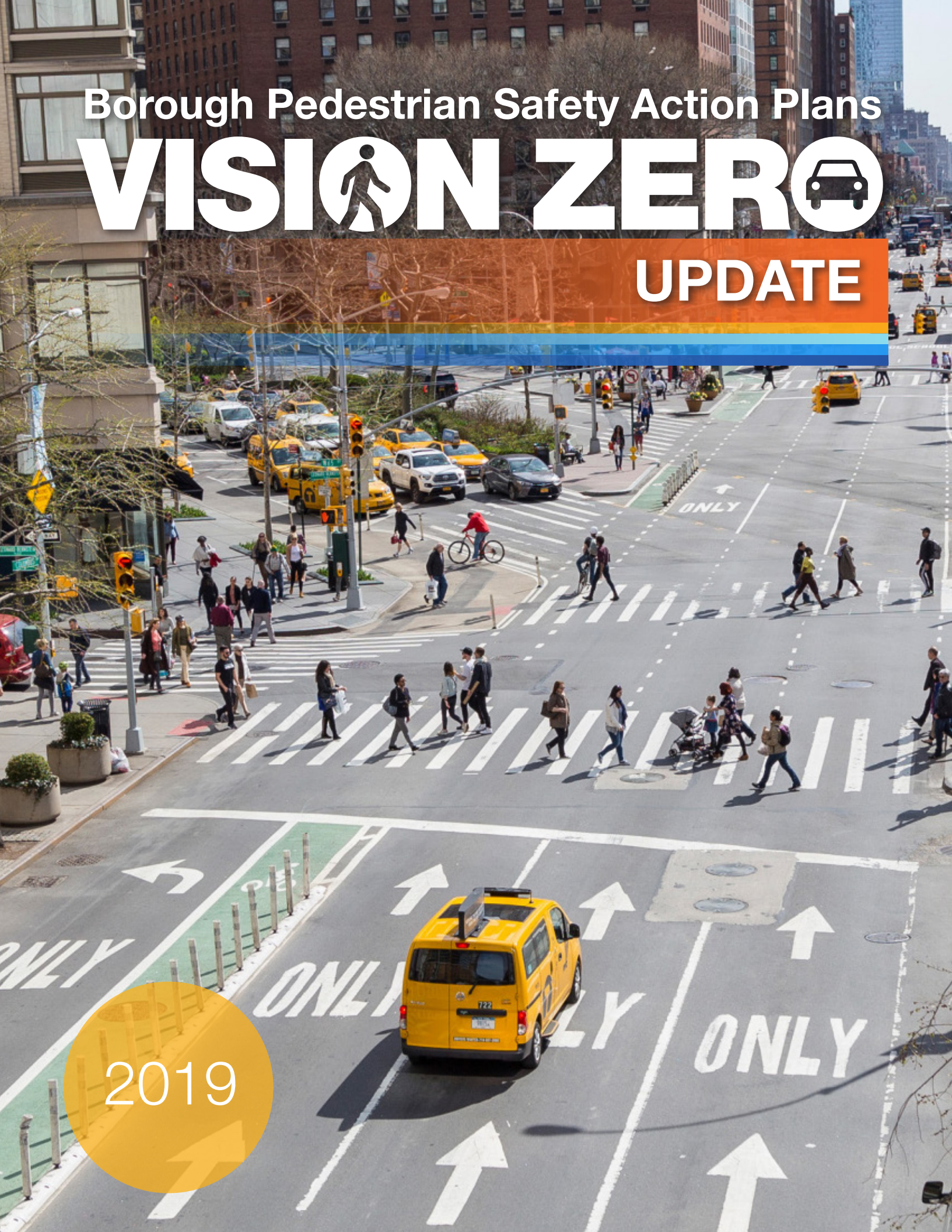


Borough Pedestrian Safety Action Plans

VISION ZERO

UPDATE

2019





Queens Boulevard, Queens

Table of Contents

i.	Letter from the Mayor	iv
ii.	Letter from the Commissioner	vi
iii.	Executive Summary	vii
iv.	Vision Zero Innovations	6
Borough Chapters		
1.	Bronx	22
2.	Brooklyn	36
3.	Manhattan	50
4.	Queens	66
5.	Staten Island	82
6.	2015 Vision Zero Borough Action Plan Results	96
7.	Action Plan	122
	Appendix	128



Centre Street, Manhattan

Letter from the Mayor



Dear Friends,

In the five years since we launched Vision Zero in New York City, we have seen tremendous change and incredible improvements that should make all New Yorkers proud. Bucking national trends, traffic fatalities are at an all-time low and our streets have grown safer every year. In fact, the last time the five boroughs saw this few traffic fatalities, the major means of transportation was a horse-and-buggy.

As the first American city to adopt Vision Zero, we began this mission by making the bold claim that death and severe injury from traffic crashes were no longer acceptable. We chose to take a new approach to these tragedies, viewing them as part of an epidemic that could be curbed through focused, concerted efforts. The world took notice – more than 40 cities across the country have followed our lead, working to combat dangerous behaviors and making their cities safer, more livable places.

Our Vision Zero successes have been a collective effort, bringing together professionals, stakeholders, and advocates from all walks of life. By forging new partnerships between government agencies, and uniting members of City government and regular New Yorkers around a common cause, we were able to achieve real change, including a string of legislative victories in the New York City Council and in the Statehouse in Albany. By lowering the speed limit, making it a crime to strike a pedestrian with the right of way, allowing speed cameras to penalize drivers who endanger our school children, implementing a record number of safety projects, creating protected bike lanes, and using data-driven planning and innovative street re-design, we delivered powerful, physical changes to our streets.

For all that we have achieved, we know we still have more to do, and that means taking even further action to protect the most vulnerable road users – pedestrians. Pedestrian fatalities continue to make up the majority of traffic-related deaths, and that is why it is essential that these new Borough Pedestrian Safety Action Plans refocus where we target our interventions, safety engineering, and education initiatives. Of course, the NYPD will continue to increase its strong enforcement of traffic laws, especially failure-to-yield and speeding – violations with deadly consequences for our pedestrians. We will work where the data take us, where pedestrian fatalities and severe injuries are concentrated, and where our efforts can have the most dramatic impact.

To become the fairest big city in the world, we must also be the safest, and I will work to keep this promise to all New Yorkers by ensuring they can travel across our city by foot, by bike, or by car without fear.

A handwritten signature in black ink that reads "Bill de Blasio". The signature is fluid and cursive, with a long horizontal stroke at the end.

Bill de Blasio
Mayor



MODELL'S
Subway

citibank

NO TURNS
8AM-8PM

7 Avenue, Manhattan

Letter from the Commissioner



Dear fellow New Yorkers,

We are proud that under Vision Zero, 2018 was the fifth year in a row of declining traffic fatalities on New York City's roadways. With Mayor Bill de Blasio's leadership and commitment, combined with the extraordinary work of DOT's world-class planners, engineers and construction crews, working with our Borough Commissioner's offices, we were able to continue our aggressive pace of safety projects throughout the City in 2018:

- We installed a record 139 safety projects and more than 20 miles of protected bike lanes, focusing on safety for pedestrians and cyclists, the most vulnerable road users.
- We installed 869 Leading Pedestrian Intervals (LPs), giving crossing pedestrians a "head start" before vehicles begin to turn.
- The City issued over one million automated speed violations in school zones, where our children walk every day, and worked with the City Council and Governor Cuomo to save our Speed Camera Program when the State Senate failed to renew it.

The progress as a result of this work is unmistakable: traffic fatalities in New York City dropped sharply to their lowest number (201 deaths) since record keeping began in 1910 and from the high of 1,360 in 1929. Traffic fatalities are down nearly a third compared to the year before Vision Zero.

Exactly four years ago this month, DOT undertook one of the most ambitious elements of Vision Zero, our Borough Pedestrian Safety Action Plans. In those plans, DOT analyzed roadway safety data in all five boroughs to determine the most dangerous corridors, intersections and areas. Our data-driven approach in some cases challenged conventional wisdom as to which streets were — or were not — the most dangerous and in need of safety interventions.

Our plans guided our ambitious safety work and better enabled us to make our case with local communities on the need for particular safety projects, as well as better target our resources where they would save the most lives. They also enabled us to work closely with NYPD to ensure that the City's enforcement and education efforts focused on the most crash-prone corridors.

We are very proud to bring you this update to those groundbreaking plans and to report that the City installed safety treatments at nearly 90 percent of the original Priority Corridors and Intersections. We are even prouder to report that over the last five years, those areas where we intervened saw the greatest decline in pedestrian fatalities.

So in this update, we incorporate new crash data, ensuring that the City continues to focus its safety efforts on the areas of highest need. And the de Blasio Administration also continues the larger work of Vision Zero, with a focus on changing our traffic culture to make our streets safer, greener, more humane and more liveable for us all.

Tragically, despite the real progress we have made under Vision Zero, New Yorkers continue to be seriously injured or killed on our roadways about every two and a half hours. Even as we are encouraged by five years of progress, we still have plenty of work left to do to arrive at Vision Zero. With the help of these newly updated and data-driven plans, we can get ever closer to the day when no lives will be senselessly lost on our roadways.

A handwritten signature in black ink that reads "Polly Trottenberg".

Polly Trottenberg
DOT Commissioner

Executive Summary

This report updates the Priority Locations identified in the 2015 Vision Zero Borough Pedestrian Action Plans with current data, Vision Zero innovations, progress on Vision Zero initiatives, and introduces new actions.

Since Mayor de Blasio formally launched the Vision Zero initiative in February of 2014, the City has worked hard to use every tool available to drive down injuries and fatalities on New York City streets. From lowering the speed limit to 25 MPH, dramatically expanding traffic enforcement of the most dangerous infractions, to pushing through marquee street redesigns like Queens Boulevard, Woodhaven Boulevard and the Tillary Street approach to the Brooklyn Bridge, the City has taken an expansive approach to improving safety on New York City streets.

In New York City, from 2014 through 2018:

- 461 Safety Engineering Projects completed
- 2,951 Leading Pedestrian Intervals (LPis) installed
- 913,248 traffic summonses issued by NYPD for Speeding and Failure to Yield
- 5,057,371 automated speed camera violations issued citywide
- 539 Vision Zero Priority locations visited by Vision Zero Street Teams
- 1,484 school and 356 senior center visits for safety education in Priority Locations

Focusing on Vision Zero Priority Locations (Corridors, Intersections, Areas) where most pedestrians killed or severely injured (KSI) crashes occur in New York City, DOT changed the way we directed our resources. The 2015 Vision Zero Borough Pedestrian Safety Action Plans identified these Priority Locations. **Since the start of Vision Zero, NYC DOT installed safety engineering improvements at 90% of Priority Intersections and 86% of the total length of Priority Corridors.***

As pedestrian fatalities continue to rise nationwide, particularly in urban areas, New York City stands out as an encouraging outlier. Between 2008 and 2017, pedestrian fatalities in urban areas nationwide increased by 46%. During that same time period, pedestrian fatalities in New York City dropped 31%. In 2018, pedestrian fatalities in New York City were down 27% from the pre-Vision Zero (2009 – 2013) average. **Moreover, 2018 saw the lowest number of overall traffic fatalities in New York City history at 201, down 26% from the five year average before Vision Zero launched, and down nearly a third from 2013, the year immediately preceding Vision Zero.**

Pedestrian fatalities dropped more dramatically at Vision Zero Priority Locations, a promising sign given that the City's safety efforts focused on these locations. **In the five years prior to Vision Zero (2009-2013) an average of 98 pedestrians were killed per year at Vision Zero Priority Locations, while in 2018, 63 pedestrians were killed, a 36% decline.**

*Safety engineering improvements include Street Improvement Projects (SIP), new traffic signal construction, Left Turn Traffic Calming (LTTC), Leading Pedestrian Intervals (LPI), new street lighting, and Corridor Safety Signal Retiming.

461 Safety Engineering Projects



completed

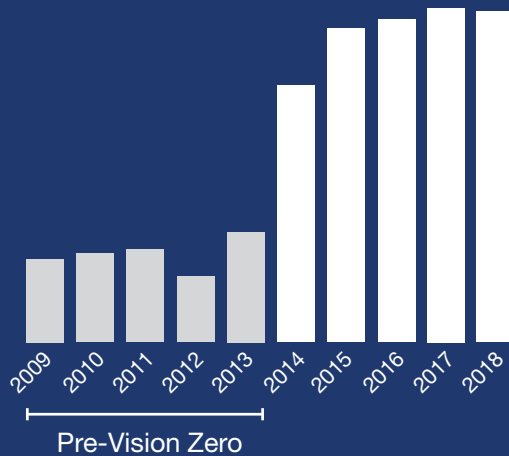
2,951 LPIs

or Leading Pedestrian Intervals installed from 2014 through 2018.



913,248

traffic summonses issued by NYPD for Speeding and Failure to Yield



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automated speed camera violations issued citywide

539 Vision Zero Priority Locations

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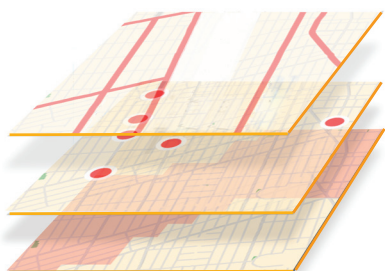


356 senior center visits

for safety education in Priority Locations



Priority Corridors, Intersections, & Areas



New York City has nearly 6,000 miles of roadway and nearly 47,000 intersections. To focus safety interventions where treatments will have the greatest effect, the City identified the locations where pedestrian deaths and severe injuries are most concentrated. Using pedestrian KSI data from the last five available years (2012-2016), NYC DOT duplicated the process for selecting Priority Corridors, Priority Intersections, and Priority Areas that NYC DOT employed in the initial 2015 Pedestrian Safety Action Plans (see Priority Geography Methodology in Appendix). Over the next three years, DOT will prioritize the resulting locations for safety interventions - including engineering, enforcement and education.

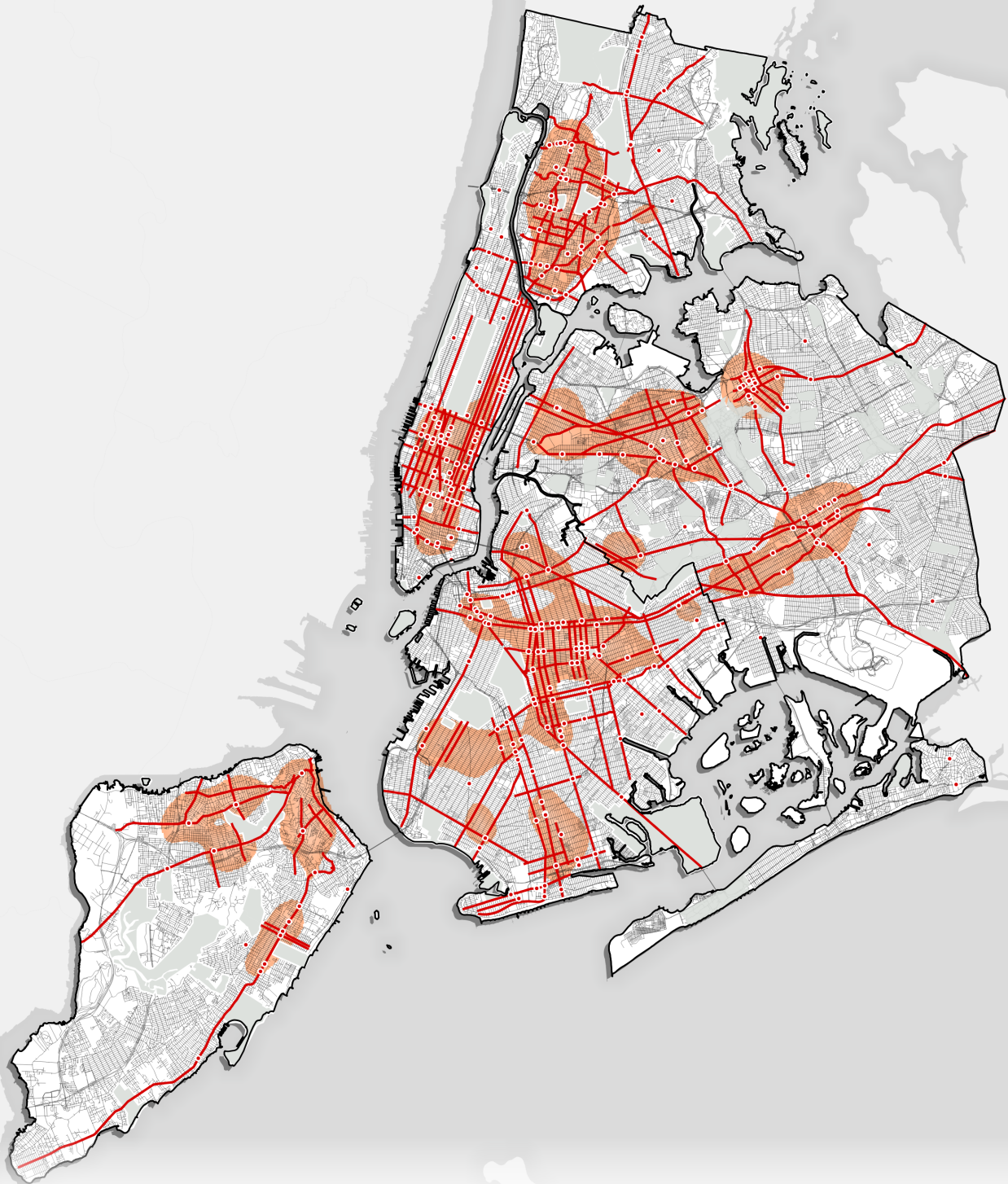


Broadway, Manhattan

New York City Vision Zero Priority Map 2019

	Share of City	Citywide	% of the City	Share of Ped KSI	Total Ped KSI	% of Total Ped KSI	% of Total Ped Fatalities
Priority Corridors	424 miles	5,791 miles	7%	2,941	—	50%	48%
Priority Intersections	293 intersections	46,959 intersections	1%	884	—	15%	12%
Priority Areas	60 sq. miles	302 sq. miles	20%	2,966	—	51%	45%
Combined Total				4,144	5,826	71%	68%

Data from years 2012 - 2016

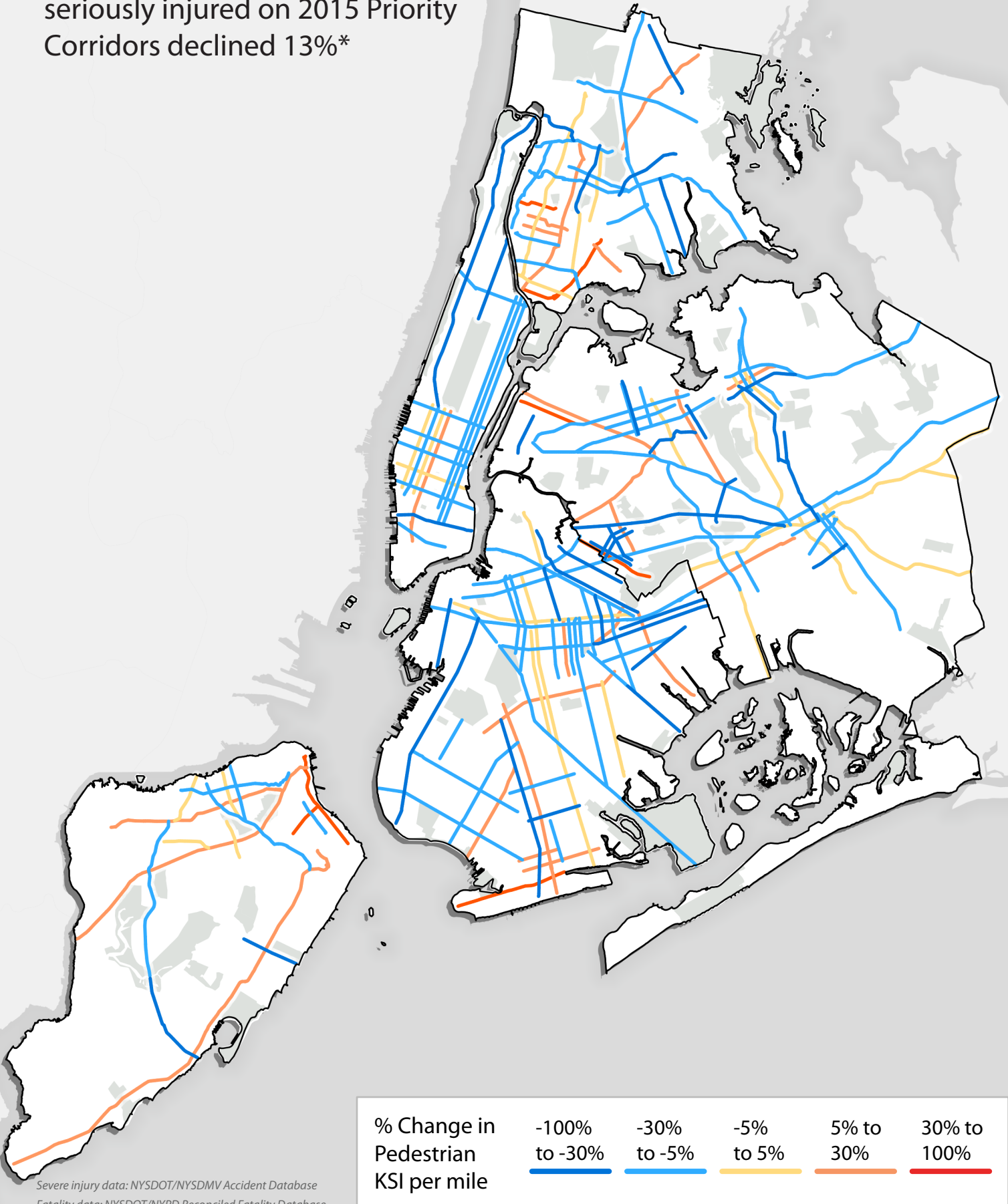


● Priority Intersection — Priority Corridor ■ Priority Area

Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Between 2009-2013 and 2012-2016, the number of pedestrians killed or seriously injured on 2015 Priority Corridors declined 13%*

Pedestrian KSI decreased on 105 out of 154 corridors



Severe injury data: NYSDOT/NYS DMV Accident Database
Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Action Plan

New Actions for 2019

- Add exclusive pedestrian crossing time (LPIs) at every feasible intersection on all new Priority Corridors by the end of 2019
- Modify signal timing to reduce speeding on all feasible new Priority Corridors by the end of 2019
- Launch Integrated Data-Driven Speed Reducer Program (speed humps & speed cushions)
- Track Vision Zero Violations at the Priority Corridors, Intersections, and Areas
- Launch a High Visibility Enforcement Program on Priority Corridors
- Launch a targeted Corridor Outreach Program
- Launch a Driveway Safety program to address issues with vehicles crossing sidewalks
- Conduct a comprehensive study of senior pedestrian injuries
- Collaborate with the Business Integrity Commission to improve the safety of commercial waste fleets

Continuing Actions

(From the 2015 Vision Zero Borough Pedestrian Action Plans)

- Implement at least 50 Vision Zero safety engineering improvements annually on the updated Priority Corridors, Intersections, and Areas citywide
- Add exclusive pedestrian crossing time to all feasible new Priority Intersections by the end of 2019
- Prioritize targeted enforcement on Priority Corridors, Intersections, and Areas annually
- Expand a bicycle network that improves safety for all road users
- Install expanded speed limit signage on all new Priority Corridors in 2019
- Target child and senior safety education at Priority Corridors and Priority Areas
- Coordinate with MTA to ensure bus operations contribute to a safe pedestrian environment

Vision Zero Innovations



HEALTH CONNECTION
Morris Heights Health Center

ONE WAY

Mid-Servix Senior
CITIZENS COUNCIL, INC.
196 Grand Concourse
Bronx, N.Y.
(718) 588-8206

Left Turn Traffic Calming, Bronx

Vision Zero Innovations

Since the launch of Vision Zero in 2014, NYC DOT pioneered and launched many new road safety treatments. Crash data and subsequent evaluations demonstrating the effectiveness of the treatments in reducing traffic injuries drove the deployment of these treatments. In addition, NYPD launched a series of ground-breaking and aggressive enforcement initiatives, partnering with MTA, the Office of the Medical Examiner, and the New York City District Attorneys.

Road Safety Treatments

Left Turn Traffic Calming

Left turns are more dangerous than right turns in part because drivers have the opportunity to make left turns at a wider radius, leading to higher speeds and greater pedestrian exposure. **Left Turn Traffic Calming** is a citywide program developed based on the findings of the 2016 study, *Don't Cut Corners: Left Turn Pedestrian & Bicyclist Crash Study*. To improve pedestrian safety, the innovative program focused on reducing left turn speeds and enforcing safe-turning behavior when vehicles were making left turns. NYC DOT has used a range of treatments, including paint, flexible delineators, and rubber speed bumps for traffic calming at left turns to calm traffic.

At intersections with Left Turn Traffic Calming, average left turn speeds decreased 21%

At New York City intersections where NYC DOT implemented these Left Turn Traffic Calming treatments, average left turn speeds decreased by 21%. Initial injury findings show that pedestrian injuries are dropping faster at locations where the agency has installed treatments. NYC DOT installed Left Turn Traffic Calming treatments at 330 intersections since the start of the Vision Zero initiative, including 260 treatments at Vision Zero Priority Locations. In 2018, NYC DOT installed treatments at 113 additional intersections across the city.

Proactive Warrant Analysis (PWA)

Proactive Warrant Analysis (PWA) uses crash data to identify intersections at which new traffic signals or stop signs are considered feasible based on crash history. Before PWA, NYC DOT only studied intersections for new traffic signal installation or all-way stop control if the study was requested by the community, elected official, or a member of the NYC DOT staff. In fact, it was not possible to identify intersections in this focused way prior to the rapid evolution and development of NYC DOT’s crash data analysis and prioritization techniques under Vision Zero. Data-driven and independent of factors such as neighborhood engagement, PWA is both a more equitable and efficient approach to siting signals. This represents a broader effort by NYC DOT to ensure that life-saving safety treatments are deployed across the city, to the areas of highest need.

Under Vision Zero, PWA has proven to be several times more effective at identifying intersections where a traffic signal is warranted as compared to community requests for traffic signal installation. Since 2017, NYC DOT has identified approximately 150 intersections for traffic signal and all-way stop installation as part of the PWA program.

Turning Signal Safety Treatments

Turning signal safety treatments include an array of signal changes to reduce conflicts between motor vehicles, bicyclists, and pedestrians. These signal treatments include split phases and delayed turns (also known as split LPIs) that separate bicycle and pedestrian movements from motor vehicle turns and left turn signals or phases. Left turn only phases are particularly effective: where installed, left turn pedestrian and bicyclist injuries fell by 33% and total pedestrian and bicyclist injuries declined by 25%. NYC DOT implemented more than 150 turning safety signal treatments since the start of Vision Zero, including over 100 treatments at Priority Locations.



Left turn only phases reduced pedestrian and bicyclist injuries by 25%



Turning Safety Signal Treatment: Broadway & 26 Street, Manhattan

NYC DOT installed 51 bus boarding islands since 2014

Bus Boarding Islands

Bus boarding islands (or median bus stops) are dedicated waiting and boarding areas for passengers which improve accessibility and transit operations by enabling in-lane bus stops. NYC DOT constructed 51 of these stops since 2014, which are separated from the sidewalk by a travel lane or a bicycle lane. This ensures that buses properly align to the curb, speeding boarding and alighting, and ensuring accessibility, while avoiding conflicts with cyclists and curb demands. Boarding islands typically extend through the crosswalk, creating an additional pedestrian refuge and improving safety for crossing pedestrians.

NYC DOT installed 27 bus boarding islands on six Priority Corridors in four boroughs. In addition to improving safety for pedestrians, bus boarding islands contribute to more reliable bus service and shorter travel times for bus riders. Twenty-eight of 51 bus boarding islands are located on Select Bus Service routes.



Bus Boarding Island: Woodhaven Boulevard & Jamaica Avenue, Queens

Speed Cushions

Speed cushions are flat-topped raised areas (similar to speed humps or speed tables) placed across a road with wheel cutouts designed to allow large vehicles with wider wheel bases, such as fire engines or buses, to pass with minimal slowing or rocking. They are an effective treatment for addressing speeding on bus and truck routes where speed humps aren't feasible. Speed cushions are used in many cities across North America, including Seattle, San Diego, Baltimore, and Montreal.

Speed cushions calm the average speed on corridors by 23%

↓ 23%

NYC DOT carried out a pilot installation of speed cushions at two locations in Brooklyn with promising outcomes in 2017. The agency found that speed cushions lowered the average speed on the corridors by 23%. In 2018, NYC DOT installed three speed cushions on Van Duzer Street between Grand Street and Clinton Street and four speed cushions on Henderson Avenue between Bard Avenue and Caldera Place on Staten Island. Average speeds on Henderson Avenue declined by 26% after installation of the speed cushions.



Speed Cushions: Cozine Avenue, Brooklyn

Roundabouts eliminate the possibility of head-on and left-turn collisions



Traffic Circle Simulation: Greeley Avenue, Staten Island

Neighborhood Traffic Circles and Roundabouts

A neighborhood traffic circle is a round traffic island installed in the center of a traditional intersection on local streets. The traffic circle can reduce speeding and crash rates as drivers maneuver around the circular island at lower speeds. Design speeds for movement around the circle are usually 15 MPH and the traffic circle also eliminates the possibility of head-on collisions. Additionally, traffic circles can help beautify the streetscape with trees or vegetation. NYC DOT installed the first traffic circles in New York City along Greeley Avenue on Staten Island in 2017.

Roundabouts are un-signalized intersections with circular, one-way (counter-clockwise) traffic around a central circle in which entering traffic yields to traffic already in the circle. Roundabouts reduce top vehicular speeds at intersections, thereby decreasing the severity of crashes. They also eliminate the possibility of head-on and left-turn collisions, two primary causes of injuries. Roundabouts can vary in size and number of lanes. The key features that distinguish a roundabout from traffic circles are the rules for yielding and design features such as horizontal deflection at entries. NYC DOT has installed two roundabouts since the start of Vision Zero: at the intersection of Intervale Avenue and Dawson Avenue in the Bronx and at 153 Avenue and 88 Street, known as the “Lindenwood Triangle,” in Queens.



Neighborhood Traffic Circle: Greeley Avenue, Staten Island



Roundabout: Intervale Avenue & Dawson Street, Bronx



Shared Street: Broadway & 24 Street, Manhattan

Shared Streets

A “**Shared Street**” is a roadway designed for slow travel speeds where pedestrians, cyclists, and motorists all share the right of way. Vehicles are advised to drive 5 MPH and the roadway may be flush from building line to building line separated by bollards or pedestrian amenities rather than the typical curb line grade separation. Shared streets can be designed and managed in a variety of different ways to balance the needs of all users while enhancing the safety, aesthetics, and overall experience of the street. These projects also give special consideration to design elements which aid those with visual impairments. Current NYC DOT Shared Streets include: Broadway between 24 Street and 25 Street in Manhattan, implemented in 2017 and East 43 Street between Lexington Avenue and Third Avenue in Manhattan, implemented in 2018. The agency plans to install a shared street on Willoughby Street between Pearl Street and Lawrence Street in Brooklyn in 2019.

Motorists are advised to drive 5 MPH on a shared street

NYC DOT installed six raised crosswalks since Vision Zero launched

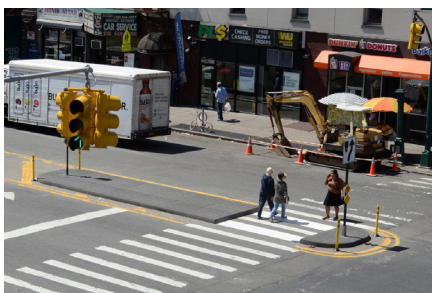
Raised Crosswalks

A **raised crosswalk** is a marked pedestrian crosswalk at an intersection or a mid-block location constructed at a higher elevation than the adjacent roadway. A raised crosswalk is essentially a speed hump that meets the adjacent curbs and has a 10-15 feet wide flat top that accommodates a full width of the pedestrian crosswalk. Thus, it provides a level, at-grade crossing that increases pedestrian visibility, effectively controls speeding, and encourages motorists to yield to pedestrians. NYC DOT installed six raised crosswalks since the adoption of Vision Zero: Driggs Avenue and Newell Avenue, Brooklyn; 59 Street and Fort Hamilton Parkway, Brooklyn; 137 Street and Leavitt Street, Queens; Tinton Avenue and East 150 Street, Bronx; Longwood Avenue and Fox Street, Bronx; and Briggs Avenue and East 196 Street, Bronx.



Raised Crosswalk: Briggs Avenue & East 196 Street, Bronx

Rubber Pedestrian Refuge Islands



Rubber Pedestrian Refuge island: 4th Avenue & Atlantic Avenue, Brooklyn

In 2016, NYC DOT initiated a demonstration project for **rubber pedestrian refuge islands**. The agency installed the first two islands along Eastern Parkway in Brooklyn, to accommodate the annual Caribbean Day Parade. (They have already been successfully removed and installed twice by NYC DOT crews.) Other islands can be found on Fourth Avenue and Atlantic Avenue in Brooklyn, Morningside Avenue in Manhattan, and Gerritsen Avenue in Brooklyn. NYC DOT now has a multi-year contract to purchase rubber islands for installation at locations throughout the City. Rubber refuge islands can be installed in one day and can be installed in all weather conditions and where concrete construction is not feasible (e.g. where underground infrastructure like subways are close to the surface).

Offset Crossings

↓45%

Studies show offset crossings reduce the probability of vehicle-bicycle crashes by 45%

Offset crossings are intersections designed based on the Dutch principles for bicycle facilities. This intersection design separates bicyclists from turning vehicular traffic by providing a bike lane offset from the intersection (positioned farther from traffic and closer to the curb), an advanced stop bar for bicyclists at the intersection, and a defined turning path for the vehicular traffic.

The offset bike lane and the advanced stop bar gives bicyclists greater visibility at intersections, reduces bicyclists' exposure to turning drivers, and improves safety. Studies show up to a 45% reduction in the probability of vehicle-bicycle crashes where the bike lane is deflected away from the travel lanes by 6.5 to 16 feet. Additionally, the design of the treatment compels drivers to turn at a tighter radius with lower speeds, making the crossing safer for bicyclists and pedestrians.

In 2018, NYC DOT released *Cycling at a Crossroads: the Design Future of New York City Intersections*, providing a comprehensive look at New York City's protected bike lane intersections. Based on an analysis of safety and comfort for different design treatments, this report recommends their use in different street contexts, including guidance for consistently applying the offset crossing treatment citywide. This study also found that offset crossings delivered the highest levels of bicyclist comfort among the different intersection types and details design modifications to further improve the offset crossing's safety and effectiveness.



Offset Crossing: Columbus Avenue & West 70 Street, Manhattan

Rectangular Rapid Flashing Beacons Pilot



RRFB: Hoyt Street & President Street, Brooklyn

Rectangular Rapid Flashing Beacons (RRFB) are a potentially valuable tool for improving pedestrian visibility and increasing driver yielding rates at uncontrolled crosswalks. RRFBs can be deployed at intersections where a traditional traffic signal or an all-way stop control is not feasible. NYC DOT is conducting a pilot study of RRFBs to assess their effectiveness in the vicinity of schools. RRFBs supplement warning signs at uncontrolled intersections or mid-block crosswalks with flashing, high-intensity LEDs that alert motorists to the presence of pedestrians in the crosswalk. Activated by users with a pushbutton, the high intensity LEDs command the attention of drivers and significantly increase driver yielding rates. Based on tests of their impact on driver yielding behavior at uncontrolled crosswalks, as well as installation, maintenance, and durability, NYC DOT will explore adding RRFBs to its toolkit. The agency installed two RRFBs in 2018, one at Hoyt Street and President Street and one at Lott Avenue and Amboy Street in Brooklyn.

Chicanes Pilot

Chicanes are a series of lateral S-shaped curves, offset curb extensions or curving lane alignments to slow drivers down and make them more alert to other road users. The goal of the pilot is to reduce average driving speeds adjacent to schools to reduce the likelihood and severity of crashes. NYC DOT is evaluating the chicane pilot installation, using rubber speed bumps, advisory signage, and thermoplastic markings, with the goal of adding another rapid response tool to improve safety around New York City schools and work toward Vision Zero goals. The agency installed two chicanes as part of the pilot in 2018, on Haring Street from Avenue Z to Avenue Y and on East 53 Street from Clarkson Avenue to Winthrop Street, both in Brooklyn.



Chicane: East 53 Street, Brooklyn

Enforcement Initiatives

Failure to Yield the Right of Way

In 2018, NYPD made 34 arrests of drivers who failed to yield to a pedestrian

A multi-ton automobile can inflict severe injury when striking a person on foot or on a bicycle, especially when making a left turn at an intersection. Pedestrians and people on bikes are New York City’s most vulnerable road users and their safety was the impetus for the enactment of a new law, Administrative Code 19-190. Enacted in 2014, the new law empowers officers to take enforcement action against drivers who fail to yield to a pedestrian or person on a bicycle. NYPD issues this particular summons to a motorist who strikes a person or bicyclist who has the right of way. In 2018, NYPD issued 3,604 summonses under 19-190.

19-190 Enforcement	2017	2018	Change	Percent Change
Arrests	34	34	-	-
Summonses	2,221	3,604	+1,383	+62%



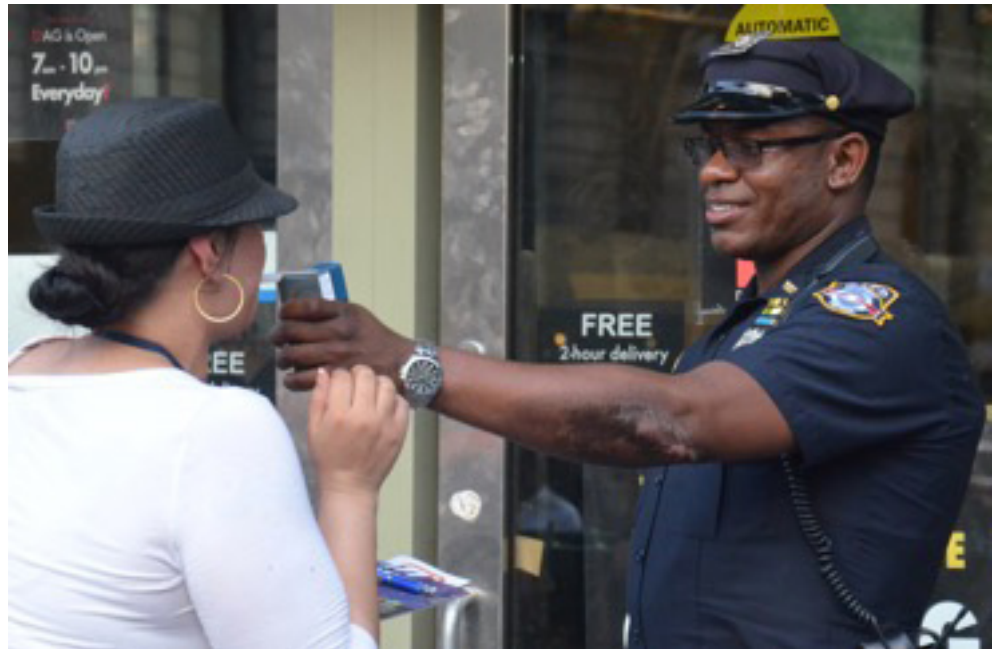
NYPD Enforcement

In 2017, 47 traffic fatalities involved a driver under the influence

Driving While Impaired

In 2017, 47 traffic fatalities involved a driver under the influence of drugs or alcohol. This amounted to over 20% of the total traffic fatalities for 2017. The NYPD, along with NYC DOT, continually provides outreach to educate drivers on the dangers of driving while impaired from alcohol or drugs. To support this outreach, the NYPD continually monitors for impaired drivers. NYPD's holiday initiatives, which target times of the year where more people are known to drive impaired, highlight the agency's commitment to this issue.

To further combat impaired driving and to identify motorists impaired by drugs, the NYPD implemented the Oral Fluid Program in 2015. Prior to the implementation of this program, impaired driver screening was limited to testing for only alcohol. The NYPD was the first law enforcement agency in the country to use Preliminary Oral Fluid analysis in collision investigations. Since the inception of the program, 18 drivers have been arrested that would have been missed using only the alcohol testing procedure. The development of this program highlighted the collaboration between the NYPD, the District Attorney's Offices, and the Office of the Chief Medical Examiner as all stakeholders came together to make this a priority.



NYPD DWI Enforcement Demonstration

NYPD increased enforcement of bus lane moving violations by three times



Collaboration with the MTA

Each day over two million New Yorkers depend on MTA buses to traverse New York City. The NYPD helps ensure that buses arrive safely and efficiently at their destination. The NYPD works closely with the community and other public service agencies to accomplish this goal. In particular, obstructed bus lanes create dangerous situations for pedestrians and bicyclists and make it difficult for bus operators to navigate the roadway. In the last two years, NYPD increased enforcement of unauthorized vehicles driving in bus lanes and unauthorized vehicles parking in bus lanes and bus stops.

Summons Type	2017	2018	Change	Percent Change
Bus Stop Parking	305,712	312,752	7,040	+2.3%
Bus Lane Parking	23,647	38,419	14,772	+62.4%
Bus Lane Moving	2,020	8,037	6,017	+297%



Beginning in May of 2018 the NYPD and MTA began to collaborate more closely to improve the safe, on-time performance of buses in all five boroughs. This effort includes the following operational aspects:

- Conducting Monthly “Clear Bus Lane” and “Clear Bus Stop” Initiatives:** The NYPD conducts monthly citywide “Clear Bus Lane” initiatives in every borough, focusing on chronically blocked bus lanes and stops identified by NYC DOT and MTA.
- Focus Enforcement and Coverage on the Most Obstructed Bus Routes in Each Borough:** The MTA provided the NYPD with a list of problematic bus routes requiring particular attention by borough in priority order. The agencies will update this list frequently to reflect improvement and progress. Traffic Enforcement Agents, tow trucks and Police Officers will focus on these corridors to ensure the safe, efficient movement of buses. Seven new tow truck teams are deployed for this effort.
- Supporting Express Bus Movement on Highways:** Beginning in May of 2018 the NYPD Highway Patrol increased its focus on Interstate 278 and other highway bus lane/HOV lane violators to support Staten Island Express Bus commuters.



Bronx

NORTH
87
Maj Deegan
Expy
← Albany



The Bronx has the lowest median household income of all boroughs

Since 2014, the Bronx grew the fastest of the five boroughs (+3.2%) and added almost 50,000 new residents. At \$36,593, the Bronx's median household income continues to be the lowest in New York City, with more than 30% of its residents living in poverty.

As part of Vision Zero, the City invested heavily in capital improvements in the Bronx, designating Grand Concourse from East 171 Street to East 198 Street a "Great Street," with \$151.4 million in funding for reconstruction and expansion of service road medians, trees and greenery, and enhanced pedestrian and bicyclist amenities.



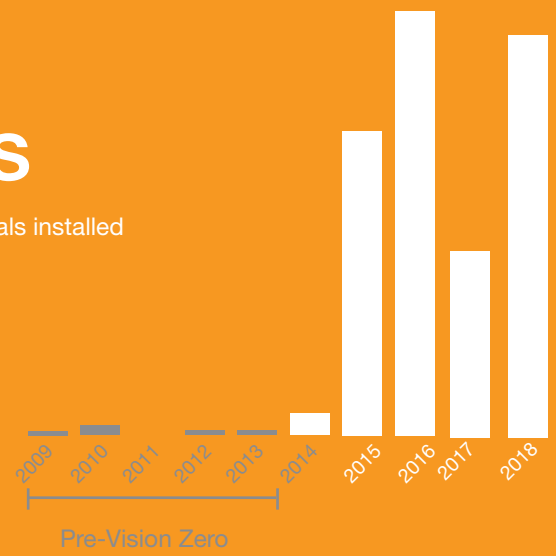
The Bronx grew the fastest of the five boroughs

NYC DOT also implemented numerous projects with innovative designs that improve safety and mobility for residents who don't drive or own a car. Examples include the Bx6 Select Bus Service project along East 161 Street with a center median bus island, the two-way protected bike lane on Broadway along Van Cortlandt Park, and the two-way protected bike lanes along Willow Avenue, St. Ann's Avenue & East 113 Street, linking the Mott Haven neighborhood to the Randall's Island Connector.

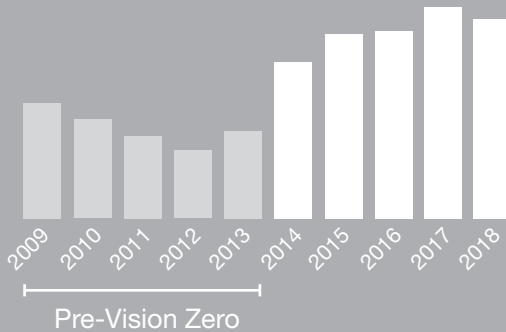
68
Safety
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360 LPis
 or Leading Pedestrian Intervals installed



193,579
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 Failure to Yield



740,903
 automated speed camera
 violations issued

90 Vision Zero
Priority Locations
 visited by Vision Zero Street Teams



487
school
visits



for safety education in Priority Locations

23
senior
center
visits



for safety education in Priority Locations

Bronx Summary Statistics

Pedestrian fatalities in the Bronx declined 31% in 2018 compared to the pre-Vision Zero average

Pedestrian fatalities declined in the Bronx since the start of the Vision Zero initiative in 2014. The five years before Vision Zero was adopted (2009-2013), an average of 26.2 pedestrians were killed per year in the Bronx, while in 2018, 18 pedestrians were killed, a 31% decline.

Pedestrian fatalities dropped sharply at the Vision Zero Priority Locations, a promising sign given that the City focused safety efforts at these locations. In the five years before New York City adopted Vision Zero, an average of 16.0 pedestrians were killed per year at Bronx Vision Zero Priority Locations, while in 2018, six pedestrians were killed, a 63% decline.

In the Bronx, from 2014 through 2018:

- 68 Safety Engineering Projects completed
- 360 Leading Pedestrian Intervals (LPis) installed
- 193,579 traffic summonses issued for Speeding and Failure to Yield
- 740,903 automated speed camera violations issued
- 90 Priority locations visited by Vision Zero Street Teams
- 487 school and 23 senior center visits for safety education in Priority Locations

NYC DOT made safety engineering improvements on 91% of all Bronx Priority Corridors

In the Bronx, since the start of Vision Zero, NYC DOT made safety engineering improvements at 90% of all Priority Intersections, and at 91% of the total length of Priority Corridors.*

*Safety engineering improvements include Street Improvement Projects (SIP), new traffic signal construction, Left Turn Traffic Calming (LTTc), Leading Pedestrian Intervals (LPI), new street lighting, and Corridor Safety Signal Retiming.



Morris Av

ONLY
BUS

723

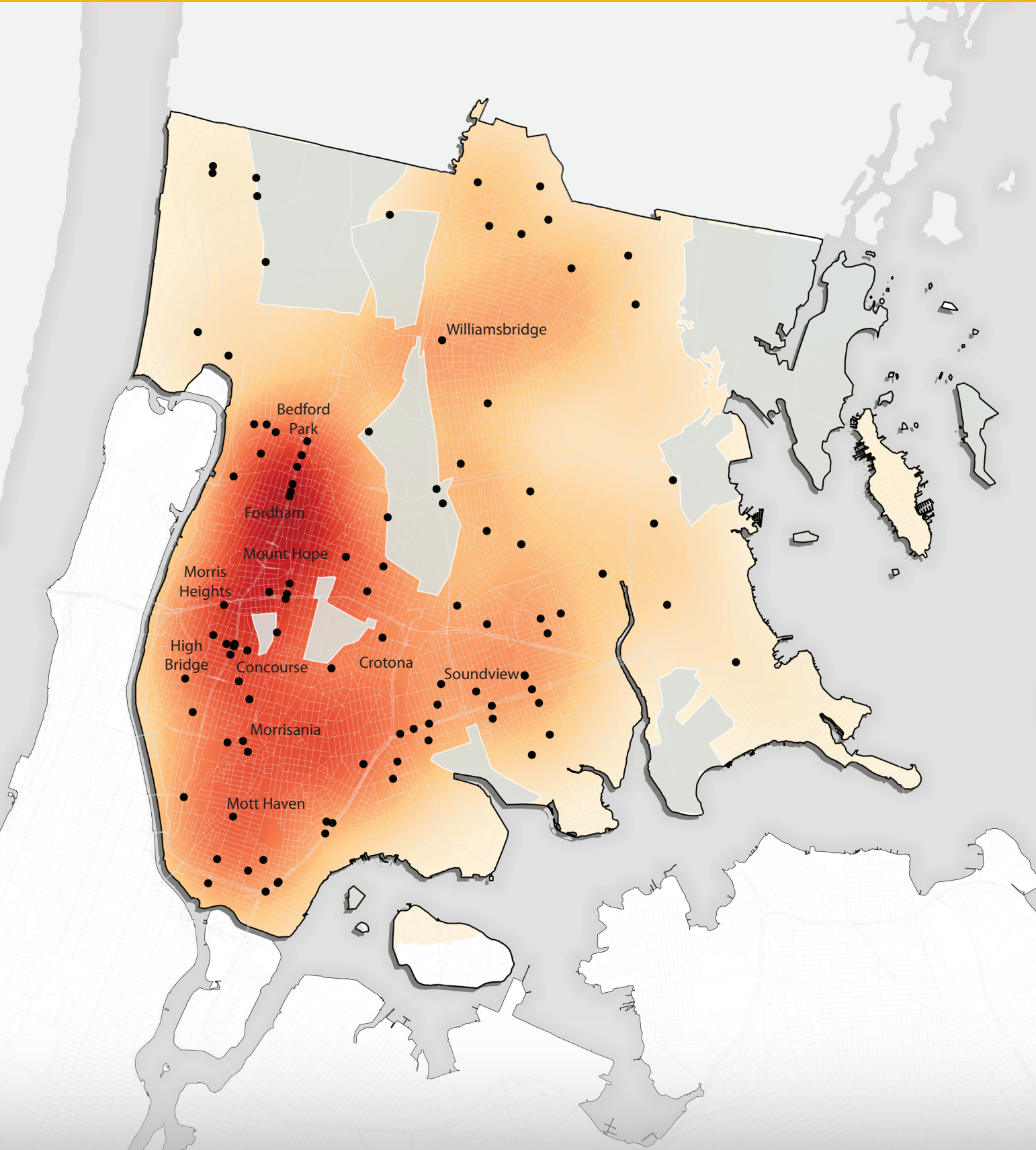
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161 Street, Bronx

Bronx Pedestrian KSI Heat Map + Pedestrian Fatalities



Approximate pedestrian KSI per sq mile per year



● Pedestrian Fatality 2012 - 2016

Pedestrian Killed or Severely Injured Kernel Density

A smoothing technique for spatial data where the expected density is calculated for every location on the map with the underlying principal that closer KSI are more heavily weighted than farther KSI. Each location is then assigned a color based on the expected density of KSI, with red showing the highest density of KSI and beige showing the lowest. It is useful for identifying and presenting hotspots.

Severe injury data: NYSDOT/NYS DMV Accident Database
Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Priority Corridors, Intersections & Areas

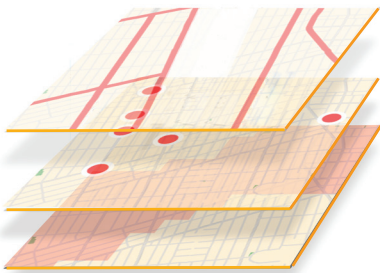
The Bronx has more than 790 miles of roadway and nearly 6,500 intersections. To focus safety interventions where treatments will have the greatest effect, the City has identified the locations where pedestrian deaths and severe injuries are most concentrated. Using pedestrian KSI data from the last five available years (2012-2016), NYC DOT duplicated the process for selecting Priority Corridors, Priority Intersections, and Priority Areas that was employed in the initial 2015 Pedestrian Safety Action Plans (see Priority Geography Methodology in Appendix). The resulting locations will be prioritized for future safety interventions over the next three years, including engineering, enforcement and education.

To determine the Priority Corridors, NYC DOT ranked all corridors in the Bronx based on pedestrian KSI per-mile. The agency selected corridors from the top of this list until the cumulative number of pedestrian KSI reached at least 50% of the borough's total.

To determine the Priority Intersections, NYC DOT selected the intersections with the highest number of pedestrian KSI that cumulatively account for 15% of the borough's total pedestrian KSI. This is a lower percentage than that used for corridors because crashes resulting in pedestrian KSI are spread out widely among 627 intersections in the Bronx and the vast majority of these intersections account for only one pedestrian KSI.

To determine the Priority Areas, NYC DOT transformed the pedestrian KSI crash dataset into a kernel density map—or “heat map”—which indicates where the density of these crashes is highest. The agency determined Priority Areas by identifying the “hottest” areas on the map that, when combined, account for half of all of pedestrian KSI in the borough.

For the updated Bronx Borough Plan (using 2012-2016 crash data), NYC DOT delisted five corridors, added five, and retained twenty. In terms of intersections, the agency delisted 26, added 25, and retained 20.

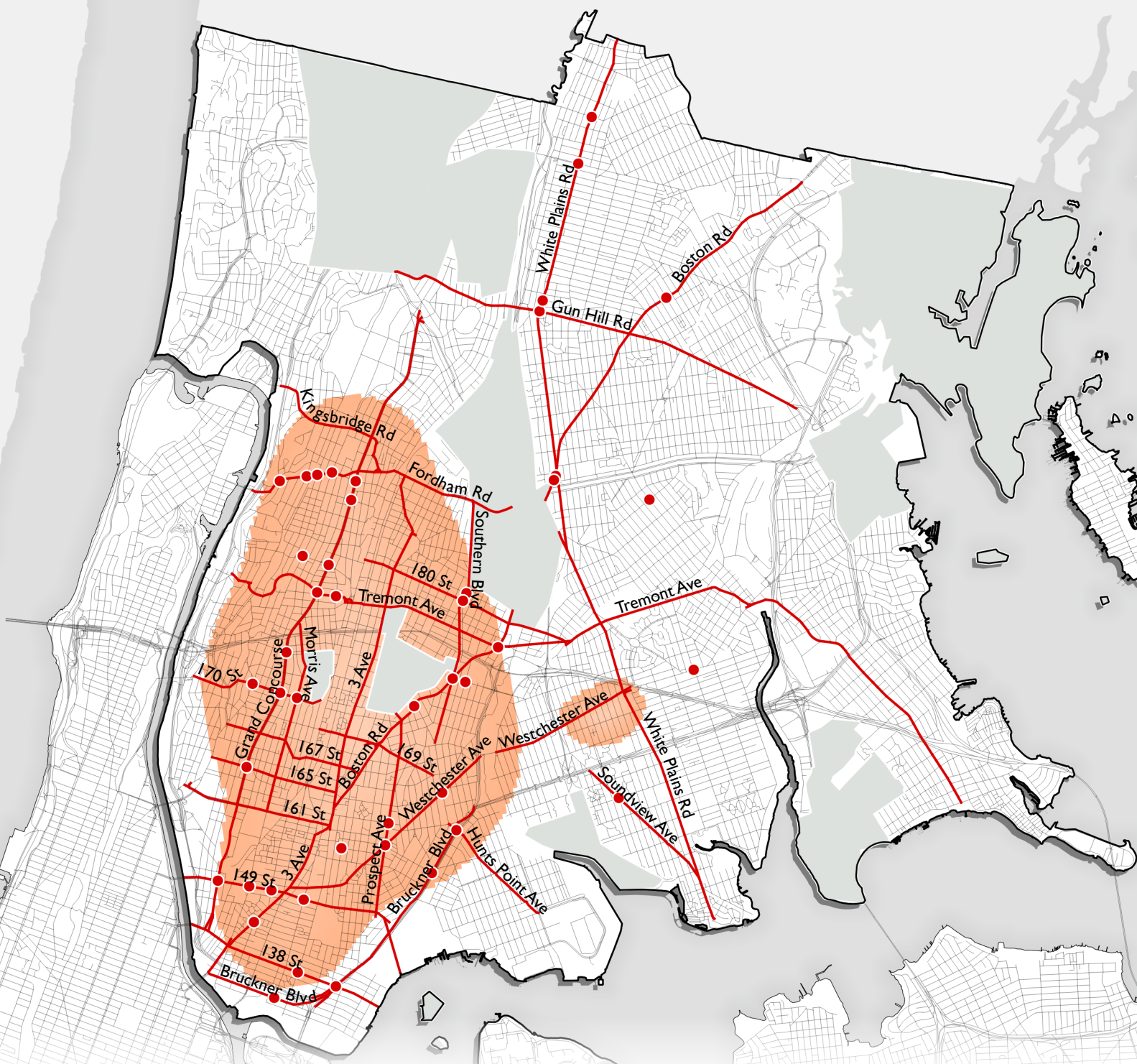


Grand Concourse & East 150 Street, Bronx

Bronx Vision Zero Priority Map 2019

	Share of Borough	Borough	% of the Borough	Share of Ped KSI	Total Ped KSI	% of Total Ped KSI	% of Total Ped Fatalities
Priority Corridors	63 miles	791 miles	8%	481	—	50%	46%
Priority Intersections	45 intersections	6,406 intersections	1%	146	—	15%	10%
Priority Areas	8 sq. miles	43 sq. miles	20%	502	—	52%	42%
Combined Total				688	958	72%	66%

Data from years 2012 - 2016

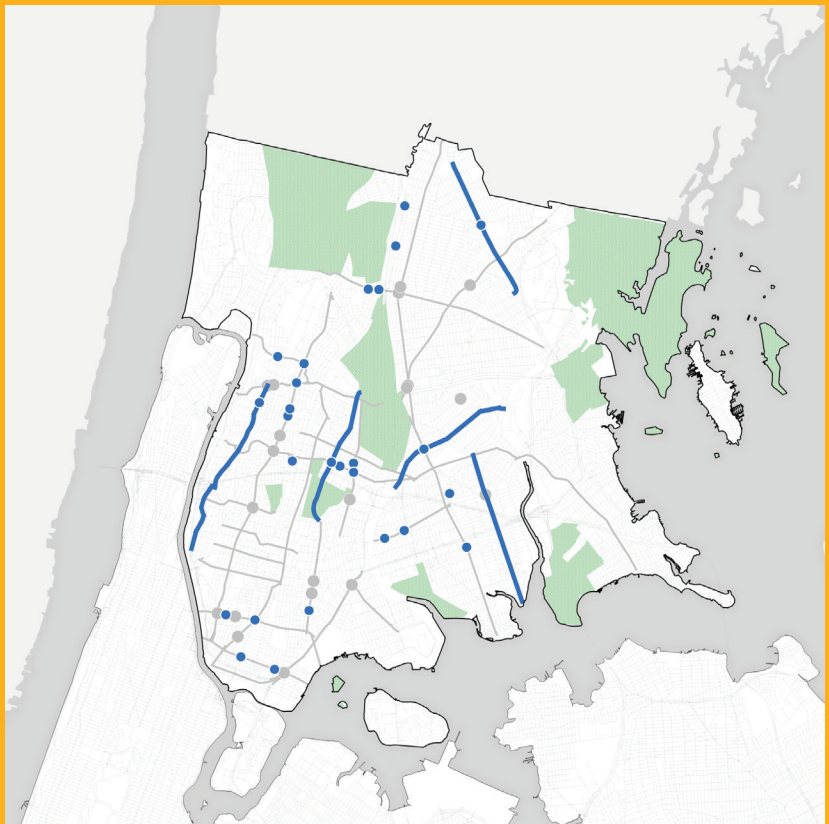


● Priority Intersection — Priority Corridor ■ Priority Area

Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database

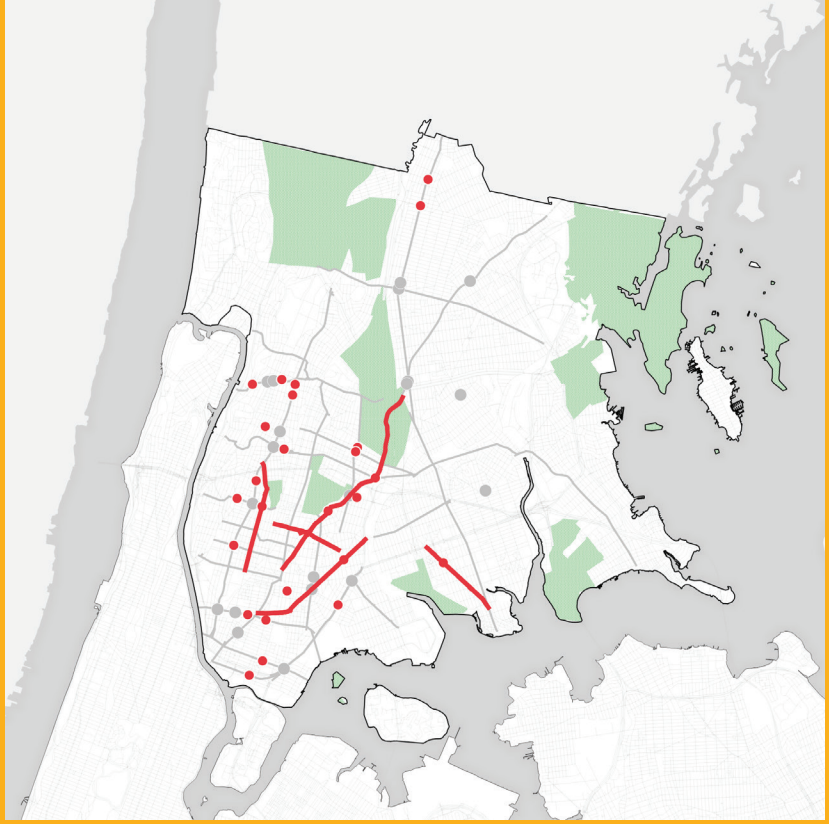
Priority Corridors and Intersections Delisted

- Intersection Delisted
- Intersection Retained
- Corridor Delisted
- Corridor Retained



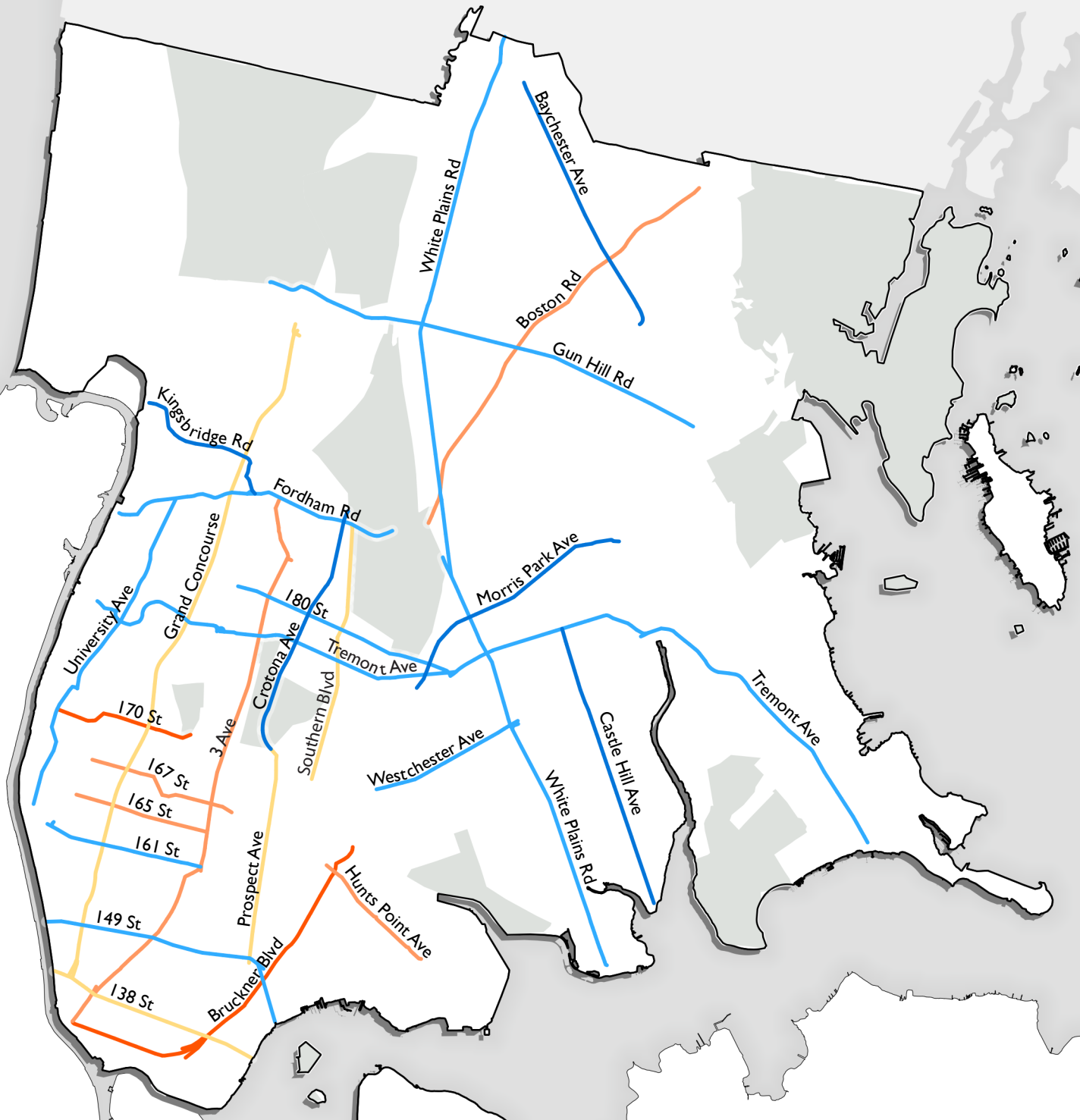
New Priority Corridors and Intersections

- New Intersection
- Intersection Retained
- New Corridor
- Corridor Retained



Between 2009-2013 and 2012-2016, the number of pedestrians killed or seriously injured on 2015 Priority Corridors in the Bronx declined 8%*

Pedestrian KSI decreased on 16 out of 25 corridors



% Change in Pedestrian KSI per mile	-100% to -30%	-30% to -5%	-5% to 5%	5% to 30%	30% to 100%

Severe injury data: NYS DOT/NYS DMV Accident Database
 Fatality data: NYS DOT/NYPD Reconciled Fatality Database

Bronx Change in Priority Corridors

Status	Street	From	To	Ped KSI per mile (2009-2013)	Ped KSI per mile (2012-2016)	Corridor Length (miles)	Change	Change per Status Group
Delisted	Baychester Av	Hammersley Av	Hoxie St	7.9	3.9	2.0	-50%	-37%
	Castle Hill Av	Hart St	Tremont Av	7.9	4.2	2.2	-47%	
	Morris Park Av	Wyatt St	Bassett Av	7.6	4.5	2.0	-40%	
	Crotona Av	Prospect Av	Dr Kazimiroff Blvd	6.7	4.7	1.9	-31%	
	Dr M L King Jr Blvd	Sedgwick Av	University Av	6.9	5.7	2.6	-17%	
Retained	Kingsbridge Rd	Fordham Rd	Exterior St	15.6	9.0	1.2	-42%	-4%
	Fordham Rd	Tiebout Av	University Heights Br	15.7	11.2	2.2	-29%	
	149 St	145 St Br	Bruckner Blvd	12.2	9.4	2.1	-23%	
	Tremont Av	Rosedale Av	Sedgwick Av	8.2	6.5	7.2	-20%	
	Gun Hill Rd	Grace Av	Van Cortlandt Park S	8.8	7.4	3.4	-17%	
	White Plains Rd	Sunset Blvd	243 St	8.2	7.0	7.5	-15%	
	Westchester Av [North Leg]	Westchester Av Br	Hugh J Grant Cir	11.3	9.7	1.2	-14%	
	161 St	Jerome Av	3 Av	7.3	6.5	1.2	-11%	
	180 St	Webster Av	Tremont Av	8.6	8.1	1.7	-7%	
	Southern Blvd	Louis Nine Blvd	Fordham Rd	11.3	10.8	2.0	-5%	
	Grand Concourse	138 St	Mosholu Pkwy	13.0	12.8	5.5	-1%	
	Prospect Av	Southern Blvd	Crotona Av	8.0	8.0	1.6	0%	
	138 St	Madison Av Br	Locust Av	11.7	11.7	1.6	0%	
	167 St	Cromwell Av	Boston Rd	8.5	9.4	1.2	10%	
	3 Av	Bruckner Blvd	Fordham Rd	7.2	8.1	4.6	12%	
	Boston Rd [North Leg]	Bronx Park E	Eastchester Br	9.6	10.8	3.3	13%	
	Hunts Pt Av	Halleck St	Southern Blvd	10.9	12.9	1.0	18%	
	165 St	Jerome Av	3 Av	7.9	9.8	1.0	25%	
Bruckner Blvd	Cypress Av	Bruckner Exwy	7.4	11.3	3.4	52%		
170 St	Clay Av	Dr M L King Jr Blvd	10.3	16.9	1.1	64%		
New	Morris Av	161 St	175 St	7.1	5.8	1.5	-18%	+22%
	Westchester Av [South Leg]	3 Av	Westchester Av Br	5.2	6.3	1.9	20%	
	Boston Rd [South Leg]	3 Av	Bronx Park E	5.4	6.9	3.2	29%	
	Soundview Av	White Plains Rd	Bruckner Blvd	5.0	6.6	1.2	33%	
	169 St	Simpson St	Webster Av	4.7	8.4	1.1	80%	



Naples Terrace, Bronx

CASE STUDY 1: Baychester Avenue

(Delisted Priority Corridor)

Baychester Avenue from Hammersley Avenue to 241 Street was a 2015 Priority Corridor, with five fatalities and 7.9 pedestrians killed or severely injured per mile from 2009-2013. Although the street is no longer considered a Priority Corridor (pedestrian KSI dropped 50%), the corridor still had two fatalities and 3.9 pedestrians killed or severely injured per mile from 2012-2016. The agency installed two safety engineering projects on Baychester Avenue between 2009 and 2018.



Baychester Avenue & East 233 Street, Before



Baychester Avenue & East 233 Street, After

Baychester Avenue Safety Engineering Projects 2009-2018 (2 in total)

2016	2018
<p style="text-align: center;">Baychester Avenue (Boston Road - East 233 Street)</p>	<p style="text-align: center;">Baychester Avenue & East 241 Street (East 233 Street - Carpenter Avenue)</p>
<ul style="list-style-type: none"> • Markings Upgrades • New Pedestrian Crossings • Painted Curb Extensions • Pedestrian Refuge Islands • One-Way Conversion • Signal Timing Changes • Turn Bays • Turn Bans 	<ul style="list-style-type: none"> • Bicycle Lane and Sharrows • Lane Removal • Markings Upgrades • Painted Median • Pedestrian Refuge Islands • Signal Timing Changes • Turn Bays • Turn Bans

CASE STUDY 2: Westchester Avenue

(New Priority Corridor)

Westchester Avenue Safety Engineering Projects 2009-2018 (3 in total)

2013	2014	2015
Westchester Avenue (Bryant Avenue - Bronx River Avenue)	Longwood Avenue (East 158 Street - East 161 Street)	Jackson Avenue & Westchester Avenue
<ul style="list-style-type: none"> • Bicycle Facilities • Markings Upgrades • New Pedestrian Crossing • Painted Curb Extensions 	<ul style="list-style-type: none"> • Bus Boarding Island • Markings Upgrades • Painted Curb Extensions • Lane Removal 	<ul style="list-style-type: none"> • Bus Boarding Island • Markings Upgrades • Painted Curb Extensions



Westchester Avenue & Jackson Avenue, Before



Westchester Avenue & Jackson Avenue, After

Westchester Avenue from Third Avenue to Bronx River Avenue is a new 2019 Priority Corridor. While Westchester Avenue north of the Bronx River, from Bronx River Avenue to Hugh J. Grant Circle, was already considered a Priority Corridor in 2015, Westchester Avenue south of Bronx River has been added as a Priority Corridor in 2019. The KSI per mile of roadway for this stretch of Westchester Avenue increased 20% between the study periods of 2009-2013 and 2012-2016.

The corridor had one fatality and 5.2 pedestrians killed or severely injured per mile of roadway from 2009-2013. From 2012-2016, Westchester Avenue from 3rd Avenue to Bronx River Avenue had zero fatalities and 6.3 pedestrians killed or severely injured per mile of roadway. NYC DOT installed three safety engineering projects on Westchester Avenue between 2009 and 2018.

Brooklyn



Bedford Avenue, Nassau Avenue, & Lorimer Street, Brooklyn

2.



Brooklyn is the most populous borough

Brooklyn remains New York City’s largest borough, with its almost 2.7 million people representing one-third of the city’s population. Since 2014, Brooklyn added more than 40,000 new residents, with new developments springing up most visibly in the northern parts of the borough. Brooklyn surged more than any other borough in wealth, with the household median income increasing from \$46,958 in 2014 to \$52,782 to 2018. However, poverty also jumped the most in Brooklyn, with more than 23% of the borough’s residents living in poverty, second only to the Bronx.

NYC DOT invested extensively in capital construction throughout the diverse neighborhoods of Brooklyn, with Great Streets projects spanning from downtown Brooklyn to Sunset Park and East New York. The Atlantic Avenue and Fourth Avenue Great Streets projects include beautification and enhanced pedestrian and cyclist amenities and will cost a total of \$169.3 million.



Brooklyn median household income grew the most of any borough

NYC DOT also delivered a host of other safety projects across the borough, with dramatic improvements to the complex intersection at Flatbush Avenue and Atlantic Avenue, more protected bike lanes each year, and the closing of Prospect Park to motor vehicle traffic.

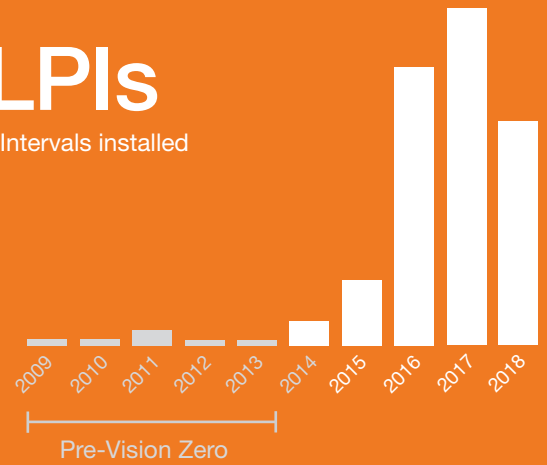
154 Safety Engineering Projects

completed



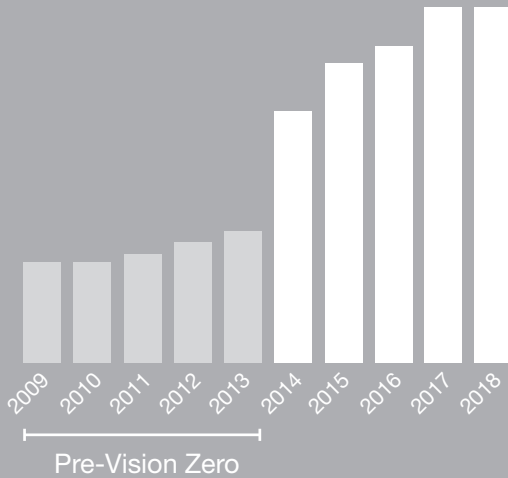
1,022 LPIs

or Leading Pedestrian Intervals installed



219,332

traffic summonses issued by
NYPD for Speeding and
Failure to Yield



2,281,063

automated speed camera
violations issued

141 Vision Zero Priority Locations

visited by Vision Zero Street Teams



500 school visits

for safety education in Priority Locations



111 senior center visits

for safety education in Priority Locations



Brooklyn Summary Statistics

Pedestrian fatalities in Brooklyn declined 23% in 2018 compared to the pre-Vision Zero average

Pedestrian fatalities declined in Brooklyn since the start of the Vision Zero initiative in 2014. In the five years before New York City adopted Vision Zero (2009-2013), an average of 46 pedestrians were killed per year in Brooklyn, while in 2018, 35 pedestrians were killed, a 23% decline.

Pedestrian fatalities dropped further at the Vision Zero Priority Locations, a promising sign given that the City's safety efforts focused on these locations. In the five years before New York City adopted Vision Zero, an average of 28 pedestrians were killed per year at Brooklyn Vision Zero Priority Locations, while in 2018, 17 were pedestrians killed, a 40% decline.

In Brooklyn, from 2014 through 2018:

- 154 Safety Engineering Projects completed
- 1,022 Leading Pedestrian Intervals (LPIs) installed
- 219,332 traffic summonses issued for Speeding and Failure to Yield
- 2,281,063 automated speed camera violations issued
- 141 Priority Locations visited by Vision Zero Street Teams
- 500 school and 111 senior center visits for safety education in Priority Locations

NYC DOT made safety engineering improvements on 93% of Brooklyn Priority Corridors

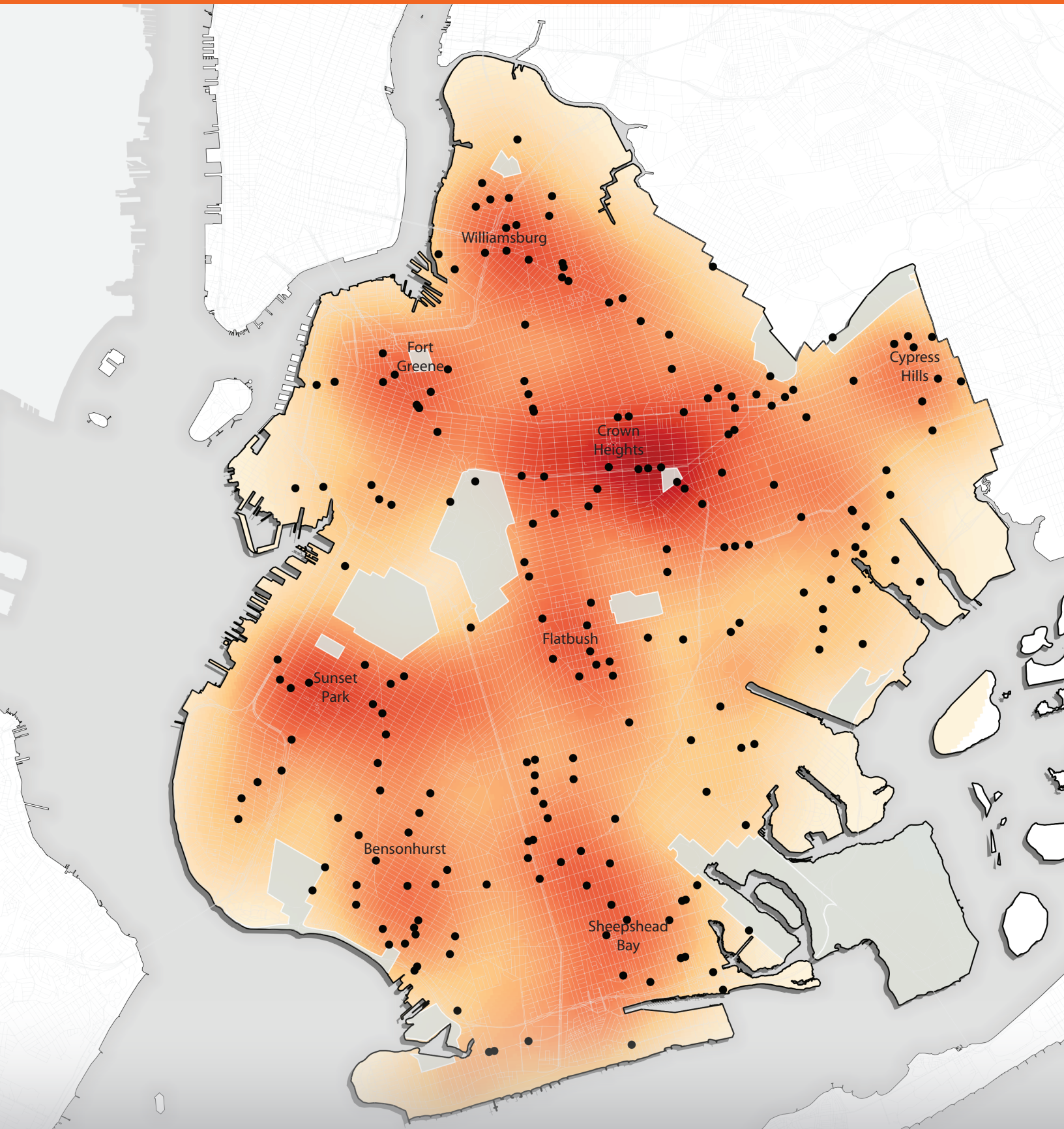
In Brooklyn, NYC DOT made safety engineering improvements at 92% of all Priority Intersections, and at 93% of the total length of Priority Corridors since the start of Vision Zero.*

*Safety engineering improvements include Street Improvement Projects (SIP), new traffic signal construction, Left Turn Traffic Calming (LTC), Leading Pedestrian Intervals (LPI), new street lighting, and Corridor Safety Signal Retiming.



Sheepshead Bay Road & Jerome Avenue, Brooklyn

Brooklyn Pedestrian KSI Heat Map + Pedestrian Fatalities



Approximate pedestrian KSI per sq mile per year



● Pedestrian Fatality 2012 - 2016

Pedestrian Killed or Severely Injured Kernel Density

A smoothing technique for spatial data where the expected density is calculated for every location on the map with the underlying principal that closer KSI are more heavily weighted than farther KSI. Each location is then assigned a color based on the expected density of KSI, with red showing the highest density of KSI and beige showing the lowest. It is useful for identifying and presenting hotspots.

Severe injury data: NYSDOT/NYS DMV Accident Database
Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Priority Corridors, Intersections & Areas

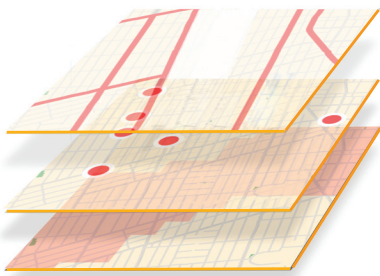
Brooklyn has more than 1,500 miles of roadway and nearly 11,000 intersections. To focus safety interventions where treatments will have the greatest effect, the City has identified the locations where pedestrian deaths and severe injuries are most concentrated. Using pedestrian KSI data from the last five available years (2012-2016), NYC DOT duplicated the process for selecting Priority Corridors, Priority Intersections, and Priority Areas that was employed in the initial 2015 Pedestrian Safety Action Plans (see Priority Geography Methodology in Appendix). The resulting locations will be prioritized for future safety interventions over the next three years, including engineering, enforcement and education.

To determine the Priority Corridors, NYC DOT ranked all corridors in Brooklyn based on pedestrian KSI per-mile. The agency selected corridors from the top of this list until the cumulative number of pedestrian KSI reached at least 50% of the borough's total.

To determine the Priority Intersections, NYC DOT selected the intersections with the highest number of pedestrian KSI that cumulatively account for 15% of the borough's total pedestrian KSI. This is a lower percentage than that used for corridors because crashes resulting in pedestrian KSI are spread out widely among 1,275 intersections in Brooklyn and the vast majority of these intersections account for only one pedestrian KSI.

To determine the Priority Areas, the NYC DOT transformed the pedestrian KSI crash dataset into a kernel density map—or “heat map”—which indicates where the density of these crashes is highest. The agency determined Priority Areas by identifying the “hottest” areas on the map that, when combined, account for half of all of pedestrian KSI in the borough.

For the updated Brooklyn Borough Plan (using 2012-2016 crash data), NYC DOT delisted 13 corridors, added 12, and retained 36. The agency delisted 52 intersections, added 58, and retained 39.

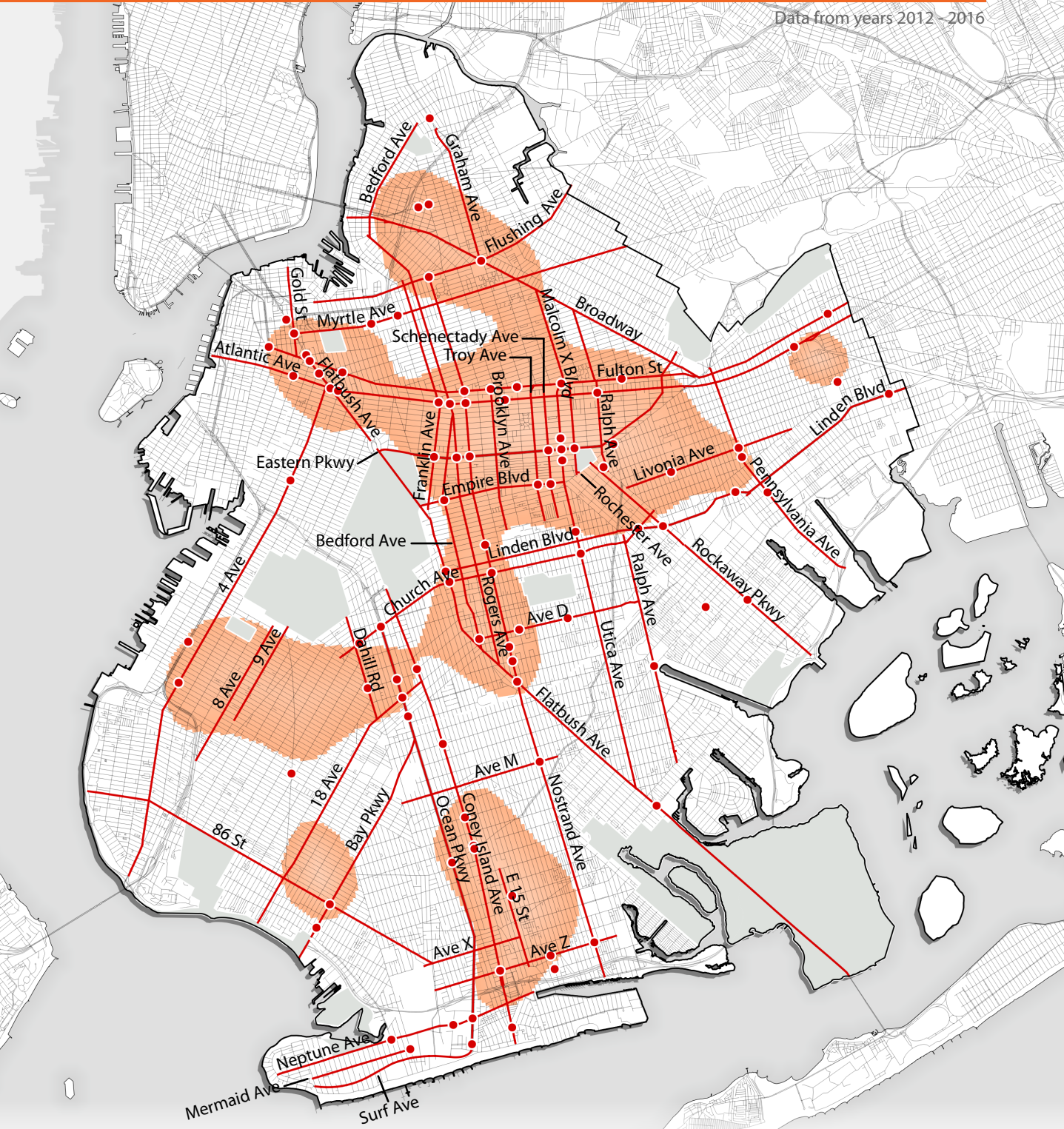


South 4 Street & Borinquen Place, Brooklyn

Brooklyn Vision Zero Priority Map 2019

	Share of Borough	Borough	% of the Borough	Share of Ped KSI	Total Ped KSI	% of Total Ped KSI	% of Total Ped Fatalities
Priority Corridors	141 miles	1,506 miles	9%	973	—	51%	52%
Priority Intersections	97 intersections	10,709 intersections	1%	289	—	15%	13%
Priority Areas	18 sq. miles	70 sq. miles	26%	966	—	50%	43%
Combined Total				1,420	1,922	74%	72%

Data from years 2012–2016

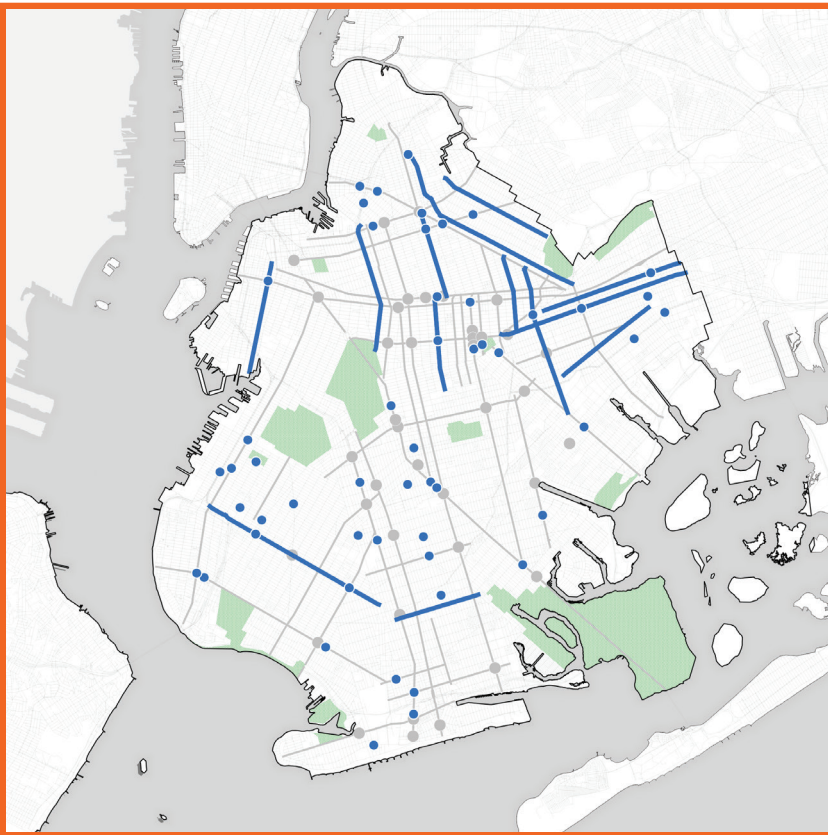


- Priority Intersection
- Priority Corridor
- Priority Area

Severe injury data: NYS DOT/NYS DMV Accident Database
 Fatality data: NYS DOT/NYPD Reconciled Fatality Database

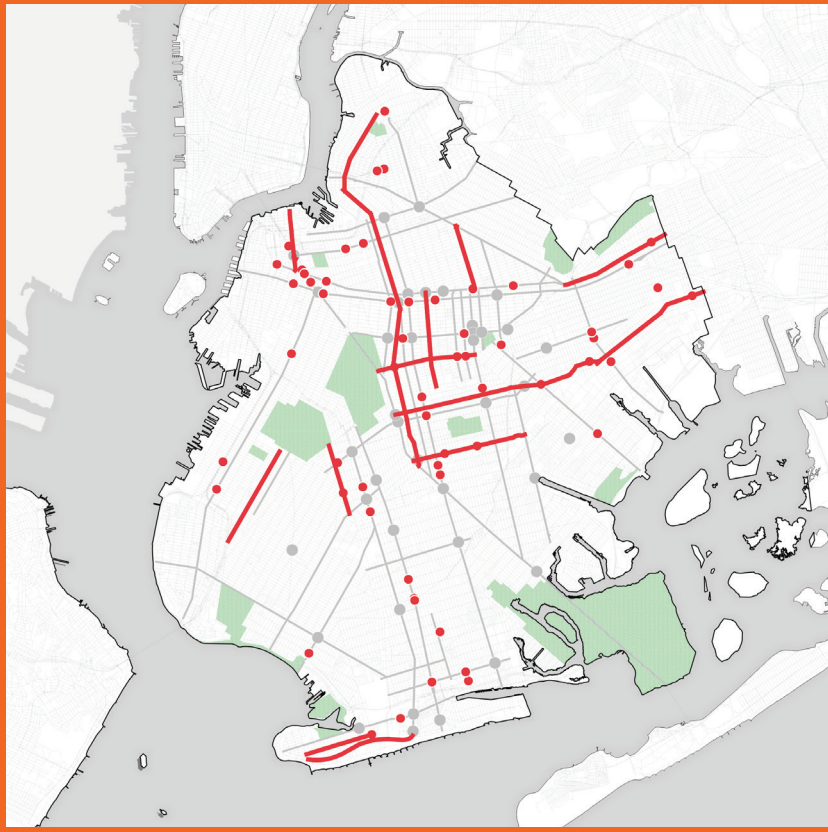
Priority Corridors and Intersections Delisted

- Intersection Delisted
- Intersection Retained
- Corridor Delisted
- Corridor Retained



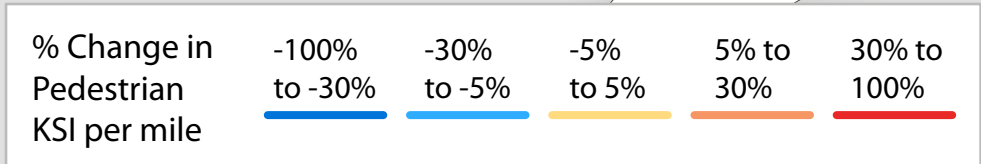
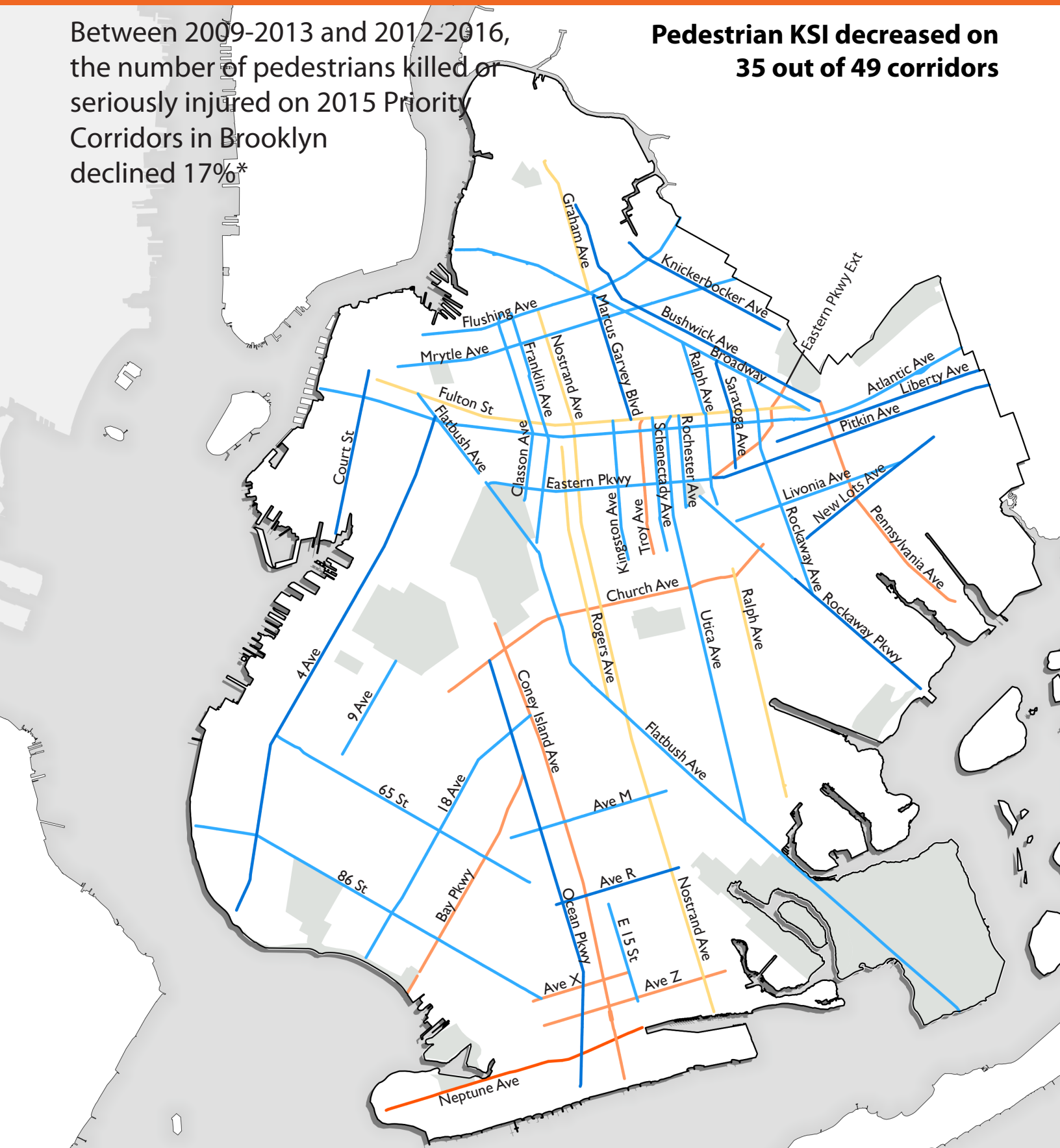
New Priority Corridors and Intersections

- New Intersection
- Intersection Retained
- New Corridor
- Corridor Retained



Between 2009-2013 and 2012-2016, the number of pedestrians killed or seriously injured on 2015 Priority Corridors in Brooklyn declined 17%*

Pedestrian KSI decreased on 35 out of 49 corridors



Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Brooklyn Change in Priority Corridors

Status	Street	From	To	Ped KSI per mile (2009-2013)	Ped KSI per mile (2012-2016)	Corridor Length (miles)	Change	Change per Status Group
Delisted	Liberty Av	Mother Gaston Blvd	Drew St	7.2	2.1	2.4	-71%	-44%
	Marcus Garvey Blvd	Broadway	Fulton St	10.4	4.2	1.4	-60%	
	Knickerbocker Av	Morgan Av	Moffat St	7.8	3.1	1.9	-60%	
	Court St	Montague St	Bryant St	7.6	3.3	1.8	-57%	
	New Lots Av	Hegeman Av	Logan St	8.9	3.9	1.8	-56%	
	Bushwick Av	Maspeth Av	Jamaica Av	8.8	4.4	3.6	-50%	
	Saratoga Av	Broadway	New York Av	7.4	4.1	1.2	-44%	
	Av R	Kings Hwy	Gerritsen Av	9.2	5.7	1.4	-38%	
	Pitkin Av	Eastern Pkwy Ex	Ruby St	9.0	5.6	3.2	-38%	
	Classon Av	Kent Av	Washington Av	8.0	5.6	2.1	-29%	
	65 St	4 Av	Av P	7.7	5.5	3.2	-28%	
	Rockaway Av [South Leg]	Broadway	Rockaway Pkwy	7.5	6.0	2.5	-21%	
	Kingston Av	Fulton St	Winthrop St	6.5	5.2	1.5	-20%	
Retained	Ocean Pkwy	Prospect Exwy	Surf Av	13.2	8.0	4.9	-39%	-12%
	Rockaway Pkwy [South Leg]	Canarsie Veterans Cir	Av D	9.8	6.5	1.8	-33%	
	4 Av	Flatbush Av	Belt Pkwy	10.2	6.9	6.0	-33%	
	Rockaway Pkwy [North Leg]	New York Av	Ditmas Av	12.4	8.8	1.4	-29%	
	Utica Av	Malcolm X Blvd	Av S	14.1	10.4	4.6	-26%	
	Myrtle Av	Duffield St	Palmetto St	11.1	8.2	3.9	-26%	
	86 St	Shore Rd	Shell Rd	8.8	6.7	4.3	-24%	
	Rochester Av [North Leg]	Fulton St	New York Av	8.6	6.7	1.0	-22%	
	Ralph Av	Lexington Av	98 St	8.6	7.0	1.9	-19%	
	Flushing Av	Nassau St	Seneca Av	8.3	6.8	3.3	-19%	
	9 Av	37 St	61 St	9.3	7.6	1.2	-18%	
	Eastern Pkwy	Plaza St E	Ralph Av	17.8	14.6	2.5	-18%	
	Livonia Av	98 St	New Lots Av	8.8	7.2	1.9	-18%	
	Broadway	New York Av	Kent Av	8.2	6.8	4.4	-17%	
	Schenectady Av	Fulton St	Winthrop St	8.1	6.8	1.5	-17%	
	Av M	Dahill Rd	34 St	10.6	8.9	1.8	-16%	
	Flatbush Av [South Leg]	Grand Army Plz	Marine Pkwy Br	8.4	7.1	8.0	-15%	
	Atlantic Av	Furman St	Eldert La	8.5	7.4	7.6	-13%	
	18 Av	Coney Island Av	Shore Pkwy	7.9	7.0	3.3	-12%	
	East 15 St	Av S	Sheepshead Bay Rd	8.0	7.1	1.1	-11%	
Franklin Av	Wythe Av	Washington Av	8.1	7.3	2.6	-10%		

Brooklyn Change in Priority Corridors, cont.

Status	Street	From	To	Ped KSI per mile (2009-2013)	Ped KSI per mile (2012-2016)	Corridor Length (miles)	Change	Change per Status Group
Retained	Flatbush Av [North Leg]	Fulton St	Grand Army Plz	20.8	19.0	1.1	-9%	-12%
	Graham Av	Broadway	Driggs Av	7.0	7.0	1.6	0%	
	Nostrand Av	Lee Av	Emmons Av	8.6	8.6	8.0	0%	
	Fulton St [West Leg]	Adams St	Broadway	8.5	8.7	4.9	2%	
	Rogers Av	Bedford Av	Farragut Rd	7.4	7.8	2.8	5%	
	Ralph Av	Av T	Remsen Av	8.1	8.4	2.6	5%	
	Bay Pkwy	Ocean Pkwy	Cropsey Av	9.3	10.0	2.7	8%	
	Eastern Pkwy Ex	Ralph Av	Vanderveer St	8.6	9.3	1.4	8%	
	Church Av	37 St	98 St	8.8	9.5	4.0	9%	
	Coney Island Av	Park Cir	Brightwater Ct	7.7	8.4	5.5	10%	
	Av Z	Shell Rd	Coyle St	8.6	9.6	2.1	11%	
	Pennsylvania Av	Bushwick Av	Belt Pkwy	8.0	9.4	2.8	18%	
	Av X	15 St	Boynton Pl	7.2	9.0	1.1	25%	
	Troy Av	Lewis Av	Winthrop St	7.3	9.2	1.5	27%	
	Neptune Av	14 St	Surf Av	6.4	8.4	3.0	32%	
New	Fulton St [East Leg]	Broadway	Eldert La	6.5	7.0	1.9	8%	32%
	8 Av	73 St	39 St	6.4	7.0	1.7	9%	
	Mermaid Av	Stillwell Av	37 St	7.1	8.0	1.1	13%	
	Linden Blvd	Flatbush Av	Sapphire St	6.5	7.4	5.7	14%	
	Gold St	Fulton St	John St	5.8	6.8	1.0	17%	
	Surf Av	Ocean Pkwy	Atlantic Av	6.0	7.7	1.8	27%	
	Dahill Rd	Caton Av	18 Av	5.9	7.6	1.2	29%	
	Bedford Av	Manhattan Av	Flatbush Av	5.8	7.6	6.3	30%	
	Brooklyn Av	Fulton St	Winthrop St	5.1	7.7	1.6	50%	
	Malcolm X Blvd	Fulton St	Broadway	6.3	11.7	1.1	86%	
	Av D	Ditmas Av	Ralph Av	4.2	8.4	1.9	100%	
	Empire Blvd	Flatbush Av	Utica Av	4.3	9.2	1.6	114%	

CASE STUDY 1: Bushwick Avenue

(Delisted Priority Corridor)

Bushwick Avenue from Maspeth Avenue to Jamaica Avenue was a 2015 Priority Corridor, with three fatalities and 8.8 pedestrians killed or severely injured per mile of roadway from 2009-2013. Although the street is no longer considered a Priority Corridor (pedestrian KSI dropped 50%), the corridor still had two fatalities and 4.4 pedestrians killed or severely injured per mile of roadway from 2012-2016. The agency installed four safety engineering projects on Bushwick Avenue between 2009 and 2018.



Bushwick Avenue, Jamaica Avenue, & Jackie Robinson Parkway, Brooklyn, Before



Bushwick Avenue, Jamaica Avenue, & Jackie Robinson Parkway, Brooklyn, After

Bushwick Avenue Safety Engineering Projects 2009-2018 (4 in total)

2009	2014	2016	2018
Metropolitan Avenue & Bushwick Avenue	Bushwick Avenue (McKibbin Street - Myrtle Avenue)	Bushwick Avenue, Jamaica Avenue, & Jackie Robinson Parkway	Bushwick Avenue & Eastern Parkway
<ul style="list-style-type: none"> • Concrete Median • Lane Removal • Markings Upgrades • New Pedestrian Crossing • One-Way Conversion • Pedestrian Refuge Island 	<ul style="list-style-type: none"> • Bicycle Friendly Parking Lane • Markings Upgrades • New Sidewalk • Painted Median • Pedestrian Refuge Islands • Signal Timing Changes 	<ul style="list-style-type: none"> • Markings Upgrades • New Pedestrian Crossing • Pedestrian Refuge Island • Signal Timing Changes 	<ul style="list-style-type: none"> • Lane Designations • Signal Timing Changes

CASE STUDY 2: Linden Boulevard

(New Priority Corridor)

Linden Boulevard Safety Engineering Projects 2009-2018 (4 in total)

2011	2016	2017	2018
Linden Boulevard (Bedford Avenue - East 57 Street)	Linden Boulevard (Kings Highway - Van Sinderen Avenue)	Linden Boulevard, Powell Street, & Junius Street	Linden Boulevard & Vermont Avenue
<ul style="list-style-type: none"> • Lane Removal • Markings Upgrades • Painted Median • Turn Bays 	<ul style="list-style-type: none"> • Channelization • Concrete Curb Extensions • Concrete Median • Markings Upgrades • New Pedestrian Crossing • Pedestrian Refuge Island • Turn Bans 	<ul style="list-style-type: none"> • Concrete Median Tips • Concrete Triangle • One-Way Conversion • New Crosswalks • New Traffic Control 	<ul style="list-style-type: none"> • Concrete Median • Concrete Median Tip • Turn Ban



Linden Boulevard & Van Sinderen Avenue, Brooklyn, Before



Linden Boulevard & Van Sinderen Avenue, Brooklyn, After

Linden Boulevard from Flatbush Avenue to Sapphire Street is a new Priority Corridor for 2018. The corridor had three pedestrian fatalities and 6.5 pedestrians killed or severely injured per mile of roadway from 2009-2013. From 2012-2016, Linden Boulevard had 6 fatalities and 7.4 pedestrians killed or severely injured per mile of roadway. The boulevard had a 14% increase in the pedestrian KSI per mile of roadway between the two study periods.

NYC DOT installed three safety engineering projects between 2009 and 2018 and plans to install additional safety improvements at 11 intersections within a two mile section of Linden Boulevard in East New York, Brooklyn. Planned improvements include construction of new concrete medians, concrete median tip extensions and improved markings.



Manhattan



**Ride-hail pickups
in Manhattan grew
by 42%**

Since 2014, Manhattan added more than 30,000 new residents and grew by 2% in population. However, Manhattan's increasing congestion is tied to other sources of growth. At least 1.5 million commuters come into Manhattan each week day, roughly doubling the size of the borough. Tourism (focused in Manhattan) continued to increase and the city welcomed nearly 12 million more visitors in 2016 than in 2010. NYC DOT installed projects throughout the borough that created safe, car-free spaces for these pedestrians, including the completion of capital construction at the world-famous plazas at Times Square and Herald Square in Midtown.

Some of Manhattan's transportation growth is not sustainable in the long run; between 2016 and 2017 alone, Manhattan ride-hail pickups (such as Uber and Lyft) grew by 42%. That's why NYC DOT implemented projects dedicated to safer, high performance travel modes such as dedicated and camera-enforced SBS bus lanes on 125 Street and Midtown's first ever crosstown protected bike lanes on 26th and 29th Streets.



**Manhattan's
population nearly
doubles each
weekday**

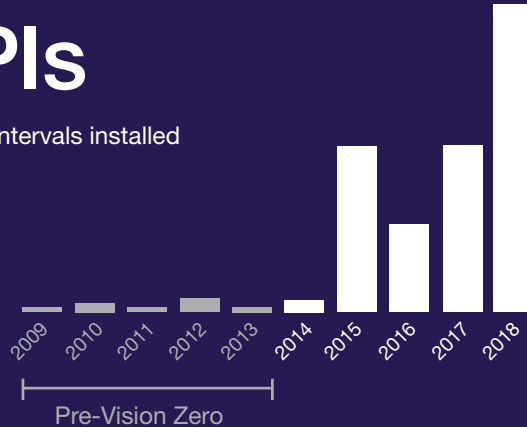
112 Safety Engineering Projects



completed

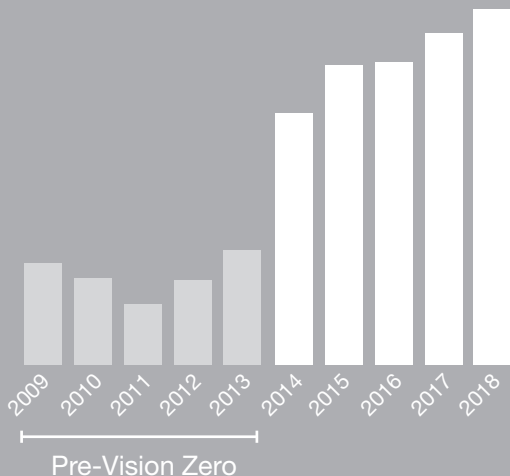
834 LPIs

or Leading Pedestrian Intervals installed



174,854

traffic summonses issued by NYPD for Speeding and Failure to Yield



115,982

automated speed camera violations issued

142 Vision Zero Priority Locations

visited by Vision Zero Street Teams



118 school visits

for safety education in Priority Locations



87 senior center visits

for safety education in Priority Locations



Pedestrian fatalities in Manhattan declined 48%

Manhattan Summary Statistics

Pedestrian fatalities declined in Manhattan since the start of the Vision Zero initiative in 2014. In the five years before New York City adopted Vision Zero (2009-2013), an average of 34.6 pedestrians were killed per year in Manhattan, while in 2018, an average of 18 pedestrians were killed, a 48% decline.

Pedestrian fatalities fell more dramatically at the Vision Zero Priority Locations, a promising sign given that the City's safety efforts focused on these locations. In the five years before New York City adopted Vision Zero, an average of 23.2 pedestrians were killed per year at Manhattan Vision Zero Priority Locations, while in 2018, 11 pedestrians were killed, a 53% decline.

In Manhattan, from 2014 through 2018:

- 112 Safety Engineering Projects completed
- 834 Leading Pedestrian Intervals (LPis) installed
- 174,854 traffic summonses issued for Speeding and Failure to Yield
- 115,982 automated speed camera violations issued
- 142 priority locations visited by Vision Zero Street Teams
- 118 school and 87 senior center visits for safety education in Priority Locations

NYC DOT made safety engineering improvements on 86% of Manhattan Priority Corridors

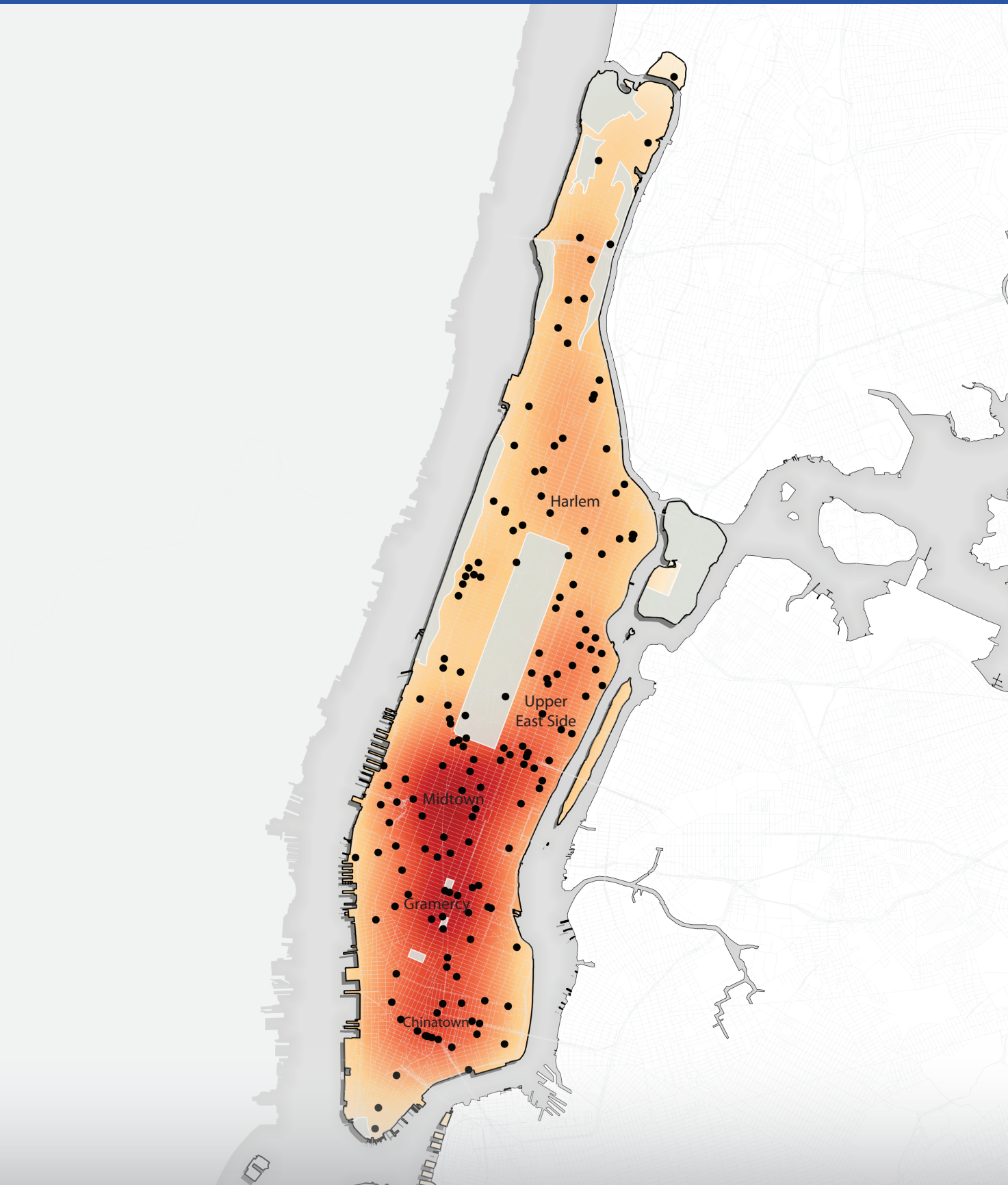
In Manhattan, NYC DOT made safety engineering improvements at 89% of all Priority Intersections, and at 86% of the total length of Priority Corridors since the start of Vision Zero.*

*Safety engineering improvements include Street Improvement Projects (SIP), new traffic signal construction, Left Turn Traffic Calming (LTTC), Leading Pedestrian Intervals (LPI), new street lighting, and Corridor Safety Signal Retiming.



Union Square, Manhattan

Manhattan Pedestrian KSI Heat Map + Pedestrian Fatalities



Approximate pedestrian KSI per sq mile per year

0 30.8

● Pedestrian Fatality 2012 - 2016

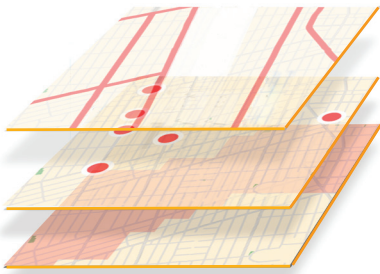
Pedestrian Killed or Severely Injured Kernel Density

A smoothing technique for spatial data where the expected density is calculated for every location on the map with the underlying principal that closer KSI are more heavily weighted than farther KSI. Each location is then assigned a color based on the expected density of KSI, with red showing the highest density of KSI and beige showing the lowest. It is useful for identifying and presenting hotspots.

Severe injury data: NYSDOT/NYS DMV Accident Database
Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Priority Corridors, Intersections & Areas

Manhattan has 490 miles of roadway and 3,715 intersections. To focus safety interventions where treatments will have the greatest effect, the City has identified the locations where pedestrian deaths and severe injuries are most concentrated. Using pedestrian KSI data from the last five available years (2012-2016), NYC DOT duplicated the process for selecting Priority Corridors, Priority Intersections, and Priority Areas that was employed in the initial 2015 Pedestrian Safety Action Plans (see Priority Geography Methodology in Appendix). The resulting locations will be prioritized for future safety interventions over the next three years, including engineering, enforcement and education.



To determine the Priority Corridors, NYC DOT ranked all corridors in Manhattan based on pedestrian KSI per-mile. The agency selected corridors from the top of this list until the cumulative number of pedestrian KSI reached at least 50% of the borough's total.

To determine the Priority Intersections, NYC DOT selected the intersections with the highest number of pedestrian KSI that cumulatively account for 15% of the borough's total pedestrian KSI. This is a lower percentage than that used for corridors because crashes resulting in pedestrian KSI are spread out widely among 882 intersections in Manhattan and the vast majority of these intersections account for only one pedestrian KSI.

To determine the Priority Areas, the NYC DOT transformed the pedestrian KSI crash dataset into a kernel density map—or “heat map”—which indicates where the density of these crashes is highest. The agency determined Priority Areas by identifying the “hottest” areas on the map that, when combined, account for half of all of pedestrian KSI in the borough.

For the updated Manhattan Borough Plan (using 2012-2016 crash data), NYC DOT delisted two corridors, added seven, and retained fifteen. The agency delisted 36 intersections, added 37, and retained 30.

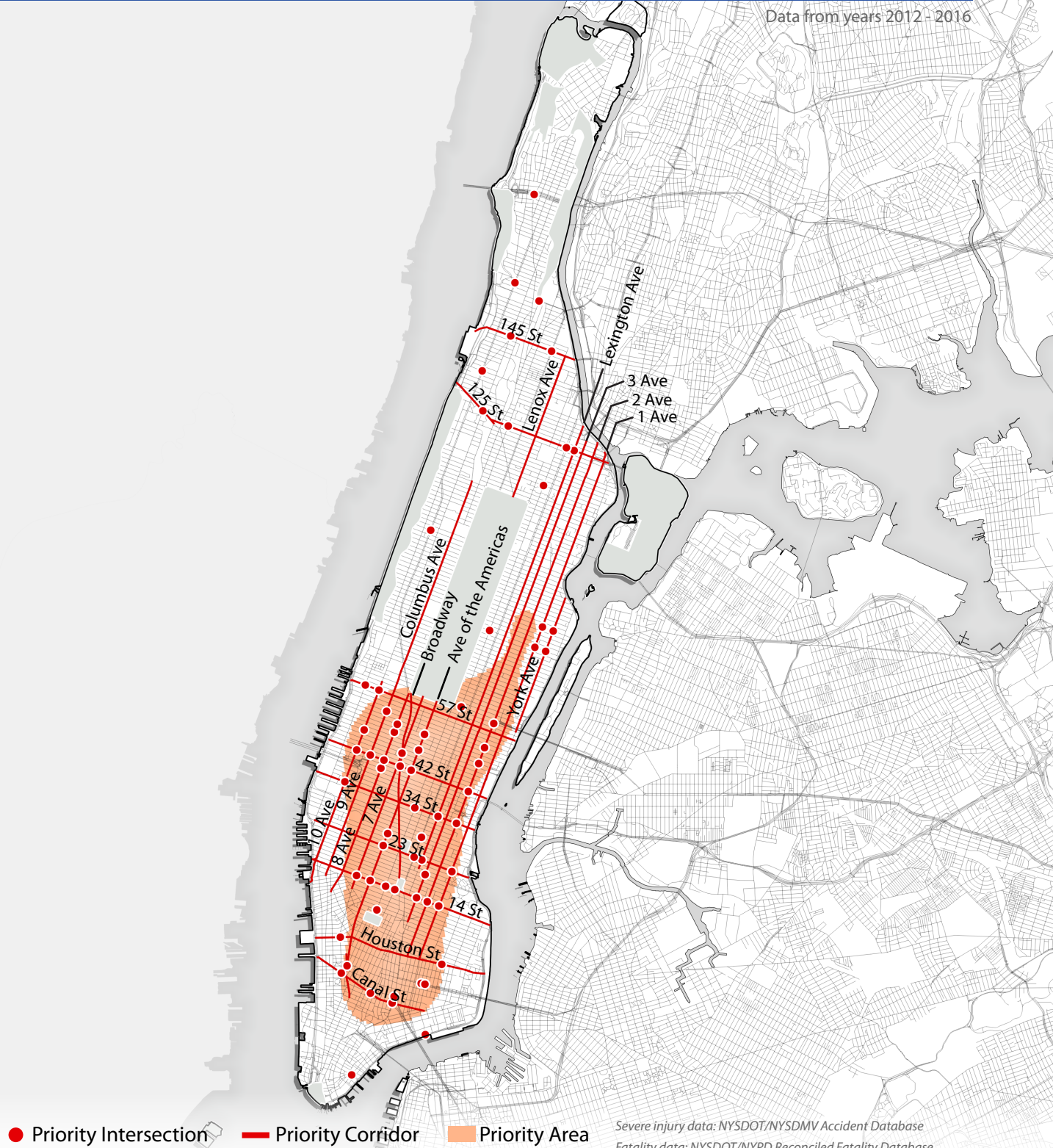


Broad Street & Beaver Street, Manhattan

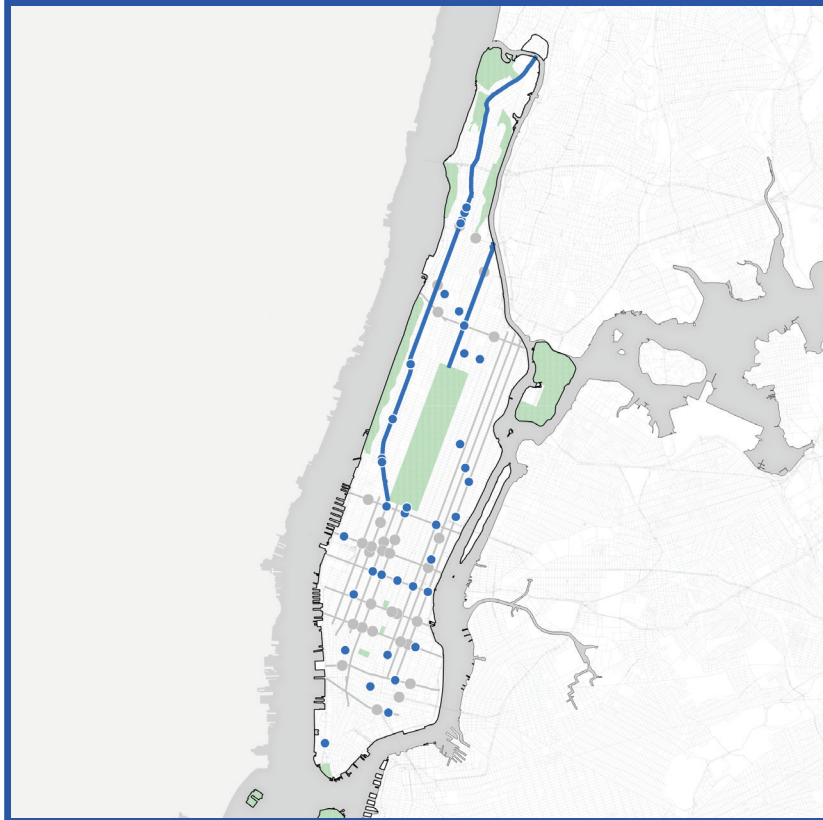
Manhattan Vision Zero Priority Map 2019

	Share of Borough	Borough	% of the Borough	Share of Ped KSI	Total Ped KSI	% of Total Ped KSI	% of Total Ped Fatalities
Priority Corridors	63 miles	490 miles	13%	744	—	51%	47%
Priority Intersections	67 intersections	3,715 intersections	2%	221	—	15%	10%
Priority Areas	6 sq. miles	23 sq. miles	25%	735	—	50%	46%
Combined Total				1,011	1,466	69%	66%

Data from years 2012 - 2016

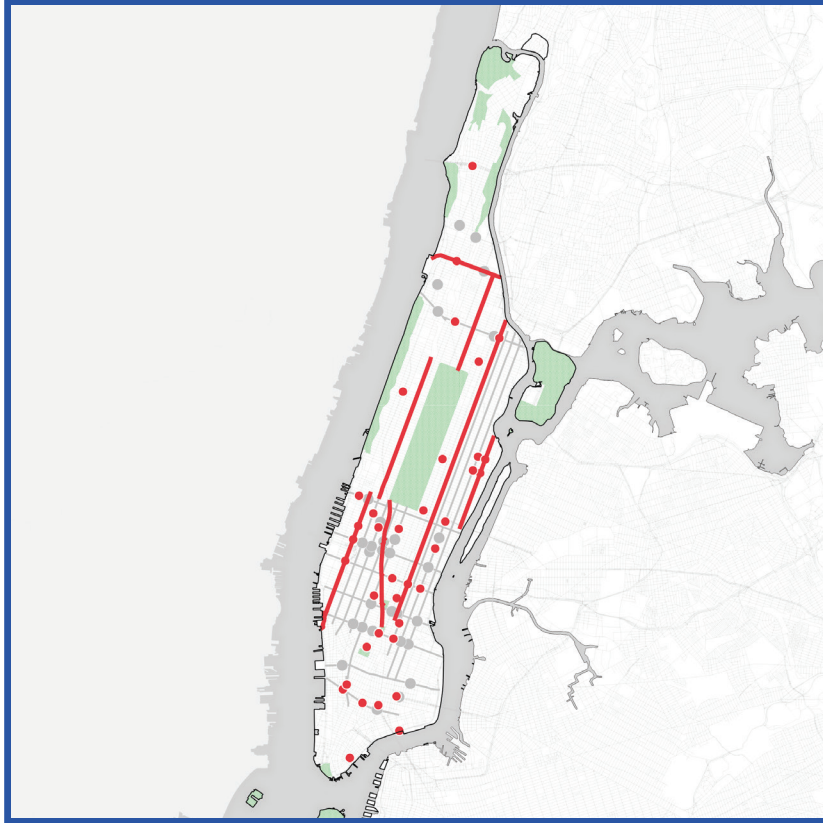


Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database



Priority Corridors and Intersections Delisted

- Intersection Delisted
- Intersection Retained
- Corridor Delisted
- Corridor Retained

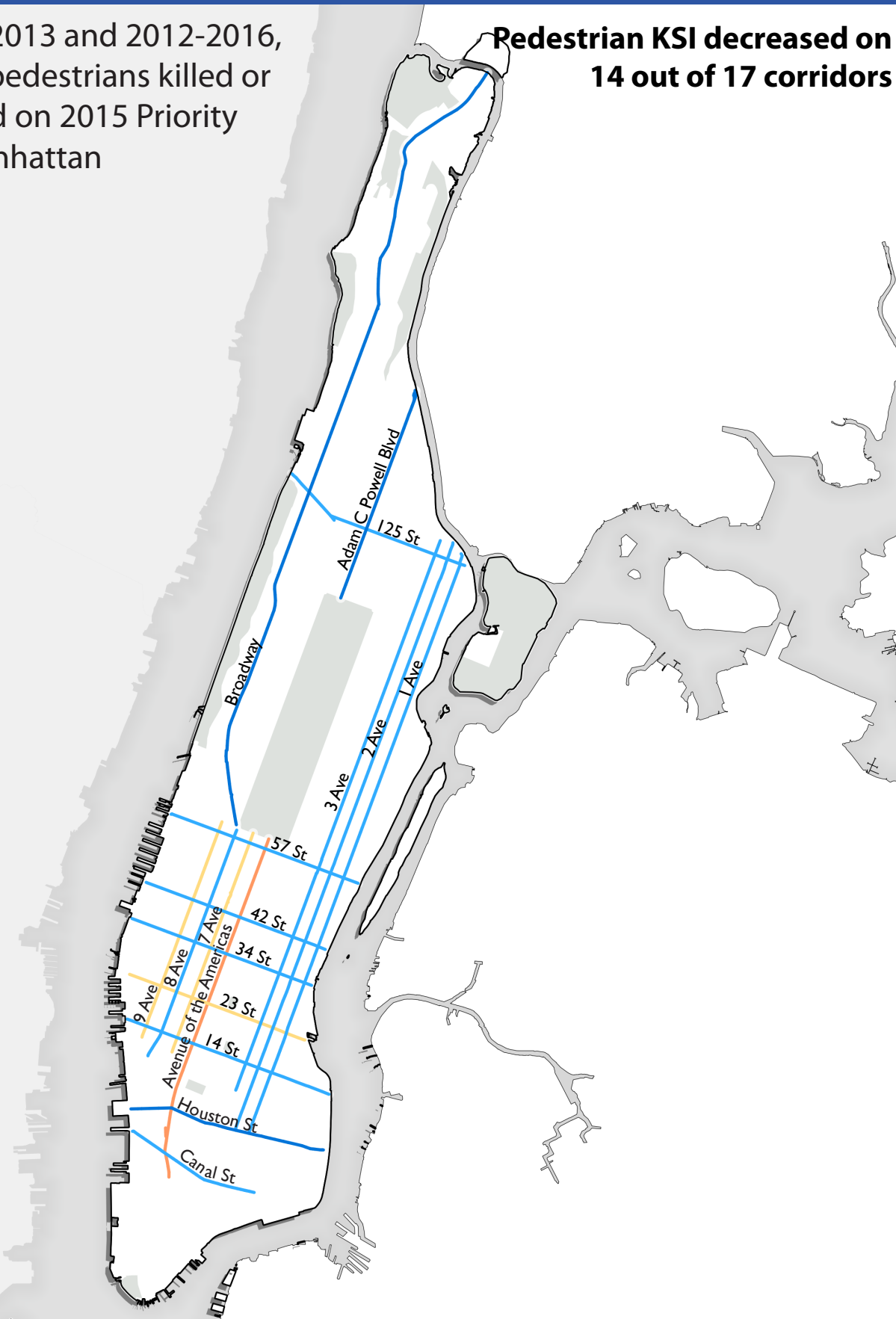


New Priority Corridors and Intersections

- New Intersection
- Intersection Retained
- New Corridor
- Corridor Retained

Between 2009-2013 and 2012-2016, the number of pedestrians killed or seriously injured on 2015 Priority Corridors in Manhattan declined 15%*

Pedestrian KSI decreased on 14 out of 17 corridors



% Change in Pedestrian KSI per mile	-100% to -30%	-30% to -5%	-5% to 5%	5% to 30%	30% to 100%

Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Manhattan Change in Priority Corridors

Status	Street	From	To	Ped KSI per mile (2009-2013)	Ped KSI per mile (2012-2016)	Corridor Length (miles)	Change	Change per Status Group
Delisted	Adam C Powell Blvd	Central Park N	155 St	14.7	8.8	2.4	-40%	-39%
	Broadway	Columbus Cir	Broadway Br	13.9	8.5	8.4	-38%	
Retained	Houston St	FDR Dr	West St	18.2	11.8	2.0	-35%	-12%
	3 Av	Cooper Sq	3 Av Br	17.3	13.3	6.0	-23%	
	Canal St	Broadway	Bowery	22.6	17.6	1.4	-22%	
	34 St	FDR Dr	12 Av	15.8	12.7	2.0	-19%	
	42 St	FDR Dr	12 Av	24.5	19.9	2.0	-19%	
	1 Av	Houston St	127 St	13.7	11.5	6.3	-16%	
	14 St	FDR Dr	10 Av	19.5	16.8	2.2	-14%	
	8 Av	Hudson St	Columbus Cir	23.7	20.9	2.5	-12%	
	125 St	Henry Hudson Pkwy	1 Av	12.3	10.9	2.1	-12%	
	2 Av	Houston St	Harlem River Dr	15.1	13.6	6.4	-10%	
	57 St	12 Av	FDR Dr	12.7	11.7	2.0	-8%	
	23 St	Av C	11 Av	16.7	16.2	1.9	-3%	
	9 Av	Gansevoort St	Columbus Av	13.2	13.2	2.4	0%	
	7 Av	11 St	Central Park S	17.1	17.5	2.4	2%	
Av Of The Americas	Church St	Central Park S	17.6	19.7	3.8	12%		
New	Broadway	Union Sq W	Columbus Cir	13.1	10.9	2.2	-17%	-2%
	Lexington Av	Gramercy Park N	131 St	10.7	9.6	5.5	-10%	
	Columbus Av	9 Av	Morningside Dr	10.1	9.3	2.6	-8%	
	145 St	145 St Br	Riverside Dr	11.4	10.6	1.2	-7%	
	Lenox Av	Central Park N	145 St	10.8	10.3	1.8	-5%	
	York Av	Sutton Pl	FDR Dr	11.4	13.2	1.7	16%	
	10 Av	West St	59 St	9.4	12.6	2.5	33%	



Broadway & West 157 Street, Manhattan

CASE STUDY 1: Upper Broadway

(Delisted Priority Corridor)



Lincoln Center Bow Tie, Manhattan, Before

Broadway from Columbus Circle to Broadway Bridge was a 2015 Priority Corridor, with 18 fatalities and 14 pedestrians killed or severely injured per mile of roadway from 2009-2013.

Although the street is no longer considered a Priority Corridor (pedestrian KSI dropped 38% from the previous study period), the corridor still had 14 fatalities and 8.5 pedestrians killed or severely injured per mile of roadway from 2012-2016. NYC DOT installed fifteen safety engineering projects on Upper Broadway between 2009 and 2018.



Lincoln Center Bow Tie, Manhattan, After

Upper Broadway

Safety Engineering Projects 2009-2018 (15 in total)

2011	2014	2015	2017	2018
Broadway, West 71 Street, & Amsterdam Avenue	Broadway & Dyckman Street	Edgecombe Avenue (West 158 Street - West 66 Street)	Broadway, Isham Avenue, & West 211 Street	Broadway (West 155 Street - West 170 Street)
<ul style="list-style-type: none"> Concrete Median Markings Upgrades Painted Curb Extensions New Pedestrian Crossing Painted Sidewalk Turn Bays 	<ul style="list-style-type: none"> Concrete Curb Extension Concrete Median Tip Markings Upgrades Pedestrian Refuge Island Signal Timing Changes Turn Bans 	<ul style="list-style-type: none"> Protected Bicycle Lanes and Sharrows 	<ul style="list-style-type: none"> Painted Curb Extension Turn Ban 	<ul style="list-style-type: none"> Channelization Lane Removal Markings Upgrades Painted Pedestrian Space Painted Median Tips Pedestrian Refuge Island Signal Timing Changes Turn Bans Turn Bays
2013	M60 SBS (West 106 Street - West 120 Street)	2016	Sherman Avenue & Broadway	
Broadway, Wadsworth Avenue, & West 173 Street	<ul style="list-style-type: none"> Bus Lanes Markings Upgrades Signal Timing Changes Turn Bans Turn Bays 	Broadway (West 139 Street - West 155 Street)	<ul style="list-style-type: none"> Concrete Curb Extensions 	
<ul style="list-style-type: none"> Concrete Curb Extensions Concrete Median Tip New Pedestrian Crossings Turn Bans Turn Bays 	<ul style="list-style-type: none"> Signal Timing Changes Turn Bans Turn Bays 	<ul style="list-style-type: none"> Lane Removal Markings Upgrades Painted Curb Extensions Painted Median Tips Turn Bans 	116 Street (Riverside Drive - Broadway)	
	Broadway & West 96 Street	Lincoln Center Bow Tie	<ul style="list-style-type: none"> Pedestrian Refuge Islands 	
Broadway & West 155 Street	<ul style="list-style-type: none"> Channelization Lane Removal Markings Upgrades New Pedestrian Crossing Painted Pedestrian Space Signal Timing Changes Turn Bans 	<ul style="list-style-type: none"> Curbside and Protected Bicycle Lanes Lane Removal Markings Upgrades Painted Curb Extensions Turn Bans 	Bx6 SBS (West 155 Street - West 157 Street)	
<ul style="list-style-type: none"> Markings Upgrades Painted Curb Extensions Painted Median Tip Turn Bays 			<ul style="list-style-type: none"> Bus Lane Markings Markings Upgrades Signal Timing Changes Turn Bans 	
			Broadway & West 80 Street	
			<ul style="list-style-type: none"> Concrete Curb Extensions 	

CASE STUDY 2: Columbus Avenue

(New Priority Corridor)

Columbus Avenue Safety Engineering Projects 2009-2018 (3 in total)

2010	2013	2016
Columbus Avenue (West 77 Street - West 96 Street)	Columbus Avenue (West 59 Street – West 77 Street, West 96 Street - West 110 Street)	Lincoln Center Bow Tie (West 63 Street - West 66 Street)
<ul style="list-style-type: none"> • Pedestrian Refuge Islands • Protected Bicycle Lane • Signal Timing Change • Turn Bays 	<ul style="list-style-type: none"> • Pedestrian Refuge Islands • Protected Bicycle Lane • Signal Timing Change • Turn Bays 	<ul style="list-style-type: none"> • Curbside and Protected Bicycle Lane • Lane Removal • Painted Curb Extensions • Turn Bays

Columbus Avenue from West 59 Street to Morningside Drive is a new 2018 Priority Corridor, but KSI on the corridor actually declined 8% between the two study periods. The corridor had three fatalities and 10.1 pedestrians killed or severely injured per mile of roadway from 2009-2013. From 2012-2016, Columbus Avenue had three fatalities and 9.3 pedestrian killed or severely injured per mile of roadway.

In addition, a very extensive pedestrian safety and protected bike lane project was installed on Columbus in 2016 (Lincoln Center Bowtie) which delivered powerful safety benefits that are not reflected in the older KSI data: pedestrian injuries dropped more than 40% in the two years after the project was installed.

Project benefits included new, shorter, safe pedestrian crossings, expanded pedestrian space and more connections to protected bike lanes.

To further improve pedestrian safety, NYC DOT is piloting an 'Offset Crossing' at Columbus Avenue and West 70 Street. This intersection design will separate bicyclists from turning vehicular traffic by providing an offset to the bike lane and an advanced stop bar, and a defined turning path for the vehicular traffic. Additionally, the project reverses the direction of traffic on West 60 Street from Columbus Avenue to West End Avenue to reduce pedestrian-vehicle conflicts at the intersection of Columbus Avenue and West 60 Street.



Columbus Avenue & West 107 Street, Manhattan, Before



Columbus Avenue & West 107 Street, Manhattan, After



Broadway & 24 Street, Manhattan

Queens



4.



Queens is the largest borough in size

Queens grew robustly since 2014, adding nearly 50,000 people. With nearly half of its residents born outside of the U.S., Queens is among the world's most diverse urban areas; residents hail from more than 100 nations and speak over 130 languages. NYC DOT recognizes the borough's diversity, tailoring safety projects to match local issues and neighborhood context and steering clear of "cookie cutter" solutions.

NYC DOT implemented several ambitious corridor wide treatments to drive down injuries and calm traffic, such as 111 Street, Shore Front Parkway, Merrick Boulevard and Astoria Boulevard. NYC DOT also made significant reconfigurations to target some of Queens's most persistently dangerous pedestrian intersections such as the intersection of Myrtle Avenue, Wyckoff Avenue, and Palmetto Street and Parsons Boulevard between Jamaica and Archer Avenues, creating new pedestrian and public spaces as well.

In addition, Queens is home to the City's most prominent Great Streets corridor, Queens Boulevard, once known as the "Boulevard of Death" for its high fatality rate. Recent safety engineering projects have already dramatically changed that reputation and the upcoming capital project will build on this progress as service road medians are reconstructed and expanded, pedestrian space enhanced, new protected bike lanes added along with new trees and greenery. This capital construction project extends from Roosevelt Avenue to Union Turnpike and will cost \$329.1 million.



Queens is among the most diverse urban areas in the world

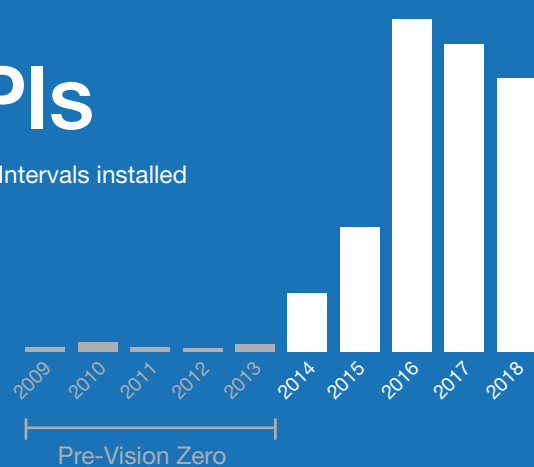
113 Safety Engineering Projects



completed

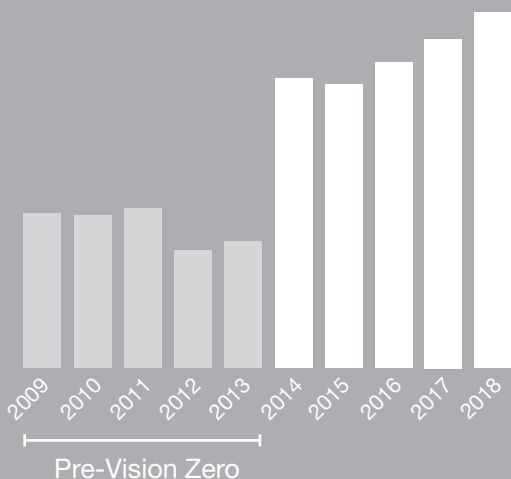
648 LPIs

or Leading Pedestrian Intervals installed



229,929

traffic summonses issued by NYPD for Speeding and Failure to Yield



1,711,978

automated speed camera violations issued

111 Vision Zero Priority Locations

visited by Vision Zero Street Teams



304 school visits

for safety education in Priority Locations



124 senior center visits

for safety education in Priority Locations



Queens Summary Statistics

Pedestrian fatalities in Queens declined 7% in 2018 compared to the pre-Vision Zero average

Pedestrian fatalities declined in Queens since the start of Vision Zero in 2014. In the five years before New York City adopted Vision Zero (2009-2013), an average of 43.2 pedestrians were killed per year in Queens, while in 2018, 40 pedestrians were killed, a 7% decline.

Pedestrian fatalities also dropped at the Vision Zero Priority Locations, a promising sign given that the City's safety efforts focused on these locations. In the five years before New York City adopted Vision Zero, an average of 26 pedestrians were killed per year at Queens Vision Zero Priority Locations, while in 2018, 25 were pedestrians killed, a 4% decline.

In Queens, from 2014 through 2018:

- 113 Safety Engineering Projects completed
- 648 Leading Pedestrian Intervals (LPIs) installed
- 229,929 traffic summonses issued for Speeding and Failure to Yield
- 1,711,978 automated speed camera violations issued
- 111 Priority locations visited by Vision Zero Street Teams
- 304 school and 124 senior center visits for safety education in Priority Locations

NYC DOT made safety engineering improvements on 86% of Queens Priority Corridors

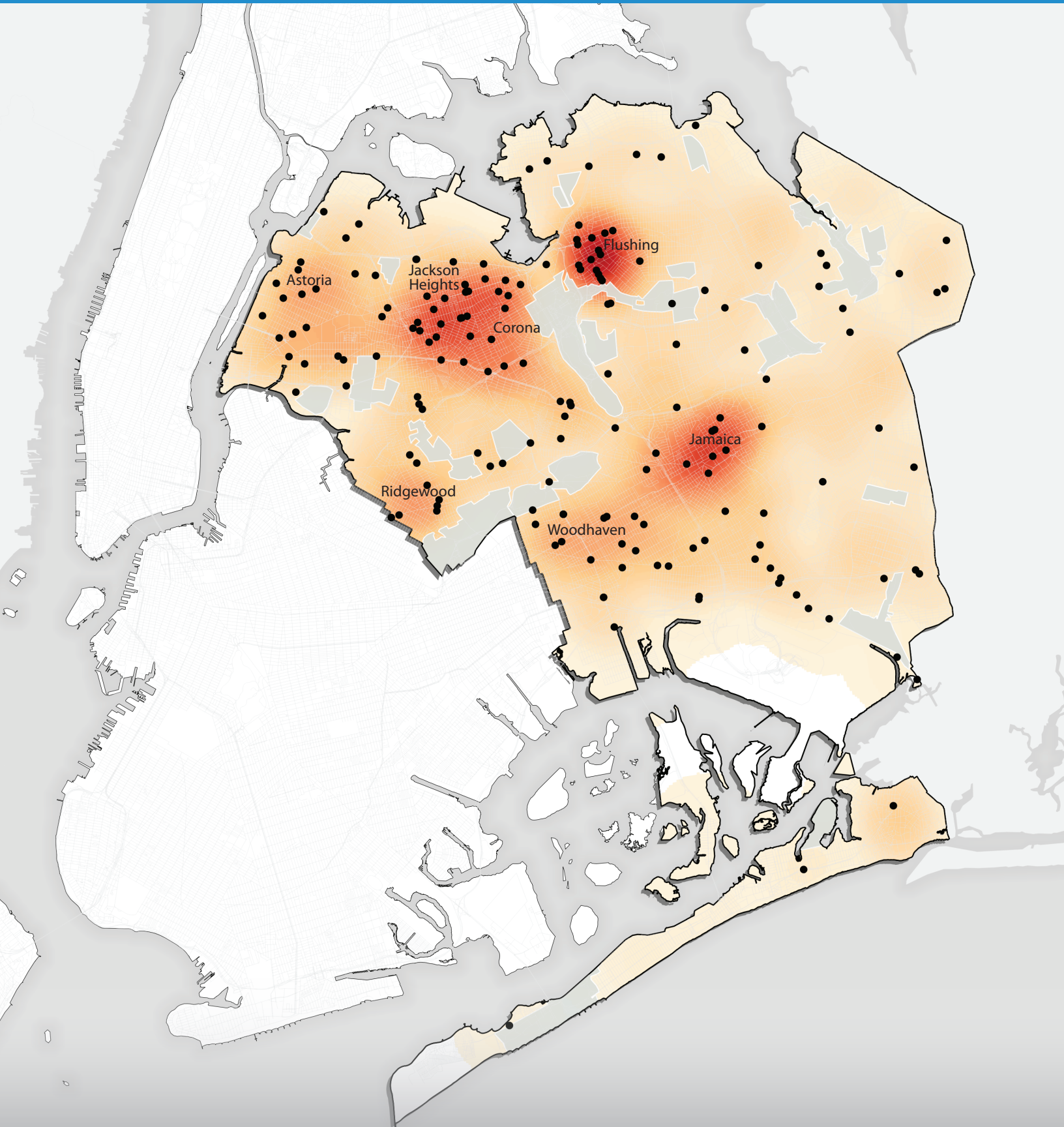
In Queens, NYC DOT made safety engineering improvements at 92% of all Priority Intersections, and at 86% of the total length of Priority Corridors since the start of Vision Zero.*

*Safety engineering improvements include Street Improvement Projects (SIP), new traffic signal construction, Left Turn Traffic Calming (LTTC), Leading Pedestrian Intervals (LPI), new street lighting, and Corridor Safety Signal Retiming



Corona Plaza, Queens

Queens Pedestrian KSI Heat Map + Pedestrian Fatalities



Pedestrian Killed or Severely Injured Kernel Density

A smoothing technique for spatial data where the expected density is calculated for every location on the map with the underlying principal that closer KSI are more heavily weighted than farther KSI. Each location is then assigned a color based on the expected density of KSI, with red showing the highest density of KSI and beige showing the lowest. It is useful for identifying and presenting hotspots.

Severe injury data: *NYSDOT/NYS DMV Accident Database*
Fatality data: *NYSDOT/NYPD Reconciled Fatality Database*

Priority Corridors, Intersections & Areas

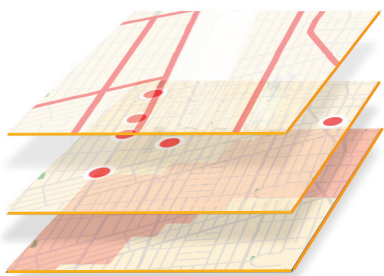
Queens has nearly 2,200 miles of roadway and over 18,000 intersections. To focus safety interventions where treatments will have the greatest effect, the City has identified the locations where pedestrian deaths and severe injuries are most concentrated. Using pedestrian KSI data from the last five available years (2012-2016), NYC DOT duplicated the process for selecting Priority Corridors, Priority Intersections, and Priority Areas that was employed in the initial 2015 Pedestrian Safety Action Plans (see Priority Geography Methodology in Appendix). The resulting locations will be prioritized for future safety interventions over the next three years, including engineering, enforcement and education.

To determine the Priority Corridors, NYC DOT ranked all corridors in Queens based on pedestrian KSI per-mile. The agency selected corridors from the top of this list until the cumulative number of pedestrian KSI reached at least 50% of the borough's total.

To determine the Priority Intersections, NYC DOT selected the intersections with the highest number of pedestrian KSI that cumulatively account for 15% of the borough's total pedestrian KSI. This is a lower percentage than that used for corridors because crashes resulting in pedestrian KSI are spread out widely among 841 intersections in Queens and the vast majority of these intersections account for only one pedestrian KSI.

To determine the Priority Areas, the NYC DOT transformed the pedestrian KSI crash dataset into a kernel density map—or “heat map”—which indicates where the density of these crashes is highest. The agency determined Priority Areas by identifying the “hottest” areas on the map that, when combined, account for half of all of pedestrian KSI in the borough.

For the updated Queens Borough Plan (using 2012-2016 crash data), NYC DOT delisted seventeen corridors, added five, and retained thirty. The agency delisted 42 intersections, added 37, and retained 30.

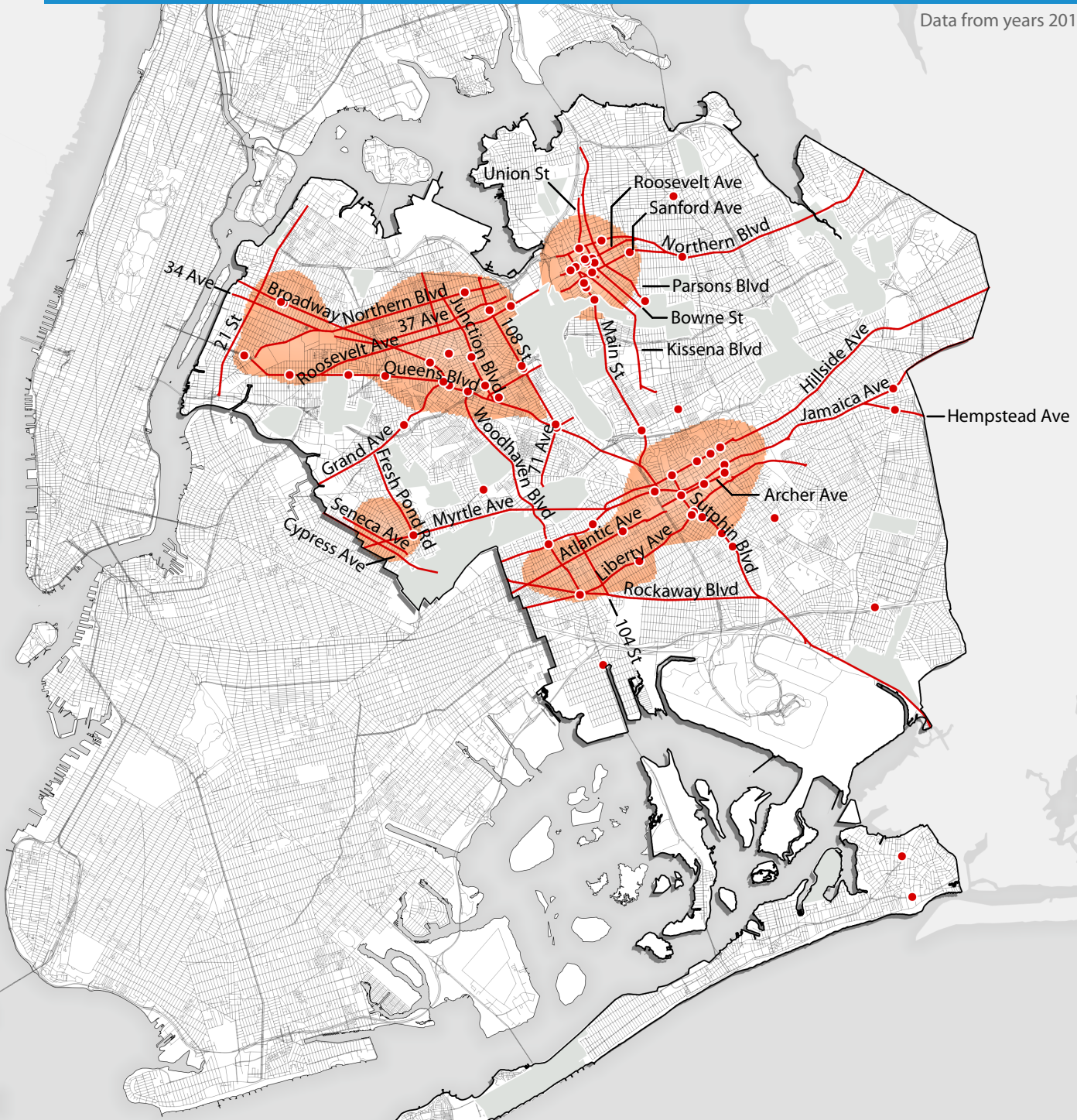


Park Lane South & 115 Street, Queens

Queens Vision Zero Priority Map 2019

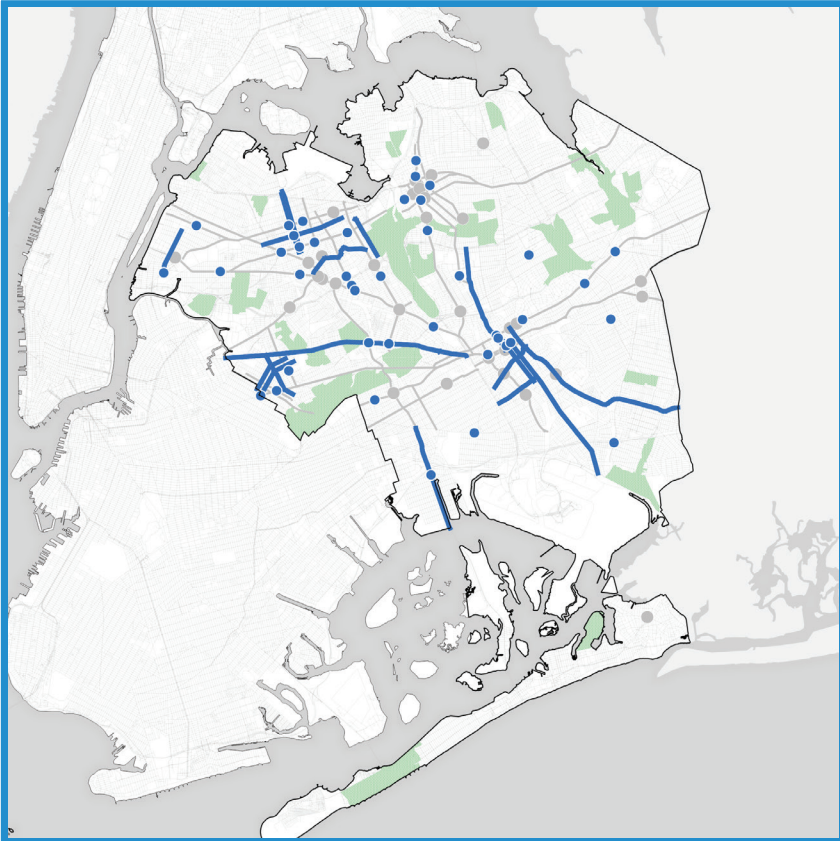
	Share of Borough	Borough	% of the Borough	Share of Ped KSI	Total Ped KSI	% of Total Ped KSI	% of Total Ped Fatalities
Priority Corridors	114 miles	2,169 miles	5%	617	—	50%	49%
Priority Intersections	68 intersections	18,120 intersections	0.4%	189	—	15%	14%
Priority Areas	18 sq. miles	109 sq. miles	16%	622	—	51%	48%
Combined Total				856	1,227	70%	68%

Data from years 2012 - 2016



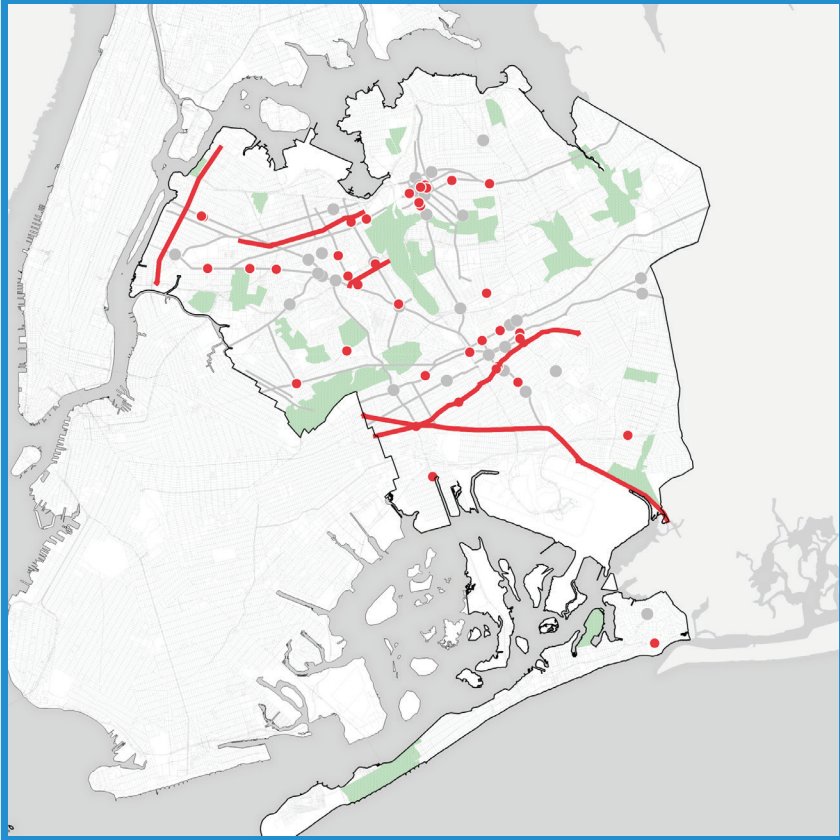
● Priority Intersection — Priority Corridor ■ Priority Area

Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database



Priority Corridors and Intersections Delisted

- Intersection Delisted
- Intersection Retained
- Corridor Delisted
- Corridor Retained

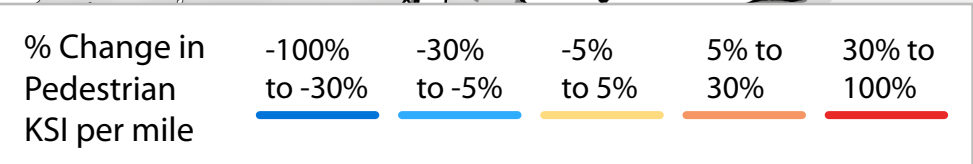
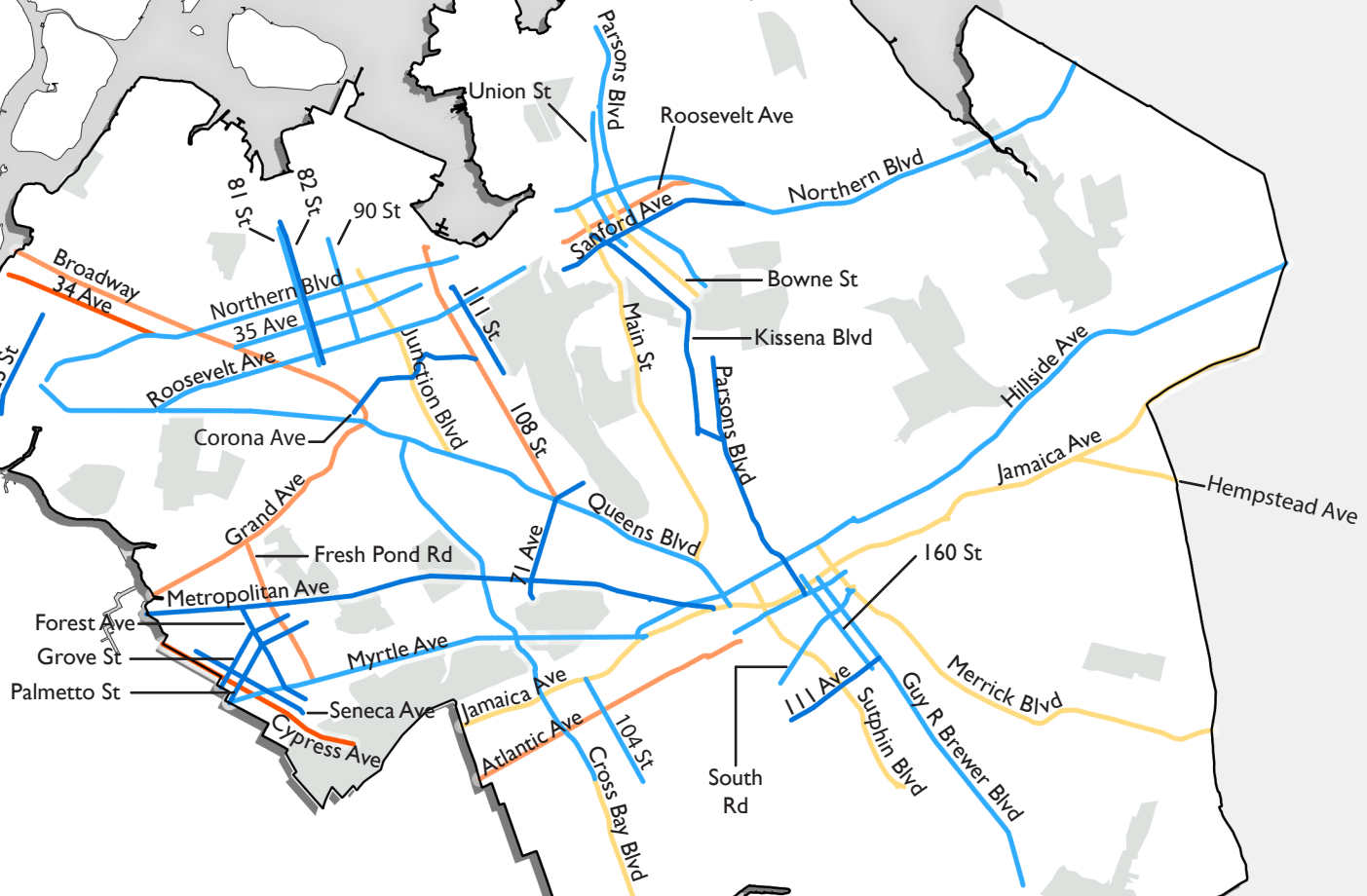


New Priority Corridors and Intersections

- New Intersection
- Intersection Retained
- New Corridor
- Corridor Retained

Between 2009-2013 and 2012-2016 the number of pedestrians killed or seriously injured on 2015 Priority Corridors in Queens declined 12%*

Pedestrian KSI decreased on 33 out of 47 corridors



Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Queens Change in Priority Corridors

Status	Street	From	To	Ped KSI per mile (2009-2013)	Ped KSI per mile (2012-2016)	Corridor Length (miles)	Change	Change per Status Group
Delisted	Palmetto St	Wyckoff Av	Traffic Av	4.3	0.9	1.2	-80%	-33%
	111 St	Corona Av	37 Av	4.9	1.9	1.0	-60%	
	Forest Av	Metropolitan Av	75 Av	6.1	2.6	1.2	-57%	
	82 St	Ditmars Blvd	Baxter Av	4.7	2.0	1.5	-57%	
	Corona Av	Poyer St	52 Av	7.2	3.3	1.5	-55%	
	111 Av	Van Wyck Exwy	Guy R Brewer Blvd	5.6	2.8	1.1	-50%	
	Parsons Blvd [South Leg]	Horace Harding Exwy	Archer Av	6.5	3.8	2.6	-41%	
	23 St	36 Av	Davis St	4.6	2.8	1.1	-40%	
	Grove St	St Nicholas Av	Traffic Av	4.9	2.9	1.0	-40%	
	Metropolitan Av	123 St	Jamaica Av	4.0	2.4	5.7	-39%	
	81 St	23 Av	41 Av	4.9	3.5	1.4	-29%	
	35 Av	Broadway	105 St	4.1	3.1	1.9	-25%	
	Guy R Brewer Blvd	Jamaica Av	Rockaway Blvd	4.6	3.5	3.7	-24%	
	160 St	90 Av	Claude Av	4.3	3.4	1.2	-20%	
	South Rd	Remington St	Liberty Av	4.8	4.0	1.2	-17%	
	Merrick Blvd	Hook Creek Blvd	Hillside Av	4.4	4.2	4.8	-5%	
Cross Bay Blvd	Woodhaven Blvd	N Channel Br	4.0	4.0	2.5	0%		
Retained	Kissena Blvd	Parsons Blvd	Main St	9.4	5.4	2.8	-42%	-9%
	Sanford Av	Delong St	Northern Blvd	9.6	6.1	2.0	-37%	
	Seneca Av	De Kalb Av	St Felix Av	7.3	4.9	1.2	-33%	
	71 Av	Union Tpke	113 St	7.4	5.2	1.3	-30%	
	Hillside Av	Myrtle Av	Langdale St	7.4	5.2	7.7	-30%	
	Roosevelt Av [West Leg]	Greenpoint Av	126 St	8.8	6.3	4.0	-29%	
	Union St	25 Rd	Franklin Av	12.6	9.8	1.4	-22%	
	Archer Av	Van Wyck Exwy	168 St	11.1	8.7	1.3	-21%	
	104 St	Jamaica Av	Rockaway Blvd	5.1	4.3	1.2	-17%	
	90 St	Astoria Blvd	Roosevelt Av	5.6	4.7	1.1	-17%	
	Woodhaven Blvd	Queens Blvd	Cross Bay Blvd	6.6	5.7	4.1	-15%	
	Myrtle Av	Wyckoff Av	Lefferts Blvd	5.2	4.5	4.3	-14%	
	Northern Blvd [West Leg]	Queens Plz	114 St	9.0	7.8	4.3	-13%	
	Queens Blvd	Queens Plz	Jamaica Av	7.3	6.4	7.5	-13%	

Queens Change in Priority Corridors, cont.

Status	Street	From	To	Ped KSI per mile (2009-2013)	Ped KSI per mile (2012-2016)	Corridor Length (miles)	Change	Change per Status Group
Retained	Northern Blvd [East Leg]	College Pt Blvd	Glenwood St	5.9	5.2	5.8	-12%	-9%
	Parsons Blvd [North Leg]	Rose Av	144 Pl	4.6	4.3	3.0	-7%	
	Junction Blvd	32 Av	Queens Blvd	10.1	9.7	2.1	-5%	
	Jamaica Av	Eldert La	257 St	6.5	6.5	9.1	0%	
	Hempstead Av	Jamaica Av	Cross Island Pkwy	5.5	5.5	1.1	0%	
	Main St	Northern Blvd	Queens Blvd	8.2	8.2	3.9	0%	
	Bowne St	Northern Blvd	Rose Av	6.4	6.4	1.4	0%	
	Sutphin Blvd	Rockaway Blvd	Hillside Av	8.9	9.3	2.7	4%	
	Atlantic Av	Eldert La	Van Wyck Exwy	6.0	6.4	3.0	6%	
	Grand Av	Grand St Br	Queens Blvd	5.0	5.4	2.8	7%	
	Roosevelt Av [East Leg]	Janet Pl	Northern Blvd	7.6	8.3	1.4	9%	
	Fresh Pond Rd	Flushing Av	Myrtle Av	7.9	9.3	1.5	17%	
	108 St	32 Av	Queens Blvd	7.9	9.6	2.9	22%	
	Broadway	Vernon Blvd	Queens Blvd	6.3	8.1	4.0	28%	
	Cypress Av	Johnson Av	J Robinson Pkwy	4.2	5.5	2.2	33%	
34 Av	Vernon Blvd	Northern Blvd	3.2	5.1	1.6	60%		
New	Rockaway Blvd	Eldert La	Hook Creek Br	3.6	4.3	8.1	21%	+30%
	62 Dr	Queens Blvd	Grand Central Pkwy	3.7	4.7	1.1	25%	
	Liberty Av	Drew St	Farmers Blvd	3.7	4.9	5.7	33%	
	37 Av	114 St	Woodside Av	3.9	5.2	3.1	33%	
	21 St	50 Av	20 Av	2.8	4.2	3.6	50%	

CASE STUDY 1: Queens Boulevard

(Retained Priority Corridor)

Queens Boulevard from Queens Plaza to Jamaica Avenue was a 2015 Priority Corridor, with 12 fatalities and 7.3 pedestrians killed or severely injured per mile of roadway from 2009-2013. Pedestrian KSI per mile of roadway dropped 13% from the study period of 2009-2013 to 2012-2016, and during the same period, pedestrian fatalities dropped 17%. The corridor still had 10 fatalities and 6.4 pedestrians killed or severely injured per mile of roadway from 2012-2016. Queens Boulevard was designated as a Vision Zero Great Street in 2015 and intensive safety improvements were implemented there in 2015, 2016 and 2017. These improvements lay the groundwork for future capital expansion as part of the Vision Zero Great Streets program. In total, the agency installed ten safety engineering projects on Queens Boulevard between 2009 and 2018.



Queens Boulevard & 55 Street, Queens, Before



Queens Boulevard & 55 Street, Queens, After

Queens Boulevard

Safety Engineering Projects 2009-2018 (10 in total)

2010	2014	2015	2016	
Queens Boulevard & Broadway	Queens Boulevard & 71 Avenue	Queens Boulevard (Roosevelt Avenue - 73 Street)	Queens Boulevard (73 Street - Eliot Avenue)	
<ul style="list-style-type: none"> Concrete Median Tips 	<ul style="list-style-type: none"> Concrete Median Tips Bicycle Friendly Parking Lane Stripe Turn Bays 		<ul style="list-style-type: none"> Lane Removal Markings Upgrades New Pedestrian Crossings New Traffic Controls Painted Curb Extensions Painted Median Tips Painted Pedestrian Space Parking Removal Protected Bicycle Lane Signal Timing Changes Turn Bans 	
2011				
Queens Boulevard & 69 Street	Queens Boulevard & Yellowstone Boulevard			
<ul style="list-style-type: none"> Concrete Median Tips 	<ul style="list-style-type: none"> Concrete Median Tips Bicycle Friendly Parking Lane Stripe Pedestrian Refuge Island Turn Ban 			
2012				
Queens Blvd Bridge (Queens Plaza - Skillman Avenue)				
<ul style="list-style-type: none"> Two-Way Protected Bicycle Lane 	Queens Boulevard (63 Avenue - 67 Avenue)			2017
	<ul style="list-style-type: none"> Added Parking Concrete Curb Extension Concrete Median Tips Bicycle Friendly Parking Lane Stripe Markings Upgrades 			Queens Boulevard (Eliot Avenue - Yellowstone Boulevard)
	Queens Boulevard & 46 Street			<ul style="list-style-type: none"> Lane Removal Markings Upgrades New Pedestrian Crossings New Traffic Controls Painted Curb Extensions Painted Median Tips Painted Pedestrian Space Parking Removal Protected Bicycle Lane Signal Timing Changes Turn Bans
	<ul style="list-style-type: none"> Pedestrian Plaza 			

CASE STUDY 2: Rockaway Boulevard

(New Priority Corridor)

Rockaway Boulevard from Eldert Lane to Hook Creek Bridge is a new Priority Corridor for 2018. The corridor had 8 fatalities and 3.6 pedestrians killed or severely injured per mile of roadway from 2009-2013. From 2012-2016, Rockaway Boulevard had 10 fatalities and 4.3 pedestrians killed or severely injured per mile of roadway. The boulevard had a 21% increase in the KSI per mile of roadway between the two study periods.

NYC DOT installed three safety engineering projects on Rockaway Boulevard between 2009 and 2018. In addition, NYC DOT is developing a series of projects to improve pedestrian safety along Rockaway Boulevard between Atlantic Avenue and 103 Avenue. Projects include adding new pedestrian crossings as well as building new concrete refuge islands to shorten the pedestrian crossing distance on Rockaway Boulevard. In 2019, the agency plans to construct concrete refuge islands at the intersection of Rockaway Boulevard with 89 Street and 90 Street.



Rockaway Boulevard & 97 Street, Queens, Before



Rockaway Boulevard & 97 Street, Queens, After

Rockaway Boulevard Safety Engineering Projects 2009-2018 (3 in total)

2010	2018
<p>Rockaway Boulevard (Atlantic Avenue - Baisley Boulevard)</p> <ul style="list-style-type: none"> • Lane Removal • Markings Upgrades • Painted Median • Parking Lane Stripe • Turn Bays 	<p>Rockaway Boulevard & Guy Brewer Boulevard</p> <ul style="list-style-type: none"> • New Pedestrian Crossing • New Traffic Control • Pedestrian Refuge Island • Turn Bays
<p>Rockaway Boulevard & Liberty Avenue</p>	
<ul style="list-style-type: none"> • Lane Removal • One-Way Conversion • Painted Pedestrian Space • Turn Bays 	



Queens Boulevard, Queens

Staten Island



5.



Nearly 25% of Staten Island is parkland, the most of any borough

With fewer than 500,000 residents, the smallest of the boroughs in population, and a population density more comparable to Los Angeles than to the rest of New York City, much of Staten Island possesses a markedly suburban feel. In recent years, NYC DOT used this as an opportunity to pilot promising new safety treatments that are more effective in a less dense environment. Examples include neighborhood traffic circles along Greeley Avenue and speed cushions on Henderson Avenue and Van Duzer Street (see Vision Zero Innovations, page 10-11).

Staten Island is also bisected by a number of large arterials and highways and one of these, Hylan Boulevard, has long been dangerous for pedestrians. With the addition of traffic signal retiming and LPIs at key intersections, fatalities along Hylan Blvd have dropped dramatically. These improvements were amplified by close collaboration with the NYPD on Hylan Boulevard, Richmond Avenue, Richmond Terrace, and the highways. With no fatalities for five consecutive months, Staten Island set a record for the longest streak in any borough's history. In addition, there were just seven fatalities in 2018, the lowest on record for Staten Island.



92% of households in Staten Island own at least one car

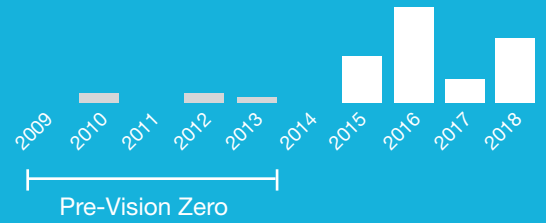
23 Safety Engineering Projects



completed

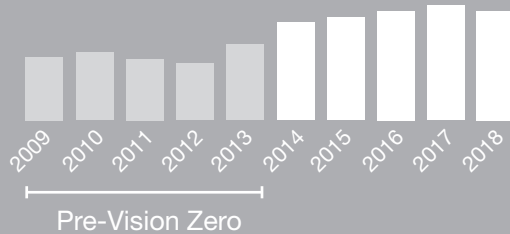
89 LPIs

or Leading Pedestrian Intervals installed



95,554

traffic summonses issued by NYPD for Speeding and Failure to Yield



378,105

automated speed camera violations issued in Staten Island

55 Vision Zero Priority Locations

visited by Vision Zero Street Teams



75 school visits

for safety education in Priority Locations



11 senior center visits

for safety education in Priority Locations



Staten Island Summary Statistics

Pedestrian fatalities in Staten Island declined 51% in 2018 compared to the pre-Vision Zero average

Pedestrian fatalities declined in Staten Island since the start of the Vision Zero initiative in 2014. In the five years before New York City adopted Vision Zero (2009-2013), an average of 8.2 pedestrians were killed per year in Staten Island, while 2018 saw four pedestrians killed, a 51% decline.

On Staten Island, pedestrian fatalities declined less at the Vision Zero Priority Locations compared to the rest of the borough. In the five years before New York City adopted Vision Zero, an average of 4.4 pedestrians were killed per year at Staten Island Vision Zero Priority Locations, while in 2018, four pedestrians were killed, a 9% decline.

In Staten Island, from 2014 through 2018:

- 23 Safety Engineering Projects completed
- 89 Leading Pedestrian Intervals (LPs) installed
- 95,554 traffic summonses issued for Speeding and Failure to Yield
- 378,105 automated speed camera violations issued
- 55 Priority Locations visited by Vision Zero Street Teams
- 75 school and 11 senior center visits for safety education in Priority Locations

NYC DOT made safety engineering improvements on 55% of Staten Island Priority Corridors

In Staten Island, NYC DOT made safety engineering improvements at 72% of all Priority Intersections, and at 55% of the total length of Priority Corridors since the start of Vision Zero.*

*Safety engineering improvements include Street Improvement Projects (SIP), new traffic signal construction, Left Turn Traffic Calming (LTTTC), Leading Pedestrian Intervals (LPI), new street lighting, and Corridor Safety Signal Retiming.



S78 BRICKTOWN MALL

842

8153

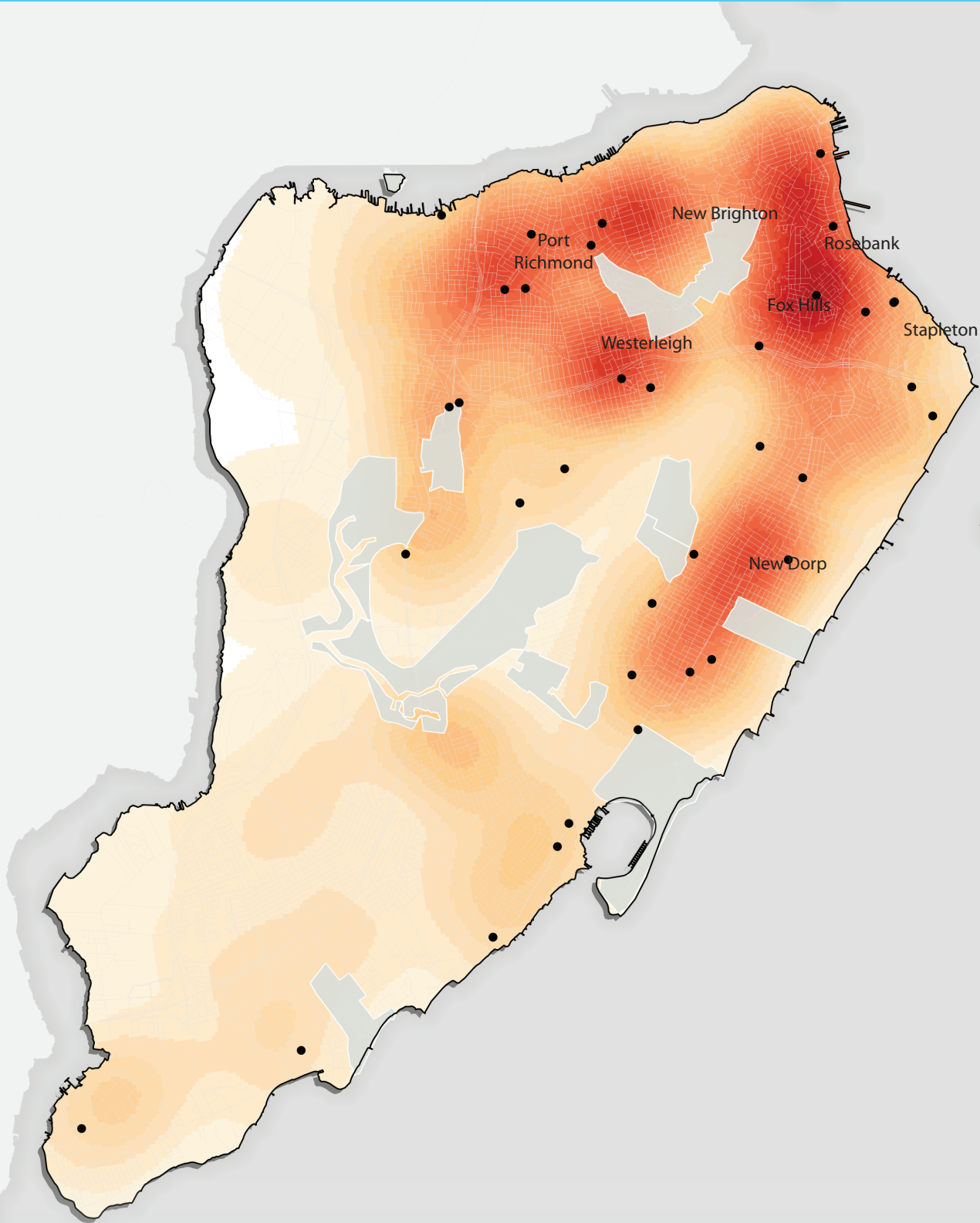
VTA

62031

- Captn Pt. Arnold St. S42
- West Shore Pk. S46
- Mariners Harbor S48
- Grant City S51
- Staten Island Mall S61
- Bay St & Wick L. via Pt. S61

Bay Street, Staten Island

Staten Island Pedestrian KSI Heat Map + Pedestrian Fatalities



Approximate pedestrian KSI per sq mile per year



● Pedestrian Fatality 2012 - 2016

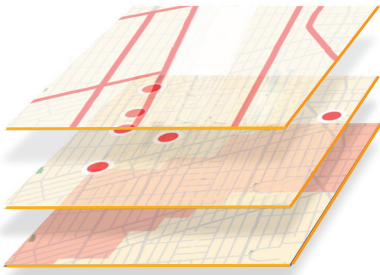
Pedestrian Killed or Severely Injured Kernel Density

A smoothing technique for spatial data where the expected density is calculated for every location on the map with the underlying principal that closer KSI are more heavily weighted than farther KSI. Each location is then assigned a color based on the expected density of KSI, with red showing the highest density of KSI and beige showing the lowest. It is useful for identifying and presenting hotspots.

Severe injury data: NYSDOT/NYS DMV Accident Database
Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Priority Corridors, Intersections & Areas

Staten Island has more than 835 miles of roadway and over 8,000 intersections. To focus safety interventions where treatments will have the greatest effect, the City has identified the locations where pedestrian deaths and severe injuries are most concentrated. Using pedestrian KSI data from the last five available years (2012-2016), NYC DOT duplicated the process for selecting Priority Corridors, Priority Intersections, and Priority Areas that was employed in the initial 2015 Pedestrian Safety Action Plans (see Priority Geography Methodology in Appendix). The resulting locations will be prioritized for future safety interventions over the next three years, including engineering, enforcement and education.



To determine the Priority Corridors, NYC DOT ranked all corridors in Staten Island based on pedestrian KSI per-mile. The agency selected corridors from the top of this list until the cumulative number of pedestrian KSI reached at least 50% of the borough's total.

To determine the Priority Intersections, NYC DOT selected the intersections with the highest number of pedestrian KSI that cumulatively account for 15% of the borough's total pedestrian KSI. This is a lower percentage than that used for corridors because crashes resulting in pedestrian KSI are spread out widely among 183 intersections in Staten Island and the vast majority of these intersections account for only one pedestrian KSI.

To determine the Priority Areas, the NYC DOT transformed the pedestrian KSI crash dataset into a kernel density map—or “heat map”—which indicates where the density of these crashes is highest. The agency determined Priority Areas by identifying the “hottest” areas on the map that, when combined, account for half of all of pedestrian KSI in the borough.

For the updated Staten Island Borough Plan (using 2012-2016 crash data), NYC DOT delisted six corridors, added four, and retained ten. The agency also delisted eleven intersections, added ten, and retained six.

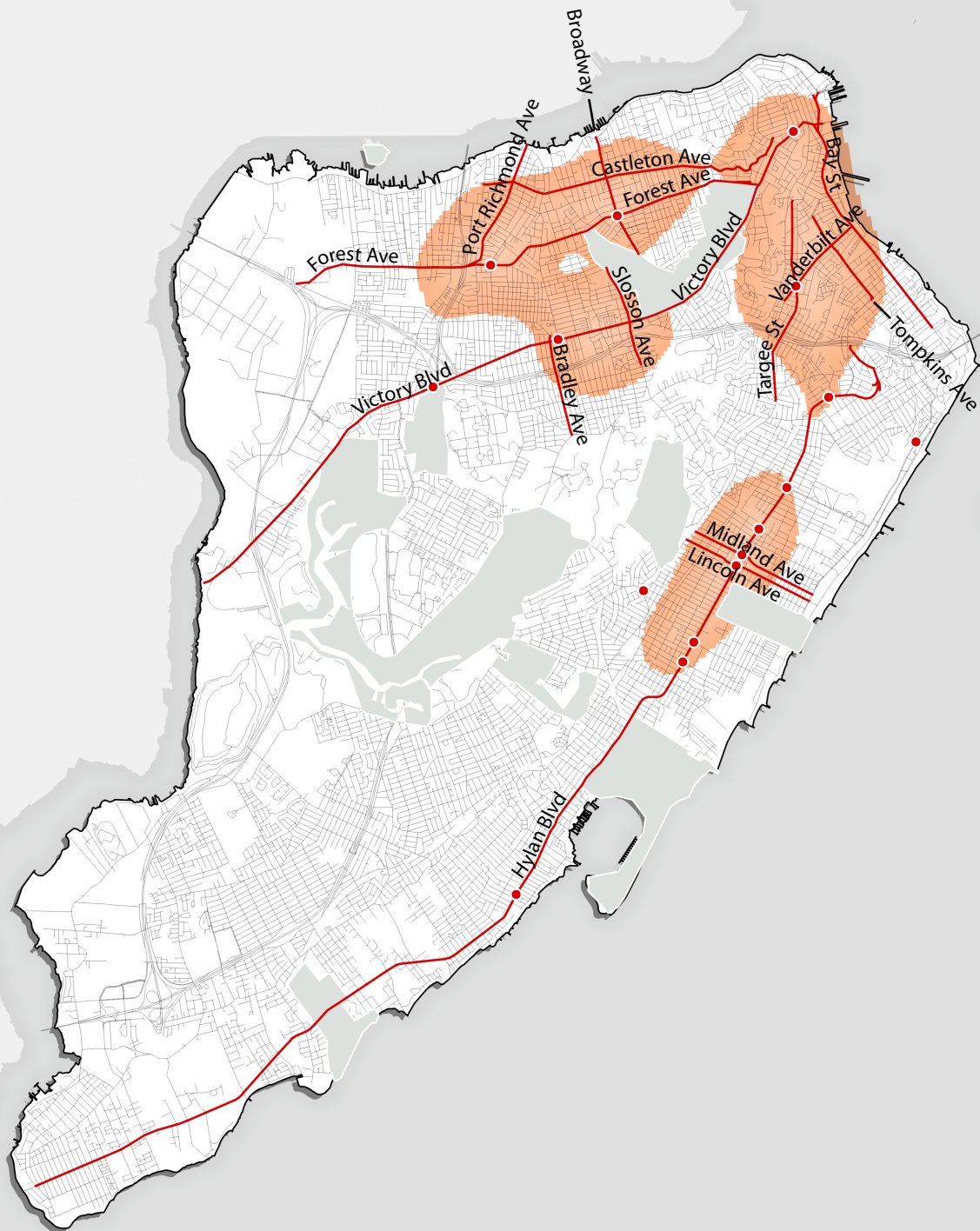


Bay Street, Staten Island

Staten Island Vision Zero Priority Map 2019

	Share of Borough	Borough	% of the Borough	Share of Ped KSI	Total Ped KSI	% of Total Ped KSI	% of Total Ped Fatalities
Priority Corridors	44 miles	837 miles	5%	130	—	51%	42%
Priority Intersections	16 intersections	8,009 intersections	0.2%	39	—	15%	11%
Priority Areas	9 sq. miles	58 sq. miles	16%	141	—	56%	39%
Combined Total				173	253	68%	68%

Data from years 2012 - 2016

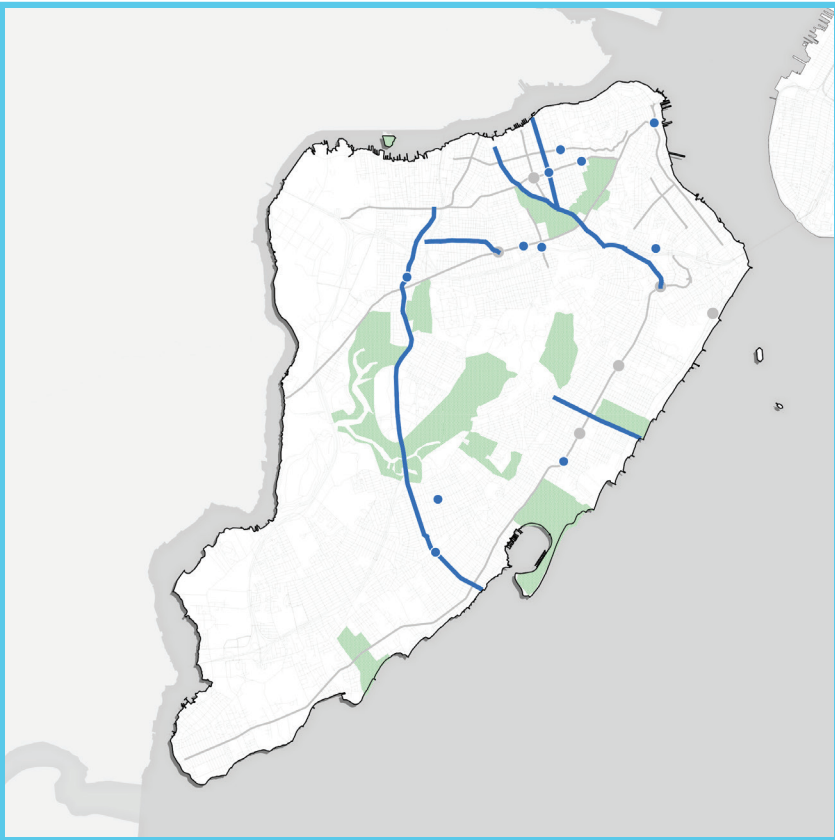


● Priority Intersection — Priority Corridor ■ Priority Area

Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database

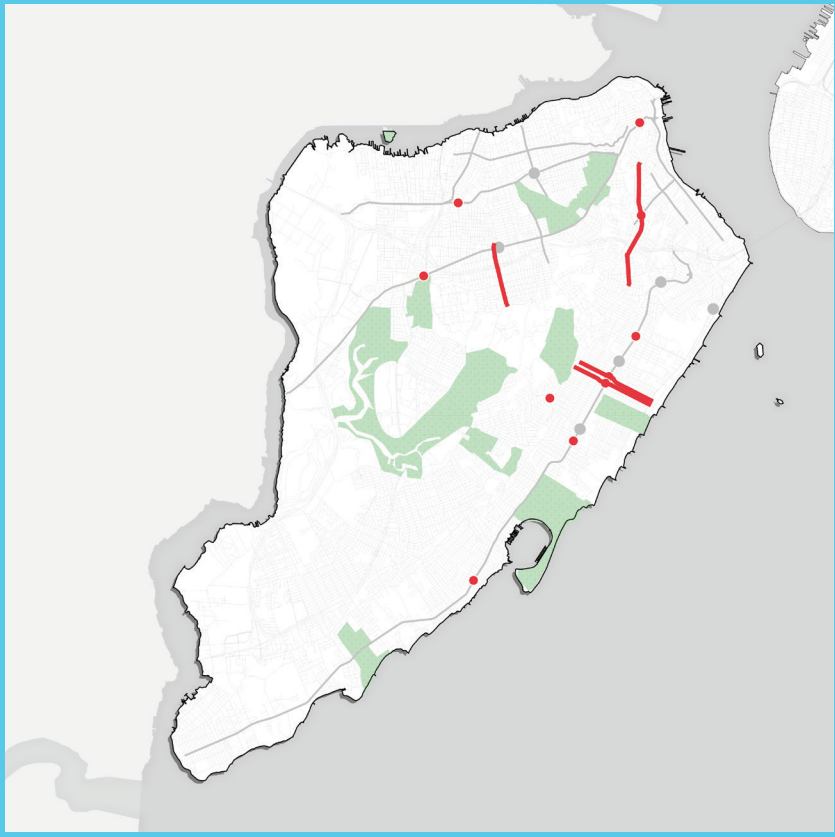
Priority Corridors and Intersections Delisted

- Intersection Delisted
- Intersection Retained
- Corridor Delisted
- Corridor Retained



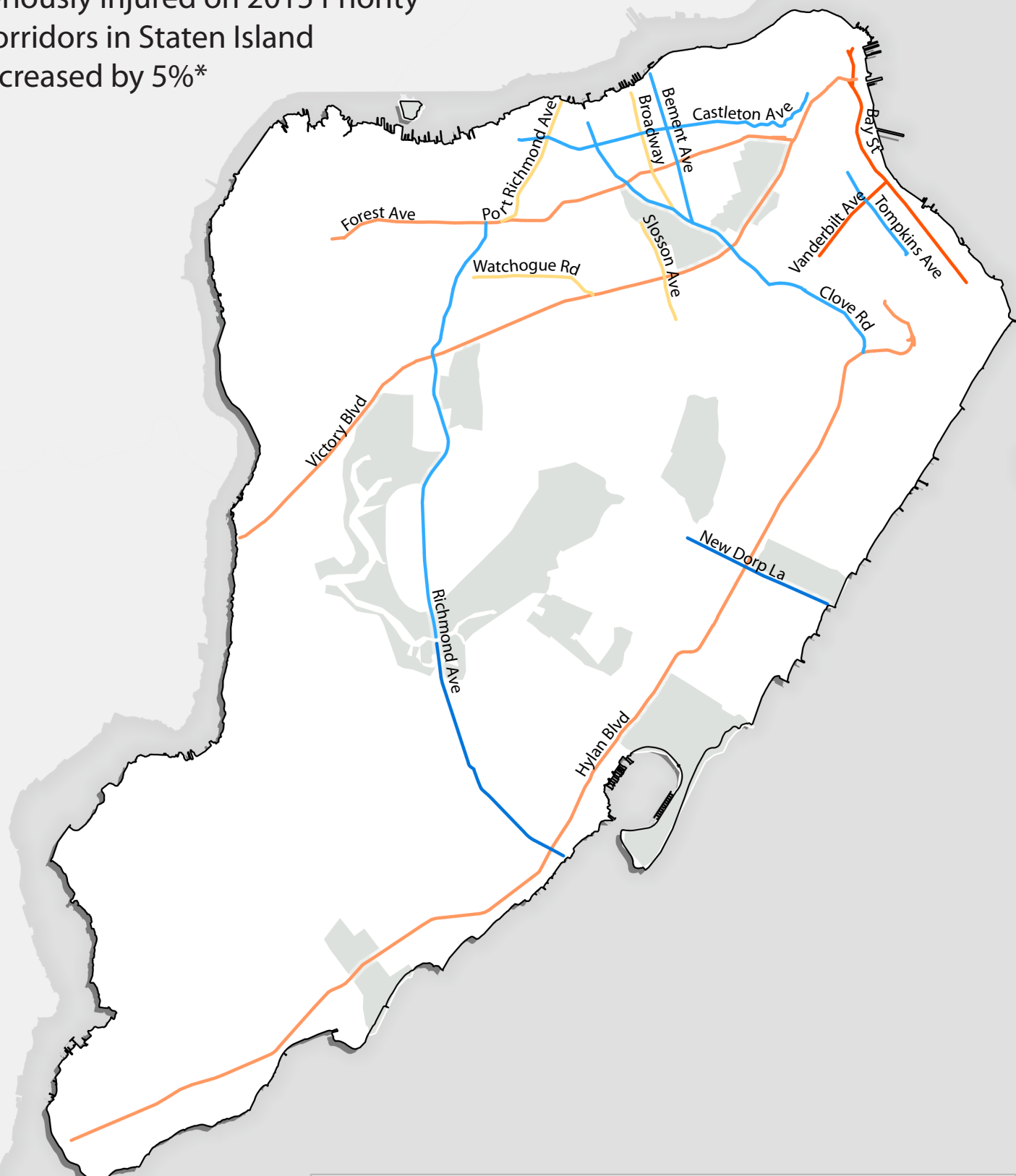
New Priority Corridors and Intersections

- New Intersection
- Intersection Retained
- New Corridor
- Corridor Retained



Between 2009-2013 and 2012-2016, the number of pedestrians killed or seriously injured on 2015 Priority Corridors in Staten Island increased by 5%*

Pedestrian KSI decreased on 7 out of 16 corridors



% Change in Pedestrian KSI per mile	-100% to -30%	-30% to -5%	-5% to 5%	5% to 30%	30% to 100%

Severe injury data: NYSDOT/NYS DMV Accident Database
 Fatality data: NYSDOT/NYPD Reconciled Fatality Database

Staten Island Change in Priority Corridors

Status	Street	From	To	Ped KSI per mile (2009-2013)	Ped KSI per mile (2012-2016)	Corridor Length (miles)	Change	Change per Status Group
Delisted	New Dorp La	Richmond Rd	Cedar Grove Av	2.6	0.6	1.5	-75%	-26%
	Richmond Av [South Leg]	Fresh Kills Br	Tennyson Dr	2.3	1.5	2.6	-33%	
	Bement Av	Richmond Ter	Clove Rd	2.6	1.9	1.5	-25%	
	Clove Rd	Richmond Ter	Hylan Blvd	2.6	2.1	3.8	-20%	
	Richmond Av [North Leg]	Morningstar Rd	Fresh Kills Br	2.5	2.1	4.4	-18%	
	Watchogue Rd	Victory Blvd	Willow Rd W	2.4	2.4	1.3	0%	
Retained	Tompkins Av	Broad St	Hylan Blvd	4.8	3.9	1.0	-20%	+13%
	Castleton Av	Brook St	Nicholas Av	3.2	2.5	3.2	-20%	
	Port Richmond Av	Trantor Pl	Richmond Ter	2.9	2.9	1.4	0%	
	Slosson Av	Martling Av	Todt Hill Rd	4.9	4.9	1.0	0%	
	Broadway	Richmond Ter	Tyler Av	3.2	3.2	1.2	0%	
	Victory Blvd	Wild Av	Minthorne St	3.0	3.2	8.1	8%	
	Forest Av	Victory Blvd	Goethals Rd N	4.2	4.6	5.0	10%	
	Hylan Blvd	Satterlee St	Narrows Rd S	2.2	2.8	13.0	24%	
	Vanderbilt Av	Bay St	Richmond Rd	6.0	8.0	1.0	33%	
	Bay St	North Rd	Hyatt St	2.4	4.2	2.9	71%	
New	Lincoln Av	Richmond Rd	Fr Capodanno Blvd	2.2	2.9	1.4	33%	+89%
	Targee St	Van Duzer St	Richmond Rd	1.9	2.9	2.1	50%	
	Bradley Av	Watchogue Rd	Brielle Av	1.0	3.0	1.0	200%	
	Midland Av	Richmond Rd	Fr Capodanno Blvd	0.8	3.0	1.3	300%	



Van Duzer Street & Stone Street, Staten Island

CASE STUDY 1: Richmond Avenue

(Delisted Priority Corridor)

Richmond Avenue from Fresh Kills Bridge to Morningstar Road was a 2015 Priority Corridor, with two fatalities and 2.5 pedestrians killed or severely injured per mile of roadway from 2009-2013. Although, the street is no longer considered a Priority Corridor (pedestrian KSI dropped 18%), the corridor still had one fatality and 2.1 pedestrians killed or severely injured per mile of roadway from 2012-2016. Between 2009 and 2018, NYC DOT installed two safety engineering projects on Richmond Avenue.



Richmond Avenue & Moroni Street, Staten Island, Before



Richmond Avenue & Moroni Street, Staten Island, After

Richmond Avenue Safety Engineering Projects 2009-2018 (2 in total)

2012	2014
<p>Hylan Boulevard & Richmond Avenue (Forest Hill Road – Platinum Avenue)</p>	<p>Richmond Avenue (Forest Street – Monsey Place)</p>
<ul style="list-style-type: none"> • Bus Lane • Lane Removal • Markings Upgrades • Signal Timing Changes 	<ul style="list-style-type: none"> • Bicycle Friendly Parking Lane Stripe • Concrete Median • Markings Upgrades • Painted Median • Pedestrian Refuge Islands • Turn Ban

CASE STUDY 2 : Targee Street

(New Priority Corridor)

Targee Street Safety Engineering Projects 2009-2018 (2 in total)

2010	2017
Targee Street & Vanderbilt Avenue	Van Duzer Street, Targee Street & St Paul's Avenue (Staten Island Expressway - Van Duzer Street)
<ul style="list-style-type: none"> • Signal Timing Changes 	<ul style="list-style-type: none"> • Bicycle Lanes and Sharrows • Enhanced Crossing • Lane Removal • Markings Upgrades • Painted Curb Extensions • Parking Lane Stripe



Targee Street & Irving Place, Staten Island, Before



Targee Street & Irving Place, Staten Island, After

Targee Street from Van Duzer Street to Richmond Road is a new Priority Corridor for 2018. The corridor had one fatality and 1.9 pedestrians killed or severely injured per mile of roadway from 2009-2013. From 2012-2016, Targee Street had zero fatalities and 2.9 pedestrians killed or severely injured per mile of roadway. The KSI per mile of roadway for this corridor increased 50% between the two study periods.

NYC DOT installed two safety engineering projects on Targee Street between 2009 and 2018. The agency will begin construction of a capital project on Targee Street in 2022. The project includes installing curb extensions, additional sidewalks, and pedestrian refuge islands.

2015 Action Plan Results



6.

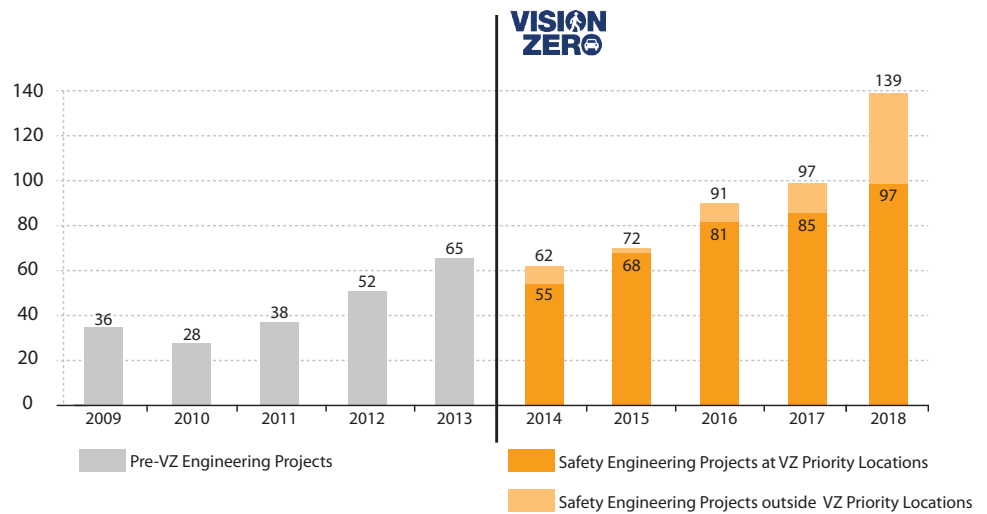
Engineering and Planning Actions

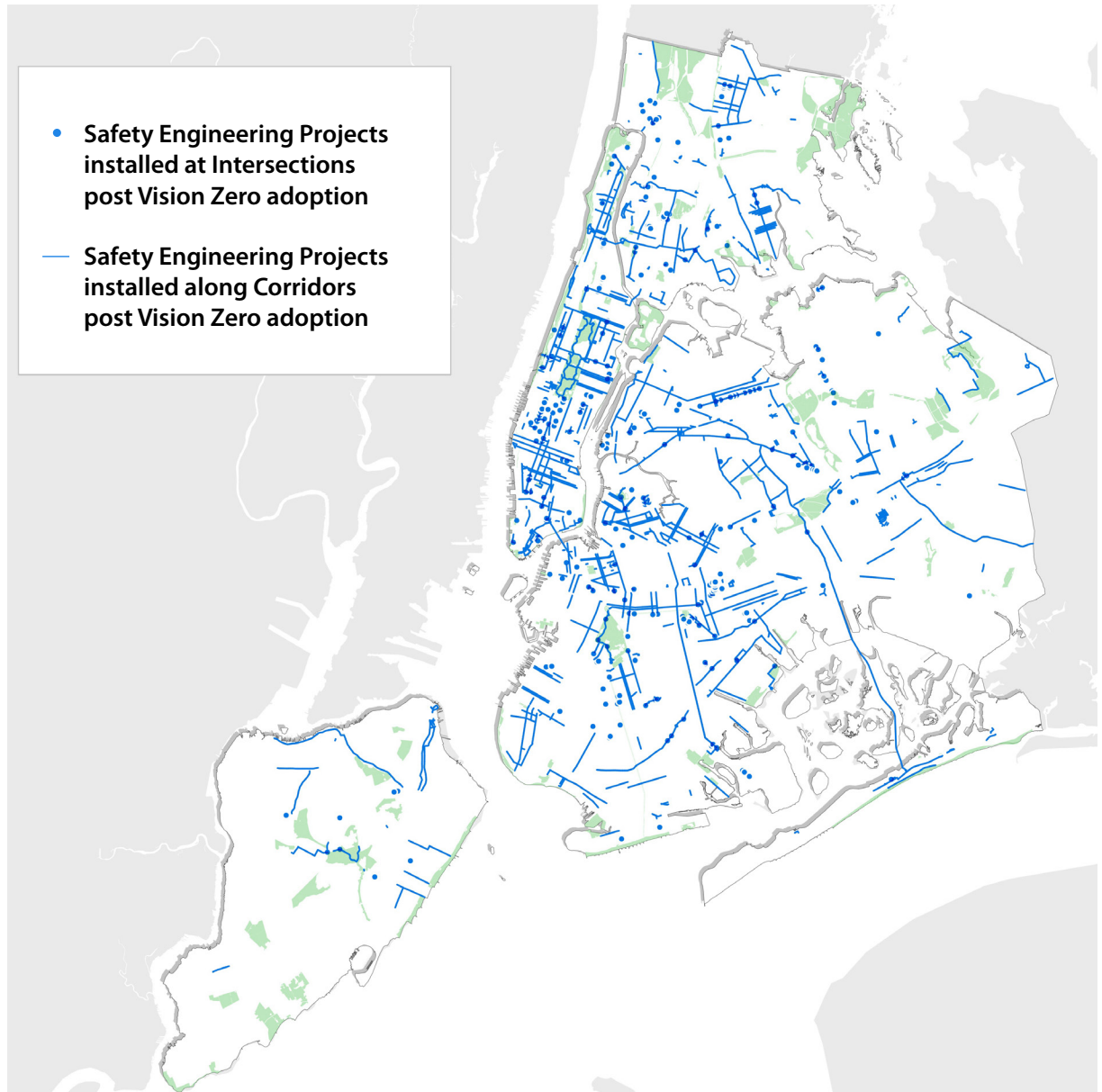
Implement at least 50 Vision Zero Safety Engineering improvements at Priority Corridors, Intersections, and Areas

Since the start of Vision Zero, NYC DOT completed 461 safety engineering projects

Since the start of Vision Zero, NYC DOT completed a total of 461 safety engineering projects. NYC DOT completed 139 safety engineering projects in 2018, more than double the annual average of safety engineering projects installed before the adoption of Vision Zero. The agency focused resources on the Vision Zero Priority Locations to maximize the impact of NYC DOT’s safety engineering projects. In total, more than 83% of safety engineering projects from 2014-2018 have been implemented at Vision Zero Priority Locations.

Safety Engineering Projects





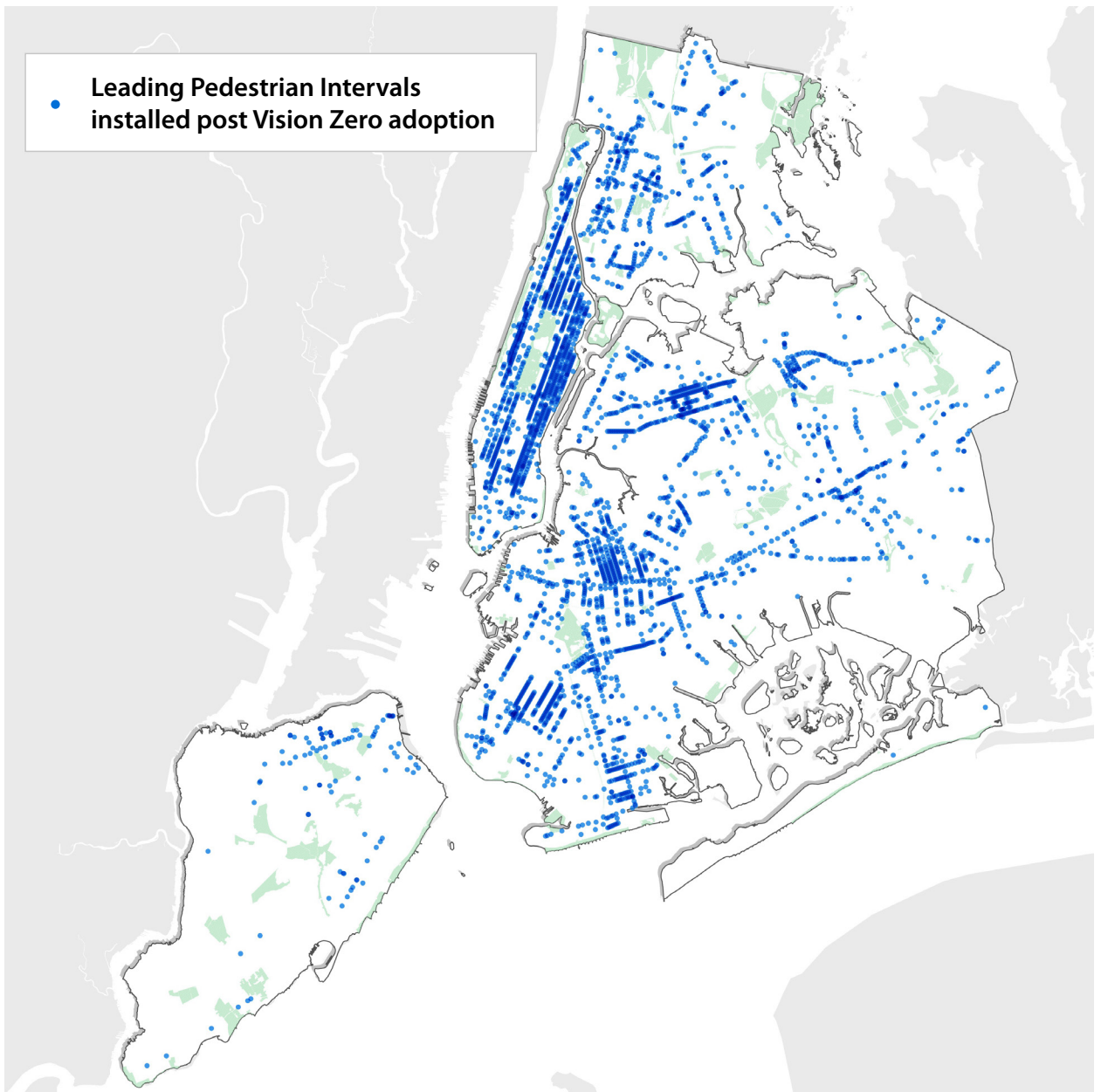
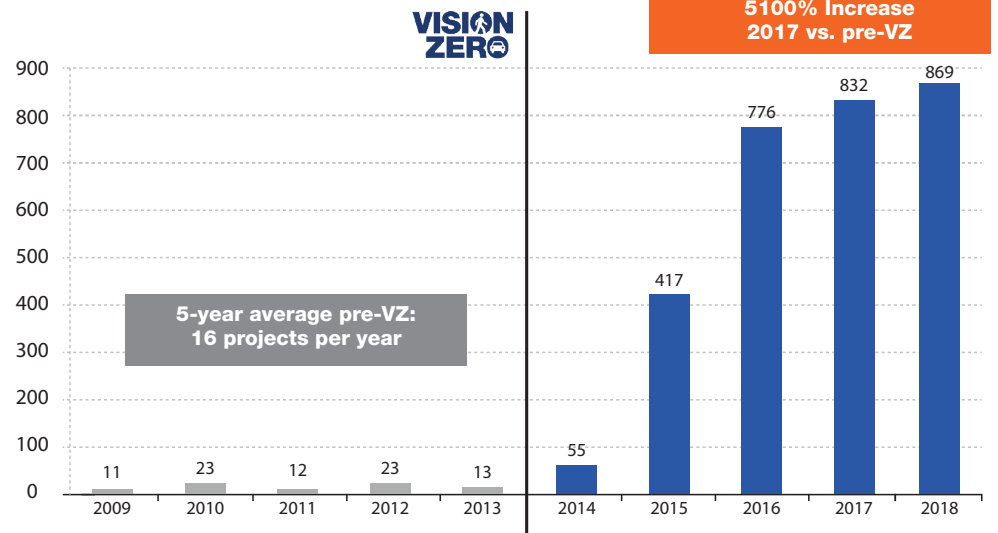
NYC DOT installed 869 Leading Pedestrian Intervals in 2018

Significantly expand exclusive pedestrian crossing time on all Priority Corridors by the end of 2017

Add exclusive pedestrian crossing time to all feasible Priority Intersections by the end of 2017

NYC DOT significantly expanded exclusive pedestrian crossing times by steadily installing Leading Pedestrian Intervals (LPIs) at crosswalks throughout the city. New York City installed the first LPIs in the 1970s, however, there were only 254 LPIs installed prior to the start of Vision Zero. The agency dramatically picked up the pace since the adoption of Vision Zero, installing nearly 3,000 new LPIs, including 869 in 2018. NYC DOT also maintained its focus on Priority Locations since the adoption of Vision Zero with 1,951 LPIs installed on Priority Corridors and 143 LPIs installed at Priority Intersections.

LPIs Installed



The agency retimed signals on 560 miles of corridors since the adoption of Vision Zero

Modify signal timing to reduce off-peak speeding on all feasible Priority Corridors by the end of 2017

NYC DOT committed to modifying signal timing on Priority Corridors to discourage excessive speeding during off peak hours, when there is less congestion. The agency retimed signals on 560 miles of corridors since the adoption of Vision Zero. NYC DOT retimed 70% of Priority Corridor mileage since the start of Vision Zero.

Install expanded speed limit signage on all Priority Corridors in 2015

Since the introduction of Vision Zero, NYC DOT installed 2,482 street signs indicating lowered speed limits on Priority Corridors or streets previously included in NYC DOT’s Arterial Slow Zones program. Additionally, NYC DOT expanded the number of speed limit signs and installed 1,448 new 25 MPH speed limit signs on other corridors indicating lowered speed limits.

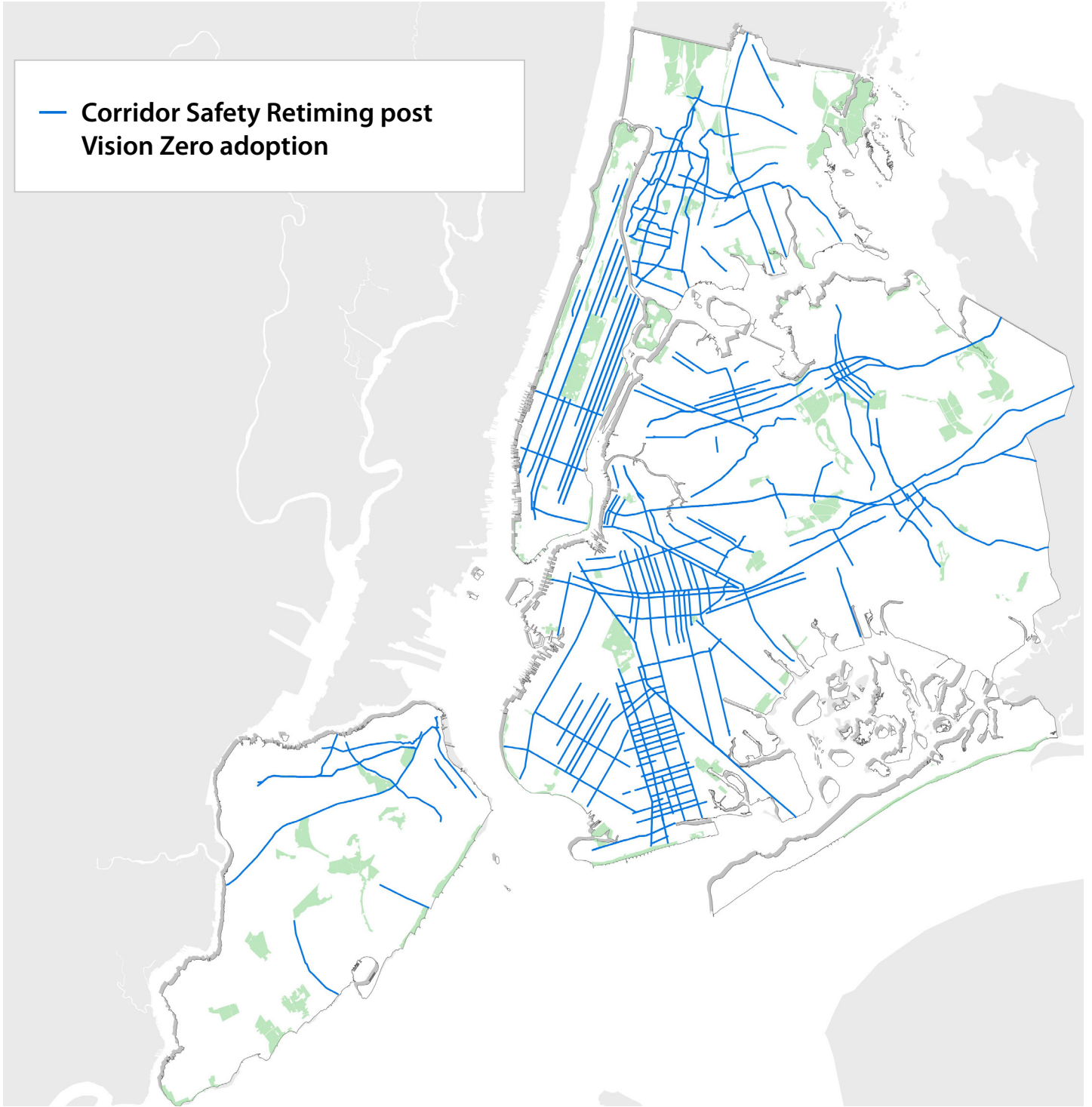
NYC DOT installed nearly 2,500 speed limit signs on high injury corridors

	Manhattan	Bronx	Brooklyn	Queens	Staten Island	Citywide Total
25 MPH signs installed on Arterial Slow Zones and Priority Corridors	310	579	753	680	160	2,482



Speed Limit Sign: Atlantic Avenue, Brooklyn

— Corridor Safety Retiming post Vision Zero adoption



Drive community input and engagement at Priority Corridors, Intersections, and Areas



Street Ambassadors engaged with the community nearly 700 times



NYC DOT strengthened its community engagement through the Street Ambassador Program, engaging with New Yorkers directly where they live, work, and play. Since the start of Vision Zero, the Street Ambassador team attended nearly 700 engagements with the community, including over 480 at Priority Locations. These Street Ambassador engagements involved mobile workshops, pre-project implementation outreach, and community, user, and merchant surveys.

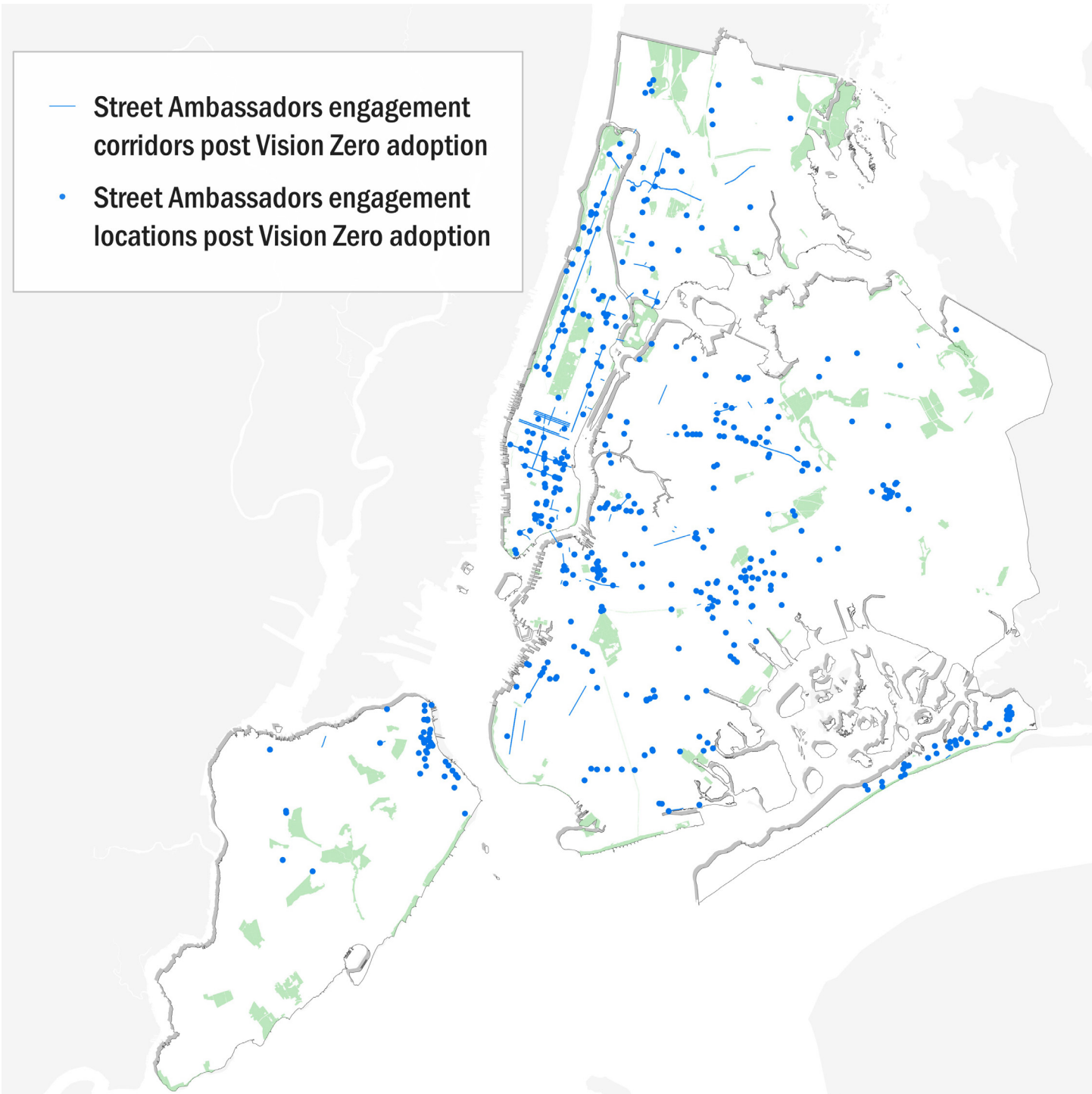
Additionally, the agency hired Borough Planners and Community Coordinators at NYC DOT's Borough Offices to reach out to communities, listen to their concerns, and coordinate multi-agency initiatives in neighborhoods. For example, borough planners from the Bronx Borough Commissioner's office played an active role in the development of the Jerome Avenue Neighborhood Plan, a comprehensive study of community needs and proposed investments. Partnering with the Department of City Planning, the planners brought attention to the need for street improvements at the intersection of Jerome Avenue and Burnside Avenue. The borough planners worked closely with multiple community partners such as Bronx Community Board 5, the Burnside Avenue Merchants Association, and the Davidson Avenue Community Center to understand their needs and to advocate for additional lighting and safety improvements in this commercial district.

In Brooklyn, the borough planner acted as point person in multi-agency planning processes for both East New York (DCP's East New York Community Plan) and Brownsville (HPD's Brownsville Plan), resulting in new resources and projects dedicated to both neighborhoods. The Brooklyn borough planner also worked with the Department of Health and Mental Hygiene to support bicycle advocates and community programming in East Brooklyn, and organized a series of street ambassador workshops that reached hundreds of residents in their neighborhoods to discuss bike network expansion plans.



Street Ambassador Outreach: Bedford-Stuyvesant, Brooklyn

- Street Ambassadors engagement corridors post Vision Zero adoption
- Street Ambassadors engagement locations post Vision Zero adoption





Lighting: Under the Brooklyn-Queens Expressway, Brooklyn

Install additional lighting under elevated trains and around other key transit stops

NYC DOT added additional lighting fixtures at 1,000 locations where pedestrian injuries were higher in darkness. Over 750 of these installations were at Vision Zero Priority Locations.

Additionally, NYC DOT is developing innovative lighting treatments for areas under elevated structures where pedestrians exit from elevated stations as pedestrian injuries tend to be higher at these locations. The agency is testing these lighting fixtures at two sites in Brooklyn, under the subway mezzanine on Livonia Avenue in Brownsville and at 36 Street and 3 Avenue, to identify the placement and the type of fixtures that would be most effective. This initiative is supported through the Mayor's OneNYC funds.

Expand midblock treatments on Bronx Priority Corridors with high rates of midblock crossing pedestrian crashes

The agency installed 40 midblock traffic signals since Vision Zero began

Recognizing that long blocks can make it difficult for pedestrians to reach their destinations without significant detours, NYC DOT worked to provide pedestrians the ability to safely cross at midblock locations where feasible. In the 2015 Bronx Pedestrian Safety Action Plan, NYC DOT found that the Bronx experienced a greater share of pedestrians killed while crossing the street midblock when compared with New York City as a whole. Fatal midblock crossings were particularly common on arterial streets (a 28% share in the Bronx vs 19% citywide).

Since the start of Vision Zero, the agency installed 40 signalized midblock traffic signals throughout the City, giving pedestrians more opportunities to cross the street safely. To discourage crossing at dangerous midblock locations, the agency installed pedestrian fencing at 32 locations, including the 180 feet of pedestrian fence installed on Broadway near 225 Street in the Bronx.



Midblock Crossing: Baychester Avenue, Bronx

MTA bus - pedestrian fatalities dropped from ten in 2014 to one in 2018

Coordinate with MTA to ensure bus operations contribute to a safe pedestrian environment

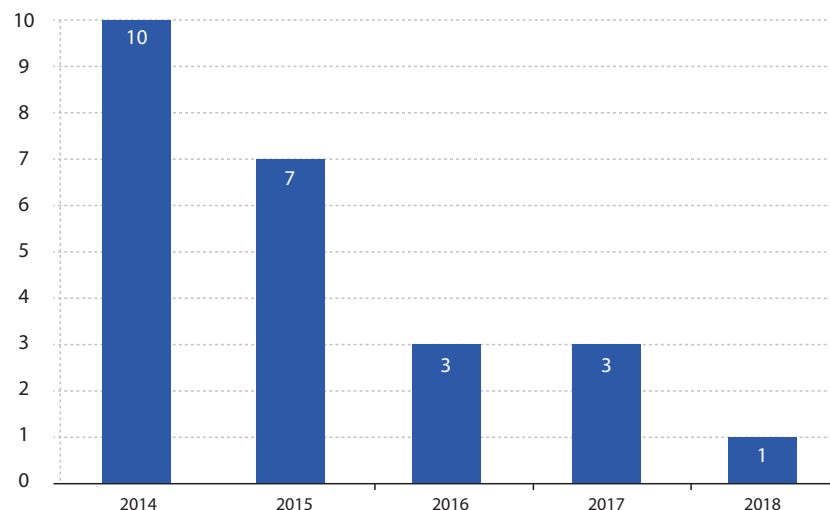
NYC DOT worked closely with MTA to improve bus operations and provide safer streets for pedestrians and bus riders. The agencies increased collaboration in planning for future projects, improving street safety, and streamlining bus movements through regular meetings. This collaboration led to strategic re-routing of nine bus routes and multiple projects to enhance bus safety operation. Since the start of Vision Zero, the agencies developed 80 projects to enhance bus safety and operations including elimination of two bus turns that had previously resulted in pedestrian fatalities. The agencies worked jointly to investigate the feasibility of installing Leading Pedestrian Intervals (LPIs) and other signal enhancements at historically high-crash intersections. Since the start of Vision Zero, NYC DOT installed LPIs at 264 bus intersections. During this period, MTA bus-pedestrian fatalities declined consistently, dropping from ten in 2014 to one in 2018.

Furthermore, MTA and NYC DOT are working to continuously improve bus operator training programs. In an effort to educate NYC DOT planners and decision makers to the challenges faced by bus operators, over 56 NYC DOT employees received MTA bus simulator training between 2015 and 2018.



Bus Lanes: 34 Street, Manhattan

MTA Bus-Pedestrian Fatalities

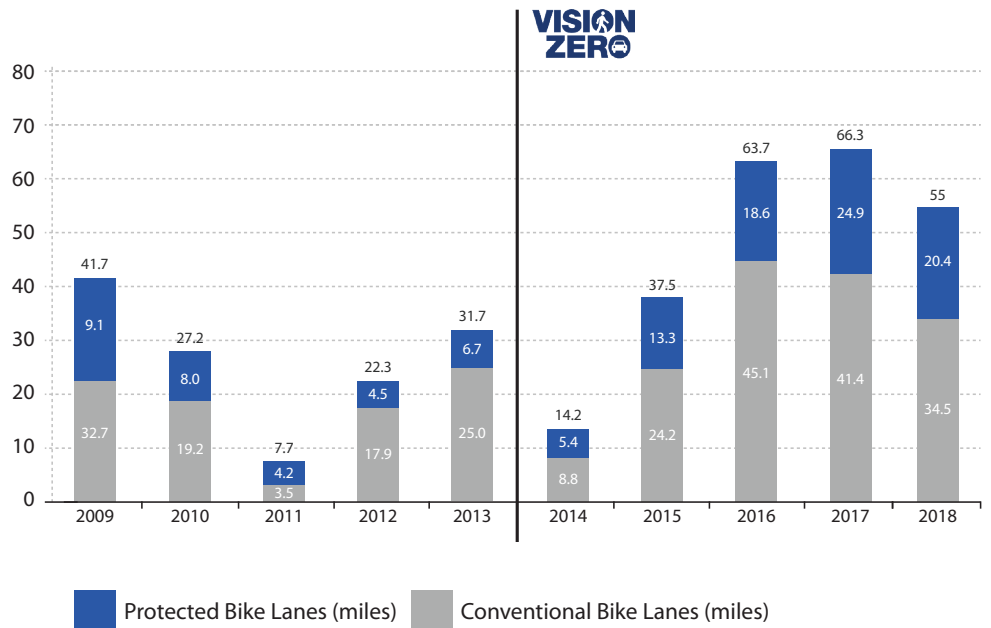


Expand a bicycle network that improves safety for all road users

NYC DOT installed more than 236 miles of dedicated cycling space

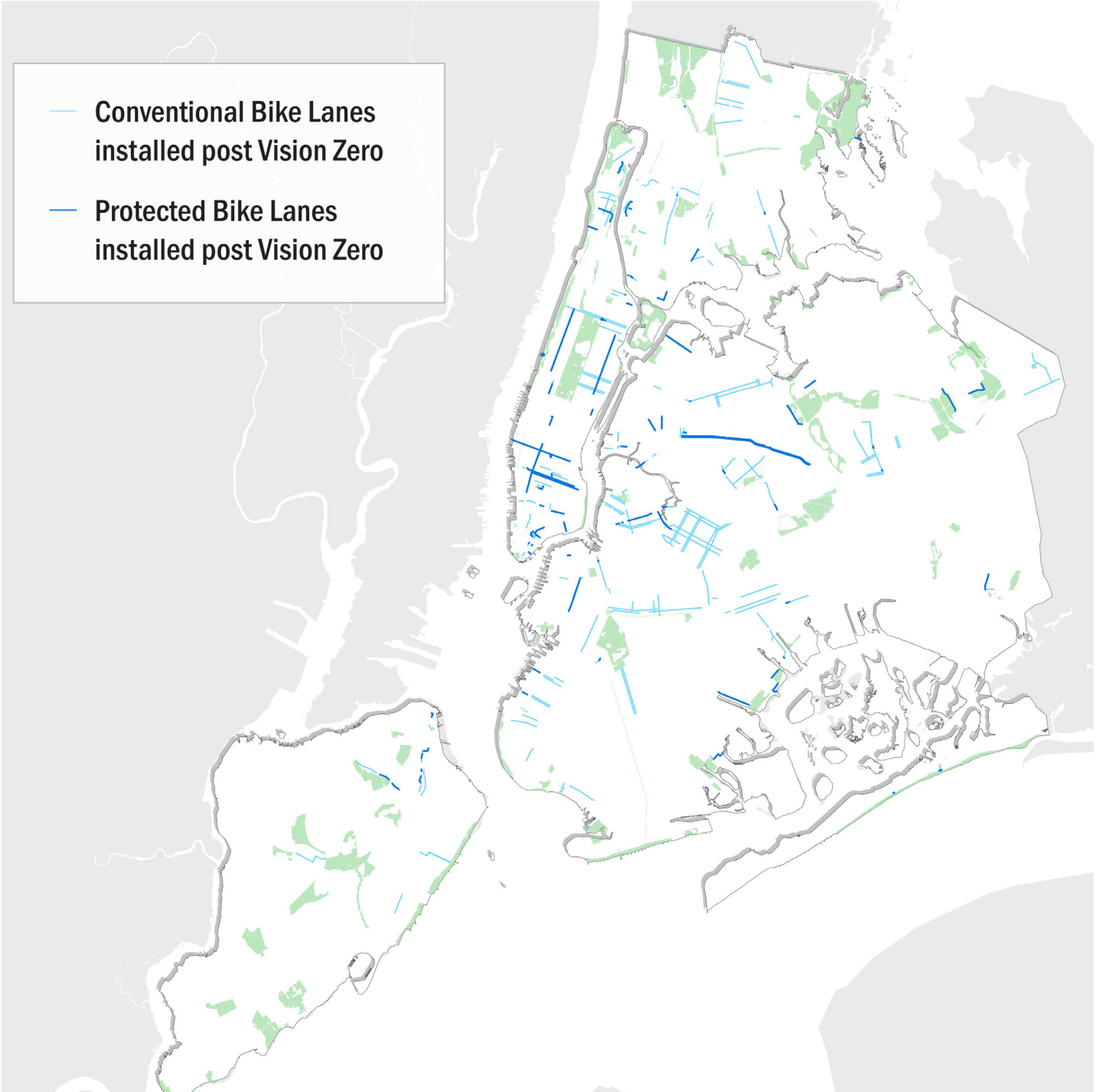
NYC DOT improved upon its commitment to implement 50 miles of bicycle facilities and build at least 10 lane miles of protected bike lanes per year. NYC DOT consistently exceeds these targets, with over 20 miles of protected bike lanes installed in 2018, more than triple the pre-Vision Zero average. In total, NYC DOT installed more than 236 miles of dedicated cycling space between 2014 and 2018, including over 80 miles of protected bicycle lanes. During this period, cyclist safety consistently improved in New York City. The average annual number of bicyclist KSI per 10 million cycling trips dropped 38%, from 37 in the period of 2010 to 2013 to 23 in the period of 2014 to 2016.

Dedicated Bicycle Lanes Installed



Bicycle Facilities: Oceania Avenue, Queens

- Conventional Bike Lanes installed post Vision Zero
- Protected Bike Lanes installed post Vision Zero



Proactively design for pedestrian safety in high-growth areas, including locations in the Housing New York plan

NYC DOT worked closely with the Department of City Planning (DCP), Department of Housing Preservation and Development (HPD), and other city agencies to proactively improve pedestrian safety in strategic locations around the city where significant growth in pedestrian traffic is expected. The agency actively participates in the Planning for Livability, Affordability, Community, Economic Opportunity and Sustainability (PLACES) program, part of Mayor Bill de Blasio's Housing New York Plan.

NYC DOT conducted outreach in neighborhoods such as East New York and Bushwick for bicycle network expansion to improve the planning processes. Utilizing the Mayor's Neighborhood Development Fund, multiple street improvements were installed proactively in neighborhoods that are expected to have new developments. Projects undertaken through the Neighborhood Development Fund include improving pedestrian space at the intersection of Bay Street and Victory Boulevard in Staten Island and extending the sidewalk for the bus stop on Jerome Avenue in the Bronx.



Street Improvement Project: Bay Street, Staten Island, Before

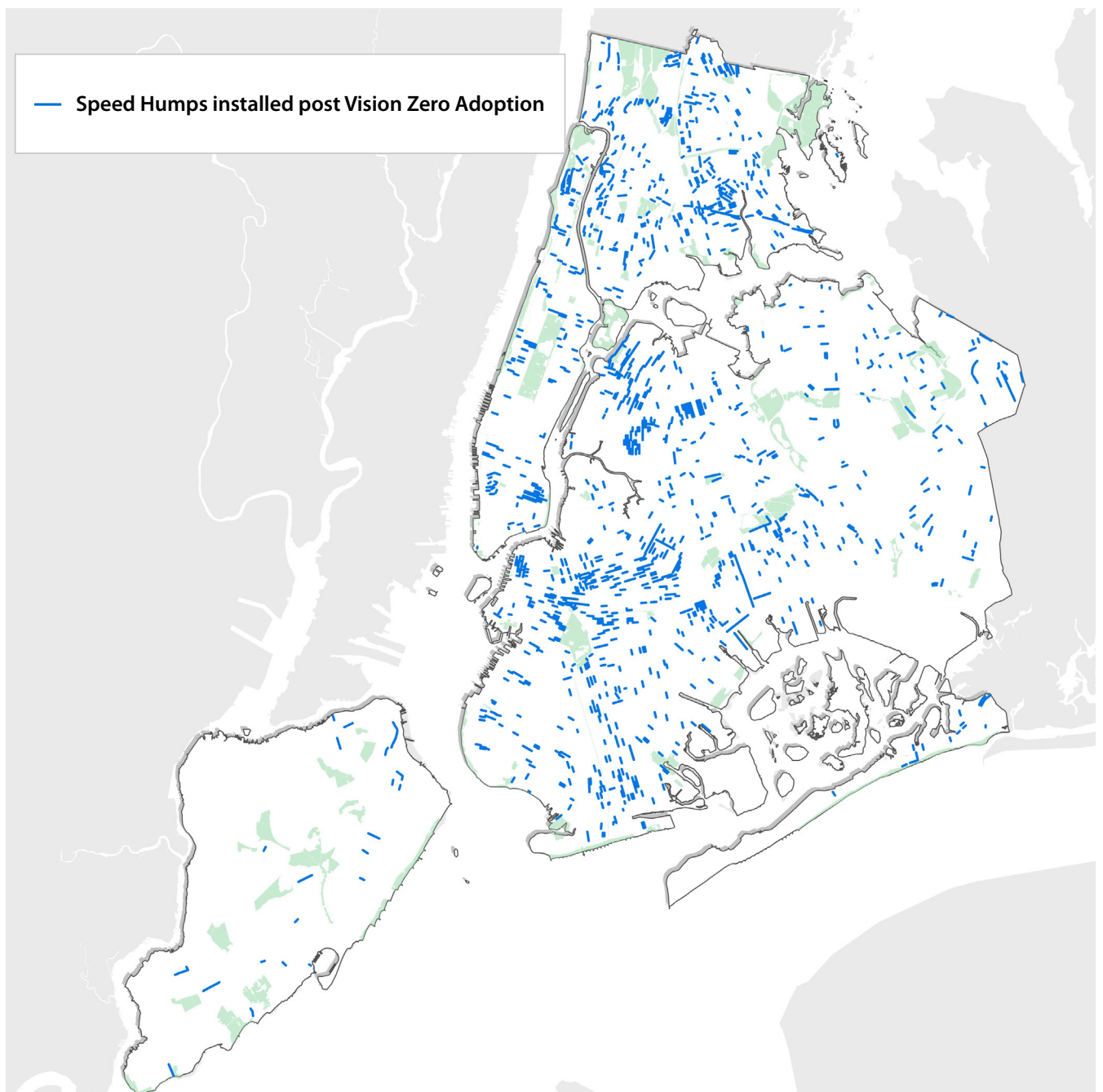


Street Improvement Project: Bay Street, Staten Island, After

Citywide, the agency installed 1,898 speed humps since Vision Zero

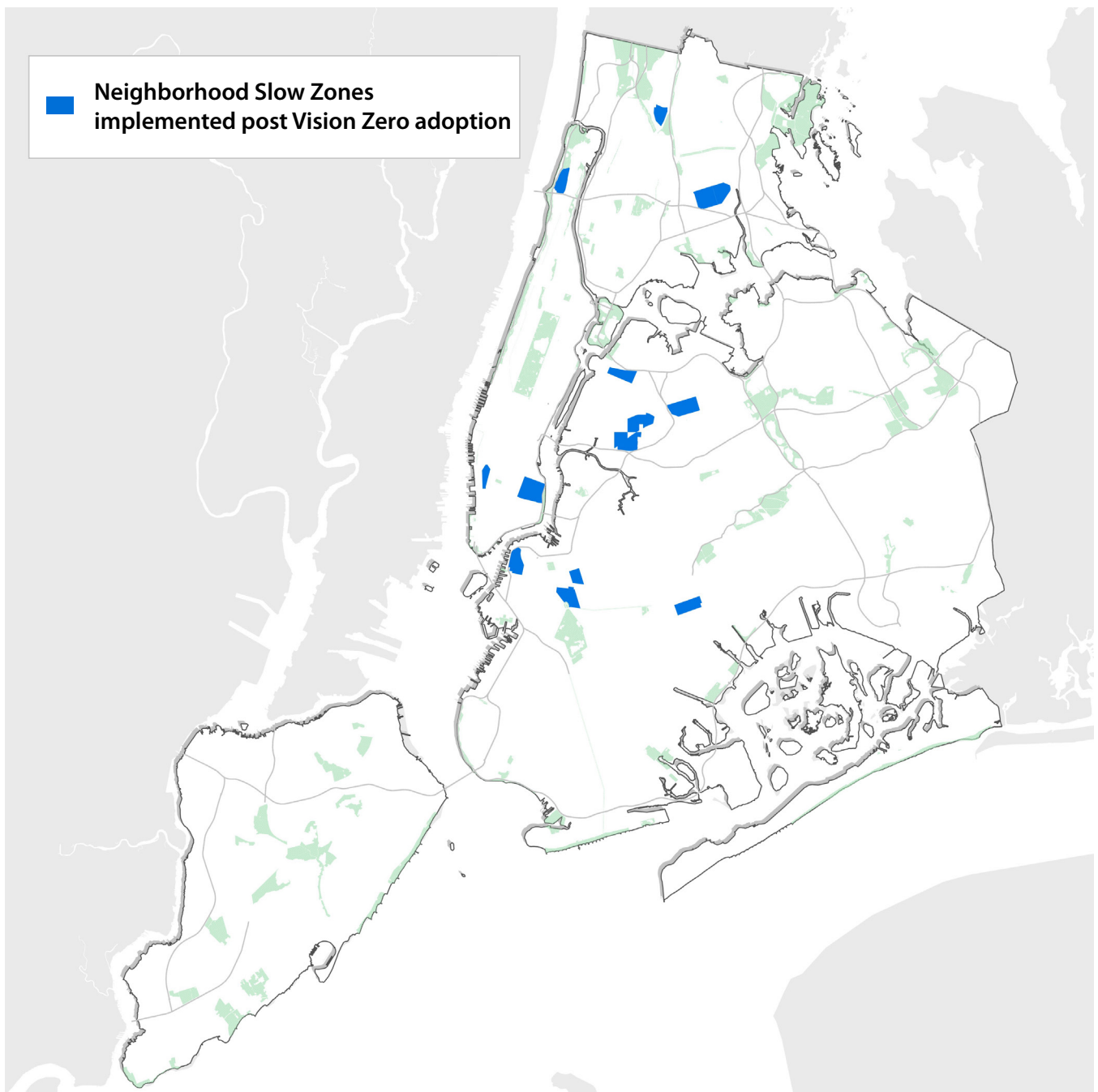
Install 250 new speed humps citywide annually

NYC DOT installed over 500 new speed humps in Priority Locations since the start of Vision Zero. Citywide, the agency installed 1,898 speed humps since the start of Vision Zero. The agency consistently exceeded the initial goal of its citywide speed hump program of installing 250 speed humps annually. In 2018, the agency installed 363 speed humps citywide, a 94% increase over the five year annual average of 187 speed humps per year before the start of Vision Zero.



Develop additional Neighborhood Slow Zones in Brooklyn Priority Areas

NYC DOT implemented 14 new Neighborhood Slow Zones throughout the City. Every Neighborhood Slow Zone implemented in Brooklyn after 2014 overlapped with the Priority Areas outlined in the Vision Zero Report. Analyzed together, the Slow Zones demonstrated a 10% overall reduction in crashes with injuries after implementation. The agency is currently focusing its efforts on reviewing requests from the general public for speed humps due to increased demand in recent years. In the interim, the agency has not identified any new Neighborhood Slow Zones.



Consider area-wide policies for Midtown



NYC DOT is undertaking multiple initiatives to reduce conflicts between pedestrians, motorists, buses, and delivery vehicles. NYC DOT installed seven left turn bans in Midtown post Vision Zero. Additionally, the agency is installing a combination of protected and conventional crosstown bike lanes on 26 Street, 29 Street, 38 Street, 39 Street, 52 Street, and 55 Street.

Curb management is an area of particular concern in Midtown due to its dense commercial activity. A well-functioning curb, where space for different users is well defined and the curb is accessible, improves the overall functionality of the street and decreases incidences of double parking and cruising. In September 2018, NYC DOT adjusted meter rates across the City, including Midtown, to improve turnover and availability with contextually appropriate rates. In addition, NYC DOT is committed to expanding opportunities to improve access in retail districts for commercial vehicles through enhanced design, additional spaces, and new policies and regulations.

Continue to expand the off-hours delivery program to reduce truck conflicts with pedestrians



The Off-Hour Deliveries (OHD) Program encourages goods delivery during the off-peak hours of 7 PM to 6 AM in NYC to decrease congestion and truck emissions, specifically in Midtown, Lower Manhattan, Downtown Brooklyn, and the Flushing and Jamaica downtowns in Queens where there are high pedestrian volumes and limited curb space. By working with businesses to shift their deliveries to less busy times in the evening or overnight, NYC DOT is expanding the OHD program to 900 new food and non-food retail locations. Over the past two years, the agency worked with consultants to develop a branding and media plan for the OHD program and conducted a survey of businesses, including freight transporters and receivers, to better understand how and when deliveries are made and the financial and logistical reasons behind these decisions. The results informed the key elements of the OHD program expansion.



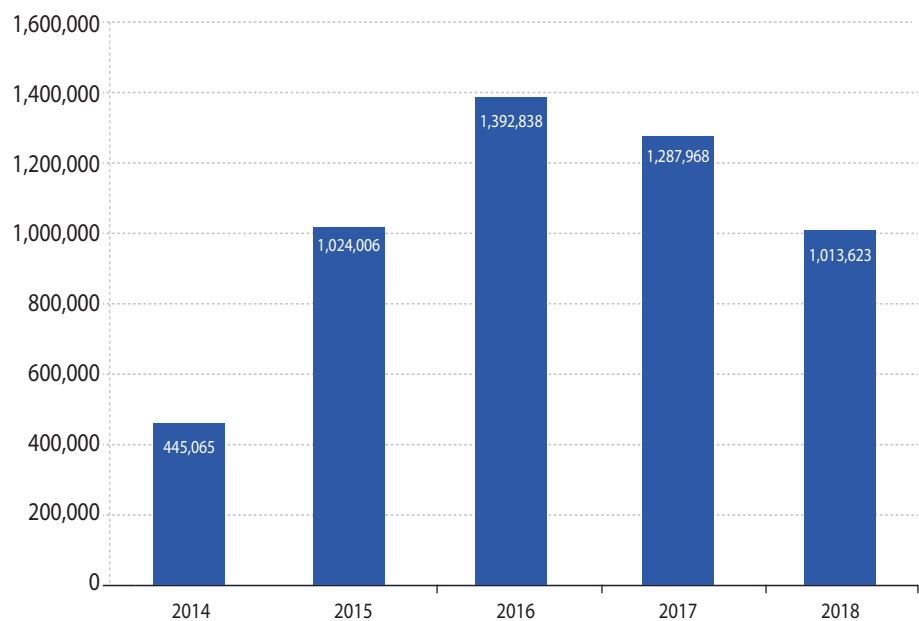
Off Hour Deliveries, Manhattan

Enforcement Actions

Implement the majority of speed cameras at Priority Corridors, Intersections, and Areas

After the New York State Legislature authorized a speed camera pilot program starting in 2014, NYC DOT installed a majority of its fixed location speed cameras near schools in Priority Locations. By the time the program was set to expire in 2018, the daily rate of camera violations had declined by over 60 percent, and the overall number of people killed or severely injured in crashes in school speed zones with speed cameras declined by over 21 percent. These results were achieved despite the fact that the City is not authorized to use the cameras during the majority of the year. On certain Priority Corridors, including Hillside Avenue, Grand Concourse, Atlantic Avenue, and Flatbush Avenue, speeding decreases exceeded the citywide average. In August 2018, following the expiration of the speed camera program, City Council passed a bill, signed by Mayor de Blasio, which along with a state executive order signed by Governor Cuomo, reauthorized their use. In 2019, NYC DOT will expand the number of school speed zones with speed cameras from 140 to 290, following speed and crash data to determine where they are needed most.

Automated Speeding Violations (speed cameras)



Focus enforcement and deploy dedicated resources in precincts that overlap substantially with Priority Areas

Prioritize targeted enforcement at all Priority Corridors, Intersections, and Areas annually



60% of the Vision Zero related traffic summonses occurred at Priority Geographies

NYPD committed to a major technological update to its traffic analysis capabilities and to implement a system for detailed analysis of crashes. As part of this commitment, NYPD developed the Finest Online Records Management System (FORMS) to improve record management and unify records in a centralized system with a mobile platform. FORMS provides a single interface for users to record numerous types of incidents, including police reports that document vehicle collisions and traffic moving violations. It standardizes the way this information is captured, stored, and delivered to other applications, providing capabilities for field-based reporting and electronic summoning via mobile devices. It also allows for deeper and faster analysis of crash data. The FORMS application went live in 2016 and NYPD began to electronically record collisions.

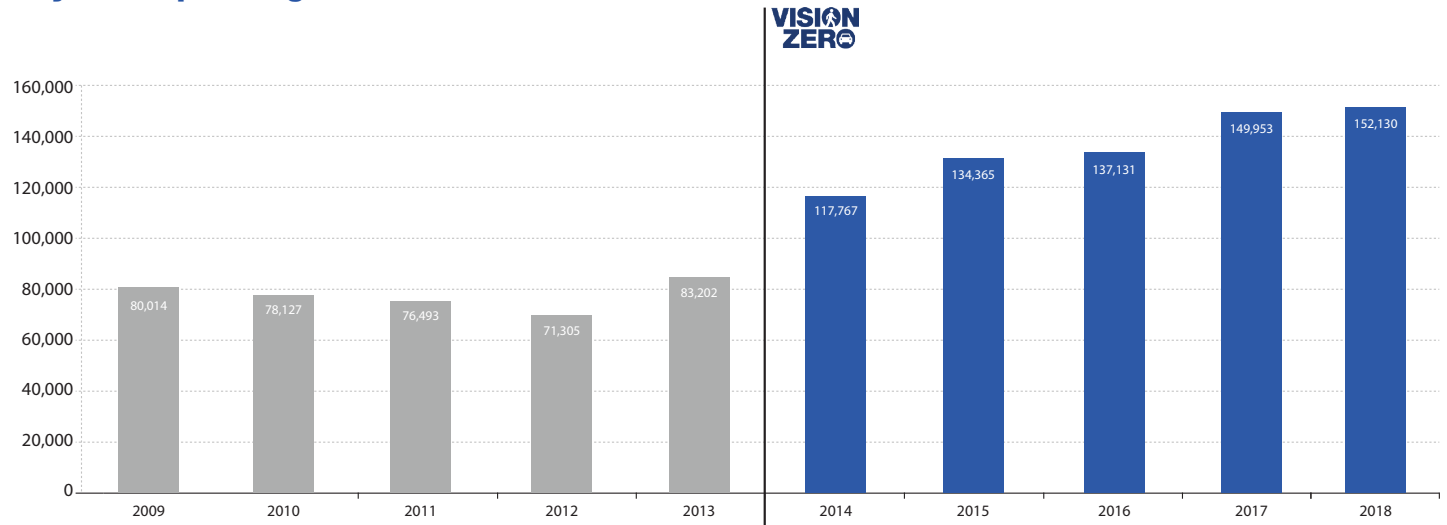
Additionally, NYPD developed a TrafficStat 2.0 application, which allows the precincts to more efficiently analyze collision statistics using interactive maps. In December 2016, NYPD launched TrafficStat 2.0, which presents weekly collision data in a user-friendly accessible format. The tool is publicly accessible online at <https://trafficstat.nypdonline.org>. Users can generate maps of collisions and compare current collision statistics to the previous year's numbers. Through this tool, NYPD identifies areas with disproportionate amounts of collisions and conducts targeted enforcement.

An assessment of NYPD's enforcement citywide showed that 60% of the Vision Zero related traffic summonses occurred at Priority Locations. Specifically, Vision Zero violations include speeding, disobeying a traffic control device, improper turns, failing to yield the right of way to pedestrians, red light running, talking on a cellphone while driving (neglecting to use "hand-free" mode), and texting while driving. This assessment used summons data from January 2018 to June 2018 and a total of 374,349 incidents records were analyzed.

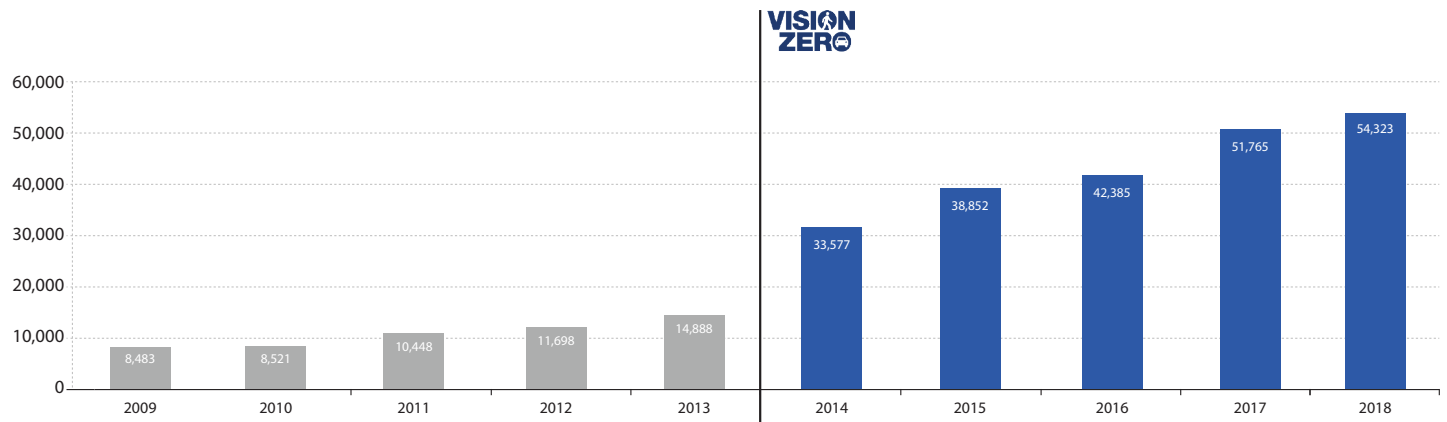
NYPD focused particularly on speeding enforcement throughout New York City and the total number of speeding summonses issued increased steadily. Since 2013, speeding summonses nearly doubled, from 83,202 in 2013 to 152,130 in 2018. NYPD significantly increased failure to yield enforcement citywide as well. From 2013 to 2018, summonses for failure to yield to pedestrians nearly quadrupled, increasing from 14,888 to 54,323.

NYPD conducted a series of truck enforcement initiatives and issued summonses for heavy vehicles that were off the truck routes, more than the permitted length, or over the permitted weight limit.

Citywide Speeding Summonses Issued



Citywide Failure to Yield Summons Issued



Truck Enforcement 2014-2018

	2014	2015	2016	2017	2018
Truck Enforcement Summons Issued	6,221	6,985	8,025	6,939	6,323

Summons issued for vehicle off route, over permitted length, or overweight

Education and Awareness Actions



Target child and senior safety education at Priority Corridors and Priority Areas

Between 2014 and 2018, NYC DOT Safety Education visited over 1,400 schools and more than 350 senior centers at Priority Locations to target children and the senior population for pedestrian safety awareness. In addition to Street Team visits, the agency conducted 273 hands-on safety demonstrations such as helmet fittings, and 34 workshops at Priority Locations since the start of Vision Zero.



Citywide Transportation Workshop: Queens



Target Street Team outreach on Priority Corridors, Intersections, and Areas

The NYPD and NYC DOT Street Teams visited over 530 Priority Locations since the start of Vision Zero, and distributed nearly two million flyers to promote safe pedestrian and driving behaviors.



Vision Zero Day of Awareness, Manhattan Bridge, Manhattan

Focus messaging and paid placement of Vision Zero public information campaigns targeting night-time drivers, as well as addressing at-risk Bronx demographic groups, such as younger adults and overnight commuters

In November 2014, NYC DOT launched the “Your Choices Matter” campaign, utilizing graphic and powerful images to get the attention of New Yorkers and emphasize the serious consequences of dangerous driving choices. The data-driven and focus-group tested approach was the first phase of a longer-term, Vision Zero marketing strategy. Rollout of this campaign through urban panels, bus shelters, newsstands, bus tails, billboards, and gas station pumps built brand recognition for Vision Zero.

The subsequent phases of “Your Choices Matter” provided fuller narratives and visualizations of dangerous scenarios to draw attention towards the specific actions that contribute to pedestrian fatalities. The advertising campaign took a targeted approach by integrating findings from Borough Safety Action Plans. Media placements included a number of high-profile billboards and other out-of-home ad placements such as bus tails and gas pumps that effectively targeted drivers with borough specific information. Furthermore, NYC DOT invested over one million dollars in digital advertising in fiscal years 2015 to 2018. These advertisements are highly targeted, reaching audiences based on geography, demographics, and behaviors. The agency utilized this level of targeting to ensure that messaging was delivered to defined at-risk groups such as younger adults.

Based on annual tracking surveys and robust creative exploratory research, NYC DOT developed a new Vision Zero media campaign called ‘Signs’/‘Saving a life is easy.’ Released in October 2017, this campaign will continue to address common driver behaviors based on current crash data, but will be delivered with fresh, new content.

In 2016, NYC DOT held its first annual Dusk to Darkness campaign. The campaign consisted of education and outreach reminding drivers that in the fall and winter months after daylight savings, crashes involving pedestrians dramatically increase, especially during evening hours. The multi-media effort is accompanied by a high-profile “Day of Awareness” leafleting campaign followed by heightened NYPD enforcement during evening hours to enforce the most dangerous violations, speeding and failure-to-yield to pedestrians.

Launch multilingual public information campaigns in Brooklyn/Queens Priority Areas



NYC DOT’s media expenditures reflect a commitment to providing Vision Zero information to targeted, linguistically diverse communities. The “Your Choices Matter” campaign was produced in multiple languages for use on television, radio, online, and outdoor advertising channels. NYC DOT invested nearly \$1.9 million in non-English media in fiscal years 2015-2018.



Your Choices Matter Campaign

Action Plan



7.

New Actions

Add exclusive pedestrian crossing time (LPIs) at every feasible intersection on all new Priority Corridors by the end of 2019



High-crash corridors for pedestrians tend to be on wide arterial streets with higher speeds and aggressively turning vehicles. NYC DOT will address these issues by installing Leading Pedestrian Intervals (LPIs) at every feasible crosswalk on all new Priority Corridors. The LPI is a proven method of reducing pedestrian-vehicle conflicts at high pedestrian crash locations; it is a signal timing treatment that provides pedestrian-only walk time before vehicles, including turning vehicles, receive the green light.

Modify signal timing to reduce speeding on all feasible new Priority Corridors by the end of 2019

Vehicles driving over the speed limit increase the risk for pedestrian crashes as well as increasing the severity of those crashes. To better control speeds at all times of the day, DOT will modify signal timing on all feasible new Priority Corridors by 2019.

Launch Integrated Data-Driven Speed Reducer Program (Speed Humps & Speed Cushions)

New York City has installed speed humps citywide since the late 1990s and, since Vision Zero, the agency more than doubled yearly installations. Starting in 2016, NYC DOT began piloting speed cushions, a speed hump variation with wheel cutouts designed to allow large vehicles, such as fire trucks and buses, to pass with minimal slowing or rocking. The Integrated Speed Reducer Program will combine these two treatments together into one program. Speed humps and cushions will both be available by request from the public, and be deployed systematically by NYC DOT. Both approaches will be data-driven, using speed and injury data to vet requests and to select the best sites for intervention.

Track Vision Zero Violations at the Priority Corridors, Intersections, and Areas

In 2016, NYPD launched Finest Online Records Management System (FORMS), a major technological upgrade to its analytical capabilities which allows NYPD to systematically and precisely track B-summonses (moving violations) activity throughout the City. FORMS enables NYPD to ensure that Vision Zero Violations will be targeted to Priority Corridors, Intersections, and Areas. Vision Zero Violations are the infractions that are particularly threatening to pedestrians, especially speeding and failure to yield but also include failure to obey traffic signal, improper turn, using cell phone while driving, texting while driving, and failure to obey stop sign.

Launch a High Visibility Enforcement Program at Priority Corridors

The High Visibility Enforcement Program is a joint NYPD/ NYC DOT initiative to systematically enforce and increase awareness of traffic safety issues at the highest injury Priority Corridors across New York City. The goals of high-visibility enforcement are for all motorists to understand that they will get a citation if they violate traffic law, and to increase awareness of enforcement by widely publicizing that police will be present.

The initiative will target five to ten multi-mile corridors each year, with enforcement and education happening consistently throughout the year. Enforcement will focus on Vision Zero Violations, especially speeding and failure to yield. NYPD/DOT Street Teams will perform on-street engagement along the corridors, similar to previous Vision Zero Street Team work. NYC DOT Safety Education will engage schools and senior centers along the corridors and Vision Zero outdoor advertisements will be placed at these locations. Coordinating with NYC DOT Safety Education, NYC DOT Freight Mobility will conduct Truck's Eye View and other truck safety education efforts at appropriate sections of the corridors. Traffic violation data will be evaluated along with before/after studies of speeding and traffic injuries to determine the effects of enforcement. This program will replace the existing NYPD/ NYC DOT Street Team program that was created in 2014. The first High Visibility Enforcement action began on Northern Boulevard in Fall 2018.

Launch a Targeted Corridor Outreach Program

NYC DOT's public education and communication efforts will focus on Priority Corridors, primarily those identified for the High Visibility Enforcement Program. A secondary collection of locations will be comprised of corridors with the highest ten percent of KSIs for each borough. Safety Education staff will provide standard classroom presentations and multi-day intensive programming at schools and after school centers located along the corridors. Staff will also work extensively with senior centers in these locations.



NYC DOT will continue to use outdoor media to communicate behavior-modifying messages to drivers. Media buyers will identify billboards, bus shelters, gas stations and other outdoor advertising properties located on Priority Corridors. Ads on the backs of buses will be selected based on routes that travel on Priority Corridors. By using crash data to target education and communication, these resources will be applied in the areas with potential for greatest impact.

Launch a Driveway Safety Program to address issues with vehicles crossing sidewalks

Private commercial driveways that cross busy sidewalks pose one of the greater planning challenges of Vision Zero. NYC DOT will launch a Driveway Safety Program that aims to promote the safe and efficient movement of people and goods on the City's streets by reducing conflicts on the roadway system for all modes of travel, specifically as it relates to property access via driveways and sidewalks. To help achieve this, the program will focus on the proper planning, regulation and design of proposed access driveways and curb cuts for site development/redevelopment projects in accordance with access management principles and NYC DOT guidelines. Although the primary focus of the program will be to address new proposals for access changes associated with new or redeveloped properties, DOT will also consider retrofitting existing streets and property access configurations to identify ways to improve safety and traffic access.

Conduct a comprehensive study of senior pedestrian injuries



While total pedestrian fatalities have declined since the adoption of Vision Zero, senior (ages 65 and older) pedestrian fatalities have not improved at the same rate. In 2018, there were 57 senior pedestrian fatalities in New York City, representing 50% of annual pedestrian fatalities; however, seniors make up only 13% of the city's population. NYC DOT will undertake a comprehensive study of senior pedestrian fatalities and injuries, investigating senior pedestrian crash locations, types and severity outcomes. The study will identify engineering interventions that can target seniors, as well as new methods for better reaching this vulnerable population.

Collaborate with the Business Integrity Commission to improve the safety of commercial waste fleets

With private waste trucks accounting for several pedestrian and cyclist deaths each year, NYC DOT works closely with the Business Integrity Commission, which licenses and regulates these fleets, to ensure truck drivers operate safely and with accountability. NYC DOT representatives attend meetings of BIC's Collision Review Panel and Trade Waste Safety Symposia, and were closely involved in the production of the Trade Waste Safety Manual published in February 2018. The two agencies also maintain frequent information exchange through the Vision Zero Task Force.

Continuing Actions

Implement at least 50 Vision Zero safety engineering improvements at the updated Priority Corridors, Intersections, and Areas citywide

NYC DOT recommits to the 2015 goal of building at least 50 Vision Zero safety engineering improvements annually at the Priority Corridors, Intersections, and Areas defined in the 2018 Borough Pedestrian Safety Action Plans Update. This will ensure a laser focus on the chronically high-crash locations where pedestrians are killed and severely injured, where NYC DOT interventions will have a maximum impact.



Add exclusive pedestrian crossing time to all feasible new Priority Intersections by the end of 2019

NYC DOT will install LPIs at every feasible Priority Intersection by the end of 2019. As noted previously, the LPI is a signal timing treatment that provides pedestrian-only walk time before vehicles receive the green light.

Prioritize targeted enforcement at all updated Priority Corridors, Intersections, and Areas annually

To further inform enforcement efforts, NYC DOT will provide detailed crash analyses of the updated Priority Corridors, Intersections, and Areas to NYPD precincts. Enforcement will focus tightly on infractions that are particularly threatening to pedestrians, such as speeding and failure to yield. Similar to crime data, effective evaluation of enforcement data must be conducted geographically (i.e., by street, intersection, or address). Currently, NYPD tracks and monitors activity at “Collision Prone Locations,” which are established using accumulated collision data. On the local level, each precinct conducts extensive analysis and mapping of their enforcement efforts in regards to collision reduction, particularly at Collision Prone Locations. These efforts are further scrutinized at the Department’s TrafficStat forums, wherein the precincts’ Executive Officers and Traffic Safety Teams are called upon to provide in-depth analysis of their traffic safety programs and enforcement efforts.

Expand a bicycle network that improves safety for all road users

While this plan identifies Priority Corridors, Intersections, and Areas for pedestrian safety improvements, these locations also account for most of cyclist KSI, and can represent priorities for bicycle safety as well. Pedestrian and bicycle planning share many of the same fundamental strategies to increase safety. Both groups benefit from reductions in speeds, efforts to enforce the traffic laws that make streets safe, and comprehensive engineering solutions that better organize traffic flow and reduce conflicts. In addition, well-designed bicycle lanes perform an important traffic calming function by

right-sizing streets to the needed capacity and may also include pedestrian refuges that shorten crossing distances. That is why NYC DOT will continue to implement 50 lane miles of bicycle facilities, including at least ten miles of protected bicycle lanes, as laid out in the 2017 Safer Cycling Report. In the same report, NYC DOT identified 10 Priority Bicycle Districts, which have comparatively high cyclist KSI and comparatively low access to the existing bicycle network. NYC DOT will expand or enhance 75 lane miles of bicycle facilities in the Priority Bicycle Districts from 2018 through 2022.

Install expanded speed limit signage on all new Priority Corridors in 2019

The 2015 Borough Pedestrian Safety Action Plans promised to expand signage on all Vision Zero Priority Corridors, and NYC DOT installed over 2,400 25 MPH speed limit signs on over 400 miles of corridor that year. With the identification of new Priority Corridors in 2018, signage will again be expanded so the speed limit will be posted at a higher frequency along the new Priority Corridors. This will help to increase compliance with the speed limit, better educate the public about the new citywide speed limit, and make NYPD enforcement simpler and less ambiguous.

Target child and senior safety education at the updated Priority Corridors and Priority Areas



NYC DOT's Safety Education team will continue to focus their programs at or near Priority Corridors and Areas with a high incidence of child pedestrian injury. Safety educators will work with schools to deliver comprehensive lessons to all members of the school community. All Vision Zero outreach and education to senior citizens will also be conducted within the Priority Areas and/or near Priority Corridors. In addition, hands-on safety demonstrations such as car safety seat checks, free helmet fittings and giveaways, anti-DWI information sessions, and Saturday table seminars will be made available through councilmembers and community groups.

Coordinate with MTA to ensure bus operations contribute to a safe pedestrian environment



The MTA operates the largest bus system in the United States, with more than twice as many daily riders than the next leading system. Buses are an extremely important part of the City's transportation network and vehicle mix, interacting with pedestrians (both riders and non-riders), cyclists and other road users. NYC DOT will work closely with the MTA to provide for a safe, efficient, and effective transportation network that coexists with pedestrians and other modes. NYC DOT and the MTA will focus on routes and stops at and around Priority Corridors and Priority Intersections, ensuring that facilities are designed and located to maximize pedestrian safety.

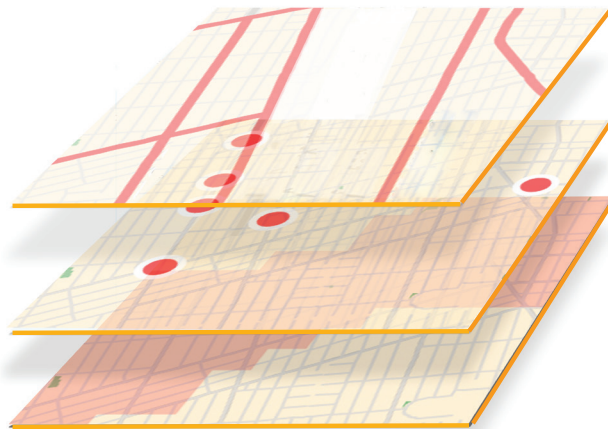
Appendix



Gerritsen Avenue, Brooklyn

Priority Geography Methodology

New York City has nearly 6,000 miles of roadway and nearly 47,000 intersections. To focus safety interventions where treatments will have the greatest effect, the City has identified the locations where pedestrian deaths and severe injuries are most concentrated. Using pedestrian KSI data from the last five available years (2012-2016), NYC DOT used the same process for selecting Priority Corridors, Priority Intersections, and Priority Areas as was used for the initial Borough Plans (released in 2015). Pedestrian KSI data was employed in this analysis for two reasons. First, a pedestrian who has been severely injured typically departs the crash scene in an ambulance and often experiences life-changing injuries (e.g., loss of mobility, brain function, limbs). A comprehensive street safety program must address these types of pedestrian injuries as well, not just fatalities. Second, severe injuries are more numerous and less randomly dispersed than traffic fatalities. Thus, severe injuries are more useful and reliable in terms of ranking one corridor, intersection, or area.



Priority Corridors

Prioritizing corridors (streets measuring at least one-mile in length) reflects the fact that pedestrian KSI crashes are concentrated on particular streets and that strings of intersections along certain streets often exhibit similar safety concerns and should be considered together. In addition, an intersection-only analysis would not account for the large share of pedestrian fatalities that occurs midblock. To determine the Priority Corridors, all corridors in the five boroughs were ranked on a pedestrian KSI per-mile basis. Corridors were selected from the top of this list until the cumulative number of pedestrian KSI reached half of the borough's total.

Priority Intersections

In order to identify which of New York City's nearly 50,000 intersections have the highest need and greatest potential safety gains, NYC DOT used an approach similar to the Priority Corridor process. NYC DOT selected the intersections with the highest number of pedestrian KSI that cumulatively account for 15% of the borough's total pedestrian KSI. This is a lower share than that used for corridors because crashes resulting in pedestrian KSI are spread out widely among thousands of intersections. Not only would such a large number of intersections be impractical to address in the scope of one plan, but at the vast majority of these intersections, only one pedestrian KSI occurs in the data, which may not indicate a systematic need for intervention.

Priority Areas

Some of the safety issues throughout New York City occur systematically at an area-wide level and are not confined to a single intersection or street. To account for these areas, the pedestrian KSI crash dataset was transformed into a kernel density map—or heat map—which indicates where the density of these crashes is highest. The Priority Areas were determined by identifying the “hottest” areas on the map that, when combined, account for half of all of pedestrian KSI in each borough.

Coverage Statistics: Vision Zero Priority Corridor & Intersections

This analysis was prepared in order to approximate the portion of Vision Zero Priority (VZP) Corridors and Intersections that have received treatments from NYC DOT from 2014 through 2017. The analysis considers Street Improvement Projects (SIPs), new signal installations, Left Turn Traffic Calming treatments, Leading Pedestrian Intervals (LPIs), new street lighting, and corridor retimings. The “Any Treatment” columns include VZP Corridor mileage and count of VZP Intersections with at least one of these treatments. For each borough, VZP Intersections with a treatment or on a SIP Corridor are divided by total VZP Intersections in that borough to approximate a VZP Intersection coverage percentage. For each borough, the sum of VZP Corridor mileage with a treatment is divided by total VZP Corridor mileage in that borough to approximate a VZP Corridor coverage percentage. For intersection treatments, the total mileage of blocks intersecting that intersection are used for the VZP Corridor calculation. For instance, for a new signal at an intersection on a VZP Corridor, mileage of the 2 VZP Corridor blocks meeting at that intersection is included. For all mileage estimates, the analysis relies on the LION 17D street network, created by NYC DCP.

Borough	VZP Intersections with New SIPs	VZP Intersections with New Signals	VZP Intersections with LTTC	VZP	VZP Intersections with New Lighting	VZP Intersections with Corridor Retiming	VZP Intersections with Any Treatment
Bronx	50.0%	0%	2.1%	47.9%	6.3%	81.3%	89.6%
Brooklyn	42.4%	2.2%	9.8%	41.3%	15.2%	70.7%	92.4%
Manhattan	53.0%	0%	28.8%	31.8%	15.2%	62.1%	89.4%
Queens	43.8%	1.4%	15.1%	47.9%	12.3%	68.5%	91.8%
Staten Island	11.1%	0%	16.7%	55.6%	0.0%	50.0%	72.2%
Borough	VZP Corridor Mileage with New SIPs	VZP Corridor Mileage with New Signals	VZP Corridors with LTTC	VZP Corridor Mileage with LPIs	VZP Corridor Mileage with New Lighting	VZP Corridor Mileage with Corridor Retiming	VZP Corridor Mileage with Any Treatment
Bronx	31.9%	1.4%	1.8%	46.9%	1.8%	86.5%	90.8%
Brooklyn	16.4%	1.7%	5.1%	43.8%	4.5%	82.1%	92.6%
Manhattan	25.1%	0.5%	16.1%	60.5%	19.4%	63.3%	86.4%
Queens	35.9%	1.4%	3.7%	34.1%	6.0%	61.0%	86.1%
Staten Island	10.8%	2.5%	0.6%	19.7%	NA	43.8%	55.3%

Appendix A

Bronx

Priority Corridors

Street Name	From	To	Ped Fatalities (2012-2016)	Ped KSI (2012-2016)	Miles	Ped KSI per mile (2012-2016)
170 St	Clay Av	Dr M L King Jr Blvd	3	18	1.1	16.9
Hunts Pt Av	Halleck St	Southern Blvd	1	13	1.0	12.9
Grand Concourse	138 St	Mosholu Pkwy	11	70	5.5	12.8
138 St	Madison Av Br	Locust Av	3	19	1.6	11.7
Bruckner Blvd	Cypress Av	Bruckner Exwy	7	38	3.4	11.3
Fordham Rd	Tiebout Av	University Heights Br	1	25	2.2	11.2
Boston Rd [north leg]	Bronx Park E	Eastchester Br	2	36	3.3	10.8
Southern Blvd	Louis Nine Blvd	Fordham Rd	2	21	2.0	10.8
165 St	Jerome Av	3 Av	0	10	1.0	9.8
Westchester Av [north leg]	Westchester Av Br	Hugh J Grant Cir	1	12	1.2	9.7
149 St	145 St Br	Bruckner Blvd	1	20	2.1	9.4
167 St	Cromwell Av	Boston Rd	1	11	1.2	9.4
Kingsbridge Rd	Fordham Rd	Exterior St	3	11	1.2	9.0
169 St	Simpson St	Webster Av	0	9	1.1	8.4
3 Av	Bruckner Blvd	Fordham Rd	0	37	4.6	8.1
180 St	Webster Av	Tremont Av	1	14	1.7	8.1
Prospect Av	Southern Blvd	Crotona Av	1	13	1.6	8.0
Gun Hill Rd	Grace Av	Van Cortlandt Park S	1	25	3.4	7.4
White Plains Rd	Sunset Blvd	243 St	6	52	7.5	7.0
Boston Rd [south leg]	3 Av	Bronx Park E	2	22	3.2	6.9
Soundview Av	White Plains Rd	Bruckner Blvd	2	8	1.2	6.6
Tremont Av	Rosedale Av	Sedgwick Av	4	47	7.2	6.5
161 St	Jerome Av	3 Av	1	8	1.2	6.5
Westchester Av [south leg]	3 Av	Westchester Av Br	0	12	1.9	6.3
Morris Av	161 St	175 St	2	9	1.5	5.8

Bronx

Priority Intersections

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
Hunts Pt Av & Bruckner Blvd	9	0
White Plains Rd & E Gun Hill Rd	7	1
E 138 St & Bruckner Blvd	6	1
Corsa Av & Boston Rd	5	0
Grand Concourse & E 170 St	5	1
Mount Eden Pkwy & Grand Concourse	4	0
Thwaites Pl & Boston Rd	4	0
White Plains Rd & E 212 St	4	0
Bruckner Blvd & Brook Av	3	0
E 143 St & 3 Av	3	0
E 149 St & Brook Av	3	0
E 158 St & Cauldwell Av	3	0
E Tremont Av & Anthony Av	3	0
Grand Concourse & E 184 St	3	1
Grand Concourse & E 165 St	3	0
Grand Concourse & E 149 St	3	1
Grand Concourse & E Burnside Av	3	0
Grand Concourse & E 188 St	3	0
Longwood Av & Bruckner Blvd	3	0
Monroe Av & E Tremont Av	3	0
Morris Av & E 149 St	3	0
Morris Av & E 170 St	3	1
Pelham Pkwy N & Boston Rd	3	0
Prospect Av & E 163 St	3	0
Soundview Av & Lafayette Av	3	0
Southern Blvd & E 181 St	3	1
Southern Blvd & Boston Rd	3	0
Vyse Av & E 174 St	3	1

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
W Fordham Rd & Jerome Av	3	0
W Fordham Rd & Sedgwick Av	3	1
W Fordham Rd & University Av	3	0
W Fordham Rd & Grand Av	3	0
Westchester Av & Longwood Av	3	0
Westchester Av & Castle Hill Av	3	0
Wilkins Av & Boston Rd	3	0
Williamsbridge Rd & Neill Av	3	1
E 149 St & Courtlandt Av	2	0
Southern Blvd & E 180 St	2	0
St Anns Av & E 138 St	2	1
W 170 St & Jerome Av	2	0
W Burnside Av & Jerome Av	2	0
W Farms Rd & Boston Rd	2	0
Westchester Av & Southern Blvd	2	0
White Plains Rd & E 233 St	2	0
White Plains Rd & Nereid Av	2	0

Appendix B

Brooklyn

Priority Corridors

Street Name	From	To	Ped Fatalities (2012-2016)	Ped KSI (2012-2016)	Miles	Ped KSI per mile (2012-2016)
Flatbush Av [north leg]	Fulton St	Grand Army Plz	4	21	1.1	19.0
Eastern Pkwy	Plaza St E	Ralph Av	5	36	2.5	14.6
Malcolm X Blvd	Fulton St	Broadway	0	13	1.1	11.7
Utica Av	Malcolm X Blvd	Av S	3	48	4.6	10.4
Bay Pkwy	Ocean Pkwy	Cropsey Av	4	27	2.7	10.0
Av Z	Shell Rd	Coyle St	4	20	2.1	9.6
Church Av	37 St	98 St	2	38	4.0	9.5
Pennsylvania Av	Bushwick Av	Belt Pkwy	5	26	2.8	9.4
Eastern Pkwy Ex	Ralph Av	Vanderveer St	2	13	1.4	9.3
Troy Av	Lewis Av	Winthrop St	1	14	1.5	9.2
Empire Blvd	Flatbush Av	Utica Av	2	15	1.6	9.2
Av X	15 St	Boynton Pl	0	10	1.1	9.0
Av M	Dahill Rd	34 St	1	16	1.8	8.9
Rockaway Pkwy [north leg]	New York Av	Ditmas Av	4	12	1.4	8.8
Fulton St [west leg]	Adams St	Broadway	5	42	4.9	8.7
Nostrand Av	Lee Av	Emmons Av	6	69	8.0	8.6
Ralph Av	Av T	Remsen Av	1	22	2.6	8.4
Av D	Ditmas Av	Ralph Av	2	16	1.9	8.4
Coney Island Av	Park Cir	Brightwater Ct	4	46	5.5	8.4
Neptune Av	14 St	Surf Av	3	25	3.0	8.4
Myrtle Av	Duffield St	Palmetto St	2	32	3.9	8.2
Ocean Pkwy	Prospect Exwy	Surf Av	2	39	4.9	8.0
Mermaid Av	Stillwell Av	37 St	0	9	1.1	8.0
Rogers Av	Bedford Av	Farragut Rd	1	22	2.8	7.8

Brooklyn

Priority Corridors, cont.

Street Name	From	To	Ped Fatalities (2012-2016)	Ped KSI (2012-2016)	Miles	Ped KSI per mile (2012-2016)
Surf Av	Ocean Pkwy	Atlantic Av	0	14	1.8	7.7
Brooklyn Av	Fulton St	Winthrop St	0	12	1.6	7.7
Dahill Rd	Caton Av	18 Av	0	9	1.2	7.6
Bedford Av	Manhattan Av	Flatbush Av	6	48	6.3	7.6
9 Av	37 St	61 St	1	9	1.2	7.6
Atlantic Av	Furman St	Eldert La	10	56	7.6	7.4
Linden Blvd	Flatbush Av	Sapphire St	6	42	5.7	7.4
Franklin Av	Wythe Av	Washington Av	1	19	2.6	7.3
Livonia Av	98 St	New Lots Av	1	14	1.9	7.2
East 15 St	Av S	Sheepshead Bay Rd	1	8	1.1	7.1
Flatbush Av [south leg]	Grand Army Plz	Marine Pkwy Br	8	57	8.0	7.1
18 Av	Coney Island Av	Shore Pkwy	3	23	3.3	7.0
8 Av	73 St	39 St	0	12	1.7	7.0
Ralph Av	Lexington Av	98 St	2	13	1.9	7.0
Fulton St [east leg]	Broadway	Eldert La	4	13	1.9	7.0
Graham Av	Broadway	Driggs Av	4	11	1.6	7.0
4 Av	Flatbush Av	Belt Pkwy	5	41	6.0	6.9
Broadway	New York Av	Kent Av	7	30	4.4	6.8
Gold St	Fulton St	John St	1	7	1.0	6.8
Schenectady Av	Fulton St	Winthrop St	0	10	1.5	6.8
Flushing Av	Nassau St	Seneca Av	1	22	3.3	6.8
86 St	Shore Rd	Shell Rd	2	29	4.3	6.7
Rochester Av	Fulton St	New York Av	1	7	1.0	6.7
Rockaway Pkwy [south leg]	Canarsie Veterans Cir	Av D	3	12	1.8	6.5

Brooklyn

Priority Intersections

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
Utica Av & St John's Pl	8	0
Utica Av & Eastern Pkwy	6	1
Myrtle Av & Flatbush Av Ex	5	1
Bay Pkwy & 86 St	5	1
Utica Av & Church Av	5	1
Ocean Pkwy & Neptune Av	5	0
Flatbush Av & Church Av	4	0
Fulton St & Brooklyn Av	4	0
Union Av & Grand St	4	1
Bay Pkwy & Bath Av	4	1
Nostrand Av & Flatbush Av	4	0
Saratoga Av & Fulton St	4	1
Ralph Av & Flatlands Av	4	0
Ocean Pkwy & Kings Hwy	4	1
Coney Island Av & Av Z	4	0
Kingston Av & Atlantic Av	4	0
Nostrand Av & Av M	4	0
Rochester Av & Eastern Pkwy	4	1
W 17 St & Neptune Av	4	0
Nostrand Av & Atlantic Av	3	0
Schenectady Av & Eastern Pkwy	3	0
W 5 St & Neptune Av	3	0
Coney Island Av & Av O	3	0
Flatbush Av & Atlantic Av	3	0
S Portland Av & Fulton St	3	1
McDonald Av & Church Av	3	0
Nostrand Av & Flushing Av	3	0
60 St & 4 Av	3	0
Dorchester Rd & Coney Island Av	3	0

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
Linden Blvd & Flatbush Av	3	0
Bedford Av & Av D	3	0
Rockaway Av & Livonia Av	3	0
Schenectady Av & Empire Blvd	3	0
Riverdale Av & Pennsylvania Av	3	0
Myrtle Av & Classon Av	3	0
New Utrecht Av & 65 St	3	1
Rutland Rd & E 98 St	3	0
Voorhies Av & Ocean Av	3	0
Hemlock St & Fulton St	3	0
Rockaway Pkwy & Linden Blvd	3	1
Nassau Av & McGuinness Blvd	3	1
Montauk Av & Atlantic Av	3	0
Troy Av & Av D	3	0
S 1 St & Borinquen Pl	3	2
Williams Av & Linden Blvd	3	0
Graham Av & Broadway	3	1
Flatbush Av & Av U	3	0
Ralph Av & Atlantic Av	3	1
Coney Island Av & Brighton Beach Av	3	0
Franklin Av & Atlantic Av	3	0
Nostrand Av & Eastern Pkwy	3	0
Ocean Av & Av Z	3	0
Utica Av & President St	3	0
Flatbush Av Ex & De Kalb Av	3	1
Ocean Pkwy & Ditmas Av	3	0
Linden Blvd & Church Av	3	1
Quentin Rd & Coney Island Av	3	1

Brooklyn

Priority Intersections, cont.

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
E 16 St & Av U	3	0
Nostrand Av & Av Z	3	2
9 St & 4 Av	3	1
Washington Av & Myrtle Av	3	0
Coney Island Av & Av J	3	0
Rogers Av & Eastern Pkwy	3	1
Linden Blvd & Drew St	3	0
Rockaway Pkwy & Av K	3	0
51 St & 3 Av	3	1
Utica Av & Fulton St	2	0
Nostrand Av & Clarkson Av	2	0
Troy Av & Empire Blvd	2	0
Pennsylvania Av & Livonia Av	2	0
Joralemon St & Bourem Pl	2	0
Ditmas Av & Dahill Rd	2	0
Franklin Av & Eastern Pkwy	2	1
Fulton St & Albany Av	2	0
Fulton St & Flatbush Av Ex	2	0
Lafayette Av & Flatbush Av	2	0
Nostrand Av & Church Av	2	0
Ft Greene Pl & Atlantic Av	2	0
Nostrand Av & Farragut Rd	2	0
Sutter Av & Euclid Av	2	1
Empire Blvd & Bedford Av	2	0
Bedford Av & Atlantic Av	2	0
Stillwell Av & Mermaid Av	2	0
New York Av & Av D	2	0
Nostrand Av & Foster Av	2	1
Nostrand Av & Fulton St	2	0

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
Ocean Pkwy & 18 Av	2	0
W Brighton Av & Ocean Pkwy	2	0
Stanley Av & Pennsylvania Av	2	1
Bond St & Atlantic Av	2	0
Kings Hwy & Coney Island Av	2	0
Remsen Av & Flatlands Av	2	0
Utica Av & Lenox Rd	2	0
Prospect Exwy & Church Av	2	0
Tillary St & Flatbush Av Ex	2	0
Ocean Pkwy & Foster Av	2	0
Pitkin Av & Howard Av	2	0

Appendix C

Manhattan

Priority Corridors

Street Name	From	To	Ped Fatalities (2012-2016)	Ped KSI (2012-2016)	Miles	Ped KSI per mile (2012-2016)
8 Av	Hudson St	Columbus Cir	2	52	2.5	20.9
42 St	Ramp	12 Av	2	39	2.0	19.9
Av Of The Americas	Church St	Central Park S	5	74	3.8	19.7
Canal St	Broadway	Bowery	7	25	1.4	17.6
7 Av	11 St	Central Park S	4	42	2.4	17.5
14 St	FDR Dr	10 Av	2	37	2.2	16.8
23 St	Av C	11 Av	5	31	1.9	16.2
2 Av	Houston St	Harlem River Dr	8	87	6.4	13.6
3 Av	Cooper Sq	3 Av Br	10	80	6.0	13.3
York Av	Sutton Pl	FDR Dr	4	22	1.7	13.2
9 Av	Gansevoort St	Columbus Av	2	31	2.4	13.2
34 St	FDR Dr	12 Av	0	25	2.0	12.7
10 Av	West St	59 St	4	32	2.5	12.6
Houston St	FDR Dr	West St	3	24	2.0	11.8
57 St	12 Av	FDR Dr	3	24	2.0	11.7
1 Av	Houston St	127 St	8	73	6.3	11.5
125 St	Henry Hudson Pkwy	1 Av	2	23	2.1	10.9
Broadway	Union Sq W	Columbus Cir	0	24	2.2	10.9
145 St	145 St Br	Riverside Dr	2	13	1.2	10.6
Lenox Av	Central Park N	145 St	0	18	1.8	10.3
Lexington Av	Gramercy Park N	131 St	2	53	5.5	9.6
Columbus Av	9 Av	Morningside Dr	3	24	2.6	9.3

Manhattan

Priority Intersections

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
W 42 St & 8 Av	6	0
W 23 St & Av of the Americas	5	0
E 14 St & 1 Av	4	0
E 20 St & 3 Av	4	1
E 42 St & 2 Av	4	0
E 49 St & 2 Av	4	1
Ludlow St & Delancey St	4	0
Madison Av & E 115 St	4	2
South St & Rutgers Slip	4	1
W 145 St & Amsterdam Av	4	0
W 178 St & Broadway	4	0
W 26 St & Av of the Americas	4	0
W 40 St & 8 Av	4	0
W 42 St & 9 Av	4	0
W 42 St & Av of the Americas	4	0
W 45 St & 7 Av	4	0
W 49 St & 8 Av	4	0
E 14 St & 3 Av	3	0
E 14 St & 2 Av	3	1
E 23 St & 1 Av	3	0
E 34 St & 2 Av	3	0
E 53 St & 2 Av	3	0
E 79 St & 1 Av	3	0
E 84 St & 1 Av	3	0
E Houston St & Av B	3	1
Essex St & Delancey St	3	0
Hester St & Bowery	3	0
Lafayette St & Canal St	3	0
Lexington Av & E 125 St	3	0
Lexington Av & E 23 St	3	0
Lexington Av & E 34 St	3	0
Madison Av & E 79 St	3	1
Madison Av & E 60 St	3	1
Manhattan Br & Bowery	3	0

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
Park Av & E 125 St	3	0
Park Av S & E 28 St	3	0
Park Av S & E 23 St	3	1
Queensboro Br & 2 Av	3	0
University Pl & E 14 St	3	0
Varick St & Canal St	3	0
W 125 St & Frederick Douglass Blvd	3	0
W 125 St & Amsterdam Av	3	0
W 135 St & Broadway	3	0
W 14 St & Av of the Americas	3	0
W 14 St & 7 Av	3	0
W 14 St & 5 Av	3	0
W 145 St & Adam C Powell Blvd	3	2
W 155 St & Edgecombe Av	3	0
W 157 St & Broadway	3	0
W 34 St & 5 Av	3	0
W 34 St & 10 Av	3	0
W 42 St & 10 Av	3	0
W 42 St & Broadway	3	0
W 47 St & Av of the Americas	3	1
W 47 St & 10 Av	3	0
W 51 St & Av of the Americas	3	0
W 51 St & 8 Av	3	0
W 53 St & 9 Av	3	0
W 57 St & 10 Av	3	0
W 57 St & 11 Av	3	0
W 8 St & 5 Av	3	0
W 96 St & Broadway	3	2
W Houston St & Varick St	3	0
Water St & Wall St	3	0
Watts St & Av of the Americas	3	1
York Av & E 79 St	3	0
York Av & E 84 St	3	0

Appendix D

Queens

Priority Corridors

Street Name	From	To	Ped Fatalities (2012-2016)	Ped KSI (2012-2016)	Miles	Ped KSI per mile (2012-2016)
Union St	25 Rd	Franklin Av	3	14	1.4	9.8
Junction Blvd	32 Av	Queens Blvd	4	20	2.1	9.7
108 St	32 Av	Queens Blvd	4	28	2.9	9.6
Sutphin Blvd	Rockaway Blvd	Hillside Av	1	25	2.7	9.3
Fresh Pond Rd	Flushing Av	Myrtle Av	3	14	1.5	9.3
Archer Av	Van Wyck Exwy	168 St	1	11	1.3	8.7
Roosevelt Av [east leg]	Janet Pl	Northern Blvd	1	12	1.4	8.3
Main St	Northern Blvd	Queens Blvd	5	32	3.9	8.2
Broadway	Vernon Blvd	Queens Blvd	5	32	4.0	8.1
Northern Blvd [west leg]	Queens Plz	Northern Blvd Sr	6	34	4.3	7.8
Jamaica Av	Eldert La	257 St	8	59	9.1	6.5
Bowne St	Northern Blvd	Rose Av	0	9	1.4	6.4
Queens Blvd	Queens Plz	Jamaica Av	10	48	7.5	6.4
Atlantic Av	Eldert La	Van Wyck Exwy	4	19	3.0	6.4
Roosevelt Av [west leg]	Greenpoint Av	126 St	4	25	4.0	6.3
Sanford Av	Delong St	Northern Blvd	0	12	2.0	6.1
Woodhaven Blvd	Queens Blvd	Cross Bay Blvd	7	23	4.1	5.7
Cypress Av	Johnson Av	J Robinson Pkwy	0	12	2.2	5.5
Hempstead Av	Jamaica Av	Cross Is Pkwy	0	6	1.1	5.5
Kissena Blvd	Parsons Blvd	Main St	0	15	2.8	5.4
Grand Av	Grand St Br	Queens Blvd	1	15	2.8	5.4
37 Av	114 St	Woodside Av	3	16	3.1	5.2
Hillside Av	Myrtle Av	Langdale St	5	40	7.7	5.2
71 Av	Union Tpke	113 St	3	7	1.3	5.2

Queens

Priority Corridors, cont.

Street Name	From	To	Ped Fatalities (2012-2016)	Ped KSI (2012-2016)	Miles	Ped KSI per mile (2012-2016)
Northern Blvd [east leg]	College Pt Blvd	Glenwood St	5	30	5.8	5.2
34 Av	Vernon Blvd	Northern Blvd	2	8	1.6	5.1
Liberty Av	Drew St	Farmers Blvd	2	28	5.7	4.9
Seneca Av	De Kalb Av	St Felix Av	0	6	1.2	4.9
90 St	Astoria Blvd	Roosevelt Av	1	5	1.1	4.7
62 Dr	Queens Blvd	Grant Central	0	5	1.1	4.7
Myrtle Av	Wyckoff Av	Lefferts Blvd	5	19	4.3	4.5
Rockaway Blvd	Eldert La	Hook Creek Br	10	35	8.1	4.3
Parsons Blvd	Rose Av	144 Pl	1	13	3.0	4.3
104 St	Jamaica Av	Rockaway Blvd	0	5	1.2	4.3
21 St	50 Av	20 Av	2	15	3.6	4.2

Queens

Priority Intersections

Intersection	Ped KSI (2012- 2016)	Ped Fatalities (2012-2016)
Mott Av & Beach Channel Dr	7	1
Grand Av & 71 St	7	0
Woodhaven Blvd & Jamaica Av	6	4
Queens Blvd & 71 Av	5	2
Jamaica Av & 168 St	4	0
Union Tpke & Main St	4	0
Woodhaven Blvd & Queens Blvd	4	1
Union St & Northern Blvd	4	2
Myrtle Av & Fresh Pond Rd	4	1
Springfield Blvd & Hempstead Av	3	0
Sutphin Blvd & Archer Av	3	0
Elmhurst Av & Broadway	3	0
Sutphin Blvd & Liberty Av	3	0
Queens Plz & 27 St	3	1
N Conduit Av & 225 St	3	0
62 Av & 108 St	3	0
Hillside Av & 161 St	3	0
Francis Lewis Blvd & 169 St	3	0
70 Rd & 108 St	3	1
Cross Bay Blvd & 157 Av	3	1
38 Av & 108 St	3	1
Rose Av & Parsons Blvd	3	0
Junction Blvd & 50 Av	3	1
Main St & Elder Av	3	0
Junction Blvd & Hor Harding Exwy Sr N	3	1

Intersection	Ped KSI (2012- 2016)	Ped Fatalities (2012-2016)
Merrick Blvd & Hillside Av	3	1
Roosevelt Av & Bowne St	3	0
Sanford Av & Murray St	3	0
Seagirt Blvd & Beach 20 St	3	0
Northern Blvd & 102 St	3	1
Sutphin Blvd & South Rd	3	0
Bowne St & 41 Av	3	0
Broadway & 32 St	3	1
Sutphin Blvd & 110 Av	3	0
Queens Blvd & 58 St	3	1
Roosevelt Av & Main St	2	0
Queens Blvd & 55 Av	2	0
Roosevelt Av & Prince St	2	0
Cooper Av & 80 St	2	1
Sutphin Blvd & Linden Blvd	2	0
Waltham St & Liberty Av	2	0
Hor Harding Exwy & 108 St	2	0
Jamaica Av & 111 St	2	0
Union Tpke & 164 St	2	0
Lefferts Blvd & Atlantic Av	2	0
Springfield Blvd & Jamaica Av	2	0
Homelawn St & 169 St	2	0
Lamont Av & 43 Av	2	1
Liberty Av & Lefferts Blvd	2	0
Main St & Franklin Av	2	0

Queens

Priority Intersections, cont.

Intersection	Ped KSI (2012- 2016)	Ped Fatalities (2012-2016)
Queens Blvd & Broadway	2	0
Queens Blvd & 69 St	2	0
Van Wyck Exwy Sr E & Jamaica Av	2	0
97 St & 63 Rd	2	0
Union St & Roosevelt Av	2	1
Maple Av & Main St	2	1
Union St & 39 Av	2	0
Broadway & 31 St	2	0
Merrick Blvd & Linden Blvd	2	0
Northern Blvd & 146 St	2	1
Merrick Blvd & Archer Av	2	0
Parsons Blvd & Archer Av	2	0
Roosevelt Av & 114 St	2	0
Liberty Av & Cross Bay Blvd	2	0
Queens Blvd & 39 St	2	0
Union St & Sanford Av	2	0
Sutphin Blvd & Hillside Av	2	0
Northern Blvd & 171 St	2	0

Appendix E

Staten Island Priority Corridors

Street Name	From	To	Ped Fatalities (2012-2016)	Ped KSI (2012-2016)	Miles	Ped KSI per mile (2012-2016)
Vanderbilt Av	Bay St	Richmond Rd	0	8	1.0	8.0
Slosson Av	Martling Av	Todt Hill Rd	0	5	1.0	4.9
Forest Av	Victory Blvd	Goethals Rd N	2	23	5.0	4.6
Bay St	North Rd	Hyatt St	3	12	2.9	4.2
Tompkins Av	Broad St	Hylan Blvd	1	4	1.0	3.9
Victory Blvd	Wild Av	Minthorne St	3	26	8.1	3.2
Broadway	Richmond Ter	Tyler Av	0	4	1.2	3.2
Midland Av	Richmond Rd	Fr Capodanno Blvd	0	4	1.3	3.0
Bradley Av	Watchogue Rd	Brielle Av	0	3	1.0	3.0
Lincoln Av	Richmond Rd	Fr Capodanno Blvd	1	4	1.4	2.9
Targee St	Van Duzer St	Richmond Rd	0	6	2.1	2.9
Port Richmond Av	Trantor Pl	Richmond Ter	0	4	1.4	2.9
Hylan Blvd	Satterlee St	Narrows Rd S	7	36	13.0	2.8
Castleton Av	Brook St	Nicholas Av	0	8	3.2	2.5

Staten Island

Priority Intersections

Intersection	Ped KSI (2012-2016)	Ped Fatalities (2012-2016)
Forest Av & Decker Av	3	1
Tysens La & Hylan Blvd	3	1
Jefferson Av & Hylan Blvd	3	0
Richmond Rd & Amboy Rd	3	1
Midland Av & Hylan Blvd	3	0
Victory Blvd & Christopher La	3	1
Woodlawn Av & Hylan Blvd	3	0
Hylan Blvd & Ebbitts St	2	0
Richmond Av & Hylan Blvd	2	0
Watchogue Rd & Victory Blvd	2	0
Sand La & Fr Capodanno Blvd	2	0
Victory Blvd & Fremont St	2	0
Seaview Av & Hylan Blvd	2	0
Vanderbilt Av & Targee St	2	0
Forest Av & Broadway	2	0
Lincoln Av & Hylan Blvd	2	0

References

U.S. Census Bureau, 2017. 2013-2017 American Community Survey 5-Year Estimates.
U.S. Census Bureau, Intercensal Estimates (2004) by Population Division/NYC Department of City Planning, American Community Survey (2005-2017) by U.S. Census, and NYCDOT Estimates (2018)
New York State Department of Transportation/New York State Department of Motor Vehicles. Accident Database, 2009-2016. Albany, NY: NYSDOT/NYS DMV.
New York City Police Department/New York City Department of Transportation. Reconciled Fatality Database, 2009-2018. NY, NY: NYCDOT/NYPD. All fatality data as of 1/31/2019.
New York City Department of Transportation. (2018, June). “New York City Mobility Report.”
New York City Department of Transportation. (2015, February). “Vision Zero Pedestrian Safety Action Plans.”

Endnotes

2017 Fatal Motor Vehicle Crashes: Overview. (2018). National High Traffic Safety Administration.

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VISION ZERO



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