrian and bicycle planning and projects in both Nassau and Suffolk counties.

### **EXISTING PEDESTRIAN AND BICYCLE FACILITIES**

Region 10 manages an estimated 1,530 miles of sidewalks, 40 miles of crosswalks and over 15,000 curb ramps along its state highways. Region 10 has established approximately 200 miles of on road and off road bicycle facilities and has established 162 miles of on-road bicycle facilities on the state highway system and 37 miles of shared use paths. This constitutes 41 percent of Long Island's bicycle facilities.

Region 10 has established five numbered on road bicycle touring routes across Long Island totaling 137 miles, including Bike Routes 24, 25, 25A, 27 and 114 (see Table A2.5: Bicycle Facilities).

- > New York 24 State Bike Route is seven miles in length, located entirely within the Town of Southampton. New York State Bike Route 24 begins at the Riverhead Traffic Circle and proceeds east through the Long Island Pine Barrens and along Peconic Bay in designated bicycle lanes to Old Riverhead Road in Hampton Bays.
- > New York 25 State Bike Route is 67 miles in length and located in the Town of Smithtown, Town of Brookhaven, Town of Riverhead and Town of Southold. NY State Bike Route 25 also utilizes local streets in the Villages of Port Jefferson and Greenport. NY State Bike Route 25 begins at the intersection of NY 25, NY Route 25A and NY Route 111, a half mile east of the Smithtown central business district and it continues northeast along NY Route 25A and then diverts to local roads in St James, Stony Brook and Setauket, and briefly rejoins NY Route 25A in Setauket. In the Village of Port Jefferson, the State Bike



Route leaves NY Route 25A following local roads for six miles before rejoining NY Route 25A for a third time in Sound Beach. Traveling east from Sound Beach, NY 25 State Bike Route stays on NY Route 25A following a designated bicycle lane until it merges with NY Route 25 in Calverton. NY 25 State Bike Route stays on NY Route 25 most of the way to Orient Point except for several miles on local roads in Riverhead and Greenport.

- > New York 25A State Bike Route is 18 miles in length and located in the Town of Huntington and Town of Smithtown. New York Route 25A State Bike Route begins at the Cold Spring Harbor LIRR Station at the Cold Spring Harbor LIRR Station, at the intersection of NY Route 108 and Woodbury Road. Most of NY 25A State Bike Route through the Town of Huntington is located on local roads. Beginning at Kings Park, the bike route continues on NY Route 25A. The four miles along NY Route 25A between Kings Park and NY 25 in Smithtown are along designated bike lanes in the shoulder area of NY Route 25A. The eastern terminus of NY25A State Bike Route is at the intersection of NY Route 25 and NY Route 25A, approximately one mile west of downtown Smithtown.
- > NY 27 State Bike Route is 30 miles in length and located in the Town of Southampton and Town of East Hampton. NY 27 State Bike Route follows NY Route 27 beginning at the intersection of CR39, east of Southampton Village. It continues east along NY Route 27 traversing the communities of Water Mill, Bridgehampton, East Hampton, Amagansett and Montauk. NY 27 State Bike Route continues eastward to terminate at the Montauk Point Lighthouse.
- > NY 114 State Bike Route is 15 miles in length and is located in the Town of Southold, Town of Shelter Island, and Town of East Hampton. NY State Bike Route 114 also utilizes local streets in the Village of Greenport, Village of Sag Harbor and Village of East Hampton.

NY 114 State Bike Route connects to NY 25 State Bike Route at Moores Lane, on the west side of the Village of Greenport. NY 114 State Bike Route is unique. Ferry crossings are required at North Ferry and South Ferry as NY 114 crosses tranquil Shelter Island. NY 114 State Bike Route is located on bike lanes between North Haven and Sag Harbor. At Sag Harbor, NY 114 State Bike Route traverses local streets through this historic former whaling village. The southern five miles along NY Route 114 are on designated bike lanes on the shoulder of NY Route 114 to the LIRR trestle. The remaining mile of NY 114 State Bike Route is a signed route that goes through the Village of East Hampton until it meets NY Route 27 State Bike Route at NY 27.

Region 10 has opened the following off road bicycle facilities since 2013:

- > The Bethpage Bikeway Extension opened in June 2014 which was a 5.8-mile extension of the Bethpage Bikeway from Bethpage State Park north to the intersection of Sunnyside Boulevard and Woodbury Road in Woodbury. An additional 2.4 miles of on road bike lanes was striped from Sunnyside Boulevard to Syosset-Woodbury Road. In total the Bethpage Bikeway is fifteen miles in length between Merrick Road in Massapequa and Syosset-Woodbury Road in Woodbury.

The bikeway's extension traverses through lush woodlands and fields of Bethpage State Park and adjoining Trailview State Park. North of Old Country Road, the Bethpage Bikeway extension traverses through the heart of the Plainview industrial area and an office complex in Woodbury providing safe access to major employment centers. Trailhead parking is available at Sunnyside Boulevard near Woodbury Road, Washington Avenue south of the Long Island Expressway and East Bethpage Road at Old Country Road.

- > The Ocean Parkway Shared Use Path's first and second segments opened in 2013 and 2014, respectively. The first segment included a 13-foot wide ADA compatible paved path that extends an initial 0.6 mile segment from the southern terminus of the Wantagh Parkway Shared Use Path through the Jones Beach Theater parking area to the second pedestrian underpass east of Field #5. In addition, a new bicycle storage plaza was constructed adjacent to the Jones Beach East Bath House with a capacity for 100 bicycles.

The second segment constructed between Jones Beach State Park and Tobay Beach in Nassau County featured a 13-foot wide ADA compatible paved path along the north side of Ocean Parkway. Cable guiderail was included to protect users from traffic using Ocean Parkway. The project included enhanced landscaping, educational signs, informational kiosks, benches and storage for 24 bicycles at Tobay Beach. Path users have access to Tobay Beach facilities including the bay and ocean beaches, restaurant and playground. This segment of the shared-use path provides a safe facility for non-motorized traffic to access the recreational and employment facilities inside Jones Beach State Park.

- > The paved Setauket-Port Jefferson Station Greenway Extension was completed in 2014. The Setauket-Port Jefferson Station Greenway winds its way through open woodland encountering many hills along its 3.3-mile route between Limroy Lane and the NY 112 Park & Ride in Port Jefferson Station. The Setauket-Port Jefferson Station Greenway was built on the former ROW of the NY 25A Bypass. Special efforts have been made to preserve the natural habitat and vegetation so that trail users can enjoy the natural beauty that exists along this three-mile stretch. The Setauket-Port Jefferson Greenway Trail runs along a sand-mined area that has now become county parkland. The path is popular with walkers, joggers, cyclists, strollers and dog walkers. The path is maintained by

*Friends of the Greenway.* Trailhead parking is available at Limroy Lane off of NY 25A, Gnarled Hollow Road and at the NY 112 Park & Ride, opposite Hallock Avenue.

## BICYCLE LOCKER PROGRAM

Region 10 has been operating a bicycle locker program at various LIRR Stations since 1999 to encourage people to consider using an alternative means of transportation to busy LIRR train stations. The bicycle lockers provide a safe and secure place to leave a bicycle. The benefits of the bicycle locker program include reduce congestion and air pollution as well as alleviating competition for scarce parking spaces at the train stations. By 2008, NYSDOT operated 180 bicycle lockers at 18 LIRR stations and one Park & Ride lot.

As the bicycle locker program gradually gained acceptance across Long Island, NYSDOT, Region 10 determined that the most effective way to continue the bicycle locker program over the long run would be to turn over the ownership, operation and management of the bicycle locker program to interested local municipalities. NYSDOT, R10 met with the municipalities below and each of these municipalities entered into an agreement with NYSDOT that transferred ownership, operations and maintenance of the bicycle lockers. Bicycle lockers are located at twenty one (21) LIRR stations on Long Island.

## LONG ISLAND BIKEWAY & TRAILWAYS MAP

Region 10 has distributed the Long Island Bikeway & Trailways Map, that shows all of Long Island's on-road and off-road bicycle routes, State Bicycle Routes, significant mountain biking and hiking trails, as well as other bike maps from around the State that may be downloaded online. The Long Island Bikeways & Trailways Map is currently being updated to include new bike routes and all bike routes and trails that will be digitized in Arc GIS in the new edition.

More information about bicycling on Long Island can be found at [www.dot.ny.gov/modal/bike](http://www.dot.ny.gov/modal/bike). The website contains descriptions of Long Island's on-road and off-road state bicycle facilities with photos and an interactive Google map of bicycle routes and major hiking trails on Long Island and statewide.

## INITIATIVES

In recognition of the importance of bicycle and pedestrian planning on Long Island, in November 2014, Region 10's Bicycle/Pedestrian Asset Management Committee began meeting monthly to examine and discuss a variety of bicycle and pedestrian issues such as ADA, Complete Streets, regional projects and as a group make recommendations for consideration to the functional group managers.

*Network Development* - Region 10 plans to add 22 miles of shared use path to a 183-mile network of state on-road and off-road bicycle facilities across Long Island by 2032. Construction of the 15-mile New York 347 Parks to Ports Greenway between Hauppauge and Port Jefferson Station is well underway and is approximately 25 percent complete. The NY 347 Parks to Ports Greenway includes a raised landscaped median, pedestrian islands, ADA compliant curb ramps, high visibility crosswalks and pedestrian countdown timers, a 13-foot wide shared use path, solar powered bus shelters, bike racks, rain gardens and informational kiosks. The anticipated completion date of the entire NY 347 Greenway project is anticipated for 2033.

The first segment of the 3.6-mile Ocean Parkway Shared Use Path connecting Jones Beach to Tobay Beach opened in 2014. The remaining 10.8 miles of

the Ocean Parkway Shared Use Path between Tobay Beach and Captree State Park is scheduled to go into construction by 2021.

Region 10 is proposing to complete on-road connections between state bike routes for north-south and east-west continuity between Nassau, Suffolk counties and New York City.

Additionally, plans are underway to add new north-south bike routes, including Bike Routes 111 and 112, and possibly an east-west bike route along the South Shore in a corridor yet to be identified. Bike Route 111 between Sunken Meadow State Park and Huckster State Park will be mostly on local roads and connect train stations, schools, businesses and parks and be approximately 19 miles in length. Bike Route 112, connecting Port Jefferson ferry terminal to the Fire Island ferry terminal in Patchogue, will be 17 miles in length.

Along the fifteen mile NY 110 corridor between NY 27A in the Village of Amityville and Youngs Hill Road in Huntington plans are under way to realign existing signalized intersections, construct sidewalk and ADA compliant curb ramps to connect gaps, construction of curb extensions and refuge islands, and installation of rectangular rapid flash beacons.

### INFORMATION PANEL: RECONSTRUCTION OF ROUTE 347 SUFFOLK COUNTY, NY

New York State Department of Transportation (NYSDOT) worked with local stakeholders and members of the public to develop a design for a reconstructed New York Route 347 that addresses the safety and mobility needs of all users while reflecting the character of the communities through which it passes. The consultation resulted in a Vision Plan for the 15-mile corridor, which lies along Long Island's north shore and traverses three municipalities.

The New York Route 347 Project is improving safety by reducing the speed limit, making crosswalks shorter and more visible, and providing dedicated rights of way for pedestrians and bicyclists. The project is enhancing transit service by providing bus shelters and adding safe bus turnouts. The New York Route 347 corridor is being transformed into a greenway that separates bicycle and pedestrian paths and several "greenway stops" that provides bicyclists and pedestrians with a place to rest and enjoy the natural environment surrounding the corridor. Improvements on New York Route 347 are enhancing the character of the surrounding communities and encouraging the use of alternative transportation modes, promoting livability and sustainability.



A project along the NY 25 corridor between the New York City line and Orient Point will install traffic signals, enhance lighting, install new crosswalks at signalized intersections, bring existing ADA curb ramps into compliance at existing crosswalks, install Intelligent Transportation Systems elements in downtown areas along the corridor, install pedestrian fencing, install pedestrian refuge islands, curb extensions, and construct sidewalk with curb to connect to gaps in the network.

Region 10 is addressing non ADA compliant curb ramps by upgrading existing curb ramps under mill & fill projects, traffic signal & lighting requirements projects and ADA Compliance Block Type projects.

*Street Design* - The Local Safe Streets & Traffic Calming Program (LSSTC) was a pilot program for local governments to construct projects that demonstrate a significant potential to increase safe walking and bicycling within communities. Since program's inception, 25 LSSTC-funded projects across Long Island have made progress in expanding opportunities for safe walking and bicycling. These projects have constructed sidewalks, improved pedestrian crossings, added pedestrian signals and detector-activated flashing pedestrian signals; they have narrowed travel lanes on local streets, added bicycle lanes, and constructed roundabouts. Since 2001, \$15.7 million has been spent on LSSTC and the Region has programmed another \$2.9 million through 2013. This "pilot" program (unique to Region 10) was to run for a limited number of years in order to introduce municipalities to the idea of what relatively small amounts of money could do to encourage bicycle/pedestrian mode of transportation on Long Island. This program was never meant to be funded by Region 10 indefinitely. Some of the municipalities as well as the civic associations are still behind the program and the hope is that after a decade of funding by NYSDOT, the municipalities are ready now to implement the LSSTC program on their own.

## LOWER HUDSON VALLEY

Westchester, Rockland and Putnam counties published the Mid-Hudson South Region Bicycle and Pedestrian Master Plan in 2001 as input into the metropolitan transportation planning process. The Master Plan was developed through extensive public involvement using public surveys and meetings as well as previous studies to identify needs, define strategies and recommend improvements for pedestrians and bicyclists. The Master Plan's objectives are consistent with federal transportation legislation, which include developing an integrated network of pedestrian and bicycle facilities; increasing safety for pedestrians and bicyclists; encouraging walking and bicycling; and promoting walking and bicycling as an alternative to motor vehicle use.<sup>25</sup> The master plan can be found at: <http://co.rockland.ny.us/planning/landuse/bikeped.htm> or at <http://planning.westchestergov.com/initiatives/westchester-trails>. Plan 2045's Ped-Bike Element serves as the current regional pedestrian and bicycle plan for the three counties.



Bronx River Parkway  
Photo Source: Westchester County



## WESTCHESTER COUNTY DEMOGRAPHICS

According to 2015 ACS Five-Year data, Westchester County's population of 967,300 has increased by nearly five percent from the year 2000. Employment in the county grew along with population growth - the number of workers increased by 7 percent from 425,000 to 454,500 between 2000 and 2015.

The number of pedestrian commuters increased by almost 40 percent between 2000 and 2015 (17,180 to 23,800), while bicycle commuters also significantly increased, by nearly 60 percent over the same time period. Public transit commuters also experienced an increase, though at a lesser rate of 11 percent, while driving commuters remained constant.

## EXISTING PEDESTRIAN AND BICYCLE FACILITIES

The existing regional bicycle and pedestrian trailways and pathways in Westchester County consist of off-road paths, road shoulders and formal bicycle routes along selected roads. Most off-road paths are multi-use, though some are restricted for pedestrians only. Paths along major roads and corridors are primarily intended for bicycle use. Westchester County's bicycling and hiking trail system has been developed along parkways and on former railroad and aqueduct rights-of-way, to provide a countywide trail network connecting to employment centers, downtowns, schools and parks. Major components of the system can be found in the Table A2.15 at the end of this appendix<sup>i</sup>, and include 175 miles of off and on-road facilities, such as the Bronx River Pathway, the North and South County Trailways, the Briarcliff-Peekskill Trailway, the Tarrytown-Kensico Trailway, the Old Croton Aqueduct Trailway, and the RiverWalk. Many of these facilities provide connections between Westchester County and New York City via the Bronx, for example the Bronx River Pathway between Kensico Dam Plaza, and the Old Croton Aqueduct, which is a historic unpaved trail following the route of the original Croton Aqueduct. These facilities also provide commuting and other travel opportunities for

Westchester residents, as well as recreational space for runners, walkers, bicyclists and in-line skaters. An example of a multi-use facility is the Old Croton Aqueduct Trailway, which has been incorporated into a local Safe Routes to School improvement project.

Bicycling to train stations has increased in Westchester County as more storage facilities have been added at stations, and residents have become increasingly aware of the health, environmental and financial benefits of cycling. Not only does biking to transit promote personal and public health, riding a bike is less expensive than paying to park a car, and facilitating greater bike access can reduce the need to expand parking at suburban railroad stations.

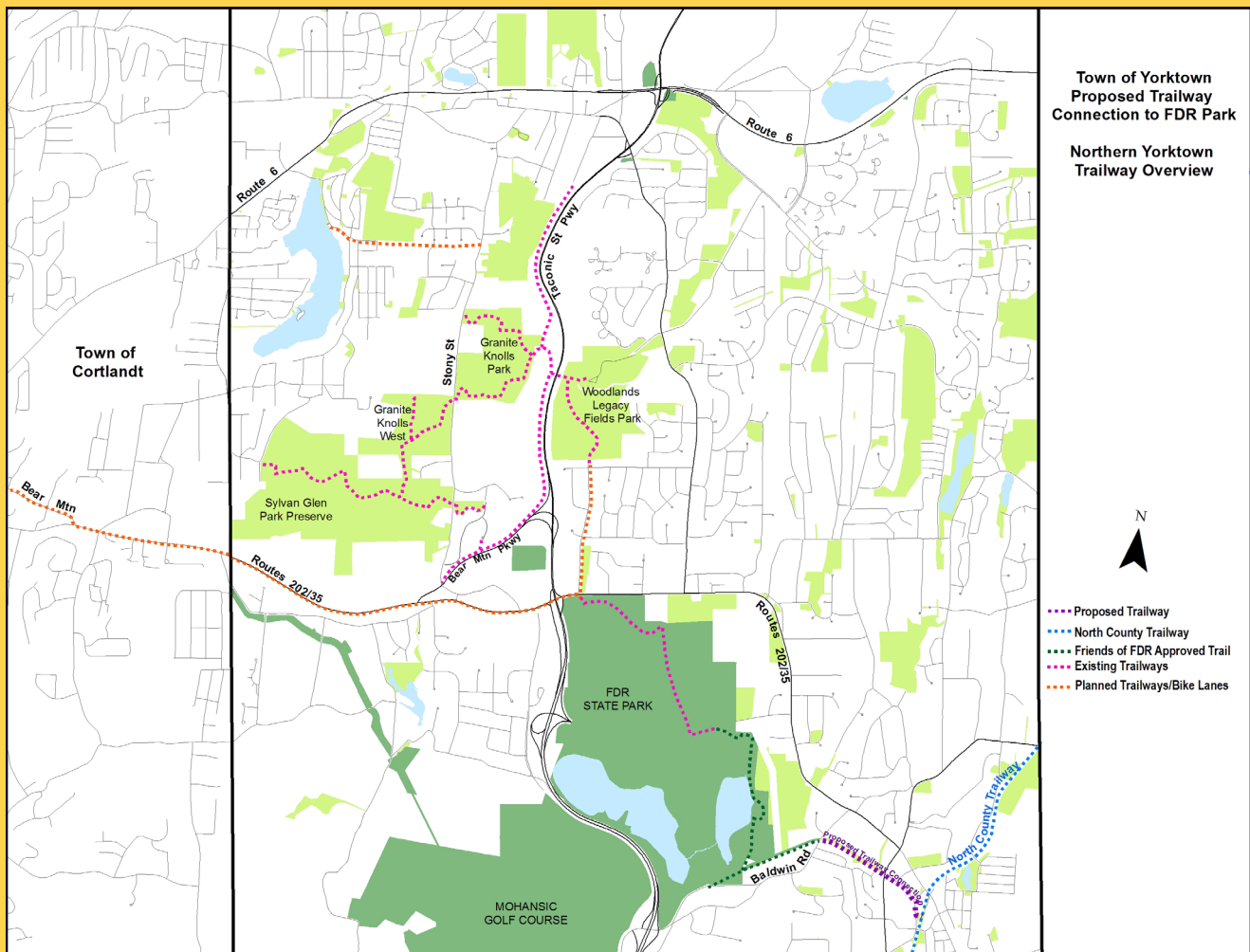
Relatedly, bicycle parking in Westchester County is promoted at transit stations, including rail stations and bus stops. Currently there are bicycle racks available at 12 of 15 MNR stations on the Hudson Line, 15 out of 20 Harlem Line stations and all eight of the New Haven Line stations. New development projects are encouraged to provide bicycle parking as part of the County Planning Board's review through its referral jurisdiction. Though no bike sharing programs currently exist in Westchester County, communities have begun to explore the potential of such programs. Several municipalities have adopted bicycle parking ordinances and emphasize bicycle parking in comprehensive plans. These efforts have led to an increase in the number of bike racks in downtowns and village centers.

## INITIATIVES

*Network Development* - Westchester County is committed to several initiatives to further develop and expand its bicycle and pedestrian network. Nearly 20,000 Westchester County residents commute to work exclusively by walking and nearly 450 residents commute to work by bicycle. In order to enhance and add options to the existing transportation network, Westchester County and constituent municipalities has pursued several initiatives to expand the pedestrian and bicycle network. For example, White Plains has expanded its network of on-street bike lanes to a total of 4.1 miles. The city also has painted sharrows on several roadways indicating bike routes for cyclists.

<sup>i</sup> The table generally does not include smaller scale facilities that have been developed in individual municipalities. Not listed are trail systems within county and state parks or network on-road routes with wide shoulders or compatible on-road bicycle routes.

**FIGURE A2.2: TOWN OF YORKTOWN PROPOSAL CONNECTING VILLAGE CENTERS AND TRAILWAY SYSTEM**



### INFORMATION PANEL:

### WESTCHESTER MUNICIPALITIES COMPREHENSIVE BICYCLE AND PEDESTRIAN PLANS

Many Westchester municipalities have updated their Comprehensive Plans to place emphasis on the need to accommodate bicycles and pedestrians. The Town of Yorktown Comprehensive Plan (June 2010) calls for a “Town-wide network of bike routes that links together parks, regional trails, the business centers, and residential neighborhoods” and states that “...roads are not just for cars and trucks. Roads are shared by pedestrians and cyclists...” The map below shows the Town of Yorktown’s proposal for connecting its village centers and trailway system to provide a purposeful biking network.



The Town of Cortlandt also developed a Comprehensive Plan which provides a vision and recommends policies to help the town achieve a more sustainable transportation system. The following before and after photos show improvements made to the Broadway streetscape in the town of Cortlandt.

**FIGURE A2.3: TOWN OF CORTLANDT BROADWAY STREETSCAPE IMPROVEMENTS**



One major project in progress is the aforementioned Westchester RiverWalk, a planned 51.5-mile multi-faceted pathway paralleling the Hudson River in Westchester. To date, 32.9 miles are completed and an additional 2.7 miles are in design or in planning stages. When completed, it will link village centers, historic sites, parks and river access points via a connection of trails, esplanades and boardwalks. RiverWalk spans 14 municipalities in Westchester County and is part of the Hudson River Valley Greenway system. It connects directly with 13 of 14 Metro-North Hudson Line Stations and 27 Bee-Line Bus Routes as well as Rockland County's Tappan Zee Express.<sup>26</sup> RiverWalk is a work in progress that is being developed through a series of projects constructed by the county, local municipalities and other entities, including private developers.

A collective of River towns in Westchester was awarded a \$150,000 grant from the New New York (NY) Bridge Project's Community Benefits Program to be used to study improvements for bicycle and pedestrian facilities along Route 9 in Westchester from Sleepy Hollow to Hastings-on-Hudson. The study is expected to be completed by the end of 2017. Enhanced pedestrian and bicycle facilities will improve connections to the pedestrian/bicycle path to be included on the new Tappan Zee Bridge.

At the regional scale, the Bike Route 1/East Coast Greenway described earlier in this appendix is part of a larger effort to create a 2,900-mile bike route from Maine to Florida. The alignment in Westchester County spans the link from New York City to the Connecticut state line - a distance of 13.3 miles on various streets.

With regards to pedestrian infrastructure, gaps in the existing sidewalk network are filled whenever possible through a variety of efforts including the use of Community Development Block Grants, as part of the County Planning Board's review of new development projects through its referral jurisdiction. The sidewalk network is also developed as part of the review of road infrastructure projects funded through the TIP, or through the County's capital program. Municipalities are encouraged to provide sidewalks as a means to promote non-motorized transportation. Many municipalities have sidewalk policies as part of their comprehensive plans.

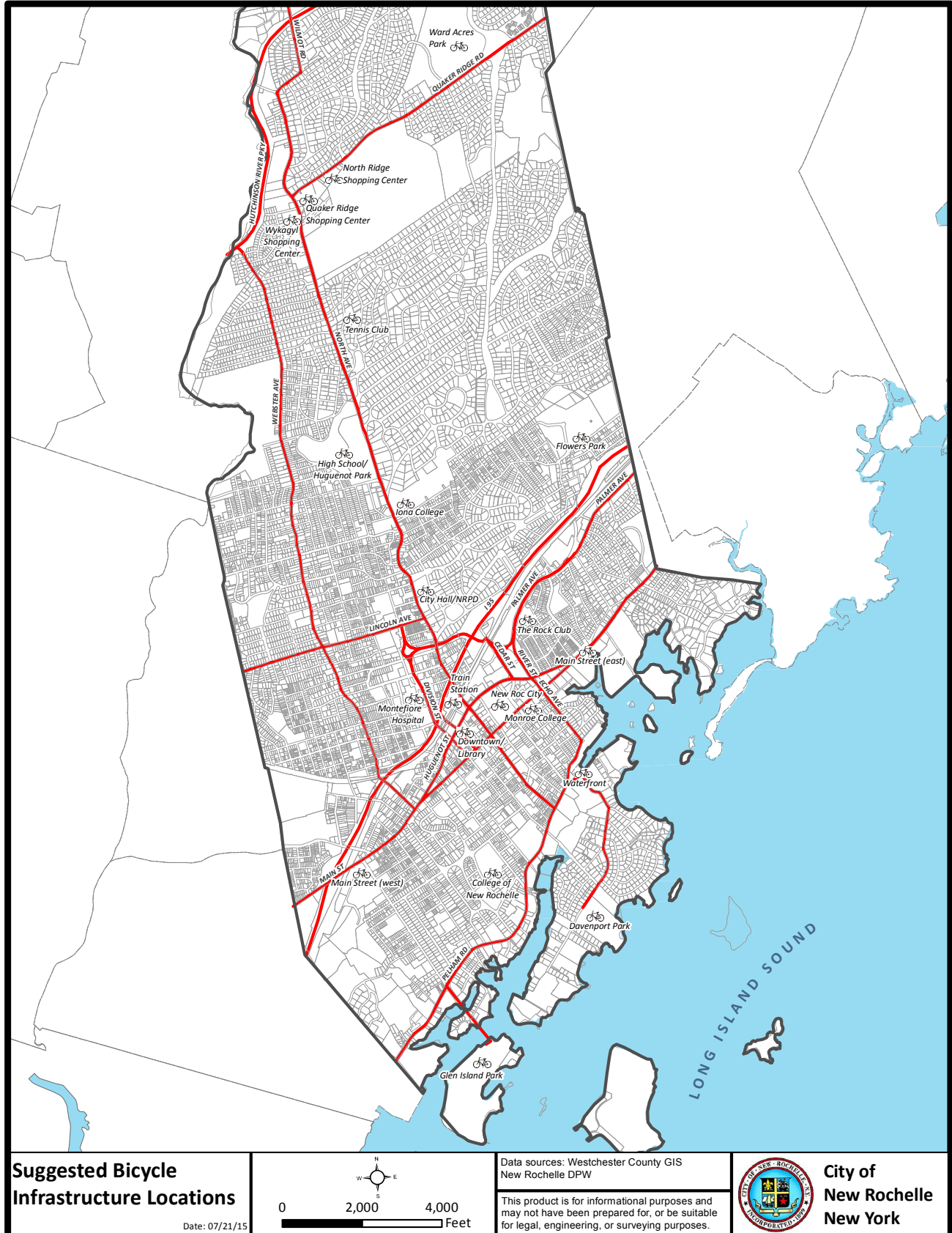
Table A2.25 shows primarily proposed regional bicycle and pedestrian routes in Westchester County. Constrained Projects table shows priority projects which have been identified by Westchester County for possible implementation within the first ten years of *Plan 2045*. Some of the projects are already included on the current TIP. Vision Projects table displays additional potential projects. Both tables include off-road multi-use paths, and road corridor routes. Hiking-only trails are included which connect population centers, commercial and recreational facilities and provide links to other trails. Routes along major road corridors are primarily intended for bicycle use. The purpose of showing them is to provide a framework for future road improvements for accommodating

bicycle travel. Improvements could involve providing ample shoulder widths, bicycle travel lanes, off-road parallel paths, or posting routes with bike route signage. The type of facility to be developed would depend on the feasibility of implementation, such as available right-of-way. These projects and programs are consistent with the initiatives of the Westchester County Global Warming Action Plan, as a means to encourage alternatives to automobile travel, reduce greenhouse gas emissions and improve air quality.

*Rail-to-Trail* - The North-County and South-County railways were constructed on the former right-of-way of the Putnam Division of the New York Central Railroad that ended service in 1958. The last major section of the South-County Trailway was completed in March 2012. In 2016, construction began on a 3,300-foot section of trailway that will complete the Trailway. The new segment follows the bank of the Saw Mill River and provide a link to the North-County Trailway. The Putnam County continuation of the North County Trailway (the Putnam Trailway) will be described in the Putnam County section of this Element.

*Bike Share* - In 2010, students from New York University's Wagner School of Public Service conducted an analysis of the potential for bicycle sharing in Westchester County. Four locations were examined for possible bike sharing programs, including the cities of Mount Vernon and White Plains, the Old Croton Aqueduct Trail, and the Long Island Sound Corridor with connection to Rye Playland. The study concluded that bike share programs could operate successfully in each area.<sup>27</sup> In May 2016, The City of New Rochelle announced that it was launching Westchester County's first bike share program, initially featuring a dozen stations around the city. The program will be funded by private sponsorships, and is expected to launch in 2018.<sup>28,29</sup> The following map shows where planned bike share stations will be located.

FIGURE A2.4: TOWN OF CORTLANDT BROADWAY STREETSCAPE IMPROVEMENTS





*Transit* - To enhance access to transit, bicycles are allowed aboard MNR trains at most times outside of rush hours and major holidays. A one-time \$5.00 purchase of a lifetime bicycle permit is required for each bicycle boarding the train. No special permits are required for bicycles on Rockland County's Tappan Zee Express (TZx) bus service, which operates between Rockland and Westchester Counties, serving Metro-North's Tarrytown Rail Station, White Plains, and Rockland destinations and transit hubs such as Palisades Center, Nanuet, Spring Valley Transit Center and Suffern.. Bicycles can also be brought on most off-peak NJ Transit trains serving Nanuet, Pearl River, Sloatsburg, Spring Valley and Suffern train stations in Rockland, and may also be brought on the Haverstraw-Ossining ferry.

In 2012, the City of White Plains, New York became the first Westchester municipality to develop on-street bicycle lanes. A one-way paired bikeway in the City of White Plains provides safe access to a major transit hub (White Plains MTA Metro North station) and relieves pressure to continually expand automobile parking at the station. The City of White Plains also added bicycle racks at the station to accommodate increases in bicycling.

*Zoning and Land Use* - In 2008, the Westchester County Planning Board adopted Policies to Guide County Planning, as part of its *Westchester 2025* master planning initiative, to provide a framework for land use planning in the county. The document places emphasis on the need to coordinate land use and transportation planning, and identifies improving pedestrian and bicycling routes as a way to increase mobility options, improve air quality and reduce traffic congestion. *Westchester 2025* emphasizes focusing growth in centers and around transit hubs to minimize dependence on automobile travel, and foster the development of compact communities and transit oriented development which create safe and appealing environments for walking and biking.

An example product of such visions is a New Rochelle ordinance that requires that any structure requiring site plan approval provide one bicycle parking space for every ten vehicle parking spaces (that are also required by zoning for new commercial buildings

and residential buildings with ten or more units). The ordinance specifies design criteria including dimensions, lighting, compatibility with natural elements, compatibility with street furniture and the need for easy access and use.

*Street Design* - Several Westchester municipalities have adopted Complete Streets policies. In 2012, the Southern Westchester Energy Action Consortium, a collaboration of municipally appointed citizen committees addressing environmental issues working with the Tri-State Transportation Campaign, developed a "Complete Streets-in-a-Box" toolkit to support the adoption of Complete Streets policies in Westchester communities. The toolkit contains a policy template, draft resolution and information on the benefits of Complete Streets.

Traffic calming principles have been employed throughout Westchester County. In Hartsdale, a speed table was installed at the approach to the commercial area near Metro-North's Hartsdale train station in Westchester County. This improvement was recommended as part of a Walkable Community Workshop. In the City of Rye, a road diet on Boston Post installed a painted center median and shoulder, and reduced the number of travel lanes from four to two. This treatment was first suggested as part of a Safe Routes to Schools workshop to slow traffic and improve the safety of school children crossing the street to access the Rye Middle School and High School complex. The successful completion of the project has created conditions that encourage walking and bicycling to school, increase recreational activity and reduce vehicular speeds.<sup>30</sup>

*Art Program* - The outdoor art program in the City of Rye, Westchester County, took advantage of rebuilding in the downtown area at Locust Avenue and Purchase Street, as an opportunity to add public art work to the streetscape (see photo of art work).

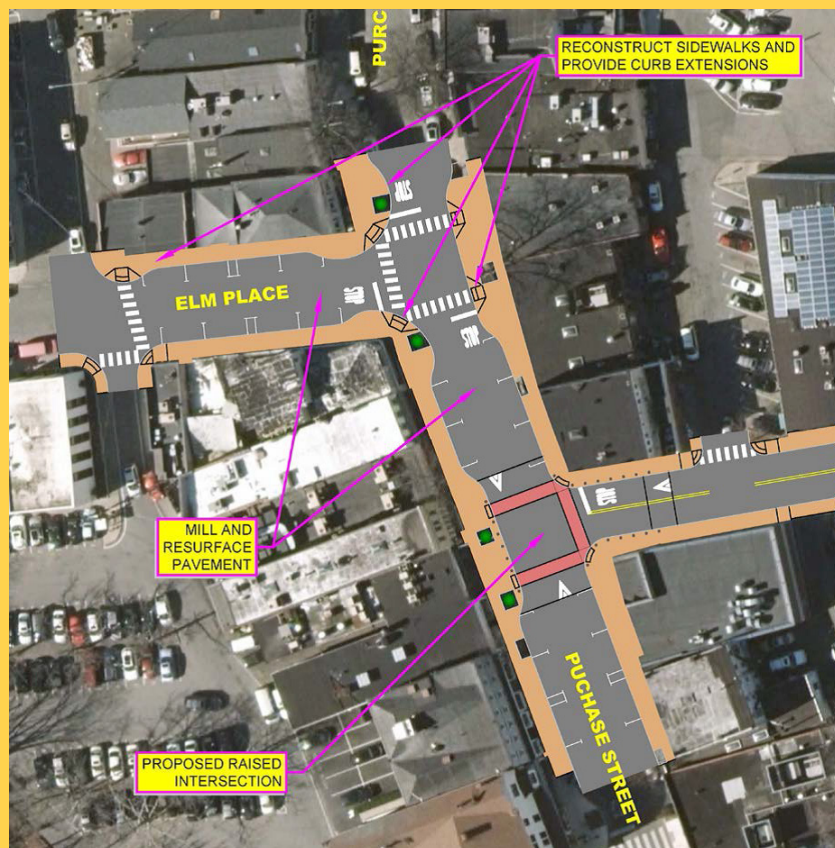
*Education and Training* - Westchester County's Traffic Safety Board recently developed a Community Traffic Safety Program under the auspices of the Department of Public Works and Transportation. The Program educates the public about pedestrian, bicycle, and automobile safety. Traffic safety events and campaigns include: offering educational traffic

## INFORMATION PANEL: CITY OF RYE SIDEWALKS AND CURBCUTS EXPANSION

The City of Rye has developed additional bicycle and pedestrian facilities that serve its downtown and areas around schools and residential neighborhoods. The City has a plan for future expansion of the existing network. The photos below show areas near the central business district that were recently made more inviting with new sidewalks and curbcuts.



The following shows future plans which the City of Rye intends to implement as resources become available. The wider sidewalks, curb extensions and raised crosswalks identified in the diagram will improve pedestrian safety and calm traffic, thereby creating a more hospitable environment for pedestrians and cyclists.



safety programs in schools, at libraries and senior citizen meetings; teaming up with the county's Bicycle Advocates Committee for annual events; and donating traffic safety materials at health fairs.

Safe-Routes-to-School is a major focus for safety education in Westchester County. The County, via its Department of Public Works and Transportation, has conducted 15 Safe-Routes-to-Schools workshops in 12 communities, covering 17 schools since 2005. The workshops have been well-attended by school officials, local planning and public works officials, law enforcement officers, community advocates, parents and other community stakeholders. The workshops provide information about how to develop and sustain a successful program. The workshops are held at individual schools to raise awareness and to help communities jump start programs that are appropriate for each school environment. Additionally, the Department of Public Works and Transportation has prepared a "Road Show" presentation to educate communities about the Program.

In 2009, Westchester County held a Safe-Routes-to-Schools Local Initiatives Conference that involved presentations by local communities that had implemented Safe-Routes-to-Schools programs. The conference provided the opportunity to share best practices in successfully promoting programs. The Department of Public Works and Transportation conducted follow-up research with communities to evaluate the success of the many workshops that have been held in the county. Based on the 2009 report, "An Evaluation of Walkable Community and Safe Routes to School Workshops in Westchester County, New York" the workshops resulted in significant implementation of projects and were successful in generating more walking and biking to schools.<sup>31</sup> Westchester municipalities continue to pursue Safe Routes to School initiatives to encourage walking and biking to schools.

The Rye YMCA in Westchester County has also initiated safety education activities that focus on schools. Examples include the "I Stop at Crosswalks" campaign and safe driving pledge aimed at parents driving in the vicinity of schools. Additional materials include safe walking pledges for students

that focus on crossing the street at crosswalks and avoiding distractions such as talking on a cell phone or texting while walking. SRTS video contests were held at the Rye Middle and High Schools to generate direct engagement by students in developing educational materials. The schools also hold annual poster contests. The Rye YMCA also developed a SRTS logo to use on promotional materials.

In addition to formal education programs, many Westchester municipalities have also pursued initiatives to increase pedestrian and bicycle activity and their visibility. Examples include infrastructure projects to construct sidewalks and designate bicycle lanes, education and encouragement efforts oriented toward children walking and bicycling to school, providing bicycle parking and establishing Complete Streets policies governing local roads. In addition, Westchester Bicycle Sundays occurs on select Sundays in the spring and fall, and Westchester County closes the Bronx River Parkway to vehicular traffic and opens it to cyclists, skaters, non-motorized scooters, walkers, joggers and strollers from the County Center in White Plains south to Scarsdale Road in Yonkers, a 13.1 mile round trip.

*Enforcement* - In addition to delivering education programs, the Westchester County Traffic Safety Board also works with local governmental agencies, including the police department, and with the legislative branch to promote traffic safety legislation.<sup>32</sup> The successful TraCS (Traffic and Criminal Software) program described in the Nassau County section is also used in Town of Greenburgh (Westchester County).<sup>33</sup>

Westchester County Department of Public Works and Transportation staff work with staff from the County Department of Senior Programs and Services to identify areas that can be improved for seniors to allow them to be able to walk as recreation, as well as to be able to access vital services including transit, shopping and medical appointments.



## ROCKLAND COUNTY DEMOGRAPHICS

Rockland County is estimated to have a population of approximately 320,690, based on the 2015 ACS Five-Year data. This figure is a 12 percent increase from the 2000 U.S. Census counts. Employment has also grown in the county by 100,000 workers, or by nearly 8 percent (from 132,300 workers in 2000 to 142,560 workers in 2015).

Between 2000 and 2015, the number of pedestrian commuters was estimated to have increased by around 5,000 commuters (a 37 percent increase). Meanwhile, bicycling to work declined nearly 25 percent, from 197 bicycle riders in 2000, to 150 in 2015. The number of public transit commuters in Rockland County has increased by 13 percent, from 10,850 in 2000 to 12,300 in 2015.

## EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Rockland County has an extensive network of pedestrian and bicycle facilities, located both on-road, off-road, and along road shoulders (see Table A2.14 at the end of this appendix). The majority of these facilities are located off-road, are multi-use, and traverse parkland. Most of the off-road pedestrian facilities have been designated as part of the Hudson River Valley Greenway Trail, with additions being added on a continuous basis. Access points to these trails are scattered along the Hudson River shoreline, from Stony Point Historic Battlefield and Lighthouse in the north to the Parelli Park Boat Launch in Piermont in the south. In addition, there are several loop and connecting Greenway Trails throughout the County. Bike Route 9 traverses for approximately 29 miles through Rockland County, meandering at times through some of the villages, (South Nyack, Nyack, Upper Nyack, Haverstraw and West Haverstraw) and offering spectacular views of the Hudson River. Other major bicycle routes consist of multi-use trails and are located within parks.

Sidewalks are provided in the older villages and in some of the hamlet centers, providing connections from the residential areas to the downtown and bus or train stations. Pedestrian improvements have been made recently to a number of these centers. Projects

have included the Town of Clarkstown's hamlet center revitalization projects for Congers, Nanuet, Valley Cottage and New City, the Village of Suffern's sidewalk improvement project, and Tappan and Pearl River sidewalk improvement projects.

The Long Path, a regional hiking trail, rambles for approximately 35 miles from its southern entrance at Palisades Park on the New Jersey border, to its western exit in Harriman State Park. This trail is located often on ridgelines, and offers hikers great views of the Hudson River, and links many of the State, County, and local parks together. The Long Path has connector links to the Greenway Trail, both in Upper Nyack and within Rockland Lake/Hook Mountain State Parks. The Appalachian Trail also traverses Rockland County, in the northern portion in Bear Mountain State Park.

MNR offers bicycle racks at several stations and several municipalities have bicycle racks in their downtowns, such as in Nyack. Additional bicycle racks would be beneficial in this village, as they have an influx of bicyclists on weekends.

## INITIATIVES

*Network Development* - One planning tool that has been and continues to be used by Rockland County is the County Official Map. The legislature of the County of Rockland added the existing and planned portions of the Long Path, a regional hiking trail, to the Official Map in 1993. Due to this action, the towns and villages in the county are required, pursuant to the New York State General Municipal Law, Sections 239-(e) and (m), to refer planning and zoning actions on properties within 500 feet of the trail for review and recommendations by the county planning agency. In this way, when land development is proposed adjacent to the Long Path, recommendations for establishing trail buffers and other considerations are made to the referring town or village.

The transportation goal established in Rockland County's current Comprehensive Plan<sup>34</sup> was to continue collaborative planning among Rockland's municipalities, the County and regional transit providers to create a balanced transportation system that uses a variety of modes to provide access to places of

employment, residence, recreation and commercial activity. In the area of pedestrian and bicycle system planning, it is recommended that improvements to the pedestrian and bicycle circulation system be made by increasing connections between municipalities and by using the Complete Street design strategies to safely accommodate all users.

The Comprehensive Plan also specifically recommends upgrading of the infrastructure and amenities of Rockland's existing centers, including lighting, sidewalks, street furniture, bike lanes, shade trees and utilities. Specific projects include the New NY Bridge Project, which will include a shared use path connecting Rockland and Westchester in the villages of South Nyack and Tarrytown. The project link can be found at: <http://www.newnybridge.com/public-hearings-announced-comments-welcome-on-shared-use-path-parking-and-connections/>. Another project is the Town of Clarkstown's hamlet revitalization projects in Central Nyack and West Nyack. Plans for continued Pearl River Downtown revitalization projects are under development and will include sidewalk improvements by the Town of Orangetown. The Town of Stony Point is developing plans to improve sidewalks, landscaping and street lighting of the town center area to enhance economic development.

In addition, Rockland County is collaborating with other counties to create on-road connections. For example, a bicycle path being planned along the Palisades Interstate Parkway right-of-way would allow bicyclists to travel from New Jersey to New York; the Ramapo Greenway could ultimately connect Rockland to Bergen County, New Jersey and Orange County, New York; the Hudson River Valley Greenway Trail links to Orange County, New York; the Long Path hiking trail connects Rockland to the George Washington Bridge through NJ to the south, and to Orange County to the north.

The 2001 Mid-Hudson South Region Bicycle & Pedestrian Master Plan adopted by Putnam, Rockland and Westchester counties also made specific proposals for improvements in Rockland County. For example, one proposal calls for striping a bike route on Little Tor Road/Middletown Road, between Route 59 and Route 202 – this has yet to be implemented.

Other projects include the construction of a pedestrian and bicycle path that will lead into the Village of Suffern, led by the developer of the proposed Mahwah Crossroads Town Center regional shopping and recreation center located just across the New Jersey border. Coordination with the Village of Suffern, New Jersey Transit and other agencies in locating trailheads, markers and path amenities is planned. In addition, the completion of Phase 2 of the Palisades Trailway by NYSDOT will connect South Greenbush Road to Western Highway Town of Orangetown, to be built on Old Railroad bed. NYSDOT is also planning for future Phase 3 and Phase 4 of the Palisades Trailway.

*Rail-to-Trail* - In Rockland County, the Joseph B. Clarke Rail Trail, which runs from Oak Tree Road in Tappan to Orangeburg, was recently extended 1.6 miles from Lowes on Route 303 to Blauvelt. Funding was provided by NYSDOT and the Rail Trail project was established and is maintained by the Town of Orangetown.

*Transit* - The transportation system includes features that enhance mobility for bicyclists. Rockland County's TAPPAN ZEEExpress (TZx) bus service connects Rockland and Westchester Counties, and also provides service to MTA Metro North rail stations and regional hubs like the White Plains TransCenter. The TZx accommodates bicycles via onboard racks and bike compartments. To encourage travel to and from Rockland County. The TZx service, as well as the local Transport of Rockland (TOR) bus service, offer Rockland County's Bike-on-Bus Program (<http://rocklandgov.com/departments/public-transportation/environmental-initiatives/>), providing connections not only to/from rail stations, but also to State Bike Route 9 and major destinations like the Palisades Center Mall. It is planned that all future Transport of Rockland buses will include bicycle racks and bike-on-bus services.<sup>35</sup>

*Street Design* - The Rockland County Complete Streets Intergovernmental Work Group (IWG) was created in early 2015 to work on complete streets initiatives. The IWG is composed of representatives from the Rockland County Executive's Office, several county departments, including Health, Planning,

Public Transportation and Highway, and representatives from local municipalities. In August 2015, the County Executive issued Executive Order No. 2015-04 that was recommended by the IWG for the purpose of supporting and promoting an integrated transportation system that considers the needs of all users of roadways, including pedestrians, bicyclists, public transportation riders, motorists, and citizens of all ages and abilities. Accomplishments include hosting an educational training and workshop and developing a Rockland County specific Complete Streets Toolkit containing a Readiness Assessment Tool, checklist and Walking Audit worksheet. The assessment and audit tools are used in working with municipalities and also are to be followed by the various county departments.

*Education and Training* - The New York State Safe Kids Coalition, a partnership of public and private organizations, works to prevent injuries and deaths to children, and focuses on such issues as pedestrian or bicycle/wheeled sports safety. Nyack Hospital in Rockland County is the local host to this program.

*Enforcement* - Rockland County Traffic Safety of the Sheriff's Police Division runs a monthly fitting station where child seats are checked and parents/guardians are instructed in proper installation and use, by trained technicians. Besides the fitting stations the CPS unit also runs major events in conjunction with local car dealerships and other police agencies around the country. The Sheriff's Police Division participates in statewide seat belt enforcement initiatives like *Buckle Up New York*, and *Click It...Or Ticket*. This zero-tolerance enforcement effort coordinated by the State Police and the Governor's Traffic Safety Committee helps increase seat belt and child safety seat use and reduce crash related injuries and fatalities.

Town of Ramapo police conduct pedestrian crosswalk decoy operations, where a decoy officer attempts to cross in a crosswalk as part of their efforts to increase pedestrian safety. If motorists do not yield to the decoy plain clothed police officer, warnings are issued and educational materials are provided in order to increase awareness of related laws.

## PUTNAM COUNTY DEMOGRAPHICS

Putnam County has a population of 99,490 according to the 2015 ACS Five-Year Estimates, an increase of four percent from 2000. The 2000 Census recorded that 610 pedestrians, 100 bicycle riders and 4,200 public transportation riders commuted to work in Putnam County. Bicycle and public transit commutes increased by around 20 percent, while walking decreased 21 percent. Like Westchester County, the share of commuters who drove to work remained relatively constant between 2000 and 2015.

## EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Putnam County currently has 11 miles of off-road bicycle path called the Putnam Trailway (also commonly referred to as the Putnam Bikeway). It begins at the Westchester County border as an extension of the North County Trailway, and is ten feet wide, paved with asphalt, and designed to connect to transit facilities and sidewalks.

## INITIATIVES

*Network Development* - Several projects in Putnam County are planned for the near future including the construction of over 14 miles of bicycle paths and over seven miles of sidewalks. Once constructed, these projects will further develop the bicycle and pedestrian network in the region and improve connectivity. Table A2.13 in section 6 of this appendix shows a listing of the existing facilities in Putnam County and includes pedestrian and bicycle projects that remain to be completed.

*Rail-to-Trail* - The Putnam Trailway, which is partially constructed, consists of 11 miles of an off-road bicycle path and connects to Westchester County's 22-mile off-road bicycle path that was constructed in the right-of-way of a former railroad line (Putnam Division of the New York Central Line which connected New York City to Brewster, New York). When the Putnam Bikeway is complete, there will be 34 miles of continuous bicycle paths. An additional mile of the Putnam Bikeway is now being added to the network and should be completed by July 2018. The mile will complete the Putnam Trailway.

When completed, the Maybrook Trailway (or Bike-



way) will be a 13.8-mile pedestrian and bicycle resource that will extend from the Dutchess County border to the Danbury border, constructed on the former Maybrook Line of the Housatonic Railroad that connected New Haven, CT to Maybrook, New York, with a connection to the Putnam Trailway at North Main Street in Brewster, New York. The Trailway project is divided into three segments, each with their own project sub-phases (Maybrook Bikeway I, II and III). Maybrook II (Phase A) is 2.58 miles and extends from Pumphouse Road to Route 22 northbound on-ramp in the Village of Brewster, Town of Southeeast. This phase will be substantially completed by September 2016. Maybrook Bikeway II (Phase B) has been designed and will complete the remaining 2.9 miles by the end of 2017. Phases of Maybrook Trailway I and III are mostly funded, but design has not begun.

*Transit* - MNR provides bicycle parking including a bicycle locker at the Patterson Station. Putnam County's PART Buses also allow bicycles on board.

*Enforcement* - The TraCS (Traffic and Criminal Software) program employed in Nassau and Westchester Counties as described earlier is also used in the Village of Brewster in Putnam County.<sup>36</sup>

### INFORMATION PANEL: PEDESTRIAN RAIL CROSSING

In terms of pedestrian rail crossing safety, MTA Metro-North Railroad instituted a community outreach program in 2016, designed to educate the Metro-North Community about grade crossing awareness and rail safety. This program, "Together Railroads and Communities Keeping Safe" (TRACKS) is available to any organization interested in free presentations on grade crossing awareness and safety.

## NYSDOT REGION 8

### EXISTING PEDESTRIAN AND BICYCLE FACILITIES

Region 8 has established approximately 338 miles of bicycle routes in their jurisdiction, which includes Ulster, Dutchess, Orange and Columbia counties, as well as NYMTC's three Lower Hudson Valley counties. The region is in the process of signing New York State Bike Route 209. It is approximately 58 miles long, including a 14 mile section through Sullivan County (Region 9). This is an extension of a major interstate bike route connection in the Region. It will link State Bike Route 28 in Ulster County with State Bike Route 17 in Orange County, which connects to Pennsylvania Route Y1.

### INITIATIVES

*Network Development* - Region 8 completed Phase 2 of the Palisades Trailway in Summer 2016, from the end of Phase 1 at Greenbush Road to Western Highway in Orangetown. This section will add another 1.25 miles to the planned 26 mile trailway. Region 8 has worked with the East Coast Greenway (described earlier in this section) in an effort to assist them in extending the East Coast Greenway through Westchester County. The East Coast Greenway is a developing system planned to link many of the major cities of the eastern seaboard via 2,900 miles of on and off-road trails from Maine to Florida.

*Transit* - Region 8 is also installing bicycle racks at park-and-ride locations where there is a significant bicycling community, and is also working to encourage multi-modal connections in the region.

### 3. OBJECTIVES FOR REGIONAL PEDESTRIAN AND BICYCLE IMPROVEMENTS

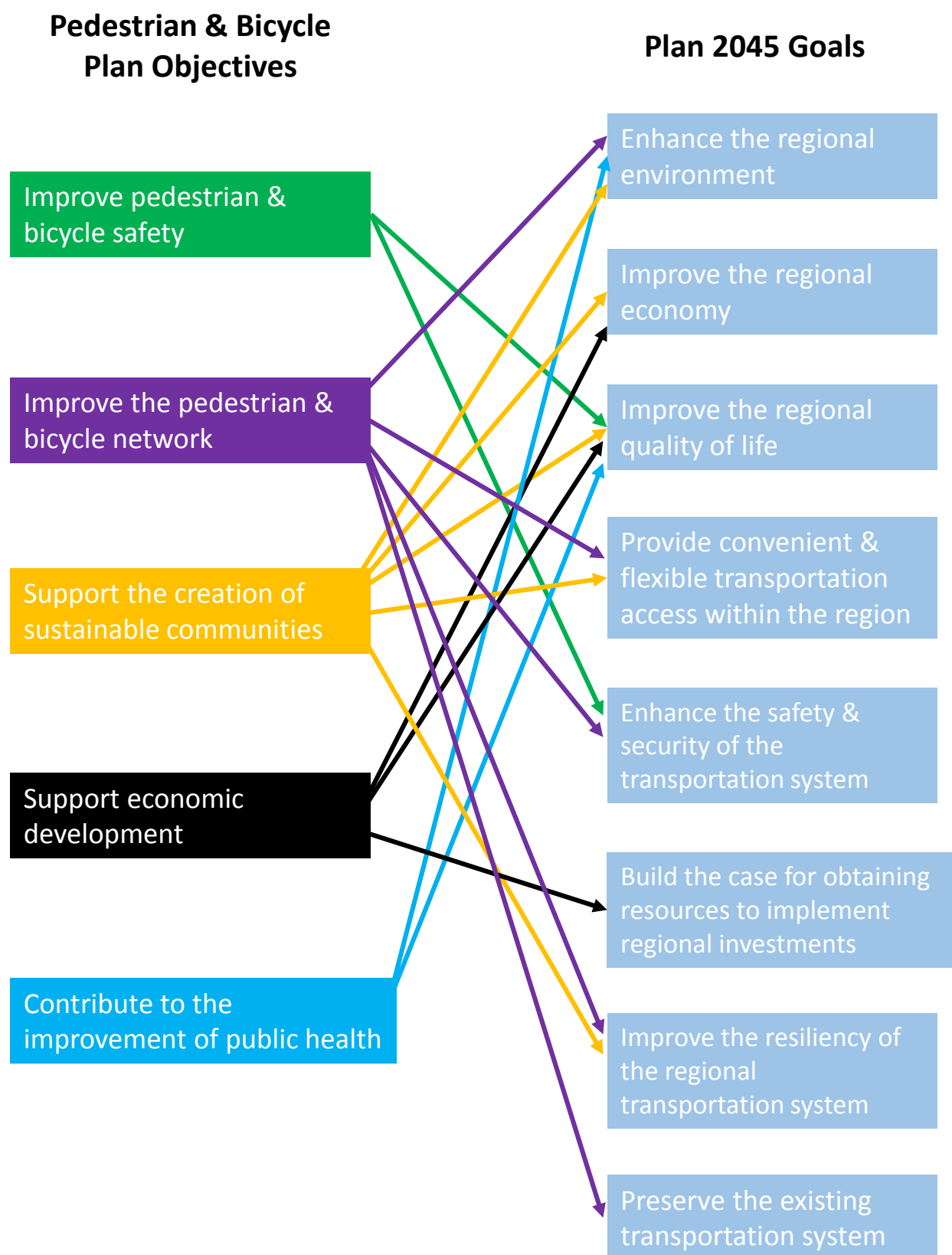


In order to continue build on the major developments being made in the pedestrian and bicycle network in the NYMTC planning area, as described in the previous section, NYMTC's members identified five objectives to guide pedestrian and bicycle projects and planning efforts over the course of *Plan 2045*:

- > Improve pedestrian and bicycle safety
- > Improve the pedestrian and bicycle network
- > Support the creation of sustainable communities
- > Support economic development
- > Contribute to the improvement of public health.

These objectives are informed by, and support the strategic goals and desired outcomes of *Plan 2045* as set forth in Chapter 1. The following graphic describes the interrelationship between the overarching goals of the Plan, and those of the Pedestrian and Bicycle element, which will be described in depth in this section.

FIGURE A2.5: PEDESTRIAN AND BICYCLE PLAN OBJECTIVES AND PLAN 2045 GOALS





While many of the pedestrian and bicycle objectives directly match *Plan 2045* goals, several of the objectives relate to multiple *Plan 2045* goals. For example, the goal of “Improving the pedestrian and bicycle network” will be achieved by providing more and safer pedestrian and bicycle connections to major activity centers, neighborhoods and public transportation. These actions contribute to the *Plan 2045* goals of “Enhancing the regional environment”, “Improving the regional quality of life”, “Providing convenient and flexible transportation”, “Enhancing safety and security”, and “Improving the resiliency of the regional transportation network”. This applicability and versatility of the pedestrian and bicycle goals speaks to the importance of investment and planning for pedestrians and bicyclists, in achieving the greater goals of the Plan.

The Pedestrian-Bicycle Element of *Plan 2045* also aligns with the federal approach to improving safety for pedestrians and bicyclists. In September 2016, Federal Highway Administration (FHWA) released a Strategic Agenda for Pedestrian and Bicycle Transportation, which outlines four major goals to make “walking and bicycling viable transportation options for people of all ages and abilities in communities throughout the U.S.”<sup>37</sup> These goals are:

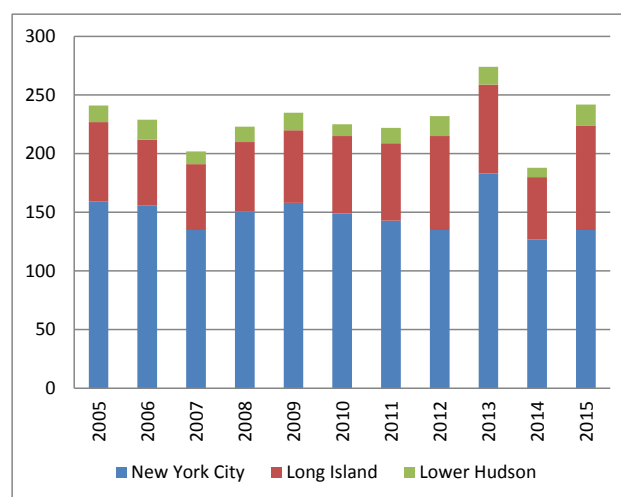
1. *Networks* – achieve safe, accessible, comfortable and connected multimodal networks in communities throughout the U.S.
2. *Safety* – Improve safety for people walking and bicycling
3. *Equity* – promote equity throughout the transportation planning, design, funding, implementation and evaluation process.
4. *Trips* – Get more people walking and bicycling.

The objectives of the Pedestrian-Bicycle Element are consistent with FHWA’s Strategic Agenda goals, particularly the commitments to improving safety, expanding the pedestrian and bicycle networks and encouraging modal shifts to walking and bicycling. This alignment of goals demonstrates a strong base for cross-agency collaboration at different levels of government, and for funding support.

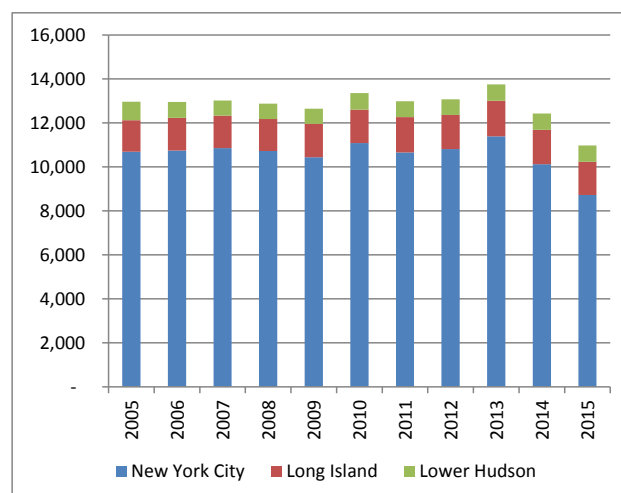
## IMPROVE PEDESTRIAN AND BICYCLE SAFETY

One important objective is to provide for the safety of non-motorized transportation users and to ensure that unsafe conditions are identified and addressed. Reducing the number of pedestrians and bicyclists killed or injured by motor vehicle crashes is consistent with this objective. An important first step in improving safety is to analyze injury and fatality trends across the region to gain an understanding of the causes of the trends, and to develop strategies to address them.

**FIGURE A2.6: PEDESTRIAN FATALITIES BY NYMTC SUB-REGION**



**FIGURE A2.7: PEDESTRIAN INJURIES BY NYMTC SUB-REGION**



## NYMTC PLANNING AREA IN CONTEXT

In general, the NYMTC planning area has a strong transportation safety record. Despite this record, there remains the need to address a significant number of pedestrian and bicycle fatalities that occur each year. In 2015, pedestrian and bicycle fatalities comprised nearly 40 percent of total traffic fatalities in the region (269 pedestrian and bicycle fatalities of 637 total traffic fatalities).

The NYMTC planning area's urban centers feature large concentrations of people residing in densely populated neighborhoods, generating a high number of pedestrian and bicycle trips. This results in a higher percentage of pedestrian and bicyclist fatalities in the NYMTC planning area (75 percent) when compared to the rest of the state (see Tables A2.1 and A2.2). However, despite the NYMTC planning area's large share of New York State's pedestrian injuries and fatalities, the NYMTC planning area matches well with the safest metropolitan areas in the United States for pedestrians. The New York-Northern New Jersey-Long Island urbanized area was ranked by Smart Growth America as the fourth safest for pedestrians, among regions with over one million residents.<sup>38</sup>

### *Pedestrian Fatality and Injury Trends*

Overall, the number of traffic-related pedestrian fatalities in the NYMTC planning area has remained moderately the same from 2005 to 2015, with some increases and decreases in between (see Figure A2.6): there was a notable decline in pedestrian fatalities in 2007 with a jump in 2013 followed by a significant decline in 2014.

On the other hand, pedestrian injuries in NYMTC's subregions have remained relatively steady with some slight variations over the decade as illustrated in Figure A2.7.

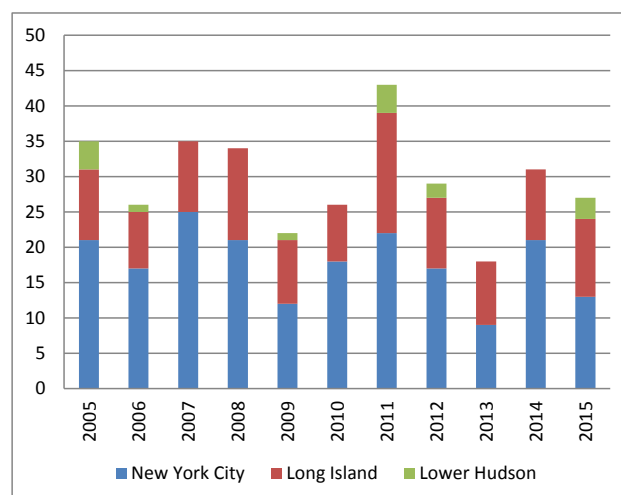
### *Bicyclist Fatality and Injury Trends*

In general, bicycle fatalities represent a lower percentage of traffic fatalities compared to pedestrian fatalities. Between 2005 and 2015, there was a total of 326 bicyclist fatalities in the NYMTC planning area. As shown in Figure A2.8, bicycle fatalities fluctuated substantially over the ten years.

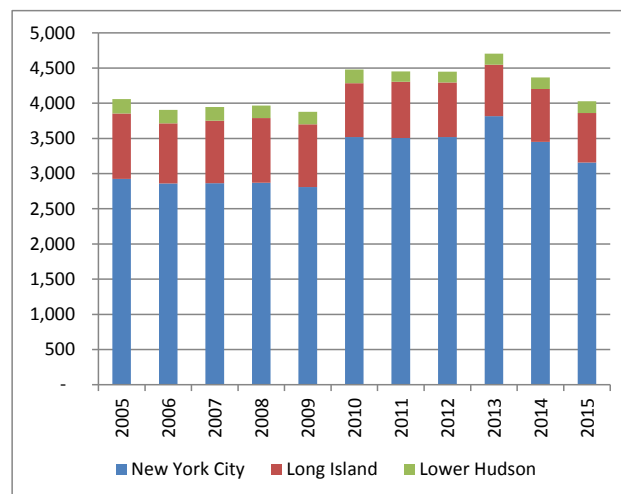
In the same time period, there was a net increase of 16 percent in reported bicyclist injuries in the NYMTC planning area (see Figure A2.9), from 2005 to 2013 with the greatest increase occurring between 2009 and 2010. After 2013 the bicyclist injuries declined to the rate of injuries observed in 2005.

In the majority of the years between 2005 and 2015, New York City pedestrian and bicyclist fatalities represented two-thirds of the planning area's total pedestrian and bicyclist fatalities. It is important to note that this high rate is due to the higher number of pedestrians and bicyclists in New York City than other NYMTC subregions.

**FIGURE A2.8: BICYCLIST FATALITIES BY NYMTC SUB-REGION**



**FIGURE A2.9: BICYCLIST INJURIES BY NYMTC SUB-REGION**



### *Contributing Factors*

As mentioned earlier, each agency or county in the NYMTC planning area seeks to improve safety by analyzing accident trends and patterns. Most pedestrian and bicyclist injuries and fatalities occur because of road and infrastructure design, or driver, pedestrian, and bicyclist behavior.

**Distractions** - According to the New York State Department of Motor Vehicles' statistical summary for the year 2013, the most common reasons for collisions are due to human factors such as: "driver inattention/distraction", cars "following too closely", "failure to yield right-of-way", driving at an "unsafe speed", improper "passing or lane usage" and the "disregard of traffic controls".<sup>39</sup> Distracted driving-related crashes continue to be a growing safety issue. According to the National Highway Traffic Safety Administration (NHTSA), distracted driving claimed the lives of 490 pedestrians and bicyclists in 2014 which represent 15 percent of the distraction-affected fatalities. A total of 3,179 people were killed in motor vehicle crashes involving distracted drivers.<sup>40</sup>

An emerging distractor is the use of handheld devices such as smartphones. Using these devices while driving, biking or walking cause people to be less aware of their immediate surroundings, increasing their chances of a collision.

**Design** - Design and street geometry can also have an effect on safety. Roadway designs that facilitate higher vehicular speeds or carry heavy traffic volumes are in general not pedestrian nor bicycle friendly and raise the risk of collisions for motorists with other roadway users.

**Exposure** - Locations with increased pedestrian usage, such as commercial corridors, and urban neighborhoods, can also be the site of fatalities and injuries. In addition, known pedestrian attractors, such as schools, transit stops and facilities, are places of potential conflict and collision for children and other people walking, especially in suburban areas of the region, where driving is more common.

*Plan 2045* includes a strategic goal to enhance the safety and security of the transportation system for both motorized and non-motorized users. The following outcomes have been identified to meet this goal:

Reduced rate of annual injuries and fatalities on the region's transportation systems;

- > Promulgation of advanced safety and security measures throughout the region;
- > Enhanced coordination, data, and information sharing among members and other stakeholders; and
- > Promotion of safety and security improvements in all aspects of transportation planning and implementation.



**TABLE A2.1: PEDESTRIAN FATALITIES: NYMTC PLANNING AREA AND NEW YORK STATE (2011 - 2015)**

	2011	2012	2013	2014	2015	2011 - 2015 Average
New York City	143	135	183	127	135	171
Long Island	66	80	76	53	89	70
Lower Hudson Valley	13	17	15	8	18	16
<b>Total for NYMTC Planning Area</b>	<b>222</b>	<b>232</b>	<b>274</b>	<b>188</b>	<b>242</b>	<b>264</b>
<b>Total for NYS</b>	<b>296</b>	<b>312</b>	<b>344</b>	<b>268</b>	<b>321</b>	<b>336</b>
<b>NYMTC Planning Area's Percentage to NYS</b>	<b>75%</b>	<b>74%</b>	<b>80%</b>	<b>70%</b>	<b>75%</b>	<b>70%</b>

Source: New York State Department of Motor Vehicles (NYSDMV) and additionally its Traffic Safety Statistical Repository for 2014 and 2015; NYS Governor's Traffic Safety Committee website, [www.safety.gov](http://www.safety.gov) (NYSDMV data reports by county)

**TABLE A2.2: BICYCLIST FATALITIES: NYMTC PLANNING AREA AND NEW YORK STATE (2011 - 2015)**

	2011	2012	2013	2014	2015	2011 - 2015 Average
New York City	22	17	9	21	13	16
Long Island	17	10	9	10	11	12
Lower Hudson Valley	4	2	0	0	3	2
<b>Total for NYMTC Planning Area</b>	<b>43</b>	<b>29</b>	<b>18</b>	<b>31</b>	<b>27</b>	<b>30</b>
<b>Total for NYS</b>	<b>57</b>	<b>45</b>	<b>40</b>	<b>47</b>	<b>36</b>	<b>47</b>
<b>NYMTC Planning Area's Percentage to NYS</b>	<b>75%</b>	<b>64%</b>	<b>45%</b>	<b>66%</b>	<b>75%</b>	<b>63%</b>

Source: New York State Department of Motor Vehicles (NYSDMV) and additionally its Traffic Safety Statistical Repository for 2014 and 2015; NYS Governor's Traffic Safety Committee website, [www.safety.gov](http://www.safety.gov) (NYSDMV data reports by county)

**TABLE A2.3: OWNER-OCCUPIED AND RENTER-OCCUPIED HOUSING UNITS WITH NO VEHICLES (2011 – 2015)**

	Number of Owner Occupied Housing Units			Number of Renter Occupied Housing Units		
	Total Number of Units	Number of Units with No Vehicles	Percentage with No Vehicles	Total Number of Units	Number of Units with No Vehicles	Percentage with No Vehicles
Bronx	91,993	21,720	24%	392,909	266,480	68%
Kings	272,717	74,612	27%	659,069	450,433	68%
New York	172,079	107,454	62%	578,340	476,846	82%
Queens	340,561	58,259	17%	440,083	235,581	54%
Richmond	114,000	7,269	6%	51,784	20,719	40%
<b>Total: New York City</b>	<b>991,350</b>	<b>269,314</b>	<b>27%</b>	<b>2,122,185</b>	<b>1,450,059</b>	<b>68%</b>
Nassau	353,777	13,405	4%	86,863	21,250	24%
Suffolk	392,390	10,619	3%	101,149	16,011	16%
<b>Total: Long Island</b>	<b>746,167</b>	<b>24,024</b>	<b>3%</b>	<b>188,012</b>	<b>37,261</b>	<b>20%</b>
Putnam	27,946	753	3%	6,144	1,078	18%
Rockland	68,107	2,514	4%	30,699	8,430	27%
Westchester	210,195	9,623	5%	131,671	40,254	31%
<b>Total: Lower Hudson Valley</b>	<b>306,248</b>	<b>12,890</b>	<b>4%</b>	<b>168,514</b>	<b>49,762</b>	<b>30%</b>
<b>TOTAL NYMTC PLANNING AREA</b>	<b>2,043,765</b>	<b>306,228</b>	<b>15%</b>	<b>2,478,711</b>	<b>1,537,082</b>	<b>62%</b>

## IMPROVE THE PEDESTRIAN AND BICYCLE NETWORK

Providing an enhanced and expanded pedestrian and bicycle facilities network is an important objective for the NYMTC planning area. Functionality and connectivity are the hallmarks of a comprehensive non-motorized transportation network, which is attained by:

- > Providing walkway and bikeway connections throughout the transportation system;
- > Enhancing the accessibility and safety of regional walkways and bikeways that provide access to major activity centers, neighborhoods and public transportation; and
- > Enhancing mobility for all users.

Walking and bicycling have an important role in the transportation system of the NYMTC planning area for many reasons. For example, these modes of transportation present more options to those who do not own a vehicle or who are underserved by transit. The ACS 2011 – 2015 Five-Year Estimates reveal, for the NYMTC planning area, that 62 percent of renter-occupied housing units and 15 percent of owner-occupied housing units do not own a vehicle and instead utilize other modes of transportation (See Table A2.3).

## SUPPORT THE CREATION OF SUSTAINABLE COMMUNITIES

Sustainable communities are economically, environmentally and socially resilient – they promote healthy natural environments, high quality of life, and economic security. Specifically in terms of transportation, sustainable communities accommodate and encourage non-vehicular modes by establishing walkable, “bikeable” neighborhoods with good access to public transit, employment, retail and service amenities. This in turn contributes to achieving safer streets for all street users, reducing greenhouse gas emissions, and improving public health.

Creating sustainable communities is an important objective for the NYMTC planning area. Investments in pedestrian and bicycle facilities can help support this objective by:

- > Supporting the development of smart growth communities where motorized vehicle trips are substituted with walking and bicycling trips;
- > Reducing traffic congestion;
- > Improving air quality; and
- > Conserving non-renewable energy supplies.

In a similar fashion, sustainable growth practices have been adopted by many local jurisdictions in the NYMTC planning area to promote more walkable and bicycle-friendly neighborhood centers with the placement of developments around transit hubs.<sup>41</sup> These transit-centered communities contain an increasing residential population and an enhanced commercial base, which support viable alternatives to driving, such as walking, bicycling, and public transportation.

## SUPPORT ECONOMIC DEVELOPMENT

The economic vitality of local communities and the region depends in part on creating attractive and accessible, people-oriented streetscapes and public spaces. Creating links between key locations including retail corridors, business districts, public spaces and visitors’ attractions, can have noticeable benefits for the locality and have a positive impact on the local economy. The presence of pedestrian and bicycle facilities supports these efforts, and tends to:

- > Spur business activity along retail corridors by increasing foot traffic along streets with engaging public spaces;
- > Stimulate local economies by increasing foot traffic and tourism; and
- > Increase real estate values when the properties are in close proximity to amenities

In New York State the economic benefits from sidewalk-based retail transactions are estimated to be in the tens of billions of dollars annually. According to the NYSDOT, pedestrian sidewalk traffic in New York City generates 50 to 65 percent of sales activity from point-of-sales transactions (where a transaction occurs in exchange for goods or services) alone.<sup>42</sup> Most of the predominantly commercial retail corridors in New York City include retail business with high pedestrian traffic volumes on the sidewalks.

The increase in demand for retail spaces along these corridors has even created spillover demand in adjoining corridors.<sup>43</sup> It is therefore a beneficial strategy to provide residents and visitors with the option to safely walk and ride a bicycle on local streets with convenient facilities.

The NYMTC planning area attracts millions of tourists each year. Multi-use paths and bicycle facilities near tourist attractions, including commercial areas, can stimulate local economies by increasing tourism, which also helps to create jobs.

The economic impacts of walking and bicycling are also reflected in increased real estate values for properties located near greenway paths and open spaces, benefitting property owners as well as local governments who receive increased tax revenues. This provides local governments with an economic interest in developing pedestrian and bicycle amenities. Similarly, real estate values are significantly higher in areas that are within walking distance of public transit, including subway and commuter railroad stations and bus stops – again benefitting property owners and local governments. For the ordinary resident or street user, the ability to walk to a transit stop reduces the use of motor vehicles and can eliminate the need to purchase and maintain a vehicle, reducing household transportation expenses.

Consistent with *Plan 2045*'s strategic goals, ongoing development of cycling routes and other cycling and pedestrian enhancements should be coordinated with initiatives to maintain and improve safety and efficiency of critical goods movement activity. Street access/egress to freight terminal gates, freight-dependent businesses, and local retail establishments should be factored into planning and implementation of bike-ped initiatives, as well as accommodation of bike parking and amenities for employees, where safe and appropriate. Best practice standards for Complete Streets initiatives increasingly recognize goods movement requirements as a key component to making these busy environments safe and economically viable.

## CONTRIBUTE TO THE IMPROVEMENT OF PUBLIC HEALTH

Diseases related to a sedentary lifestyle are on the rise in the U.S., including diabetes, hypertension, heart disease, osteoporosis and obesity. Obesity in particular is a growing concern: In 2015, the Centers for Disease Control and Prevention released a profile on New York State revealing that 60 percent of adults and 24 percent of adolescents were either overweight or obese. An obese child or adolescent is more likely to become overweight as an adult and is more at risk of developing health problems such as heart disease, Type 2 diabetes, stroke, and certain types of cancer.

The lack of physical activity and resultant health problems contributes to higher healthcare costs. A study conducted for the American Public Transportation Association (APTA) by the Victoria Transport Policy Institute found that the annual medical expenditure of a sedentary adult was 32 percent higher when compared to a physically active adult (\$1,349 versus \$1,019).<sup>44</sup> In addition, a 2012 study revealed that obesity and related illnesses cost the United States' healthcare system over \$190 billion, representing over a fifth of healthcare spending.<sup>45</sup>

Encouraging active modes of transportation such as walking and bicycling to commute and complete errands promotes healthy lifestyles, and helps to mitigate the suite of problems that arise from a sedentary lifestyle. To this end, it is important to provide a safe and inviting environment for walking, bicycling and transit use.



## 4. REGIONAL STRATEGIES FOR THE IMPROVEMENT OF PEDESTRIAN & BICYCLE TRANSPORTATION

Various strategies to improve pedestrian and bicycle transportation are proposed for the NYMTC planning area by the Bike-Ped Element of *Plan 2045*. These strategies can be grouped into the following categories:

- > Data collection and analysis
- > Pedestrian and bicycle network development
- > Street design and treatments
- > Education and training; and
- > Enforcement programs

Measures related to these areas which have been put into practice and are described in the Initiatives sections for each NYMTC subregion. These categories of strategies are designed to fulfill the Pedestrian-Bicycle objectives described earlier, as well as to contribute to *Plan 2045*'s strategic goals.



E 78th Street Pedestrian Bridge, Manhattan  
Photo Source: NYC DOT

## DATA COLLECTION AND ANALYSIS

Collecting data about pedestrian and bicycle activity, such as crash data and user volumes, helps determine strategies and improvements to the transportation network that benefit pedestrians and bicyclists. These benefits include:

- > Development of safety programs and plans for pedestrians and bicyclists;
- > Informed decision-making by improving accessibility to non-motorized transportation data for all of NYMTC's member agencies; and
- > Assistance in the planning and implementation of a network of transportation facilities and supporting programs for pedestrians and bicyclists.

Safety programs in particular benefit from data that shows where and when crashes occur. With this data, agencies are better able to plan and create safety improvements at dangerous locations. Improvements in recording and managing data can also help planners and decision-makers better understand crash trends. Data improvements include entering accident data into a system at the crash site in real time and finding a means to coordinate crash reports with data from hospitals or health departments.

## NETWORK DEVELOPMENT

Although walking and bicycling for transportation has steadily increased in recent years, there is still a need to develop the transportation network in order to create more walkable and bikeable communities. The success of developing a complete transportation network for pedestrians and bicyclists across the NYMTC planning area depends primarily on the following:

- > Encouraging coordination and collaboration at all levels of government - Interagency and regional collaboration on pedestrian and bicycle issues are essential throughout the region. Designing corridors that cross jurisdictional lines requires cooperation and coordination between municipalities and counties;

- > Strengthening network connections within and beyond the NYMTC planning area;
- > Improving accessibility to major destinations by foot or on a bicycle - As new pedestrian and bicycle facilities are considered, strategic planning is necessary in order to develop and implement connections to major destinations and trip attractors. Accommodation of pedestrian and bicyclists should be an intrinsic component of transportation access in the initial design phase of land development projects. Furthermore, careful analysis of the location of potential links to major destinations is necessary in order to plan for practical and useful non-motorized routes that can provide connectivity;
- > Integrating the pedestrian and bicycle network into the current transit system to enhance mobility, including a variety of improvements in and around transit stations and intermodal locations - In general, people are willing to bicycle 5-to-10 miles, or walk approximately 1-to- 2 miles to either their final destination or to a transit station. Pedestrian and bicycle networks should be integrated into the current transit system to enhance mobility options. Connections to and from the public transit system can encourage existing bicyclists or pedestrians to combine bicycling or walking with mass transit, as well as attract new bicyclists and pedestrians to transit.

Bicycle-transit intermodalism can include a variety of other measures such as bicycle sharing; bicycle stations; improved walking and bicycle routes; using universal design, signage, and lighting; traffic calming; and better transit station security. Safe, well-marked, and convenient crossings for pedestrians and bicyclists on streets, arterials, across separated right-of-ways, and at transfer points of intermodal locations are essential for network development. This type of connection can be crucial in mobility choices for those who walk or ride a bicycle. Measures can also be taken to encourage and/ or to restrict

crossing at certain locations along the roadway and in areas of high density. In addition, safe and secure bicycle parking is a critical component of a viable pedestrian and bicycle network. Bicycle parking facilities on sidewalks, in public spaces, in parking garages, and on privately-owned properties can help meet the needs of bicyclists and encourage others to bike to transit. Bicycle parking is obviously much more cost effective to construct than automobile parking;

- > Having a maintenance plan for pedestrian and bicycle facilities through the appropriate government agencies - Well maintained facilities are critical to ensuring the safe and continued use of the pedestrian and bicycle network. The development of a maintenance plan is necessary through the appropriate government agencies, including transportation, parks, and public works. A coordinated methodology for regular inspection and maintenance is required in terms of surface repair, replacement of signage, the reconstruction of crossings, connections and ramps. Cost and staff availability can influence maintenance and operation issues, making it essential to establish policies, workable standards and funding improvements to ease the process of maintaining the facilities;
- > Including the non-motorized network in emergency planning - Emergency plans will continue to be a priority in the transportation planning process and continued interagency coordination and integration of all modes, including non-motorized modes, is critical to their effectiveness; and
- > Understanding and providing for the needs of pedestrians and bicyclists who travel at a pace where comfort and aesthetics play a key role.

## STREET DESIGN

Street design is an important tool that can be used to make the roadways in our cities and towns more engaging, efficient and safe for all users. Programs and policies that govern street design and reinforce walking/bicycling can:

- > Create a balanced transportation network;
- > Improve traffic circulation and create a safer environment for all users; and
- > Contribute to an increase in pedestrian activity and bicycle use.

In the past, street design practices have often prioritized vehicular traffic over pedestrians and bicyclists. Recently, more projects have been dedicated to street design improvements that include non-motorized transportation as a featured part of roadway capital projects, and as stated in the Complete Streets design principles. Complete Streets design principles facilitate the incorporation of walkways and bikeways into construction projects. Several states, counties and municipalities have passed legislation that requires the consideration of these design principles. The New York State Complete Streets law requires state, county and local transportation agencies to consider Complete Streets designs in order to make accommodations for all road and street users, including pedestrians and bicyclists.

## TRAFFIC CALMING

Traffic calming can be a major component of Complete Streets design, and has also been introduced at the local and regional level. These techniques are physical treatments applied to the roadway to reduce vehicular speeds and volumes, and improve safety for pedestrians. Design approaches such as speed tables, chicanes, road diets, traffic diverters, raised intersections and roundabouts have improved safety and reduced conflicts on the road for all users.

Traffic calming techniques often do not require costly or complicated installations. For example, on-street parking can be a useful traffic calming measure. The parked vehicles narrow the effective width of the roadway, thereby causing motorists to drive at slower speeds.



The Street Design Manual published by NYC DOT also describes numerous traffic calming measures that can be used regionwide. The manual is used in the planning and designing of New York City's streets and provides a toolbox of design treatments that may be used to reduce conflicts in the roadway. A second edition of the Street Design Manual was updated in January 2016.

## REDUCING CONFLICTS

Many street design treatments focus on reducing conflicts between motorists and bicyclists. The National Association of City Transportation Officials' Urban Bikeway Design Guide provides an overview and design details for treatments including on-street bicycle lanes, buffered lanes, cycle tracks (on-street protected bicycle lanes), and multiple intersection treatments such as bicycle boxes, mixing zones, and two-stage turn queues.<sup>46</sup> Studies have shown that adding an on-street bicycle lane decreases the average speed of adjacent vehicles as well as the number of vehicles speeding on the roadway.<sup>47</sup>

Additionally, encouraging design treatments that separate the bicycle facility from the vehicular traffic minimizes conflicts for cyclists along truck routes. Such improvements will require collaboration and coordination between counties and agencies.

## SIGNAGE AND PAVEMENT MARKINGS

Improving street signage, street markings and traffic signals are other techniques to increase safety and awareness among motorists, pedestrians and bicyclists. Installing pedestrian and bicycle signs, such as "Yield to Pedestrians" and "Share the Road" at intersections and along streets can improve safety. Street markings with sharrows<sup>ii</sup> tell drivers to expect bicyclists and to share the roadway. In 2010, the Town of Eastchester became the first municipality in Westchester County to mark sharrows on one of its roadways (California Road). The City of Rye also installed sharrows along Forrest Avenue in 2012, and New York City uses sharrows for connectivity where the right-of-way does not permit a full bicycle lane. The Town of Brookhaven on Long Island will also be adding sharrows to a few bicycle facilities under the LSSTC.

<sup>ii</sup> Sharrows are shared lane markings that show a pictograph of a bicycle with arrows to denote a shared bike lane.

## EMERGING STRATEGIES

Recently, innovative and high quality amenities which enhance the pedestrian and bicycle network such as bike sharing, protected bicycle paths, and pedestrian plazas have been implemented on streets in the region. More details about these programs are described later in this Ped-Bike Element.

## EDUCATION AND TRAINING

Education and training, for professionals, officials and the public, are critical strategies for improving and increasing walking and bicycling throughout the NYMTC planning area. Specific steps in these areas include:

- > Regional coordination of messaging and information;
- > Targeted programs to reach specific groups such as children and seniors;
- > Public safety campaigns that address safety issues in a community or a subregion; and
- > Messaging on the environmental and health benefits of walking and bicycling.

## REGIONAL COORDINATION

Coordinated outreach is important to optimal education and training for professionals, officials and the public. NYMTC's Safety Advisory Working Group (SAWG) is an example of a forum for such coordination among transportation agencies. Communities, including local officials and the interested public, can be educated on safety issues by planners and professionals using an interactive approach.

One such method used in NYMTC's planning area is to invite members of the community to attend workshops on pedestrian and bicycle safety issues in their area. A Walkable Community Workshop, for example, is a forum used to increase awareness of the importance of pedestrian and, bicycle safety, and develops recommendations for improving the pedestrian and cycling environment. Attendees include elected officials, planners and public works professionals, representatives of the business community and interested citizens.

The workshops involve 1) receiving input from members of the community on challenges to walking and bicycling, and 2) engaging the workshop participants in developing recommendations to address

the challenges. A walking field trip is conducted as part of each workshop to observe the bicycle and pedestrian challenges and show how the proposed solutions can be applied.<sup>48</sup> These workshops have been valuable in helping local communities initiate improvements and apply for funding to implement specific projects.

### TARGETED EDUCATION

Jurisdictions across the region use targeted educational programs to reach specific groups such as children and seniors. There are several education programs in the NYMTC planning area that target different demographics, for example school children and seniors. These programs will be described in greater detail later in this Ped-Bike Element.

### PUBLIC AWARENESS CAMPAIGNS

Other educational safety programs include public awareness campaigns. Coordinated efforts at the local level are essential in increasing public awareness of pedestrian and bicycle safety. Likewise, future initiatives could focus on the need for motorists to be aware of pedestrian and bicycle safety issues, for example through the driver's education curriculum and coordinated with the New York State Department of Motor Vehicles to include more questions regarding pedestrian and bicyclist's safety on the examination for drivers' licenses.

### INFORMATION PANEL: QUEENS BOULEVARD PROJECT, QUEENS, NEW YORK

Queens Boulevard, one of the busiest and highest-crash thoroughfares in Queens, has been identified as a Vision Zero Priority Corridor. The Queens Boulevard Safety Improvement Project focuses on 6.3 miles of Queens Boulevard, bounded by Roosevelt Avenue to the west and Jamaica Avenue to the east. The redesign of the Boulevard not only improves safety but also seeks to transform this corridor into a pleasant human experience. This Great Street will be a new public space that draws from Queens' own cultural and natural contexts, facilitates a wide range of physical and social activities, and strengthens connections between neighbors and neighborhoods. This project makes permanent the interim geometric modifications developed for the operational design of Queens Boulevard, between Roosevelt Avenue and 73rd Street (Segment 1). It then continues a similar treatment east to Union Turnpike (Segment 2 and 3), and eventually to Jamaica Avenue (Segment 4). While not all areas of the corridor function exactly the same, the typical section widens the existing service malls to calm traffic and provide a raised bike path, pedestrian walkway, new trees, benches, wayfinding, green infrastructure, and urban art. In addition, street reconstruction, resurfacing and geometric changes are proposed at nine priority intersection and complex locations.



## ENFORCEMENT

Traffic enforcement is essential to traffic safety for all. Some enforcement programs that address safety issues include: red light cameras, speed boards, deployment of enforcement personnel, and safety outreach.

Red light cameras capture license plate information from vehicles that cross the stop bar or fail to stop at red lights. Owners of these vehicles are contacted by mail and required to pay a fine. Red light cameras are a cost effective way to increase enforcement with a limited amount of resources. Studies have shown that the use of a camera can be successful in reducing the number of motorists running red lights and can increase compliance with traffic laws. National reviews show that red light cameras reduce side-impact crashes, and reduce overall crash severity.<sup>49</sup> Speed boards, radar devices that display the speed of vehicles as they approach the display, can also be an effective enforcement tool for reducing traffic speed.

As described earlier, distracted driving has become a growing national safety issue that many communities are confronting. According to the National Highway Traffic Safety Administration, distracted driving-related crashes claimed 3,154 lives and led to an estimated 424,000 traffic injuries across the U.S. in 2013.<sup>50</sup> The federal government has been advocating legislation to increase regulations and fines for distracted driving and has helped to get over 2,000 private companies to adopt distracted driving policies; enacted new laws banning drivers of commercial buses and trucks from texting; and applied restrictions on train operators. As of September 2012, 39 states and Washington D.C. have banned text messaging while driving, and ten states plus Washington D.C. banned the use of a handheld device or cell phone behind the wheel. In addition, 32 states and the District of Columbia (D.C.) have banned all cell phone use by novice drivers. In September 2009, Westchester County became the first County in New York State to ban texting while driving. Nassau and Suffolk counties followed suit shortly thereafter. New York State's distracted driving law that strengthens enforcement and increases the penalty for using handheld devices.

The consistent enforcement of existing and emerging traffic laws greatly improves the functionality of the transportation network and pedestrian and bicycle safety. The implementation of a campaign to train enforcement officers in proper methods of the enforcement of traffic laws, complemented by public education and outreach, can increase safety awareness for all roadway users.



## 5. INVENTORY OF BICYCLE FACILITIES

This section provides an overview of existing bicycle facilities in the NYMTC planning area. Bicycle facilities include bicycle routes, bicycle parking and storage facilities. The design of bicycle routes can consist of protected bicycle lanes, bicycle lanes, shared roadways, or shared use paths. A protected bicycle lane is located within the street right-of-way but physically separated from moving traffic by parked vehicles, jersey barriers, or wide buffers with delineators. A bicycle lane is a portion of the roadway which has been designated by striping, signing and pavement markings for the exclusive use of bicyclists. A shared roadway is open to both bicycle and motor vehicle travel - this may be an existing roadway with wide curb lanes or a road with paved shoulders. Signs that designate shared lane routes are often accompanied by pavement markings. A bicycle or shared use path is a bikeway that is physically separated from motorized vehicular traffic by an open space or a barrier frequently within parkland but sometimes within the street right-of-way. Shared use paths are also used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users.<sup>51</sup>



**TABLE A2.4: NEW YORK CITY – EXISTING BICYCLE FACILITIES  
TOTAL GREENWAY PATHS**

By County	Facility Type	Mileage (miles)
Bronx	Off-Street Bicycle Paths	32
Kings	Off-Street Bicycle Paths	35
Manhattan	Off-Street Bicycle Paths	46
Queens	Off-Street Bicycle Paths	36
Richmond	Off-Street Bicycle Paths	21

**ON-STREET BICYCLE FACILITIES IMPLEMENTED**

By County	Facility Type	Mileage (miles)
Bronx	Bicycle Lanes	64.0
Bronx	On-Street Protected Bicycle Paths	0.4
Kings	Bicycle Lanes	123.2
Kings	On-Street Protected Bicycle Paths	7.4
Manhattan	Bicycle Lanes	75.3
Manhattan	On-Street Protected Bicycle Paths	25.7
Queens	Bicycle Lanes	70.9
Queens	On-Street Protected Bicycle Paths	6.6
Richmond	Bicycle Lanes	19.2
Richmond	On-Street Protected Bicycle Paths	0.0

**TABLE A2.5: NYSDOT REGION 10 – STATE BICYCLE ROUTES**

State Bike Route Name	Facility Type	From	To	Counties	Mileage (Approximate)
24 (Regional Route)	Bike Lane	Peconic Ave, Riverhead	Old Riverhead Rd, Hampton Bays	Suffolk	7
25 (Regional Route)	Bike lane/ Shared Rdwy	NY 25 & NY 111 - Smithtown	Orient Point	Suffolk	67
25A (Regional Route)	Bike lane/ Shared Rdwy	Cold Spring Harbor LIRR	NY 25 & NY 25A, Smithtown	Suffolk	18
27 (Regional Route)	Shared Rdwy	NY 27 at Flying Point Rd, Southampton	Montauk Point	Suffolk	30
114 (Regional Route)	Bike lane/ Shared Rdwy	NY 25 at Third St, Greenport	NY 27 at Buells Lane, East Hampton	Suffolk	14.75
<b>TOTAL MILEAGE</b>					<b>136.75</b>

**TABLE A2.6: NASSAU COUNTY – EXISTING ON-ROAD BICYCLE FACILITIES**

Facility Name	Facility Type	From	To	Facility Owner	Mileage
Bethpage Bikeway	Bike Lane, Bike Route	Sunnyside Blvd at Froehlich Farm Blvd, Woodbury	Syosset LIRR Station	Town of Oyster Bay	2.4
Hendrickson Avenue	Bike Route	Horton Ave, Lynbrook	Ocean Ave, Lynbrook	Village of Lynbrook	1.5
Prospect Avenue	Bike Lane	Wantagh Pkwy, New Cassel	Brush Hollow Rd, New Cassel	Nassau County	1
Village of Farmingdale Bike Route	Bike Route	Bethpage Rd at Round Swamp Rd, Farmingdale	NY 24 Conklin St at Nassau-Suffolk County Line , Farmingdale	Village of Farmingdale, NYSDOT	1.3
West Harbor Drive	Bike Lane	Ludlam Avenue, Bayville	Centre Island Road, Bayville	Village of Bayville	1
<b>TOTAL MILEAGE</b>					<b>7.2</b>

**TABLE A2.7: NASSAU COUNTY – EXISTING OFF-ROAD BICYCLE FACILITIES**

Facility Name	Facility Type	From	To	Facility Owner	Mileage
Atlantic Beach Boardwalk	Boardwalk	Flamingo St, Atlantic Beach	Yates Ave, Atlantic Beach	Village of Atlantic Beach	1.25
Baldwin Harbor Park, Baldwin	Shared Use Path				0.75
Bethpage Bikeway	Shared Use Path	Sunnyside Blvd & Woodbury Rd, Woodbury	Merrick Rd, Massapequa	Nassau County	12.7
Cantiague Park, Hicksville	Shared Use Path	Rockland Dr, Hicksville	Kansas St, Hicksville	Nassau County	0.3
Cedar Creek Park, Seaford	Shared Use Path			Nassau County	1.9
Christopher Morley Park, North Hills	Shared Use Path			Nassau County	0.3
Cow Meadow Park, Freeport	Shared Use Path			Nassau County	0.7
Eisenhower Park, East Meadow	Shared Use Path			Nassau County	4
Glen Cove Creek Esplanade	Shared Use Path	Garvies Point Rd, Glen Cove	Garvies Point Rd, Glen Cove	City of Glen Cove	0.4
Hempstead Lake State Park	Shared Use Path			NYS Parks	1.3
Hempstead Turnpike	Shared Use Path	Oak St, Hempstead	Merrick Ave, East Meadow	NYSDOT	1.5
Hendrickson Park , Valley Stream	Shared Use Path			Nassau County	1.25
John J Burns Park, Massapequa Park	Shared Use Path			Nassau County	0.6
Jones Beach Boardwalk	Shared Use Path	Parking Field 2	Parking Field 6	NYS Parks	2
Long Beach Boardwalk	Boardwalk	New York Ave, Long Beach	Neptune Ave, Long Beach	City of Long Beach	2.2
Long Island Motor Parkway Demonstration Project	Shared Use Path	Stewart Avenue, Westbury	Carman Avenue, East Meadow	Nassau County	1
Merrick Avenue	Shared Use Path	Hempstead Turnpike, East Meadow	Old Country Rd, Westbury	Nassau County	1.7
Milburn Creek Park, Baldwin	Shared Use Path			Nassau County	0.8
Milburn Pond Park, Baldwin	Shared Use Path			Nassau County	0.25
Mitchel Field Pedestrian Path & Bikeway, Garden City	Shared Use Path	Mitchel Field	Mitchel Field	Nassau County	6.3
Newbridge Park, Bellmore	Shared Use Path			Nassau County	0.7
North Woodmere Park	Shared Use Path			Nassau County	1.0
Ocean Parkway	Shared Use Path	Jones Beach Field 5	Tobay Beach	NYSDOT	3.6
Seamens Neck Park, Seaford	Shared Use Path				0.9
Sunrise Trail, Lynbrook	Shared Use Path	Earle Ave, Lynbrook	Ocean Ave, Lynbrook	Village of Lynbrook	0.7
Valley Stream State Park Shared Use Path	Shared Use Path			NYS Parks	0.8
Wantagh Park	Shared Use Path			Nassau County	2.5
Wantagh Parkway (Ellen Farrant Memorial Bikeway)	Shared Use Path	Cedar Creek Park, Seaford	Jones Beach, Field 5	NYSDOT	5.0
Wantagh Parkway	Pedestrian Walkway	Brush Hollow Rd, Westbury	Park Ave, Wantagh	NYSDOT	7.5
Whitney Pond Park, Manhasset	Shared Use Path			Nassau County	0.2
<b>TOTAL MILEAGE</b>					<b>64.1</b>



**TABLE A2.8: NASSAU COUNTY – SIGNIFICANT HIKING TRAILS**

Facility Name	Facility Type	From	To	Facility Owner	Mileage
Nassau-Suffolk Greenbelt	Hiking Trail	NY 108, Cold Spring Harbor	Massapequa Preserve at Merrick Rd, Massapequa	NYS Parks	18.5
<b>TOTAL MILEAGE</b>					<b>18.5</b>

**TABLE A2.9: SUFFOLK COUNTY – EXISTING ON-ROAD BICYCLE FACILITIES (1 OF 3)**

Facility Name	Facility Type	From	To	Facility Owner	Mileage
Atlantic Avenue Bike Lane	Bike Lane	NY 27, Bridgehampton	Atlantic Ocean	Town of Southampton	2.5
Bay St/Hempstead St	Bike Route	Hampton St, Sag Harbor	Ferry Rd, Sag Harbor	Village of Sag Harbor	1.0
Bluff Road Bike Route	Bike Route	Indian Wells Plain Highway, Amagansett	NY 27, Amagansett	Town of East Hampton	1.5
Brookhaven Town Bike Route 1-Segment A	Bike Route	NY 112, Coram	CR21, Yaphank	Town of Brookhaven	5.7
Brookhaven Town Bike Route 1-Segment B	Bike Route, Bike Lane	CR 80 & CR 21	Smith Point Park	Town of Brookhaven, Suffolk County	6.9
Brookhaven Town Bike Route 2	Bike Route, Bike Lane	Suffolk Community College-Selden	Fire Island Ferry, Patchogue	Town of Brookhaven, Suffolk County, Village of Patchogue	8.6
Brookhaven Town Bike Route 3	Bike Route, Bike Lane	SUNY Stony Brook	NYS DEC Conservation Area, Rocky Point	Town of Brookhaven, NYSDOT	10.4
Chapman Boulevard Bike Lane	Bike Lane	Jerusalem Hollow Rd	Russell St, East Moriches	Town of Brookhaven	1
Cranberry Hole Road Bike Route	Bike Route	NY 27, Amagansett	NY 27, Amagansett	Town of East Hampton	2.1
Daly Road Bike Route	Bike Route	Jericho Turnpike, Commack	Larkfield Rd, Commack	Town of Huntington	1.4
Gerard Street Bike Lane	Bike Lane	West Neck Rd, Huntington	Wall St, Huntington	Town of Huntington	0.2
Greenlawn Road Bike Route	Bike Route	Polly Dr, Huntington	Tilden Lane, Huntington	Town of Huntington	1.6
Lewis Road Bike Lane	Bike Lane	Quogue-Riverhead Rd, Quogue	Montauk Hwy, East Quogue	Town of Southampton	2
Longwood Road Bike Lane	Bike Lane	Middle Island-Yaphank Rd (CR 21), Middle Island	William Floyd Pkwy (CR 46), Middle Island	Town of Brookhaven	1.9
Lowell Avenue, Connetquot River Road, Great River Road	Bike Route	Sunburst Blvd, Central Islip	Heckscher State Park, East Islip	Town of Islip	5.5
Mattituck Loop	Bike Route	NY 25, Mattituck	NY 25, Mattituck	Town of Southold	14
Montauk Highway Bike Lane	Bike Lane	Knoll Rd, Shinnecock Hills	Tuckahoe Lane, Southampton	NYSDOT	2.8
NY 25 Bike Lane	Bike Lane	CR 97, Selden	CR 83, Coram	NYSDOT	2.3
NY 111 Bike Lane	Bike Lane	Ehler St, Central Islip	Southern State Pkwy	NYSDOT	1.7
NY 112 Bike Lane	Bike Lane	Hallock Ave, Port Jefferson Station	Old Town Rd, Coram	NYSDOT	5.2

**TABLE A2.9: SUFFOLK COUNTY – EXISTING ON-ROAD BICYCLE FACILITIES (2 OF 3)**

Facility Name	Facility Type	From	To	Facility Owner	Mileage
Old Country Road	Bike Route	Old East Neck Rd,	Deer Park Rd, Dix Hills	Town of Huntington	3
Old Riverhead Road	Bike Route	NY 24, Hampton Bays	Squiretown Rd,	Town of	0.85
Old Town Road Bike Route	Bike Lane	NY 347, Terryville	CR 83, Coram	Town of Brookhaven	3.3
Orient Loop	Bike Route	NY 25, Orient	NY 25, Orient	Town of Southold	5
Orient State Parkway Bike Lane	Bike Lane	NY 25, Orient Point	Orient StatePark	NYS Parks	2.5
Ponquogue Avenue Bike Lane	Bike Lane	Montauk Highway (CR 80), Hampton Bays	Shinnecock Rd, Hampton Bays	Town of Southampton	3
Revalo Avenue	Bike Route	Middle Island-	NAT Center, East	Town of Brookhaven	2.5
Riverfront Trail	Bike Lane	Peconic Ave, Riverhead	NY 25, Riverhead	Town of Riverhead	0.4
Smith Road Bike Lane	Bike Lane	NY 25, Ridge	Longwood Rd, Ridge	Town of Brookhaven	1.7
South Country Road Bike Lane	Bike Lane	Montauk Highway (CR 80), Speonk	Apatuck Rd, Westhampton Beach	Town of Southampton	3.0
South Fork Bike Route	Bike Route	Bridgehampton Train Station	Wainscott Harbor Rd, Wainscott	Town of Southampton	2.7
Southold Loop	BikeRoute	NY 25, Southold	NY 25, Southold	Town of Southold	15
Speonk-Riverhead Road Bike Lane	Bike Lane	Old Country Rd, Speonk	East Moriches-Riverhead Rd	Town of Southampton	3.9
Squiretown Road Bike Route	Bike Route	Old Riverhead Rd, Hampton Bays	Montauk Highway, Hampton Bays	Town of Southampton	1.2
State Bike Route 24	Bike Lane	Peconic Ave,	Old Riverhead Rd,	NYS DOT	7
State Bike Route 25A	Bike Route, Bike Lane	NY 108, Cold Spring Harbor	NY 25, Smithtown	Various	18
State Bike Route 25	Bike Route, Bike Lane	NY 25, Smithtown	Orient Point Ferry	Various	67
State Bike Route 27	Bike Route, Bike Lane	CR 39, Southampton	Montauk Point	NYS DOT	30
State Bike Route 114	Bike Lane	NY 25, Greenport	NY 27, East Hampton	NYS DOT, Village of Sag Harbor	14.8
Stony Brook Road Bike Lane	Bike Route, Bike Lane	NY 347, Lake Grove	NY 25A, Stony Brook	Town of Brookhaven	2.6
Suffolk County Central Corridor Bike	Bike Route, Bike Lane	NY 24 (Conklin St) @ Nassau-Suffolk	Mill Rd @ Edwards Ave, Calverton	Suffolk County	42.9
Suffolk County Route 16 (Portion Road)	Bike Lane	Ronkonkoma Ave, Lake Ronkonkoma	CR 97, Farmingville	Suffolk County	2.9
Suffolk County Route 17 (Wheeler Road)	Bike Route	NY 111, Hauppauge	Suffolk Ave, Central Islip	Suffolk County	1.4
Suffolk County Route 19 (Patchogue-Holbrook Road) Bike Lane	Bike Lane	Suffolk Route 16 (Portion Rd)	Long Island Expwy	Suffolk County	1.3
Suffolk County Route 21 (Rocky Point-Yaphank Road) Bike Lane	Bike Route, Bike Lane	NY 25A, Rocky Point	Main St., Yaphank	Suffolk County	8.5

**TABLE A2.9: SUFFOLK COUNTY – EXISTING ON-ROAD BICYCLE FACILITIES (3 OF 3)**

Facility Name	Facility Type	From	To	Facility Owner	Mileage
Suffolk County Route 60 (Long Beach Road) Bike Lane	Bike Lane	Noyack Rd, Noyack	NY 114, Northaven	Suffolk County	1.75
Suffolk County Route 94 (Nugent Drive) Bike Lane	Bike Lane	Edwards Ave, Calverton	Peconic Ave, Riverhead	Suffolk County	4.5
Suffolk County Route 99 (Woodlawn Avenue) Bike Lane	Bike Lane	NY 112, Medford	Station Rd, Bellport	Suffolk County	2.9
Veterans Highway Bike Lane	Bike Lane	NY 347, Hauppauge	Broadway, East Holbrook	NYSDOT	9.0
Village of Southampton Bike Lanes	Bike Lane	Hill St, First Neck Lane. Windmill Lane, Hampton Rd, Southampton	Hill St, First Neck Lane. Windmill Lane, Hampton Rd, Southampton	Village of Southampton	4.2
West Neck Road Bike Route	Bike Route	John Dave's Lane, Huntington	Gerard St, Huntington	Town of Huntington	1.3
<b>TOTAL MILEAGE</b>					<b>347.3</b>

**TABLE A2.10: SUFFOLK COUNTY – EXISTING OFF-ROAD BICYCLE FACILITIES**

Facility Name	Facility Type	From	To	Facility Owner	Mileage
Belmont Lake State Park	Shared Use Path	Belmont Lake State Park	Argyle Lake, Babylon	NYS Parks	3
Caumsett State Park	Shared Use Path	-	-	NYS Parks	3
Connetquot Shared Use Path	Shared Use Path	Connetquot Ave, Islip Terrace	Oakdale-Bohemia Rd, Oakdale	NYSDOT	2
EPCAL	Shared Use Path	-	-	Town of Riverhead	2.5
Greenbelt Trail	Shared Use Path	Singingwood Dr, Holbrook	Live Oak Drive, Holbrook	Town of Islip	0.7
Greenbelt Trail	Shared Use Path	Greenbelt Pkwy, West Holbrook	Greenbelt Pkwy, West Holbrook	Town of Islip	0.5
Heckscher State Park	Shared Use Path	Timber Point River Rd, Great River	Heckscher State Park	NYS Parks	4.0
Holtsville Ecology Park	Shared Use Path	-	-	Town of Islip	1.0
Kings Park Bike & Hike Trail	Shared Use Path	Old Dock Rd, Kings Park	St Johnland Rd, Kings Park	Town of Smithtown	0.4
NY 347	Shared Use Path	Town Line Rd, Hauppauge	NY 111, Hauppauge	Town of Smithtown	0.7
Paul Simons Memorial Bike Path, SUNY Stony Brook	Shared Use Path	-	-	SUNY Stony Brook	4.6
Riverfront Trail	Shared Use Path	-	-	Town of Riverhead, Riverhead	0.4
Setauket-Port Jefferson Greenway Phase I	Shared Use Path	Gnarled Hollow Rd, Setauket	Possum Lane, Setauket	NYSDOT	1.2
Sunken Meadow Boardwalk	Boardwalk	-	-	NYS Parks	0.75
Sunken Meadow State Park	Shared Use Path	NY 25A, Kings Park	Sunken Meadow Park	NYS Parks	1.3
West Meadow Beach, Old Field	Shared Use Path	-	-	Town of Brookhaven	1.1
<b>TOTAL MILEAGE</b>					<b>27.15</b>



**TABLE A2.11: SUFFOLK COUNTY – SIGNIFICANT HIKING TRAILS**

Facility Name	Facility Type	From	To	Facility Owner	Mileage
Long Island Greenbelt Trail	Hiking Trail	Sunken Meadow State Park	Heckscher State Park	Various	34
Nassau - Suffolk Greenbelt Trail	Hiking Trail	NY 25A, Cold Spring Harbor	NY 108, Cold Spring Harbor	NYS Parks	1.5
Paumonak Path	Hiking Trail	NY 25A, Rocky Point	Montauk Point Light House	NYSDEC, Suffolk County Parks	125
<b>TOTAL MILEAGE</b>					<b>160.5</b>

**TABLE A2.12: REGION 8 – STATE BICYCLE ROUTES**

State Bike Route Name	Facility Type <sup>iii</sup>	From	To	Counties	Mileage (Approximate)
5 (Statewide Route)	Shared Rdwy	West Lebanon (Columbia/Rensselaer County Line)	New Lebanon (New York/ Massachusetts Line)	Columbia	9
17 (Statewide Route)	Shared Rdwy	Port Jervis (New York/ Pennsylvania Line)	Wappingers Falls (SBR 9)	Dutchess Orange	47
9 (Statewide Route)	Shared Rdwy	Palisades (New York/New Jersey State Line)	Stuyvesant (Columbia/Rensselaer County Line)	Rockland Putnam Dutchess Columbia	122
22	Shared Rdwy	Ancram (Dutchess/Columbia County Line)	New Lebanon (SBR 5)	Columbia	37
23	Shared Rdwy	Hudson (Greene/Columbia County Line)	Hillsdale (New York/ Massachusetts Line, SBR 5)	Dutchess	25
28	Shared Rdwy	Pine Hill (Delaware/Ulster County Line)	Kingston (SBR 32)	Ulster	37
32	Shared Rdwy	New Paltz (SBR 208)	Kingston (SBR 199)	Ulster	19
199	Shared Rdwy	Kingston (SBR 32)	Milan (SBR 308)	Dutchess Ulster	11
208	Shared Rdwy	Hamptonburgh (SBR 17)	New Paltz (SBR 32)	Ulster Orange	24
209	Shared Rdwy	Port Jervis (New York/ Pennsylvania Line, Penn. SBR Y-1)	Port Jervis (SBR 17)	Orange	1
308	Shared Rdwy	Rhinebeck (SBR 9)	Milan (SBR 199)	Dutchess	6
<b>TOTAL MILEAGE</b>					<b>338</b>

<sup>iii</sup> State bike routes in Region 8 are on-road numbered routes on shared roadways.

**TABLE A2.13: PUTNAM COUNTY – EXISTING BICYCLE FACILITIES**

Facility Name	Facility Description / Location	Facility Type	Mileage	Project Status/Comments
Brewster Village	ADA Sidewalks (4 sections)	ON-ROAD	1.36	Bid award completed
Carmel Revitalization II	Sidewalks along Route 6, Seminary Hill Road, Church Street, Stoneleigh Avenue and Old Route 6	ON-ROAD	2.26	Construction completed
Kent Revitalization	Sidewalks along Route 52 (Extension of Carmel Revitalization I)	ON-ROAD	2.18	Was funded and partly designed; project withdrawn
Mahopac Falls Trailway	Bikeway from Putnam Bikeway to Mahopac Falls	OFF-ROAD	1.5	Is funded, but not yet designed or built
Maybrook Bikeway I	Bikeway from Dutchess County line through the town of Patterson in Putnam County to Route 164	OFF-ROAD	3.75	Phase A funded (1.05 miles); Phase B funded (2.70 miles)
Maybrook Bikeway II	Bikeway from Brewster Village to the Danbury Line	OFF-ROAD	5.49	Phase A (2.58 miles) completed in September 2016; Phase B (2.91 miles) design complete, construction to be completed in July 2018.
Maybrook Bikeway III	Bikeway from Route 164 in Patterson to Pumphouse Road in Brewster Village	OFF-ROAD	4.55	Phase A (1.11 miles) is funded; Phase B (3.41 miles) is not yet funded
Intermodal Bikeway Fence-Maybrook Bikeway I		OFF-ROAD	3.7	Completed
Putnam Bikeway IV	Bikeway from Putnam Avenue to North Main Street	OFF-ROAD	0.91	Partly completed in 2016; final completion on or by December 31, 2018
Putnam Bikeway I	Putnam County from Westchester County Line to Mahopac Hamlet	OFF-ROAD	1.83	Completed in 2001
Putnam Bikeway II	Bikeway from Mahopac Hamlet to Seminary Hill Road at the junction of Route 6 and Route 52	OFF-ROAD	5.68	Completed in 2004
Putnam County Bikeway III	Bikeway from Seminary Hill Road to Putnam Avenue	OFF-ROAD	3.42	Completed in 2010
<b>TOTAL MILEAGE</b>			<b>47.08</b>	

**TABLE A2.14: ROCKLAND COUNTY – EXISTING BICYCLE FACILITIES (1 OF 2)**

Facility Name	Facility Description / Location	Facility Type	Mileage
Congers Lake Bike	Multi-Use Path / Town of Clarkstown /Lake Road to railroad right-of-way	OFF-ROAD	1.7
Conrad J. Lynn Trail	Multi-Use trail / Village of Nyack (Part of the Hudson River Valley Greenway Trail) / Upper Nyack to South Nyack, with various loop and spurs to the river	OFF-ROAD	1.77
R. G. Esposito Memorial Trail	Multi-Use Path /Village of South Nyack (Part of the Hudson River Valley Greenway Trail)	OFF-ROAD	1.0
Esposito-Gesner Avenue Park Link Trail	Pedestrian (sidewalks) trail / Village of South Nyack (Part of the Hudson River Valley Greenway Trail) / Esposito Trail east to Hudson River	OFF-ROAD	0.4
Esposito-Hader Link Trail	Multi-Use Path /Town of Orangetown (Part of the Hudson River Valley Greenway Trail) / connects with the Esposito Memorial Trail in South Nyack to the Hader Park Trail in Grand View-on-Hudson	OFF-ROAD	0.3
Hader Park Trail	Multi-Use Path (Part of the Hudson River Greenway Trail) / Village of Grand View-on-Hudson / South Nyack to Piermont	OFF-ROAD	2.5

**TABLE A2.14: ROCKLAND COUNTY – EXISTING BICYCLE FACILITIES (2 OF 2)**

Facility Name	Facility Description / Location	Facility Type	Mileage
Harriman/Bear Mountain State Park Trail (Appalachian Trail, Cornell Trail & wood road)	Multi-Use Path (Part of the Hudson River Greenway Trail) / 9W to Bear Mountain Bridge & within Bear Mountain –Harriman State Parks	OFF-ROAD	2.8
Jones Point Greenway Trail	Multi-Use Path (Part of the Hudson River Greenway Trail) / within Bear Mountain State Park	OFF-ROAD	1.3
Long Path	Bike/Ped Path NY - NJ Trail to Orange County	OFF-ROAD	35
Nyack Beach-Hook Mountain Greenway	Multi-Use Path (Part of the Hudson River Greenway Trail) / Upper Nyack to Haverstraw	OFF-ROAD	6
Joseph B. Clarke Rail Trail	Multi-Use Path /Town of Orangetown Oak Tree Road to Sparkill; Sparkill to Piermont or Sparkill to Blauvelt	OFF-ROAD	4
Peck's Pond Park Loop Trail	Paved multi-use path/loop/Village of West Haverstraw (Part of the Hudson River Valley Greenway Trail) / trail within Peck's Pond Park	OFF-ROAD	0.7
Piermont Trail	Multi-Use Path /Village of Piermont (Part of the Hudson River Valley Greenway Trail) / Town of Orangetown (Joseph B. Clark Rail-Trail) to Village of Grand View-on-Hudson (Hader Park Trail); connects with the Long Path	OFF-ROAD	4.6
Rockland Lake State Park Loop Trail	Paved multi-use path /Loop trail within Rockland Lake State Park	OFF-ROAD	4.91
Stony Point Battlefield Historic Site Trail	Multi-Use Path (Part of the Hudson River Greenway Trail) /Loop trail within Stony Point Battlefield Park	OFF-ROAD	0.5
Suffern-Bear Mountain Trail	Multi-Use Trail / located in Harriman and Bear Mountain State Parks	OFF-ROAD	7.5
Tallman Mountain State Park Trail	Multi-Use Path (Part of the Hudson River Greenway Trail) /Route 9W to Ferdon Avenue	OFF-ROAD	2.1
Upper Nyack Greenway Trail	Pedestrian trail / Village of Upper Nyack (Part of the Hudson River Greenway Trail) / Nyack Beach State Park to Village of Nyack boundary	OFF-ROAD	1.4
North Broadway Bike	Nyack to Nyack Beach/Hook Mountain State Parks – same route as the Upper Nyack Greenway Trail	ON-ROAD	1.4
Route 9 Bike Route	Bicycle route along Route 9W Corridor /New Jersey to Bear Mt. Bridge /traverses along Route 9W and off of the highway in various locations, including the Villages of Haverstraw, West Haverstraw, Upper Nyack, and Nyack	ON-ROAD	~29
<b>TOTAL MILEAGE</b>			<b>108.88</b>



**TABLE A2.15: WESTCHESTER COUNTY – EXISTING ON AND OFF-ROAD BICYCLE FACILITIES (1 OF 2)**

Facility Name	Facility Description	Facility Type	Total Miles	Municipality <sup>iv</sup>	Project Status/ Comments
North County Trailway	Paved, multi-use trail on the right-of-way of the former Putnam Division Railroad between Eastview in the Town of Mt. Pleasant and Putnam County.	OFF-ROAD	22.1	MTP, BRM, OST, NWC, YTN, SOM	22.1 miles complete, widening and resurfacing on older sections to 8 to 10 feet as required.
South County Trailway	Paved, multi-use trail following the course of the former Putnam Railroad right-of-way from Eastview south to the Bronx	OFF-ROAD	14.25	GRB, ELM, IRV, DBF, ARD, HAS, YON	13.75 miles complete in three sections. One missing piece remains in Elmsford/Greenburgh (See Table of Priority Projects).
Old Croton Aqueduct Trailway	Historic, unpaved trail following the route of the original Croton Aqueduct between Croton Dam and New York City, connecting to the Bronx. Several areas of detour in which road alignments are used.	OFF-ROAD	24.0	CTD, OST, OSV, BRM, MTP, SLH, TTN, IRV, DBF, HAS, YON	Facility is complete.
Briarcliff-Peekskill Trailway	Trail following the right-of-way lands of the Briarcliff-Peekskill Parkway linking county and local parks	OFF-ROAD	5.6	CTD, YTN, NWC, OST	Primarily for hiking ; however, the use of bikes is being considered between Blue Mountain and Colingsgate
Tarrytown-Kensico Trailway	East-West trail linking the Bronx River, North County and Croton Aqueduct Trailways. Utilizes both on road (Rte. 100C, Virginia and local roads) and off-road alignments.	ON & OFF ROAD	4.9	MTP, GRB, TTN	1.1 miles built as path. Remaining section is under design (See Table of Priority Projects).
Bronx River Pathway	Path on the Bronx River Parkway Reservation between Kensico Dam Plaza and New York City	OFF-ROAD	12.8	NOC, MTP, WHP, SCD, EAS, BRX, MTV, TUC, YON	10.1 miles built in three sections. Section between Midland Avenue and Oak Street in Yonkers in design. (See Table of Priority Projects).
Playland Pathway	Pathway situated on parkway lands between U.S. Route 1 and Playland Amusement Park. Pathway is parallel to Playland Parkway.	OFF-ROAD	1.0	RYC	Route extension to Rye train station in design. (see Table of Priority Projects)
Hutchinson River Pathway	Multi-use trail for walking or equestrian use only from Maplemoor County Golf Course to Nature Study Woods.	OFF-ROAD	12	HAR, WHP, SCD, NRO, ECH	Facility is complete. Expansion of trailway north of Maple Moor Golf Course is being considered for trail alignment for the East Coast Greenway. Between Wilson Woods Park and Sanford Blvd. pathway is being maintained by the City of Mount Vernon. (See Table of Potential Projects).

<sup>iv</sup> Municipalities are abbreviated as follows:

ARD	Ardsley	LAR	Larchmont	PEM	Pelham Manor
BED	Bedford	LEW	Lewisboro	PKS	Peekskill
BRM	Briarcliff Manor	MMT	Mamaroneck Town	PLV	Pleasantville
BRX	Bronxville	MMV	Mamaroneck Village	POC	Port Chester
BUC	Buchanan	MTK	Mount Kisco	RYC	Rye City
CTD	Cortlandt	MTP	Mount Pleasant	RYK	Rye Brook
CRO	Croton-on-Hudson	NWC	New Castle	SCD	Scarsdale
DBF	Dobbs Ferry	NRO	New Rochelle	SLH	Sleepy Hollow
ECH	Eastchester	NOC	North Castle	SOM	Somers
ELM	Elmsford	NSM	North Salem	TTN	Tarrytown
GRB	Greenburgh	OST	Ossining Town	TUC	Tuckahoe
HAR	Harrison	OSV	Ossining Village	WHP	White Plains
HAS	Hastings-on-Hudson	PDG	Pound Ridge	YON	Yonkers
IRV	Irvington	PEL	Pelham	YTN	Yorktown

**TABLE A2.15: WESTCHESTER COUNTY – EXISTING ON AND OFF-ROAD BICYCLE FACILITIES (2 OF 2)**

Facility Name	Facility Description	Facility Type	Total Miles	Municipality	Project Status/ Comments
Westchester RiverWalk	Trail facility to run along the entire length of the Hudson River waterfront in Westchester County. Portions will be multi-use, while other areas may be pedestrian only.	OFF-ROAD	51.9	CTD, PKS, BUC, CRO, OST, OSV, BRM, MTP, SLH, TTN, IRV, DBF, HAS, YON	32.9 miles completed, 2.7 miles in design or planning stages. (See Table of Priority Projects).
Leatherstocking Trail	Walking-only trail between the City of New Rochelle and Village of Mamaroneck. Links into Saxon Woods County Park	OFF-ROAD	2.0	NRO, MMT, MMV	Part of the Colonial Greenway Trail loop. (See Table of Priority Projects).
Colonial Greenway	Unpaved trail loop system incorporating portions of the existing Hutchinson River Pathway and Leatherstocking Trail. Project involves making improvements to close small gaps to complete trail loop.	OFF-ROAD	14.5	ECH, MMT, MMV, NRO, SCD	Mostly complete completion of gaps and trail improvements proposed.
City of White Plains bike lanes	One way pair of on-street bike lanes on Martin Luther King Boulevard and South Lexington Avenue to MNR station; additional lanes in downtown	ON-STREET BIKE LANES	1.6	WHP	Complete
Bike Route 1 East Coast Greenway	This is part of a larger effort to create a 2,900-mile bike route from Maine to Florida. Alignment in Westchester spans the entire Route 1 corridor from NYC to CT.	ON-ROAD	13.3	PEM, LAR, MMT, RYE, POC	The entire on-street route between Pelham Manor and Port Chester is complete with MUTCD-compliant signs.

## 6. RECOMMENDED PEDESTRIAN & BICYCLE PROJECTS

The Pedestrian-Bicycle Element of *Plan 2045* recommends a number of projects to improve the mobility and safety of pedestrians and bicyclists in the NYMTC planning area. These initiatives are shown in this section and for part of the overall listing of projects, proposals and studies for *Plan 2045*. The projects listed as constrained are programmed in the fiscally-constrained element of *Plan 2045*. Vision projects are aspirational and dependent on the availability of funds and future priorities.

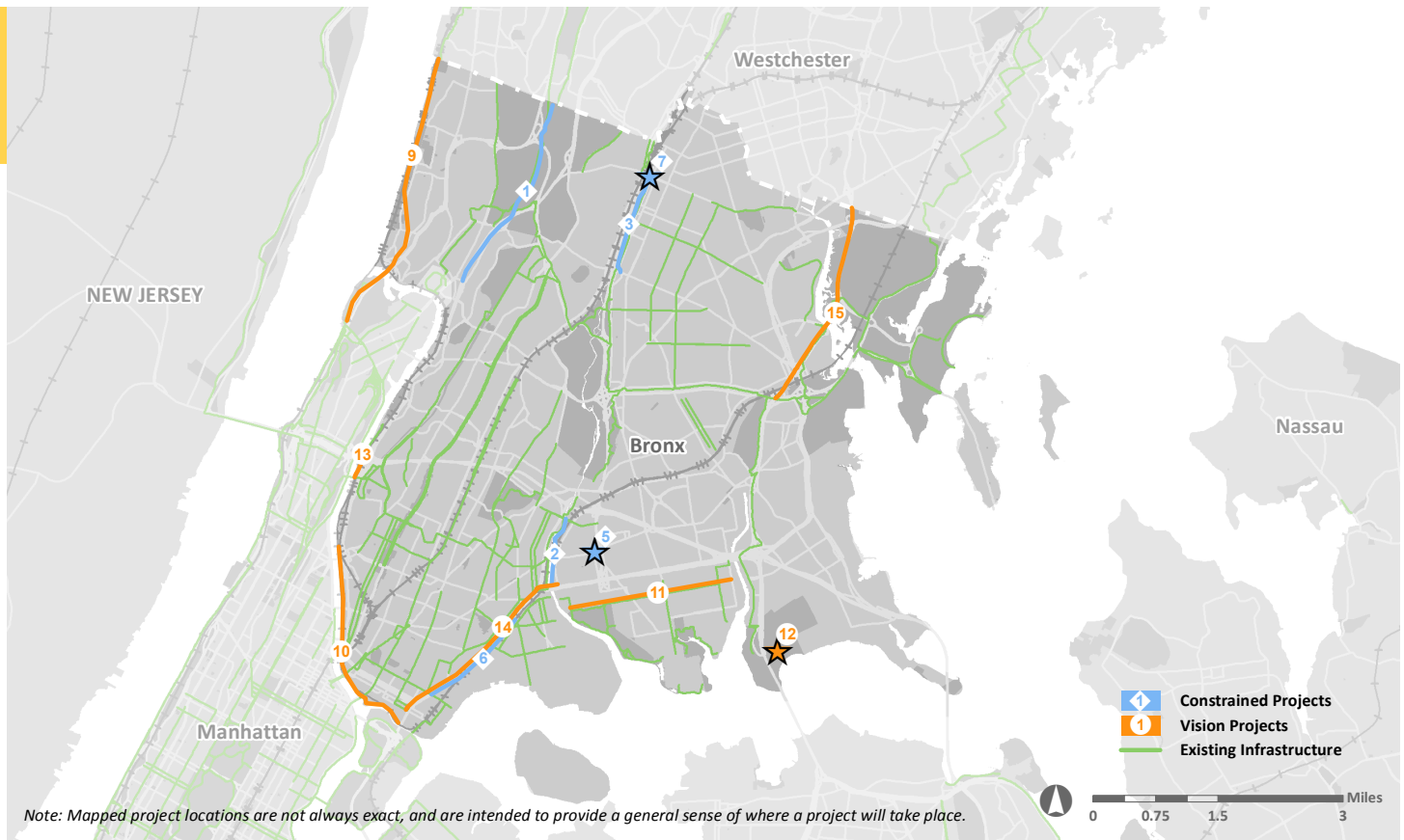




**FIGURE A2.10: RTP PEDESTRIAN AND BICYCLE PROJECTS - BRONX**

**A2-69**

APPENDIX 2: PEDESTRIAN AND BICYCLE PLAN



**TABLE A2.16: RTP PEDESTRIAN AND BICYCLE PROJECTS - BRONX**

**Constrained Projects**

Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOY \$)
1	NYCBX2033C		Putnam Greenway (W. 230th St. to Westchester County)	NYCDPR	2018	2.53
2	NYCBX1663C		Bronx River Greenway Phase 2	NYCDPR	2021	34
3	NYCBX885C		Bronx River Greenway (Shoelace Park improvements - Gun Hill Rd. to E. 233rd St)	NYCDPR	2019	3.15
4*	NYCBX2476C		Bicycle Network Development - Borough of the Bronx	NYCDOT	2022	see note
5	NYCBX2324C	X77330	Morrison Avenue Pedestrian Plaza	NYCDOT	2019	3.65
6	NYCBX2541C		South Bronx Greenway (Tiffany St. to 138th St.)	NYCDOT	2018	2.5
7	NYCBX2542C		Bronx River Greenway 233rd St Connection	NYCDOT	2022	2.94
8*	NYCSP2301C	XM1850	Build curb ramps, crosswalks and sidewalks at various locations in Bronx & Queens counties NYC as mandated by 28 CFR 35.150 to be included in the NYSDOT ADA Transition Plan. Non-accessible assets identified will be brought up to accessible standards	NYSDOT	2022	2.5

**Vision Projects**

Map ID	RTP ID	PIN	Project	Sponsor
9	NYCMB2032V		Hudson River Greenway from Inwood Hill Park to the Westchester County Line	NYCDPR
10	NYCBX2034V		Harlem River East Shore Greenway (Along Harlem River from RFK Bridge to W. 161st St)	NYCDPR
11	NYCBX2031V		Pedestrian/Bicycle Access - Lafayette Ave to Soundview Park	NYCDPR
12	NYCBX2102V		Ferry Point Park Greenway Phase II	NYCDPR
13	NYCBX2458V		Bridge Park (High Bridge to Hamilton Bridge)	NYCDPR
14	NYCBX1029V		South Bronx Greenway-Bruckner Blvd (132nd St. to Bronx River Av)	NYCDOT
15	NYCBX2691V		Hutchinson River Parkway Greenway (Pelham Pkwy-Westchester County Line)	NYCDPR

Note: Bicycle Network Development projects, have the combined estimated cost of \$34.948 million.

\* Projects are not mapped.

FIGURE A2.11: RTP PEDESTRIAN AND BICYCLE PROJECTS - BROOKLYN



TABLE A2.17: RTP PEDESTRIAN AND BICYCLE PROJECTS - BROOKLYN

## Constrained Projects

Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOY \$)
1*	NYCBK2112C		Bicycle Network Development - Borough of Brooklyn	NYCDOT	2022	see note
2*	NYCMB1572C	X76710	Jamaica Bay Greenway Non-motorized and Multimodal Improvements	NYCDOT	2018	0.59
3*	NYCBK2480C		Brooklyn Waterfront Greenway: Sunset Park Connector	NYCDOT	2018	7.63
4	NYCBK2481C		Osborn Street Plaza (at Belmont Avenue)	NYCDOT	2021	2.5
5	NYCBK2482C	X77339	Kent Ave South (Brooklyn Waterfront Greenway)	NYCDOT	2019	7.3
6	NYCBK2214C	X77309	Gowanus Connector (Brooklyn Waterfront Greenway)	NYCDOT	2018	9.75
7	NYCBK2255C	X55076	Owl's Head Connection (Brooklyn Waterfront Greenway)	NYCDOT	2019	13.4
8	NYCBK2528C		Jamaica Bay Greenway Canarsie Pier Connector (Rockaway Pkwy & Shore Pkwy)	NYCDOT	2020	2.8
9	NYCBK2529C		E 76th Street/Paerdegat Ave North (Jamaica Bay Greenway Access)	NYCDOT	2020	2.8
10	NYCBK2120C	X77308	Putnam Plaza Triangle Reconstruction	NYCDOT	2018	6.15
11*	NYCSP2301C	XM1750	Build curb ramps, crosswalks and sidewalks at various locations in Richmond, Kings & NY counties. Non-accessible assets identified will be brought up to accessible standards	NYS DOT	2020	2.5
12	NYCMB571C	X72977	Kosciusko Bridge Phase 2: WB Brooklyn Approach: Replace existing bridge with iconic cable stayed structure incorporating vital bicycle/pedestrian connections between Brooklyn and Queens.	NYS DOT	2020	295

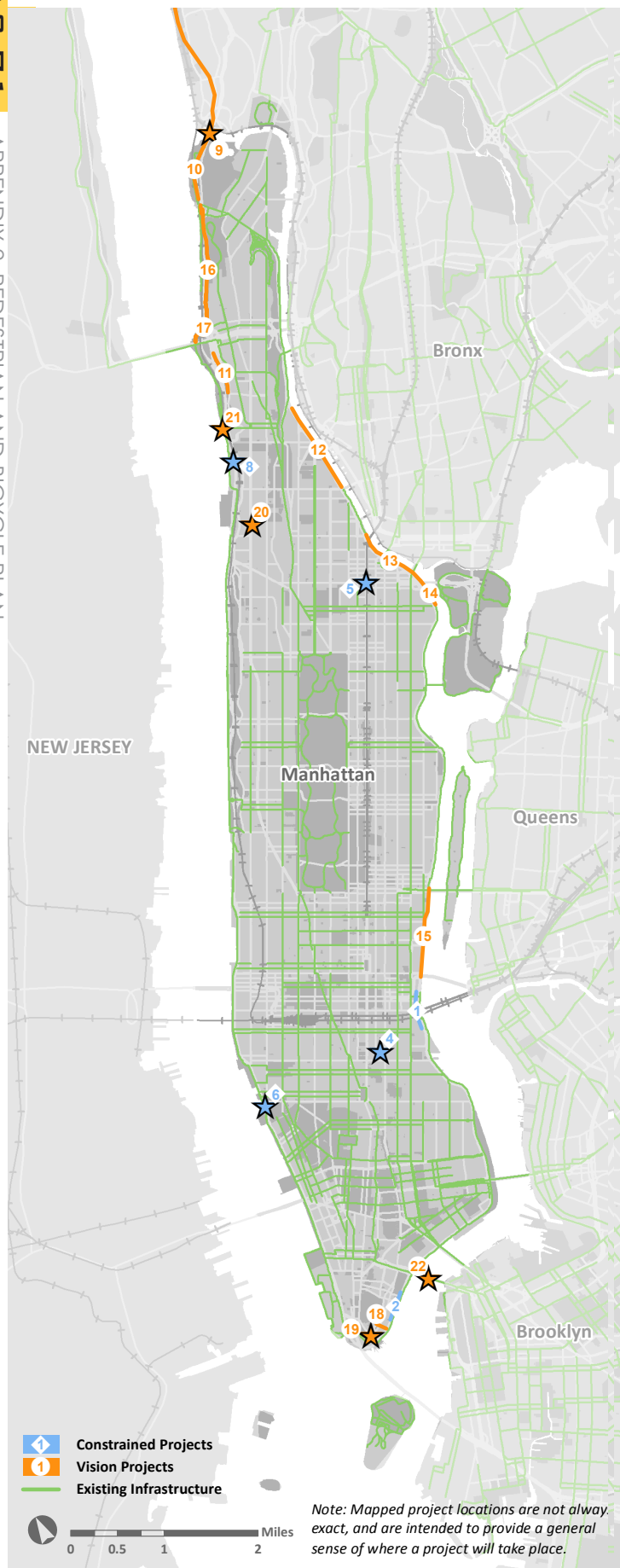
## Vision Projects

Map ID	RTP ID	PIN	Project	Sponsor
13	NYCMB2046V		Conduit Greenway (Jamaica Ave to Cohancy St)	NYCDPR
14	NYCBK2076V		Shore Parkway Greenway 69th Street to Bay Parkway	NYCDPR
15	NYCBK2074V		Coney Island Creek Waterfront (Bay 44th to Bay 49th)	NYCDPR
16	NYCBK2069V		Coney Island Creek Waterfront (Bay 49th to Bay 53rd)	NYCDPR
17	NYCBK2459V		Jamaica Bay Greenway/Shore Parkway Greenway improvements (Knapp St to Cross Bay Blvd)	NYCDPR
18	NYCBK2530V		Ash Street (Brooklyn Waterfront Greenway)	NYCDOT
19	NYCBK2531V		Kent Ave Build Out (Brooklyn Waterfront Greenway)	NYCDOT
20	NYCBK2532V		Valentino Pier (Brooklyn Waterfront Greenway)	NYCDOT
21	NYCBK2533V		Sunset Park North (Brooklyn Waterfront Greenway)	NYCDOT
22	NYCMB2590V		Brooklyn Bridge Ped-Bike Path Expansion	NYCDOT
23	NYCBK2704V		Bush Terminal Connector (Brooklyn Waterfront Greenway): 1 Av (or 2nd Av) between 39th and 51st Sts	NYCDOT
24	NYCBK2705V		DUMBO (Brooklyn Waterfront Greenway)	NYCDOT

Note: Bicycle Network Development projects, have the combined estimated cost of \$34.948 million.

\* Projects are not mapped.

**FIGURE A2.12: RTP PEDESTRIAN AND BICYCLE PROJECTS - MANHATTAN**



**TABLE A2.18: RTP PEDESTRIAN AND BICYCLE PROJECTS - MANHATTAN**

**Constrained Projects**

Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOE \$)
1	NYCM2094C		Manhattan Waterfront Greenway (E. 30th St. to E. 37th St.)	NYCDPR		14
2	NYCM2090C		East River Waterfront Esplanade via South Street (Old Slip-Fulton Street)	NYCEDC	2017	135
3*	NYCM2477C		Bicycle Network Development - Borough of Manhattan	NYCDOT	2022	see note
4	NYCM2534C		Baruch Plaza at 25th Street (Lexington and 3rd Avenues)	NYCDOT	2018	7.98
5	NYCM2535C		125th Street Plaza (at Park Avenue)	NYCDOT	2019	5.6
6	NYCM2212C	X02444	Construct New At-Grade, East/West Crosswalk at West 13th Street across both 10th Avenue and Route 9A. This project will provide access to and from Hudson River Park and Greenwich Village in New York Co, NYC	NYSDOT	2017	2.5
7*	NYCSP2301C	XM1750	Build curb ramps, crosswalks and sidewalks at various locations in Richmond, Kings & NY Counties. Non-accessible assets identified will be brought up to accessible standards	NYSDOT	2020	2.5
8	NYCM2087C	X10338	151 Street Pedestrian Bridge over Henry Hudson Parkway	NYSDOT	2017	30

**Vision Projects**

Map ID	RTP ID	PIN	Project	Sponsor
9	NYCMB2092V		Henry Hudson Bridge	MTA
10	NYCMB2032V		Hudson River Greenway from Inwood Hill Park to the Westchester County Line	NYCDPR
11	NYCM2101V		Washington Heights approach to Hudson River Valley Greenway; 165th - 175th	NYCDPR
12	NYCM2099V		Harlem River Esplanade (145th St. Bridge to 162nd St.)	NYCDPR
13	NYCM2098V		Manhattan Waterfront Greenway (E 125th St. to E 135th St.)	NYCDPR
14	NYCM2097V		Manhattan Waterfront Greenway (E 120th St. to E 125th St.)	NYCDPR
15	NYCM2095V		East Midtown Waterfront Project (ODR Esplanade, E 38th St to E 60th St)	NYCDPR/ NYCDOT/ NYCEDC
16	NYCM2093V		Hudson River Greenway (GW Bridge to Dyckman Street)	NYCDPR
17	NYCM2461V		Hudson River Greenway Lighthouse Link (180th St to 187th St)	NYCDPR
18	NYCM2536V		Coenties Slip	NYCDOT
19	NYCM2537V		Water/ Whitehall Plaza	NYCDOT
20	NYCM2538V		Montefiore Park and Plaza Reconstruction	NYCDOT
21	NYCM2460V		Access to Hudson River Greenway at W. 158th St.	NYCDPR
22	NYCMB2590V		Brooklyn Bridge Ped-Bike Path Expansion	NYCDOT

Note: Bicycle Network Development projects, have the combined estimated cost of \$34.948 million.  
\* Projects are not mapped.



FIGURE A2.13: RTP PEDESTRIAN AND BICYCLE PROJECTS - QUEENS

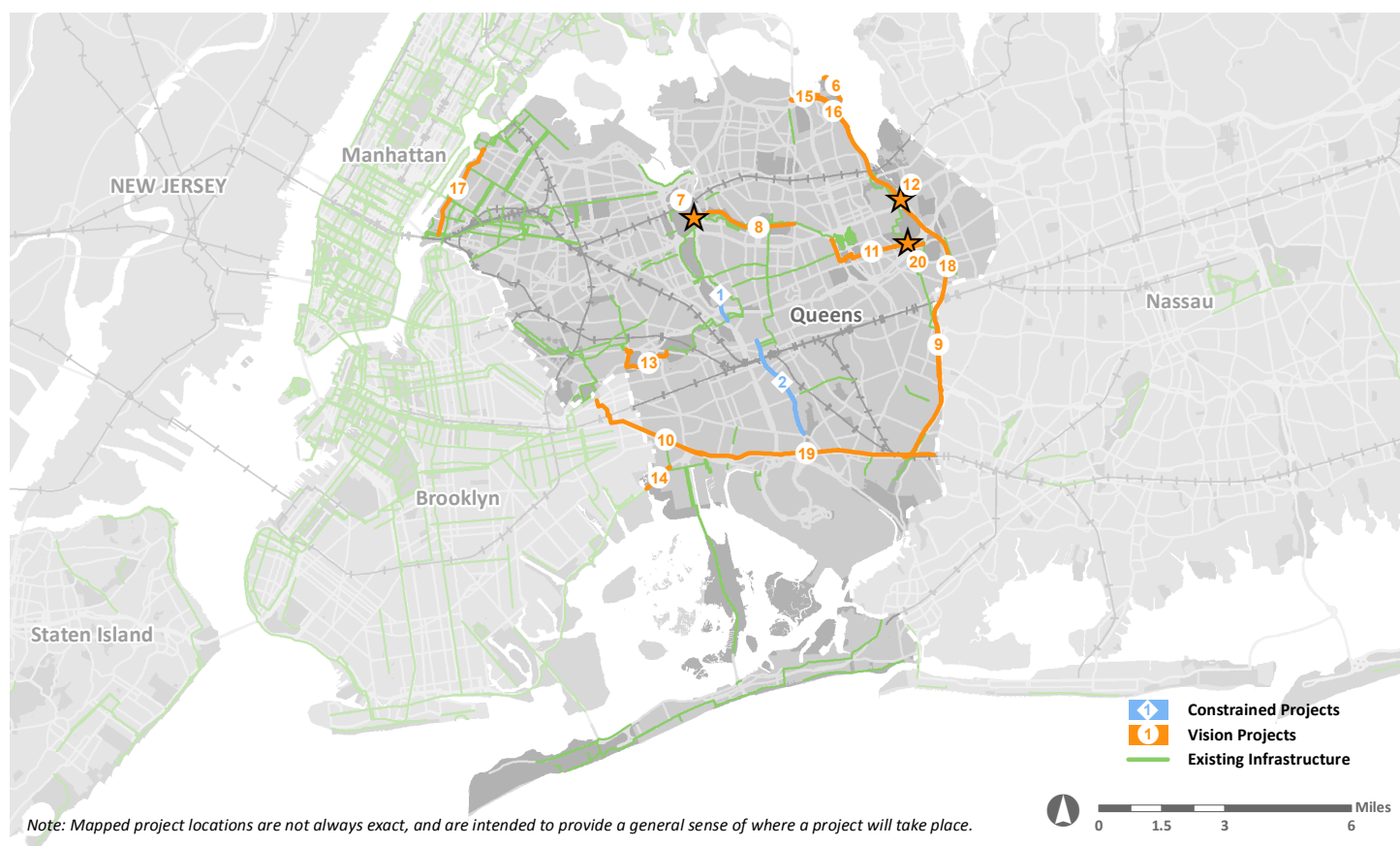


TABLE A2.19: RTP PEDESTRIAN AND BICYCLE PROJECTS - QUEENS

## Constrained Projects

Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOY \$)
1	NYCQ2043C		Brooklyn/Queens Greenway Along Van Wyck Expressway (83rd Ave. to 77th Ave.)	NYCDPR		5
2	NYCQ2055C		Sutphin Blvd. Pedestrian Improvement	NYCEDC		3
3*	NYCQ2478C		Bicycle Network Development - Borough of Queens	NYCDOT	2022	see note
4*	NYCMB1572C	X76710	Jamaica Bay Greenway Non-motorized and Multimodal Improvements	NYCDOT	2018	0.59
5*	NYCSP2301C	XM1850	Build curb ramps, crosswalks and sidewalks at various locations in Bronx & Queens counties NYC as mandated by 28 CFR 35.150 to be included in the NYSDOT ADA Transition Plan. Non-accessible assets identified will be brought up to accessible standards	NYSDOT	2022	2.5

## Vision Projects

Map ID	RTP ID	PIN	Project	Sponsor
6	NYCQ1037V		Fort Totten Waterfront Esplanade	NYCDPR
7	NYCQ2040V		Flushing Meadow Corona Park Paths	NYCDPR
8	NYCQ2050V		Brooklyn/Queens Greenway - Kissena Park Corridor - (Flushing Meadows Park to Kissena Blvd) and (164th St to Utopia Pkwy)	NYCDPR
9	NYCQ2048V		Cross Island Greenway (104th Ave to 116th Ave)	NYCDPR
10	NYCMB2046V		Conduit Greenway (Jamaica Ave to Cohancy St)	NYCDPR
11	NYCQ2462V		Vanderbilt Motor Parkway	NYCDPR
12	NYCQ2463V		Alley Pond Park Paths	NYCDPR
13	NYCQ2464V		Forest Park Paths (Myrtle Ave./79th Lane to Woodhaven Blvd and Woodhaven Blvd. to Myrtle Ave./Freedom Drive)	NYCDPR
14	NYCQ2465V		Shore Parkway Greenway	NYCDPR
15	NYCQ2466V		Little Bay Promenade	NYCDPR
16	NYCQ2467V		Joe Michael's Mile (Fort Totten to Marina)	NYCDPR
17	NYCQ2539V		Vernon Boulevard Build Out (Queens Waterfront Greenway)	NYCDOT
18	NYCQ2692V		Laurelton/Cross-Island Greenway (Brookville Park to Long Island Sound)	NYCDPR
19	NYCQ2693V		Southern Parkway/Conduit Boulevard Greenway (Shore Parkway Greenway & Cross Bay Boulevard to Nassau County Line)	NYCDPR
20	NYCQ2694V		Alley Pond Pathways & Extension of the Vanderbilt Motor Parkway	NYCDPR

Note: Bicycle Network Development projects, have the combined estimated cost of \$34.948 million.

\* Projects are not mapped.

FIGURE A2.14: RTP PEDESTRIAN AND BICYCLE PROJECTS - STATEN ISLAND



TABLE A2.20: RTP PEDESTRIAN AND BICYCLE PROJECTS - STATEN ISLAND

Constrained Projects						
Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOY \$)
1*	NYCSI2479C		Bicycle Network Development - Borough of Staten Island	NYCDOT	2022	see note
2*	NYCSP2301C	XM1750	Build curb ramps, crosswalks and sidewalks at various locations in Richmond, Kings & NY Counties. Non-accessible assets identified will be brought up to accessible standards	NYSDOT	2020	2.5

Vision Projects			
Map ID	RTP ID	PIN	Sponsor
3	NYCSI2065V		NYCEDC
4	NYCSI2061V		NYCDPR/ NYCDOT
5	NYCSI2064V		NYCDPR
6	NYCSI2468V		NYCDPR

Note: Bicycle Network Development projects, have the combined estimated cost of \$34.948 million.  
\* Projects are not mapped.

FIGURE A2.15: RTP PEDESTRIAN AND BICYCLE PROJECTS - NASSAU

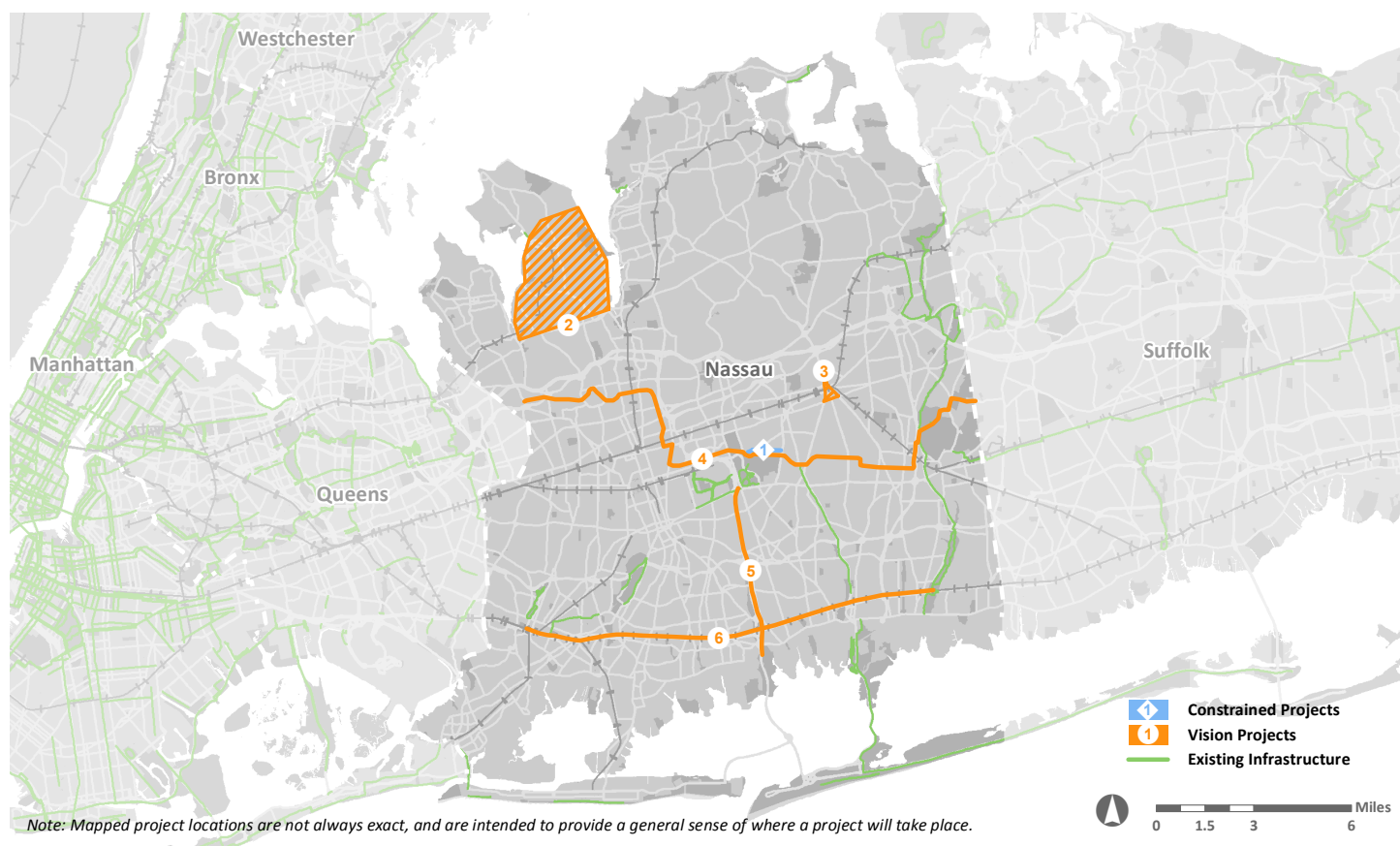


TABLE A2.21: RTP PEDESTRIAN AND BICYCLE PROJECTS - NASSAU

## Constrained Projects

Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOE \$)
1	NSNC2103C		Nassau County Motor Parkway Trail Pilot Project†	Nassau County	2017	1

## Vision Projects

Map ID	RTP ID	PIN	Project	Sponsor
2	NSNC1993V		Port Washington Peninsula Bicycle Vision Area	Town of North Hempstead
3	NSNC1994V		Hicksville LIRR Station Area Bicycle Improvements	Town of Oyster Bay
4	NSNC1995V		Long Island Motor Parkway Trail	Nassau County
5	NSNC1996V		Meadowbrook State Pkwy: Eisenhower Park to Norm Levy Preserve	NYSDOT
6	NSNC1997V		Sunrise Trail: Valley Stream to Massapequa Park	NYSDOT

† Project #1 is not on the TIP and funding is local, so it does not have a PIN.



FIGURE A2.16: RTP PEDESTRIAN AND BICYCLE PROJECTS - SUFFOLK

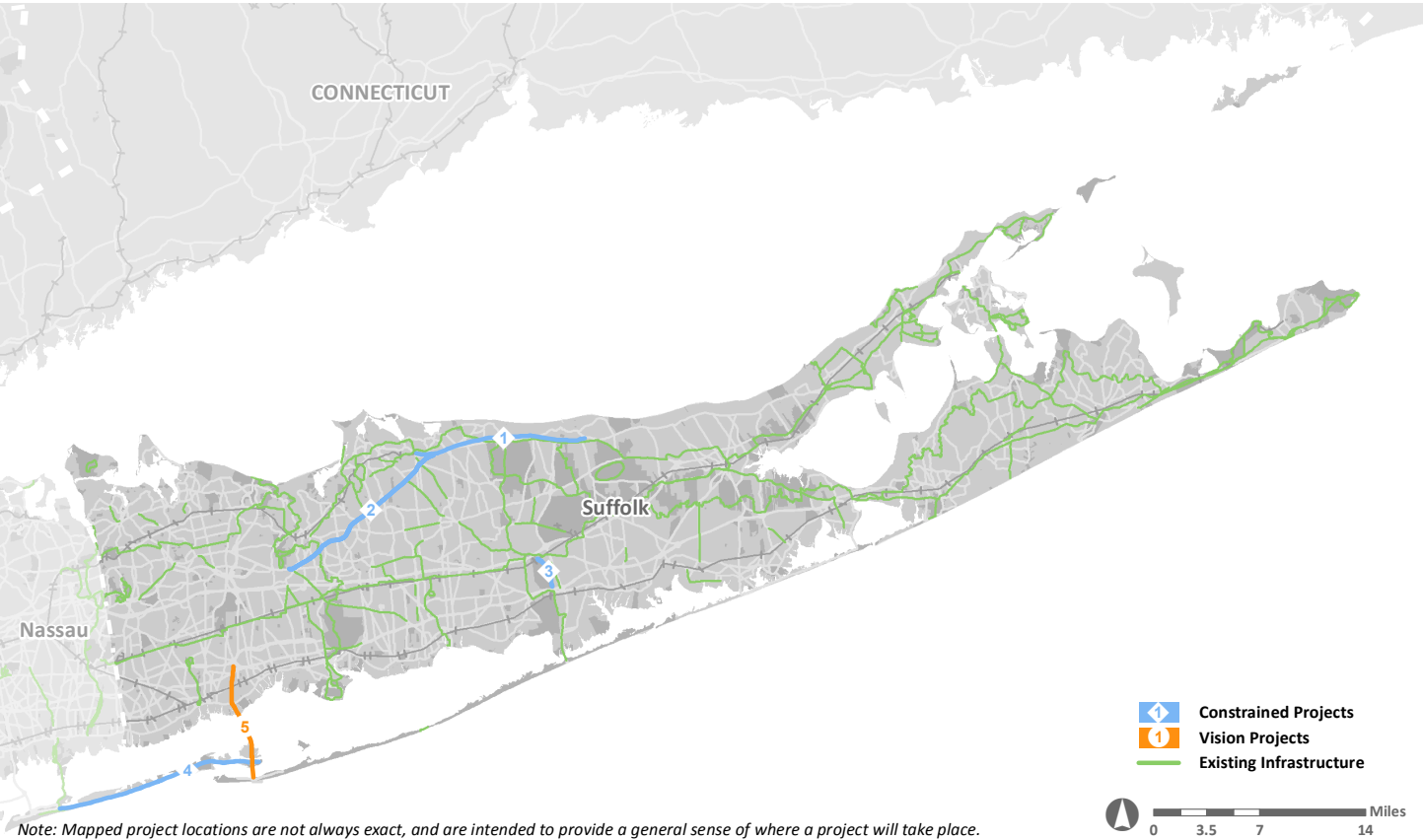


TABLE A2.22: RTP PEDESTRIAN AND BICYCLE PROJECTS - SUFFOLK

Constrained Projects

Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOY \$)
1	NSSC1567C	075816	Port Jefferson Station to Wading River "Rails-to-Trails"	Suffolk County	2021	10.01
2	NSSC2105C		NY 347 Shared Use Path (Hauppauge - Port Jefferson Station)	NYSDOT	2032	366†
3	NSSC1318C	075827	River Rd Shared Use Path	Town of Brookhaven		1.55
4	NSSC1907C	000616	Ocean Parkway Shared Use Path: Tobay Beach to Captree State Park	NYSDOT	2020	15.8

Vision Projects

Map ID	RTP ID	PIN	Project	Sponsor
5	NSSC2379V		Robert Moses Causeway Bikeway (Ocean Parkway to Montauk Highway)	NYSDOT

† Total Cost of Project, not juse the ped-bike element

FIGURE A2.17: RTP PEDESTRIAN AND BICYCLE PROJECTS - PUTNAM

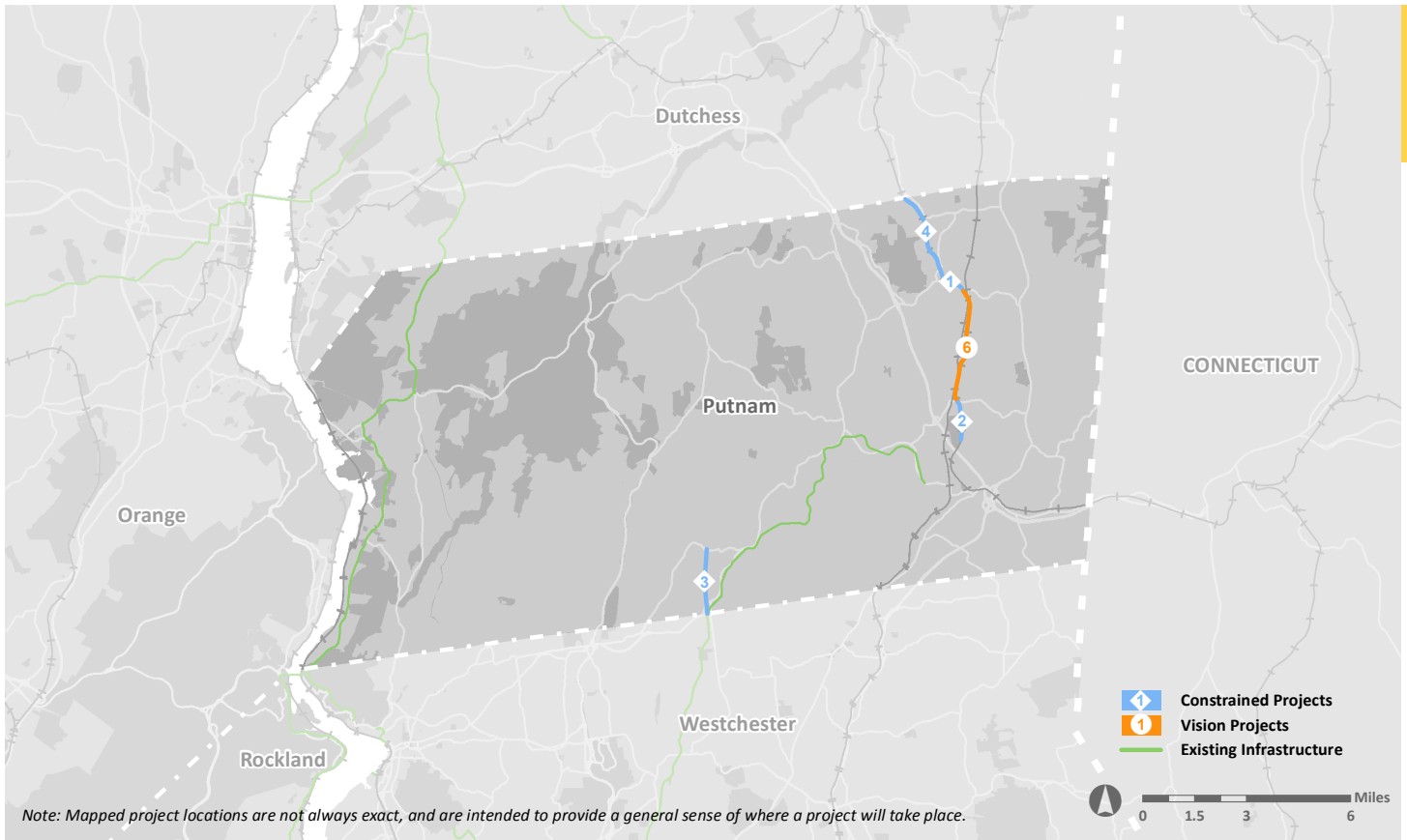


TABLE A2.23: RTP PEDESTRIAN AND BICYCLE PROJECTS - PUTNAM

**Constrained Projects**

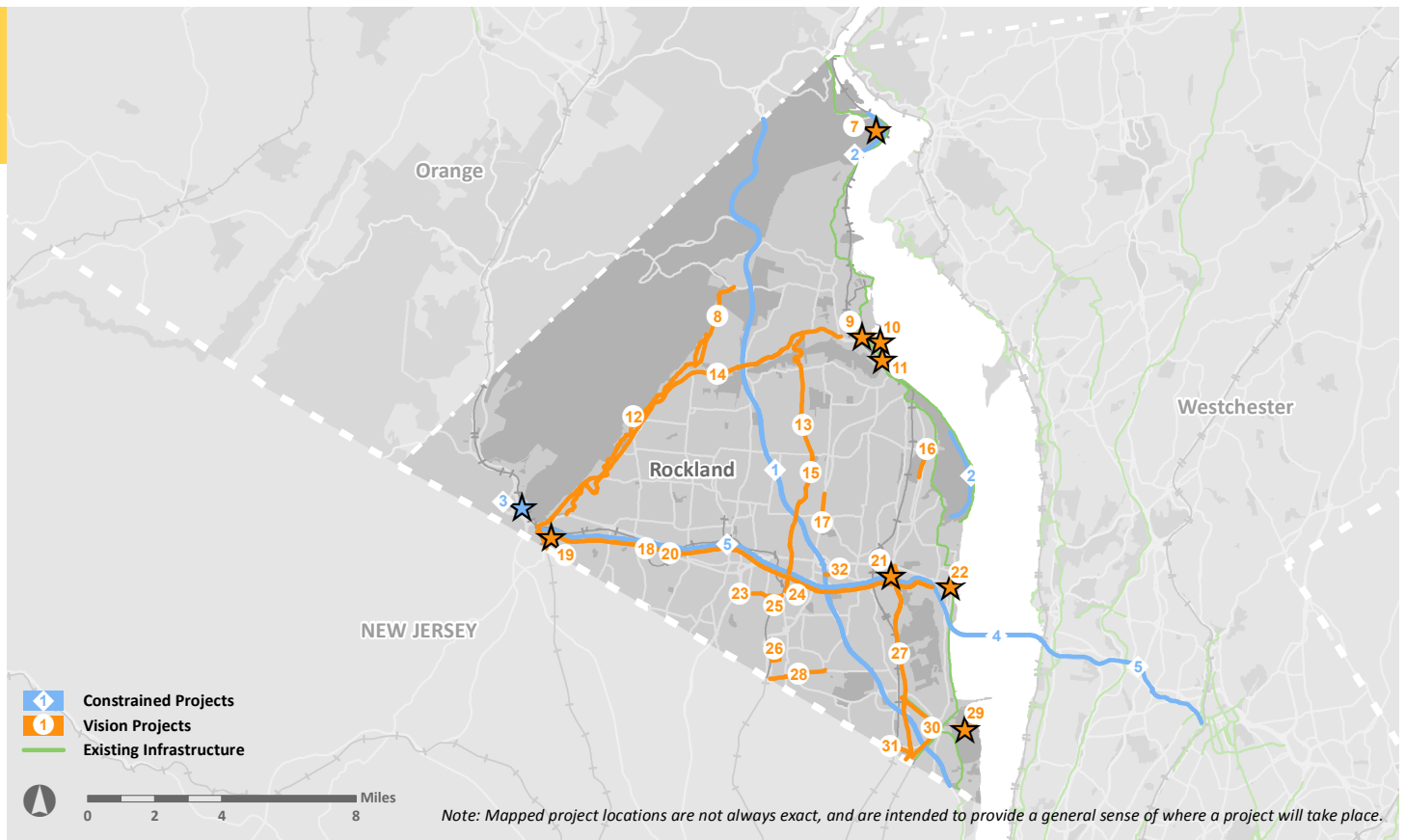
Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOY \$)
1	MHSPC1358C	8TM045	Maybrook Bikeway I - Phase A (Maybrook Freight Rail-bed Route 164 to Route 311 in Patterson)	PC	2018	2.13
2	MHSPC1362C	8TM077	Maybrook Bikeway III - Phase A (Maybrook Freight Rail-bed Pump House Road to Route 312 in Patterson)	PC	2018	2.22
3	MHSPC1371C	875906	Mahopac Falls Bikeway	PC	2018	1.91
4	MHSPC2548C		Maybrook Bikeway I - Phase B (Maybrook Freight Railbed Route 311 to Holmes Road in Patterson)	PC	2020	2.25
5*	MHSMC2562C	8T0030	ADA Sidewalk and Ramps - Southern Dutchess County and Putnam County	NYS DOT	2024	2

**Vision Projects**

Map ID	RTP ID	PIN	Project	Sponsor
6	MHSPC2549V		Maybrook Bikeway III - Phase B (Maybrook Freight Railbed Route 312 in Southeast to Route 164 in Patterson)	PC

\* Projects are not mapped.

**FIGURE A2.18: RTP PEDESTRIAN AND BICYCLE PROJECTS - ROCKLAND**



**TABLE A2.24: RTP PEDESTRIAN AND BICYCLE PROJECTS - ROCKLAND**

**Constrained Projects**

Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOY \$)
1	MHSRC1400C	8T0414	PIP Trailway, Stage 3: Western Highway-NYS Thruway Pedestrian Facility	NYSDOT	2025	8.3
	MHSRC1401C	8T0415	PIP Trailway, Stage 4: Western Highway-NYS Thruway Pedestrian Facility	NYSDOT	2030	7.4
	MHSRC1818C	8T0416	PIP Trailway, Stage 5: Western Highway-NYS Thruway Pedestrian Facility	NYSDOT	2035	7.4
2	MHSRC1369C	875904	Bike Route 9 - Dunderberg Mtn and Rockland Lake State Park	NYSDOT	2020	3
3	MHSPC1359C	875862	Ramapo River Trail	Town of Ramapo	2018	0.53
4	MHSMC1590C	8TZ101	Tappan Zee Bridge Shared Use Path (SUP)†	Thruway/ NYSDOT/ Village	2018	-
5	MHSMC724C	882348	Lower Hudson Transit Link - Rte 59 Safety Improvements	NYSDOT	2018	3.5
6*	MHSMC2506C	8T0342	ADA Sidewalk and Ramps - Rockland County	NYSDOT	2020	3.6

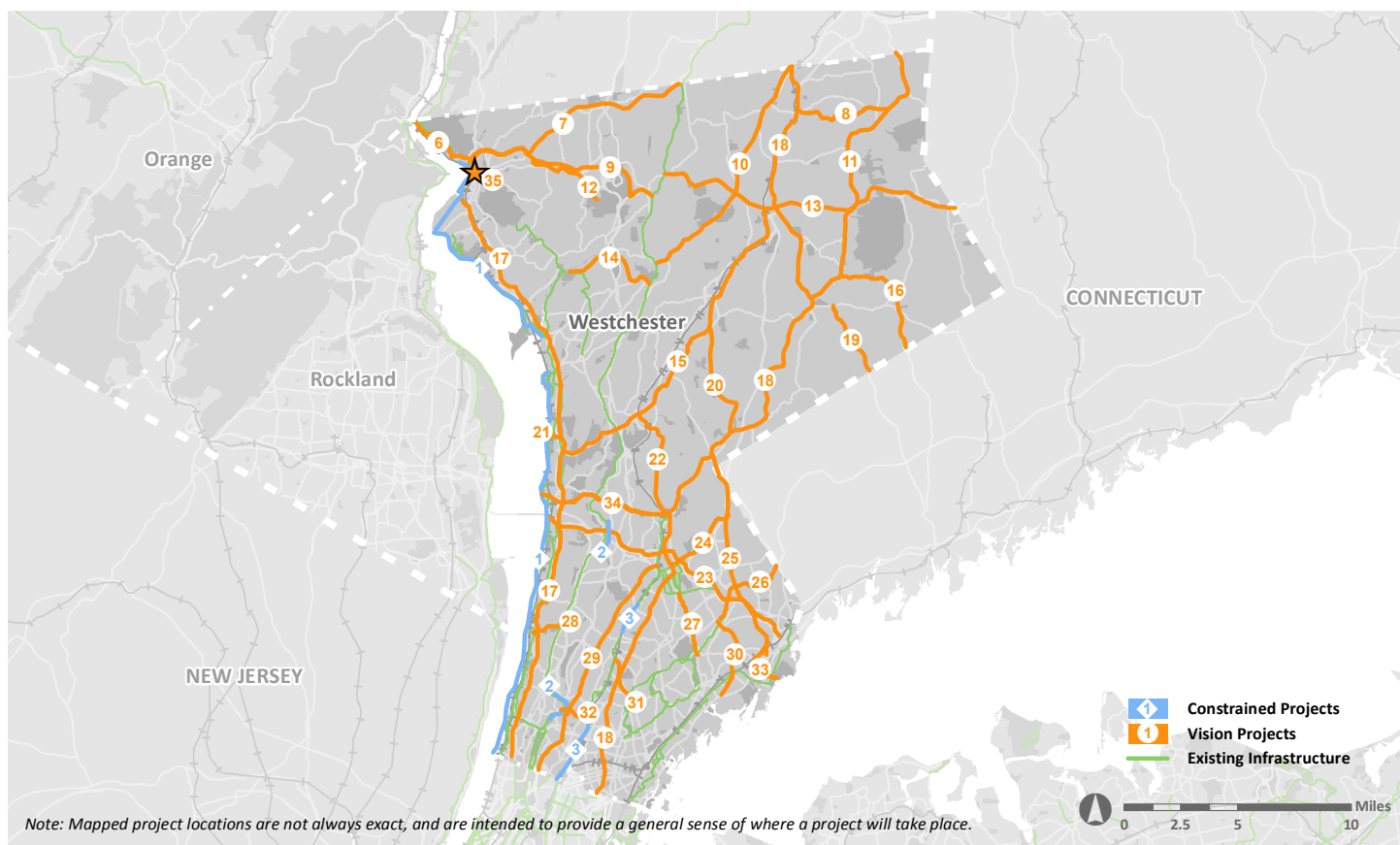
**Vision Projects**

Map ID	RTP ID	PIN	Project	Sponsor
7	MHSRC1926V		Bear Mountain Bridge Greenway Trail Extension	Rockland County
8	MHSRC1927V		Calls Hollow Road - Bicycle Route	Rockland County
9	MHSRC1930V		Haverstraw - Bicycle Route	Rockland County
10	MHSRC1931V		Hudson River Esplanade	Rockland County
11	MHSRC1932V		Hudson River Park Trail	Rockland County
12	MHSRC1935V		Mahwah River Greenway	Rockland County
13	MHSRC1934V		Little Tor Road - Bicycle Route	Rockland County
14	MHSRC1940V		Route 202 - Bicycle Route	Rockland County
15	MHSRC1949V		Little Tor Road - Sidewalks	Rockland County
16	MHSRC1942V		Route 303 - Sidewalks	Rockland County
17	MHSRC1943V		Route 304 - Sidewalks	Rockland County
18	MHSRC1955V		Route 59 Sidewalks	Rockland County
19	MHSRC1945V		Suffern - Bicycle Route	Rockland County
20	MHSRC1944V		Route 59 - Bicycle Route	Rockland County
21	MHSRC1939V		Palisades Mall Neighborhoods Bike/Ped Access Study	Rockland County
22	MHSRC1936V		Nyack - Bicycle Route	Rockland County
23	MHSRC1928V		Convent Road - Sidewalks	Rockland County
24	MHSRC1950V		Main Street, Nanuet - Sidewalks	Rockland County
25	MHSRC1938V		Old Middletown Road - Sidewalks	Rockland County
26	MHSRC1948V		Central Avenue - Sidewalks	Rockland County
27	MHSRC1941V		Route 303 - SDS Sidewalks	Rockland County
28	MHSRC1929V		Gilbert Avenue - Sidewalks	Rockland County
29	MHSRC1959V		Tappan-Palisades Historic Area Pedestrian Project	Rockland County
30	MHSRC1933V		Joseph B. Clark Rail Trail	Rockland County
31	MHSRC1937V		Oak Tree Road - Sidewalks	Rockland County
32	MHSRC1946V		West Nyack Road - Sidewalks	Rockland County

\* Projects are not mapped.  
† Project #4 is part of a larger project and the cost of the ped-bike element is not listed as separate.



**FIGURE A2.19: RTP PEDESTRIAN AND BICYCLE PROJECTS - WESTCHESTER**



**TABLE A2.25: RTP PEDESTRIAN AND BICYCLE PROJECTS - WESTCHESTER**

**Constrained Projects**

Map ID	RTP ID	PIN	Project	Sponsor	Projected Completion Date	Estimated cost (Millions YOY \$)
1	MHSWC770C		Westchester RiverWalk†	Westchester County		21.9
2	MHSWC1363C		South County Trailway†	Westchester County		0.5
3	MHSWC1924C	878009	Bronx River Pathway	Westchester County	2020	1.45
4*	MHSWC1825C	8T0344	ADA Sidewalk and Ramps - Northern Westchester	NYSDOT	2020	2.3
5*	MHSWC1826C	8T0561	ADA Sidewalk and Ramps - Upper Westchester	NYSDOT	2023	2.3

**Vision Projects**

Map ID	RTP ID	PIN	Project	Sponsor
6	MHSWC1984V		Route 6/202	Westchester County
7	MHSWC1983V		Route 6	Westchester County
8	MHSWC1971V		Mill Road	Westchester County
9	MHSWC1960V		Bear Mountain-Yorktown Heights Trail	Westchester County
10	MHSWC1974V		Route 100 Somerset Turnpike	Westchester County
11	MHSWC1977V		Route 121	Westchester County
12	MHSWC1961V		Catskill Aqueduct Trail	Westchester County
13	MHSWC1982V		Route 35	Westchester County
14	MHSWC1964V		Croton Aqueduct Extension	Westchester County
15	MHSWC1975V		Route 117 Corridor	Westchester County
16	MHSWC1980V		Route 137	Westchester County
17	MHSWC1985V		Route 9/9A	Westchester County
18	MHSWC1981V		Route 22	Westchester County
19	MHSWC1969V		Long Ridge Trail	Westchester County
20	MHSWC1979V		Route 128	Westchester County
21	MHSWC1966V		Horseman's Trail	Westchester County
22	MHSWC1962V		Columbus Avenue	Westchester County
23	MHSWC1987V		Cross Westchester-Rockland Link (Rte. 119-TZB)	Westchester County
24	MHSWC1968V		Lake Street	Westchester County
25	MHSWC1976V		Route 120	Westchester County
26	MHSWC1967V		Hutchinson River Pathway Extension	Westchester County
27	MHSWC1970V		Mamaroneck Avenue	Westchester County
28	MHSWC1965V		Hillside Woods Link Trail	Westchester County
29	MHSWC1973V		Route 100 Central Park Ave	Westchester County
30	MHSWC1978V		Route 127	Westchester County
31	MHSWC1963V		Cross Eastchester Trail	Westchester County
32	MHSWC1972V		Palmer Road	Westchester County
33	MHSWC2551V		Playland Pathway Upgrade with Connection to Rye Train Station	Westchester County
34	MHSWC2552V		Tarrytown-Kensico Trailway	Westchester County
35	MHSWC2675V		Construction of Pedestrian Overpass over the Metro-North Railroad tracks between Scenic Hudson Park at Peekskill Landing and the foot of Main Street	Westchester County

\* Projects are not mapped.  
† Projects #1 and #2 are local projects that are not on the TIP. They do not have PINs or projected completion dates.

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