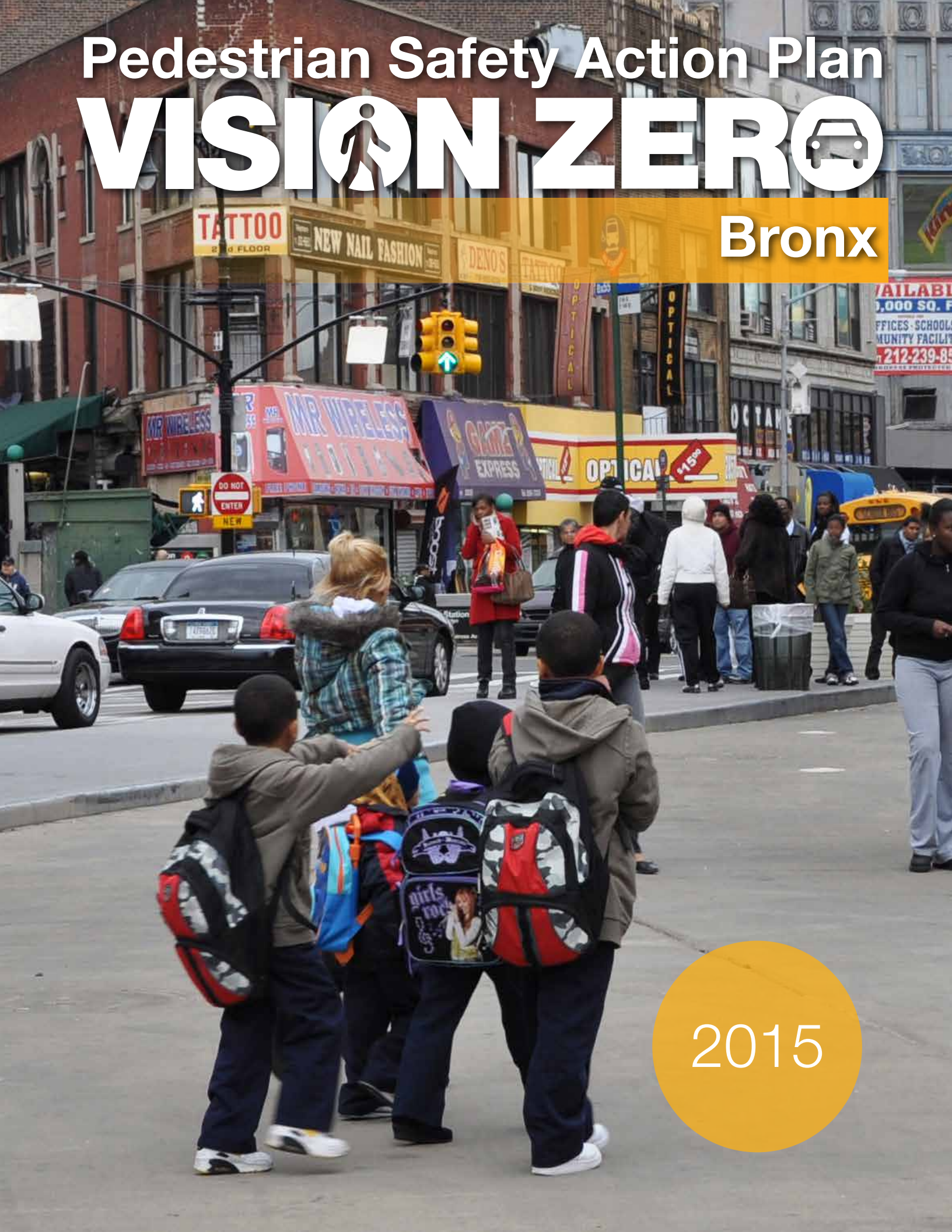


# Pedestrian Safety Action Plan

# VISION ZERO

Bronx



2015





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# Table of Contents

i	Letter from the Mayor
iii	Letter from the Commissioners
iv	Executive Summary
vi	Why a Pedestrian Plan?
viii	About This Plan
ix	Case Studies
<b>1</b>	<b>Section 1: Bronx Borough Profile</b>
10	<i>Case Study: South Bronx</i>
<b>15</b>	<b>Section 2: Priority Corridors, Intersections, and Areas</b>
22	<i>Case Study: Fordham–University Heights</i>
<b>27</b>	<b>Section 3: Community Dialogue and Input</b>
<b>37</b>	<b>Section 4: Borough Action Plan</b>
49	Appendix A: Priority Corridors Fatality and Severe Injury History
50	Appendix B: Priority Intersections Fatality and Severe Injury History







# Letter from the Mayor



Dear Friends,

Every life in New York City is precious. It is our responsibility, as residents, workers, and visitors of this great city, to save every life we can.

This administration made Vision Zero, and the elimination of traffic fatalities, a priority from day one. The fundamental message of Vision Zero is that death and injury on city streets is not acceptable, and that we will no longer regard severe crashes as inevitable. This is reflected in the Vision Zero Action Plan that set out directives for city agencies, including the New York City Department of Transportation, the New York Police Department, and the Taxi and Limousine Commission.

Traffic crashes can claim the lives of anyone in New York City. They kill people who drive and those who bike, but overwhelmingly, the deadly toll is highest for pedestrians. This Plan acknowledges this injustice toward pedestrians and the synergies that can be realized by improving pedestrian safety for overall traffic safety, well-being, and urban livability.

In close partnership with our community and advocacy groups and our families and friends of lost loved ones, we are dedicating ourselves to ending this epidemic. NYCDOT and NYPD representatives were out in our communities this past summer listening to us, preparing us for the changes that are taking place, and explaining how to be more conscious—and conscientious—street users. Meanwhile, we have been working to improve our collection and understanding of the data behind traffic fatalities, where the ‘hot spots’ are, and what can be done to erase them from the map. The Pedestrian Safety Action Plans help us do just that.

Our recent success in reducing the citywide speed limit to 25 MPH, redesigning intersections and corridors and increasing enforcement of the most dangerous driving behaviors are just some of the ways we are making our city’s streets safer. The Pedestrian Safety Action Plans are the next step in achieving Vision Zero in your community.

New Yorkers deserve to feel safe on their streets. Thank you for your input into this process, together we will save lives.

A handwritten signature in black ink that reads "Bill de Blasio". The signature is written in a cursive, slightly slanted style.

Bill de Blasio  
Mayor

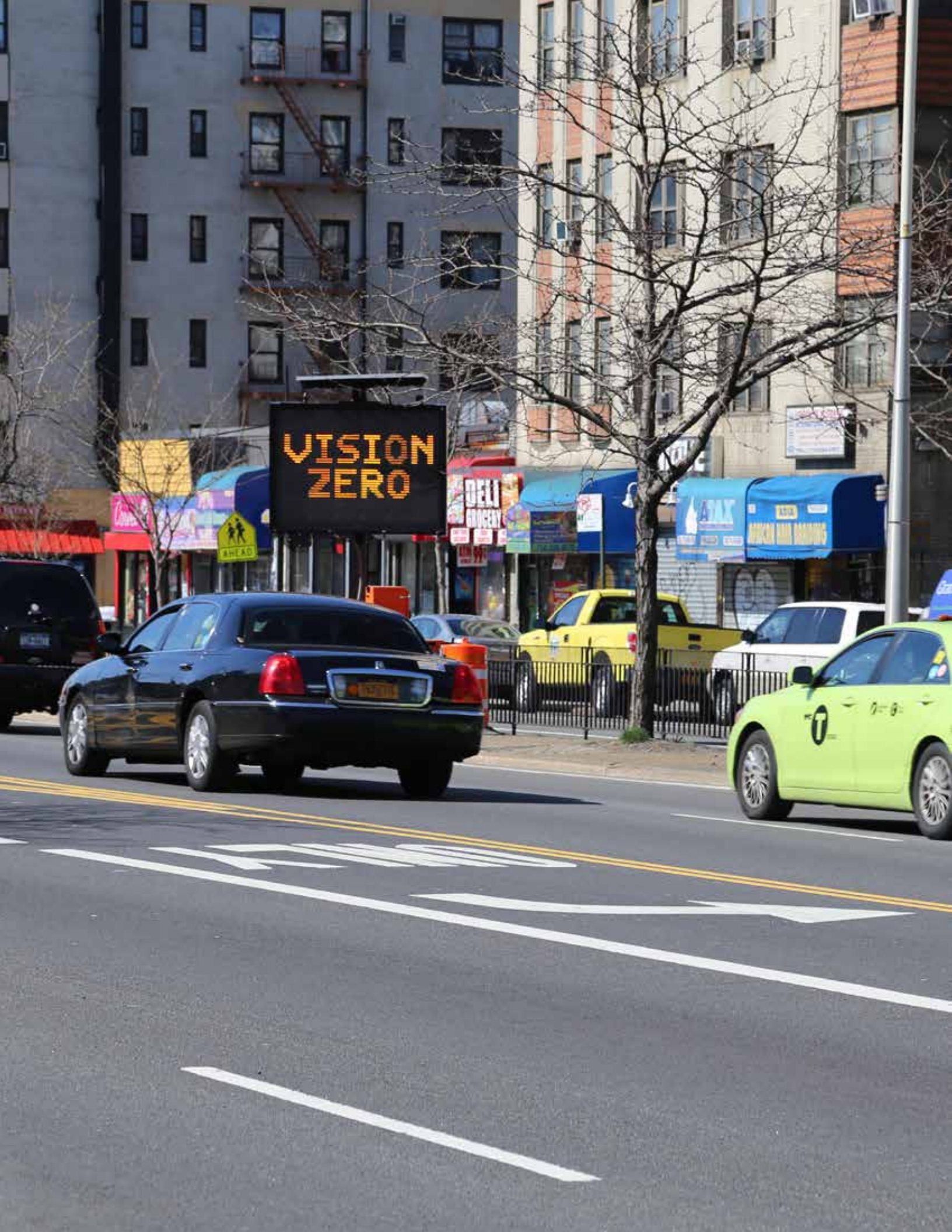


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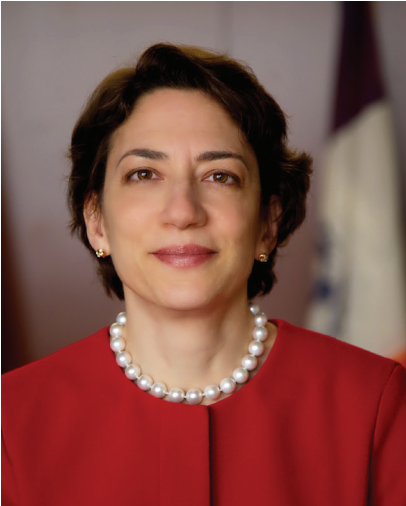
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# Letter from the Commissioners



Dear fellow New Yorkers,

We are proud to bring you the Vision Zero Borough Pedestrian Safety Action Plans. These documents represent the highly detailed combination of DOT and NYPD crash data and analysis, over 10,000 online comments via the Vision Zero Public Input Map, and nine public pedestrian safety workshops across the five boroughs. These borough-specific plans outline our current progress and help define the next phase of Vision Zero.

The first year of Vision Zero in New York City proved successful; after two years of increases, the city experienced the lowest number of pedestrian fatalities since record keeping began in 1910. In 2014, the city lowered its speed limit to 25 MPH, completed 62 major safety engineering projects, and expanded traffic enforcement dramatically, with speeding summons increasing 42% and failure-to-yield summons increasing 126%. DOT and NYPD partnered to form the Vision Zero Street Team, launching a series of two-phase, two-week campaigns focused on pedestrian safety. The first phase of the campaigns included distributing traffic safety literature to the public at collision-prone locations to promote traffic safety. These weeklong efforts to educate the public were then followed by a week of focused, safety-related enforcement to address persistent violations.



With the Borough Pedestrian Safety Action Plans, we will build on this success and continue to improve the way we monitor, design, and govern our streets. The Borough Priority Maps will serve as a guide for our agencies to systematically improve streets with the highest rates of pedestrian fatality and severe injury. By coordinating our planning, engineering, education, and enforcement efforts in these areas, DOT and NYPD can make significant progress toward the vision of eliminating pedestrian fatalities across the five boroughs.

Over the past 30 years, we have made tremendous progress in traffic safety. We have seen large decreases in the number of fatal crashes, including fatal pedestrian crashes. Motor vehicles, however, continue to seriously injure or kill a New Yorker about every two hours. Each of these tragedies compels us to come together and deliver a safer future for our city. There is plenty of work still ahead of us.

Polly Trottenberg  
DOT Commissioner

William Bratton  
NYPD Commissioner



# Executive Summary

## Bronx Borough Profile

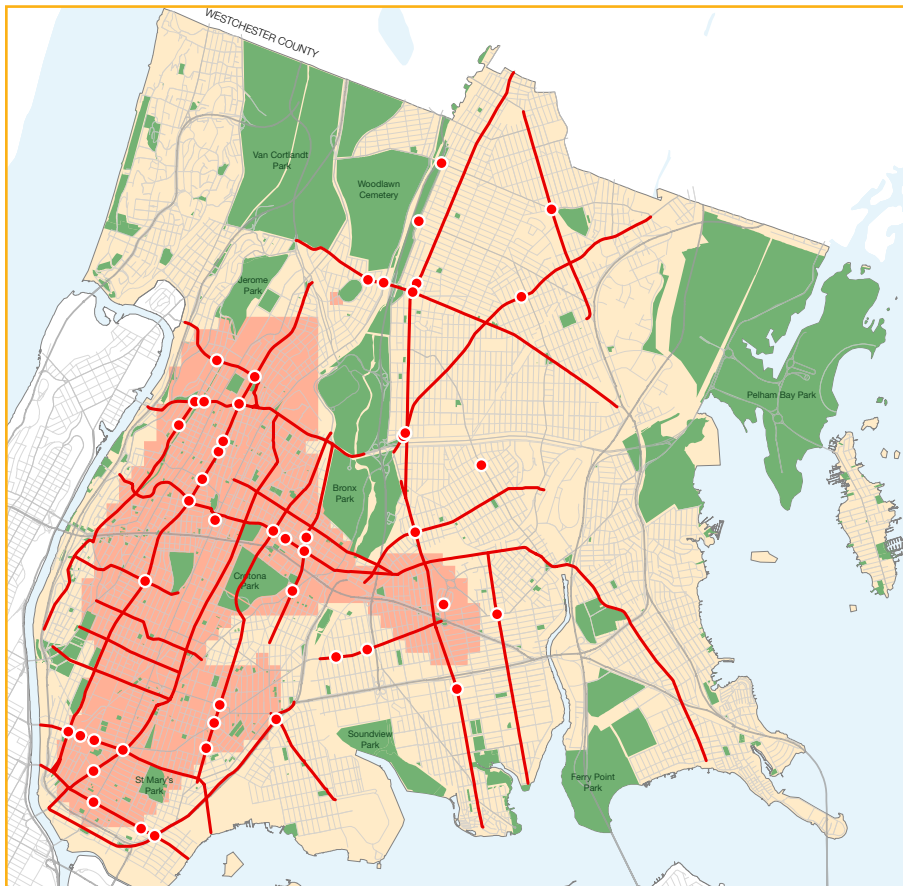
### Findings

- Pedestrian fatalities in the Bronx have fallen by 55% in the past three decades but have begun to rise in recent years
- The Bronx’s pedestrian fatality rate is 1.91 fatalities per 100,000 residents, slightly higher than the citywide average
- **Where:** Pedestrian fatalities and severe injuries are heavily concentrated in higher density neighborhoods in the north- and south-westerly portions of the Bronx
- **When:** Overnight pedestrian fatalities account for a far greater share in the Bronx (31%) than for all NYC (21%)
- **Who:** Younger adults (18–29) in the Bronx accounted for 18% of the borough’s fatalities, vs. 10% for all NYC
- **What:** 8% of Bronx pedestrian fatalities involved a truck, vs 12% for all NYC
- **How:** Dangerous driver choices are the primary cause or a contributing factor in 85% of pedestrian fatalities in the Bronx, vs 69% for all NYC

## Priority Corridors, Intersections & Areas

	Share of Borough	Borough	% of Borough	Share of Ped KSI*	Total Ped KSI	% of Total Ped KSI	% of Total Ped Fatalities
Priority Corridors	25 corridors (65 miles)	791 miles	8%	534	1,041	51%	44%
Priority Intersections	46 intersections	6,438 intersections	1%	159	1,041	15%	8%
Priority Areas	8.5 sq miles	42 sq miles	20%	521	1,041	50%	37%
<b>Combined Total</b>	—	—	—	<b>774</b>	—	<b>74%</b>	<b>61%</b>

\*Ped KSI: Pedestrians Killed or Severely Injured



- Priority Intersections
- Priority Corridors
- Priority Areas

Bronx Priority Corridors, Intersections and Areas

# Community Dialogue and Input

- 1,369 Bronx pedestrian safety issues were shared and mapped digitally
- Speeding (21%) and failure to yield (20%) were the most frequently cited issues
- 63% of workshop attendees viewed wide arterial streets as the most important areas for pedestrian safety improvements
- 45% of issues shared fall outside of the Priority Corridors, Intersections, and Areas

## Action Plan

### Engineering and Planning

- Implement at least 50 Vision Zero safety engineering improvements annually at Priority Corridors, Intersections, and Areas citywide, informed by community input at project locations
- Significantly expand exclusive pedestrian crossing time on all Bronx Priority Corridors by the end of 2017
- Add exclusive pedestrian crossing time to all feasible Bronx Priority Intersections by the end of 2017
- Modify signal timing to reduce off-peak speeding on all feasible Bronx Priority Corridors by the end of 2017
- Install expanded speed limit signage on all Bronx Priority Corridors in 2015
- Drive community input and engagement at Bronx Priority Corridors, Intersections, and Areas
- Install additional lighting under elevated trains and around other key transit stops
- Expand midblock treatments on Bronx Priority Corridors with high rates of midblock crossing pedestrian crashes
- Coordinate with MTA to ensure bus operations contribute to a safe pedestrian environment
- Expand a bicycle network in the Bronx that improves safety for all road users
- Proactively design for pedestrian safety in high-growth areas in the Bronx, including locations in the *Housing New York* plan

### Enforcement

- Implement the majority of speed camera at Priority Corridors, Intersections, and Areas
- Focus enforcement and deploy dedicated resources to Bronx NYPD precincts that overlap substantially with Priority Areas
- Prioritize targeted enforcement at Bronx Priority Corridors, Intersections, and Areas annually
- Focus speeding enforcement in the overnight hours, targeting transit stops and other pedestrian hotspots for off-peak commuting

### Education and Awareness Campaigns

- Target child and senior safety education at Bronx Priority Corridors and Priority Areas
- Target Street Team outreach at Bronx Priority Corridors, Intersections, and Areas
- 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



# Why a Pedestrian Plan?

Pedestrian fatalities have grown as a share of all traffic fatalities

**Between 2007 and 2013 pedestrian fatalities grew from 51% of all traffic fatalities to 58%**

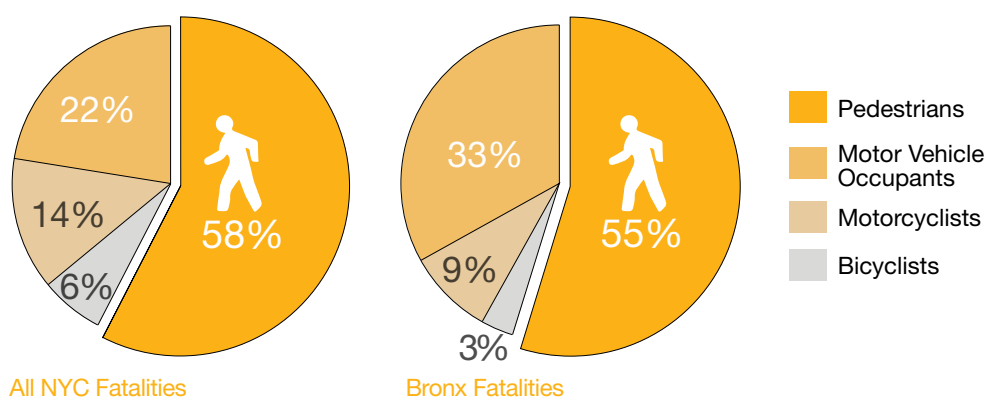
Vision Zero seeks to eliminate all deaths from traffic crashes regardless of whether on foot, bicycle, or inside a motor vehicle. This Borough Plan is one of 63 Vision Zero initiatives advancing that goal for all street users. Despite aggressive pedestrian-oriented street re-engineering between 2007 and 2013, citywide pedestrian fatalities have not declined. In fact, they increased in 2012 and 2013 while fatalities to other street users fell. Comparing the periods of 2005-2007 to 2011-2013, pedestrian fatalities actually rose by 2% while fatalities to all other users fell by 24%. At the same time, the pedestrian share of overall fatalities rose from 51% to 58%. Nationwide, pedestrians make up just 14% of all traffic fatalities.<sup>1</sup> In the Bronx, pedestrians are 55% of all fatalities.

## The challenge of an aging city



Additionally, the baby-boom generation has begun to hit retirement age and New York City will soon experience a rapid growth of its senior citizen population. The city's seniors walk much more than those elsewhere in the United States, and their pedestrian fatality rate is four times that of younger New Yorkers. Without a focused strategy on pedestrian safety to address this need, New York City could potentially see an alarming rise in pedestrian fatalities.

Fatalities by Mode: The Bronx Compared to NYC, 2011-2013 Average, Rounded



	Pedestrian	Bicyclists	Motorcyclists	Motor Vehicle Occupants	Total
All NYC	157	17	37	61	272
The Bronx	27	2	4	16	49



**Most pedestrian and cyclist fatalities and severe injuries occur in the same areas of NYC**



**Since 2007, fatalities of vulnerable road users increased by 1%, while fatalities of motor vehicle occupants fell by 37%**



## Pedestrian focus improves safety for all users

Street design based around pedestrian safety is also proven to make travel safer for other street users, including bicyclists and motor vehicle occupants. Slower vehicle speeds, less chaotic, better organized traffic, and narrower vehicle lanes make streets safer (and easier to use) for cyclists. A pedestrian oriented project on Delancey Street in Manhattan contributed to a 20% reduction in injuries to cyclists. Similarly, projects and programs aimed at improving safety for pedestrians often improve motor vehicle safety as well. The pedestrian focused re-design of the Madison Square/Flatiron area contributed to a 46% reduction in injuries among motor vehicle occupants. The areas of New York City that accounted for 71% of pedestrians killed or severely injured (KSI) also accounted for 66% of cyclist KSI. Safety interventions at these locations can address safety concerns for both groups of street users.

## A comprehensive strategy addressing all modes

New York City will need to go beyond the actions in this plan to address all traffic fatalities, particularly for vulnerable road users: the pedestrians, bicyclists, and motorcyclists that use the streets without the protection of a closed vehicle. These vulnerable road users account for the vast majority (78%) of New York City's traffic fatalities. Again, comparing 2005-2007 to 2011-2013, vulnerable road user fatalities increased by 1%, while fatalities of motor vehicles occupants fell by 37%. In other words, the entire decline in traffic fatalities between 2007 and 2013 came from reductions in fatalities of drivers and passengers inside motor vehicles. Furthermore, there is significant overlap between the high-crash locations for pedestrian and cyclists.

For bicyclists, DOT will work with the New York City Department of Health and NYPD in 2015 to develop a comprehensive update to its 2006 Bicyclist Fatality and Serious Injuries study, highlighting current issues in cyclist safety in New York City and developing new recommendations. DOT is aggressively seeking to increase the amount of cycling in the city by expanding the bike network where it can generate the most ridership and expanding its Citi Bike bike sharing program. More cyclists using city streets has been shown to have a "safety in numbers" effect; while cycling in New York City has approximately quadrupled since 2000, serious injuries have remained low, representing a 75% decrease in the average risk of a serious injury. Also, DOT will release their first motorcyclist safety study in 2015, which will analyze New York City motorcycle crashes and will also put forward a safety action plan. Finally, New Yorkers with disabilities are also pedestrians. As DOT designs safer streets for all vulnerable users, the agency will continue to work with advocacy groups and members of the disabled community to ensure that the City continues to address the needs of New Yorkers with disabilities. A safer city is a more accessible City.

# About This Plan

**This strategic pedestrian safety plan for the Bronx is one of five borough-level plans created to advance the goals laid out in the 2014 Vision Zero Action Plan**

Beginning with a borough wide community dialogue and input process, DOT and NYPD worked with community members to identify local pedestrian safety issues. By re-engineering these high-crash streets and intersections, employing strategic enforcement practices, and stepping up education efforts, DOT and NYPD can effectively change the way we perceive city streets and deter the most dangerous behaviors, such as speeding and failure to yield to pedestrians.

This Bronx Pedestrian Safety Action Plan is one of a set of five documents, each of which analyzes the unique conditions of one New York City borough and recommends actions to address the borough's specific challenges to pedestrian safety. This plan pinpoints the conditions and characteristics of the Bronx's pedestrian fatalities and severe injuries; it also identifies corridors, intersections, and areas that disproportionately account for the Bronx's pedestrian fatalities and severe injuries and strategically prioritizes them for safety interventions. Finally, the Bronx Pedestrian Safety Action Plan recommends a series of actions to alter the physical and behavioral conditions on the Bronx's streets that lead to pedestrian fatality and injury.

## A Five Borough Approach



In each borough, heat maps were created to highlight locations with the highest density of pedestrian fatalities and severe injuries. These maps were then used to create borough Priority Maps. Both maps were built on borough crash data, rather than citywide data. Since each borough has a different overall number and density of pedestrian crashes, each borough map is drawn at a different scale. For example, the “red” we observe in the Staten Island maps represents far fewer crashes than the “red” in the Manhattan maps. DOT and NYPD are tasked with addressing road safety for all residents in all boroughs, so creating five separate action plans was the most practical way to develop a robust set of focused, effective actions for each borough.

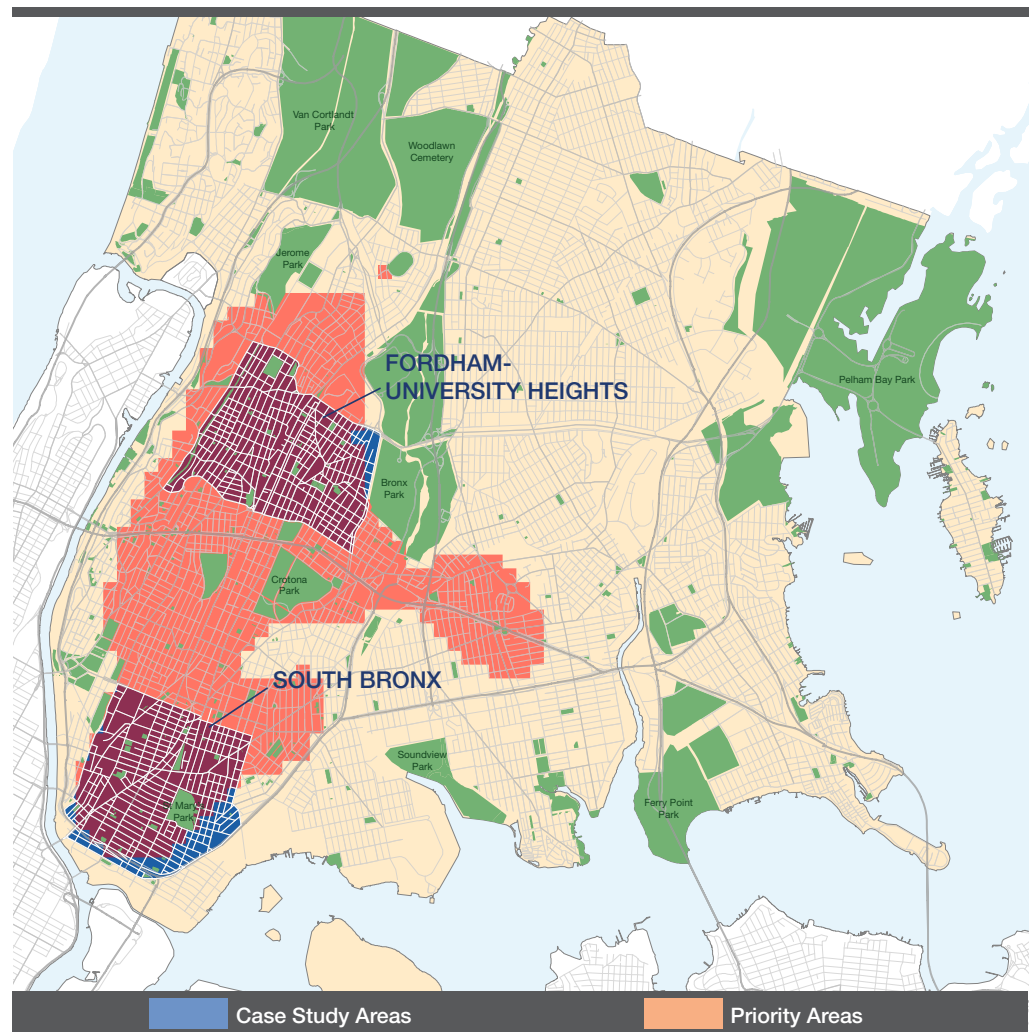


# Case Studies

Two case studies have been selected to represent particular communities that are identified as pedestrian safety priority locations in the Bronx. The case studies enable a more localized look at data, issues, and recommendations that may be difficult to contextualize on a borough-wide level. These case studies are located in Section 1 and Section 2 of this plan. The locations (shown in the map below) are:

- South Bronx
- Fordham-University Heights

The case studies also explore location-specific comments received from community members via the Vision Zero Public Input Map and Pedestrian Safety Workshops.





Bronx  
Borough  
Profile





**The Bronx has the lowest rate of car ownership outside of Manhattan**



Although parks and open space occupy roughly one-quarter of the Bronx’s land area, its residential areas are very highly developed, making the Bronx the third most densely populated county in the United States.

Though comprising less than one-quarter of the Bronx’s total land area, the southwestern portion of the borough accounts for a majority of its pedestrian fatalities and severe injuries. This area closely resembles the adjacent neighborhoods in northern Manhattan, with similar demographics, building types, and population density, even sharing street names. This densely populated region includes neighborhoods such as Mott Haven, Melrose, and Mount Hope and is bounded by the Bronx River Parkway, the Bruckner and Major Deegan Expressways, and Gun Hill Road. The area consists of regular street grids interspersed with wide arterial roads (e.g., Grand Concourse and 3rd Avenue), elevated subway lines, and interstate highways, all posing challenges to pedestrian safety, comfort, and mobility. These densely populated neighborhoods contrast with the hilly, more suburban neighborhoods in the northwestern Bronx (e.g., Riverdale and Spuyten Duyvil) and the mid-density areas to the east (e.g., Throgs Neck and Morris Park).



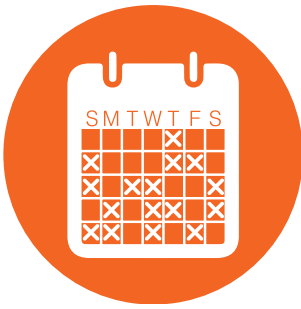
**The Bronx has the lowest median household income of all boroughs**

The urban landscape of the Bronx changed dramatically in the decades following World War II. During this period, a series of elevated interstate highways was constructed (e.g., the Cross Bronx and Sheridan Expressways) that bisected neighborhoods, fragmenting the borough into disjointed sections, and casting shadows on neighborhood streets below, while the City’s urban renewal efforts resulted in several dozen “tower-in-the-park”-style housing complexes. These developments often closed off parts of the regular street grid and resulted in replacing adjacent streets with significantly wider, more car-friendly roadways. Together, these factors contribute to an environment that allows for higher driving speeds and detracts from the walkability of much of the borough.



**The Bronx is the youngest borough**

At \$32,460, the Bronx’s median household income is the lowest of the five boroughs, making it the poorest urban county in the United States. The Bronx is home to a high minority population, with 84% of its residents identifying as Black, Hispanic, or Latino, and it is the youngest borough in New York City, with a median age of 32.7. The Bronx’s car ownership rate is the lowest outside of Manhattan, with only 48% of households having access to a vehicle.



**4 pedestrians are killed or severely injured per week in the Bronx**

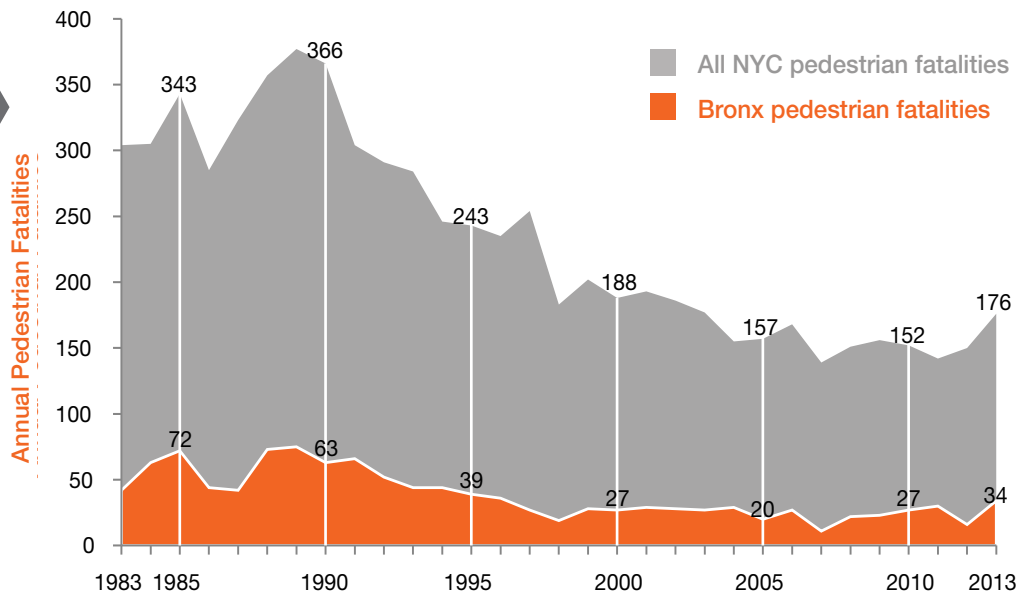
## Bronx Pedestrian Safety Findings

The Bronx Borough Profile combines demographic data with crash and fatality data to provide an overview and contextual narrative for the Bronx. Demographic information was collected from the US Census Bureau. Crash and fatality data used throughout this report is based on 2011-2013 fatality data (NYPD/NYCDOT) and 2009-2013 Killed or Severely Injured (KSI) data (DMV/NYS DOT).<sup>2</sup> Estimates of pedestrian activity are based on transit ridership, which is generally proportional.

On average about 200 pedestrians are killed or severely injured in Bronx traffic each year, and pedestrians comprise 54% of all the borough's traffic fatalities. While the number of pedestrian fatalities in the Bronx has declined by nearly 55% in the last three decades, the borough's rate of improvement has not kept pace with NYC as a whole and it has begun to rise again in recent years.<sup>3</sup> In 2013, 34 pedestrians were killed in the Bronx, the highest number since 1996. The Bronx also has the second-lowest population of the five boroughs (after Staten Island), and its per-capita fatality rate—1.91 pedestrian deaths per 100,000 Bronx residents—slightly exceeds that of the City overall.

**Bronx pedestrian fatalities have decreased by 55% over the past 30 years**

Pedestrian Fatalities, 1983-2013





**The Bronx's pedestrian fatality rate is higher than the NYC average**

Pedestrian Fatalities, 2011-2013, Rounded

Borough	Average Annual Fatalities	Percent Pedestrian Fatalities	Pedestrian Fatality Rate/100,000
<b>Bronx</b>	<b>27</b>	<b>54%</b>	<b>1.91</b>
Brooklyn	46	55%	1.79
Manhattan	34	73%	2.10
Queens	43	54%	1.92
Staten Island	7	48%	1.41
<b>All NYC</b>	<b>157</b>	<b>58%</b>	<b>1.88</b>



## Where?

### Neighborhoods

As evidenced by the Bronx Heat Map on the facing page, pedestrian fatalities and severe injuries are heavily concentrated in the high-density neighborhoods in the north- and south-westerly portions of the Bronx, centered around Mott Haven in the South and Fordham in the North. These areas are bounded by expressways and criss-crossed by wide and high-crash arterials.

### Arterial Streets and Midblock Crossings

Though comprising just 16% of the Bronx’s total street network, 66% of the Bronx’s pedestrian KSI crashes occur on arterial roadways (such as Grand Concourse, 3rd Avenue, and Fordham Road). Compared to local streets, arterials are typically wider, carry higher volumes of both vehicles and pedestrians, accommodate faster speeds, and have more complex traffic patterns. As a result, arterial streets tend to create particularly high-crash pedestrian environments and can be challenging to improve.

In addition, compared with New York City as a whole, the Bronx experiences a greater share of pedestrians killed while crossing the street mid-block. This is particularly true on arterial streets (a 28% share in the Bronx vs 19% citywide). This figure suggests that the Bronx may lack an adequate frequency of crosswalks in places where pedestrian crossing demand is high, particularly on the numerous arterial streets with long blocks and widely spaced signalized intersections.

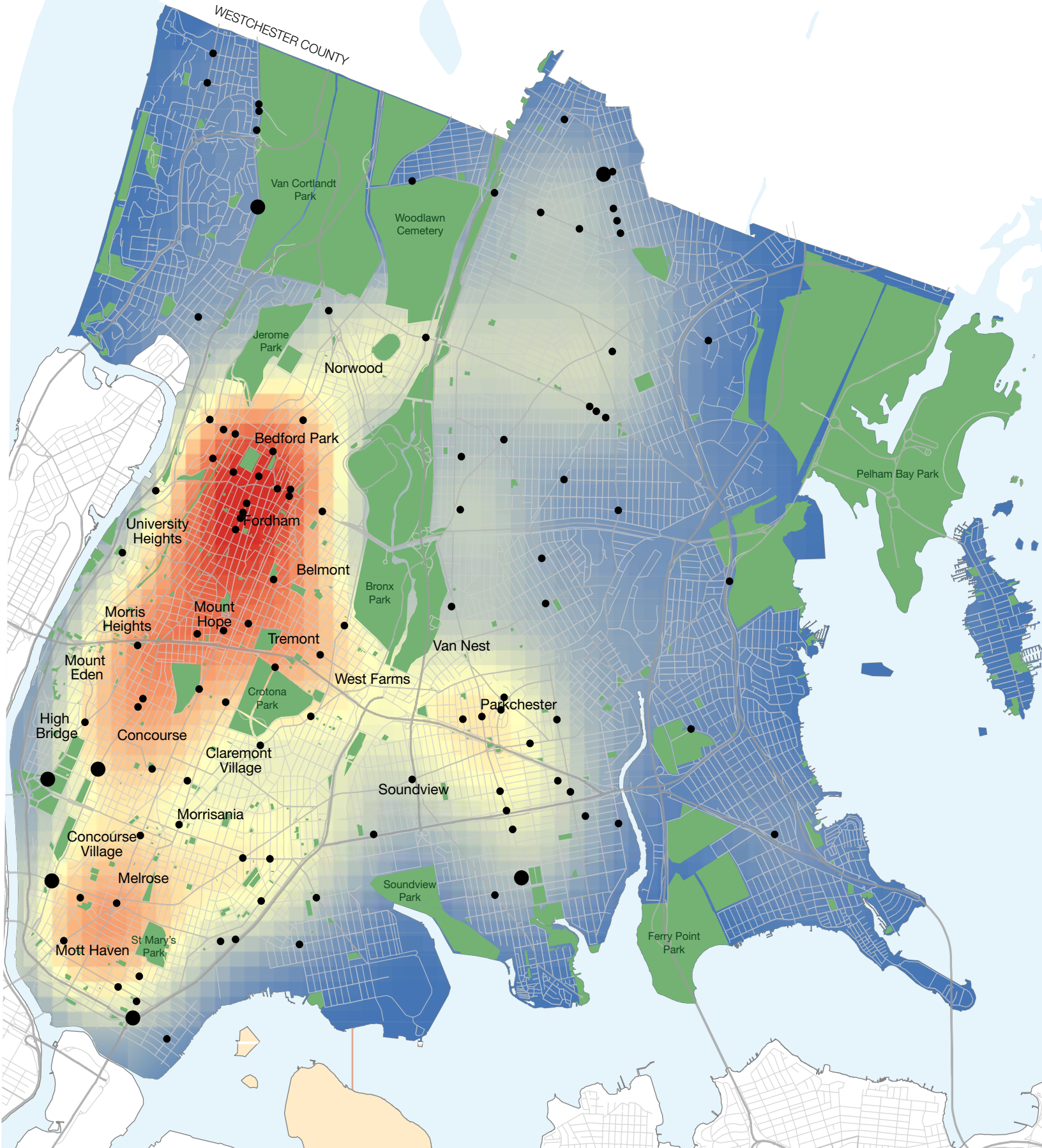
However, many safety improvements can be made. Achieving slower speeds by reducing speed limits and increasing enforcement reduces the risk of injury. Larger-scale engineering projects can provide pedestrians with shorter crossing distances and safer routes to cross the street, while more effectively managing all traffic movements.

**Arterials  
comprise 16%  
of the Bronx’s  
streets but  
66% of its  
pedestrian KSI  
crashes**

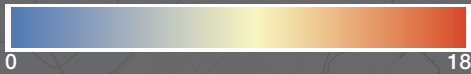




# Bronx Heat Map and Pedestrian Fatalities



Approximate pedestrian KSI per sq mile per year:



Fatalities (2009-2013):



## 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 blue showing the lowest. It is useful for identifying and presenting hotspots.



**31% of the Bronx's pedestrian fatalities occur from 12-6am**

## When?

### Off-Peak

Just 16% of Bronx pedestrian fatalities occur during peak times (rush hour), although 38% of the borough's pedestrian travel occurs during rush hour. This discrepancy may be related to rush hour (7–10am and 4–7pm) congestion, which constrains vehicle speeds, as well as the “safety in numbers” phenomenon, whereby motorists make safer choices in the presence of higher volumes of pedestrians.

### Overnight

A far greater share of pedestrian fatalities occurs during overnight hours (12–6am) in the Bronx (31%) than across the City as a whole (21%). One reason for this may be that the Bronx is the only borough in which the majority of commuting (51%) actually takes place outside of traditional peak hours. Commuting—of which 60% takes place by transit—is also concentrated in the early morning. This is likely due to the type of work being performed by Bronx residents; the borough has a very high share of residents working in healthcare, social services, and education, all professions that often require non-traditional work hours.

Targeted enforcement and signal timing modifications can reduce fatalities that are related to fluctuations in traffic and other factors that are dependent on the time of day and day of week. Education can also be an important tool in informing drivers and pedestrians about greater dangers during off-peak and overnight periods.





**Seniors make up 12% of the Bronx's population but 36% of its pedestrian fatalities**



**Young adults represent 18% of pedestrian fatalities in the Bronx**

## Who?

### Seniors

Seniors (aged 65 and older) represent just 12% of the Bronx's population but 36% of its pedestrian fatalities. Seniors often require more time and protection when crossing the road than younger pedestrians, and they are also more susceptible to fatal and severe injuries when struck by a vehicle. Through its Safe Streets for Seniors initiative, DOT visits senior centers and community boards to get local feedback on senior pedestrian issues. DOT also implements mitigation measures to improve safety for seniors and other pedestrians, such as extending pedestrian crossing times to accommodate slower walking speeds and making engineering improvements to create safer pedestrian crossings.

### Younger Adults

Citywide, younger adults (aged 18–29) constitute 10% of all pedestrian fatalities, a rate disproportionately lower than their share of the general population (19%) and in line with their greater physical resilience in surviving a severe crash. However, in the Bronx, younger adults account for 18% of all pedestrian fatalities, more consistent with their share of the borough's population (19%). While reaching young adults and encouraging safer behaviors can be challenging, intensely focusing Street Team outreach and safety marketing campaigns along the Bronx's highest-crash corridors may deter risky behaviors at the most problematic locations.

Vision Zero means creating streets that are safe for even the most vulnerable road users, including seniors and children. While seniors and children benefit in general from DOT's broad efforts to engineer safer streets, DOT also specifically engages with these populations through special safety education programs.





**Passenger vehicles are involved in 75% of pedestrian fatalities in the Bronx**

## What?

### Passenger Vehicles

Three-quarters of the Bronx’s pedestrian fatalities (vs 68% citywide) are the result of a crash with a passenger vehicle: the cars, SUVs, and minivans driven by ordinary New Yorkers. Not only do these vehicles outnumber other vehicles on the road by a wide margin, but their drivers are subject to limited regulation and oversight compared with the professional drivers of trucks, buses, and taxi or livery vehicles.

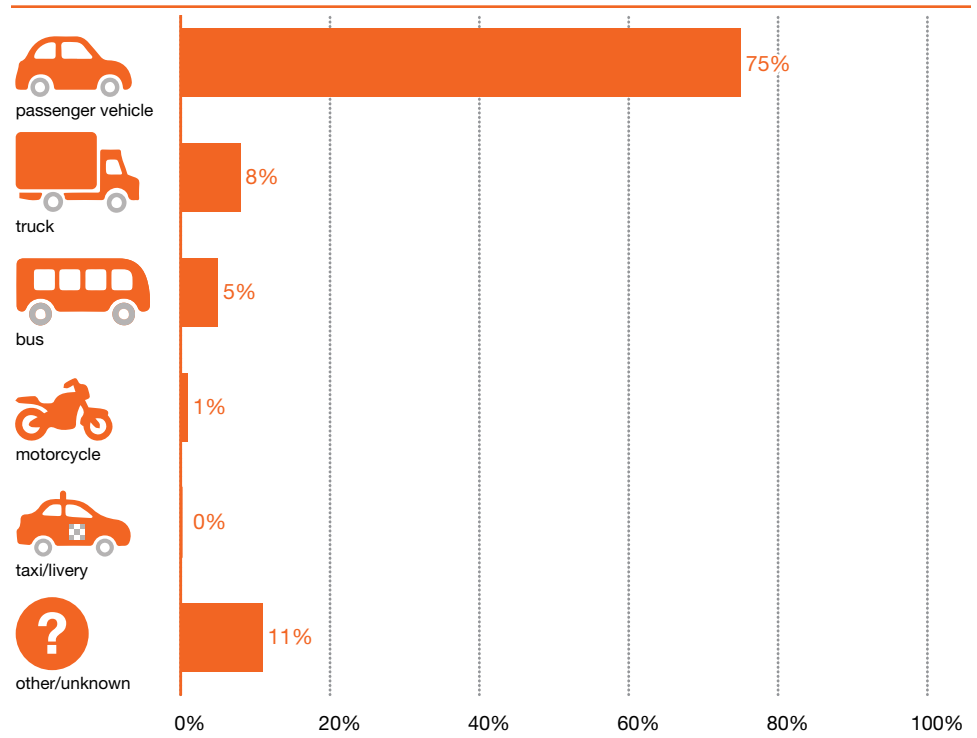
### Trucks

Less than one in ten pedestrian fatalities in the Bronx involves a truck, a lower rate than New York City as a whole. Nonetheless, trucks pose special safety concerns for pedestrians due to their larger weight and size, which increases the force and severity of crashes and reduces the visibility of pedestrians from the driver’s seat.

### Taxi/Livery

No Bronx pedestrians were killed by a taxi or livery vehicle from 2011 to 2013, tying Staten Island for the lowest rate of all five boroughs.

Percent of Pedestrian Fatalities by Mode, The Bronx







**85% of the Bronx's pedestrian fatalities involve dangerous driver choices**

**Hit and runs occur in 30% of pedestrian fatalities in the Bronx**

## How?

### Dangerous Driver Choices

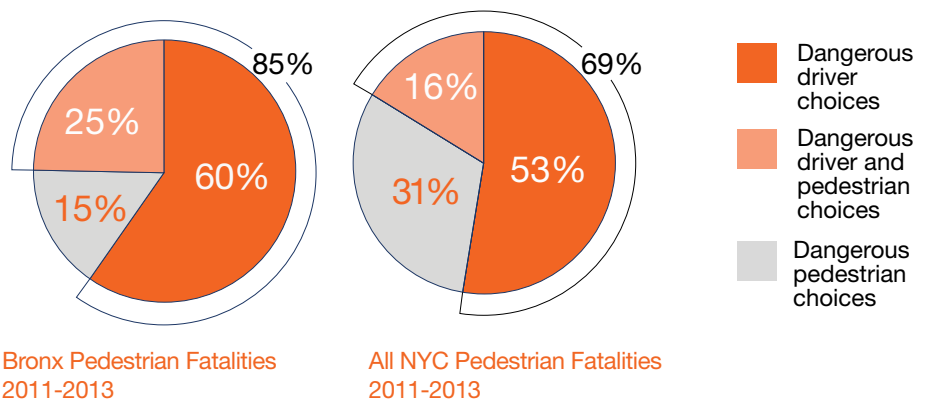
Dangerous driver choices are the primary cause or a contributing factor in 85% of the Bronx's pedestrian fatalities. These driver choices, including speeding, failing to yield to pedestrians, red light running, distracted driving, and driving under the influence, primarily occur when the pedestrian is following the law. In fact, in the Bronx, speeding is cited as a major cause of pedestrian fatalities at nearly twice the rate as for New York City as a whole (11% in the Bronx vs 6% citywide). In contrast, just 13% of Bronx pedestrian fatalities occur while pedestrians are unlawfully crossing against the signal (vs 23% citywide).

The City is working to create a culture of safety through education and public information campaigns that are changing the citywide dialogue on traffic injuries and fatalities. However, street design and traffic enforcement that directly encourage safer choices (or discourages dangerous choices) are also key to reaching Vision Zero. Street design can help to lower vehicle speeds, eliminate conflicts between pedestrians and vehicles, reduce unpredictable traffic movements, and guide road users toward more responsible choices. More visible, targeted, and consistent enforcement reminds street users of the laws of the road and provides a powerful disincentive to risk-taking.

### Hit and Runs

Consistent with its exceptionally high rate of dangerous driver behavior, the Bronx also experiences the highest share of hit-and-run pedestrian fatalities of the five boroughs, with drivers fleeing the scene at 30% of fatal pedestrian crashes. Historically, if a driver involved in a crash was intoxicated, he or she had strong incentives to flee the crash scene, as the penalties for hit and run were less severe than those for driving while intoxicated. However, in September 2014, the New York City Council passed the Justice for Hit and Run Victims Act (Local Law 50 of 2014), new legislation that imposes fines up to \$10,000 for drivers who cause physical injury and flee the scene of a crash.

Driver & Pedestrian Choices, Bronx compared to NYC



# CASE STUDY: South Bronx

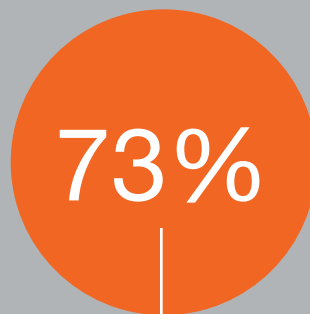
The southwestern neighborhoods, particularly the South Bronx area south of the Cross Bronx Expressway, feature a distinct hotspot of crashes resulting in severe or fatal injuries to pedestrians. Between 2009 and 2013, there were 871 crashes in the area involving pedestrians, resulting in 108 severe injuries and 11 fatalities.

Nearly seven out of ten residents of this area identify as Hispanic or Latino, with approximately 30% identifying as Puerto Rican, 17% as Dominican, and 10% as Mexican. The area's median income is lower than the Bronx's as a whole, with about half of all households earning less than \$25,000 per year, though the employment rate is comparable to the borough's overall.



**Total crashes involving pedestrians between 2009-2013**

**These crashes resulted in 119 pedestrian KSI:**



**of all traffic fatalities were pedestrians**





## Community Input

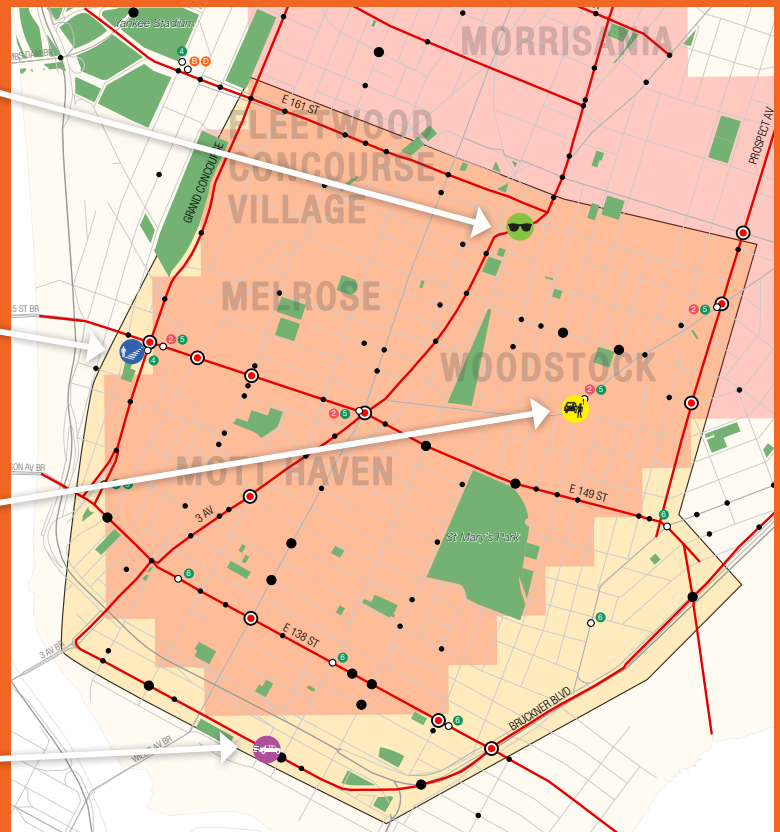
**Poor Visibility @ 3rd & Brook:** “More priority should be given to pedestrians here as it is just after a curve and hard to see oncoming cars.”

**Long Distance to Cross @ Grand Concourse & E 149th:** “Needs a larger median. During the day, enough people are stuck in the middle that some must dangerously remain off the curb.”

**Failure to Yield @ Westchester Ave & E 152nd:** “Needs traffic calming to make automobiles more predictable. Some Eastbound Westchester Ave bound drivers suddenly merge onto E 156th without warning.”

**Speeding @ Bruckner & St Anns:** “Absolutely no regard for the speed limit along Bruckner Blvd.”

## South Bronx Case Study Area



Priority Corridors



Priority Intersections



Priority Areas



Subway Stations



Pedestrian KSI



1 2 3 4 5+

Black outline represents the approximate boundary of the case study area.

# CASE STUDY: South Bronx

## Pedestrian Safety

With proximity to six subway lines, a dense network of bus routes, and the Metro-North Harlem Line, residents of the South Bronx have excellent access to transit. Roughly two-thirds use public transit to commute to work, and about 67% of area households do not own a vehicle (compared to 56% citywide). This high rate of transit usage, in conjunction with high population density, leads to a high volume of pedestrian trips.

However, much of the area's street network is not designed to a pedestrian scale. At widths comparable to expressways, many of the area's streets, such as Grand Concourse, 3rd Avenue, and 149th Street, encourage speeding and complex, hard-to-navigate motorist movements while creating long crossing distances for pedestrians.

## Community Dialogue and Input

The desire for safe streets is universal, and anyone, regardless of age, can launch a successful campaign to improve the safety of their community. Fearful of the busy streets connecting their homes and their schools, a group of middle- and high-school students from the Bronx Helpers, a local service and leadership program, launched an ambitious campaign to bring safer streets to their neighborhood of Mt. Eden (located about a mile north of Melrose in another high-pedestrian-KSI area of the South Bronx).

What began as a simple request for a stop sign at the corner of East 172nd Street and Townsend Avenue soon developed into a larger call for an overhaul of the local street network. With the help of Transportation Alternatives, the students wrote an extensive neighborhood safety plan, used speed guns and surveys to document unsafe motorist behaviors, held large-scale rallies, and presented their ideas to Community Board 4. Finally, the Bronx Helpers submitted an application for a Mt. Eden Neighborhood Slow Zone, which DOT implemented in late 2012.



Thanks to these students' efforts, the speed limit is now set at 20 miles per hour across 25 blocks of their neighborhood, and speed humps are installed throughout the area to deter unsafe motorist speeds.<sup>4,5</sup>

## DOT Safety Improvements

DOT has implemented a number of traffic-calming projects in the South Bronx area to rescale streets for safe pedestrian use, creating safer and shorter crossing distances and discouraging speeding.



## The Hub

Crashes with injuries dropped by 17% while all crashes declined by 31%



The Hub - 3rd Avenue/Willis Avenue, facing 148th Street (before)



The Hub - 3rd Avenue/Willis Avenue, facing 148th Street (after)

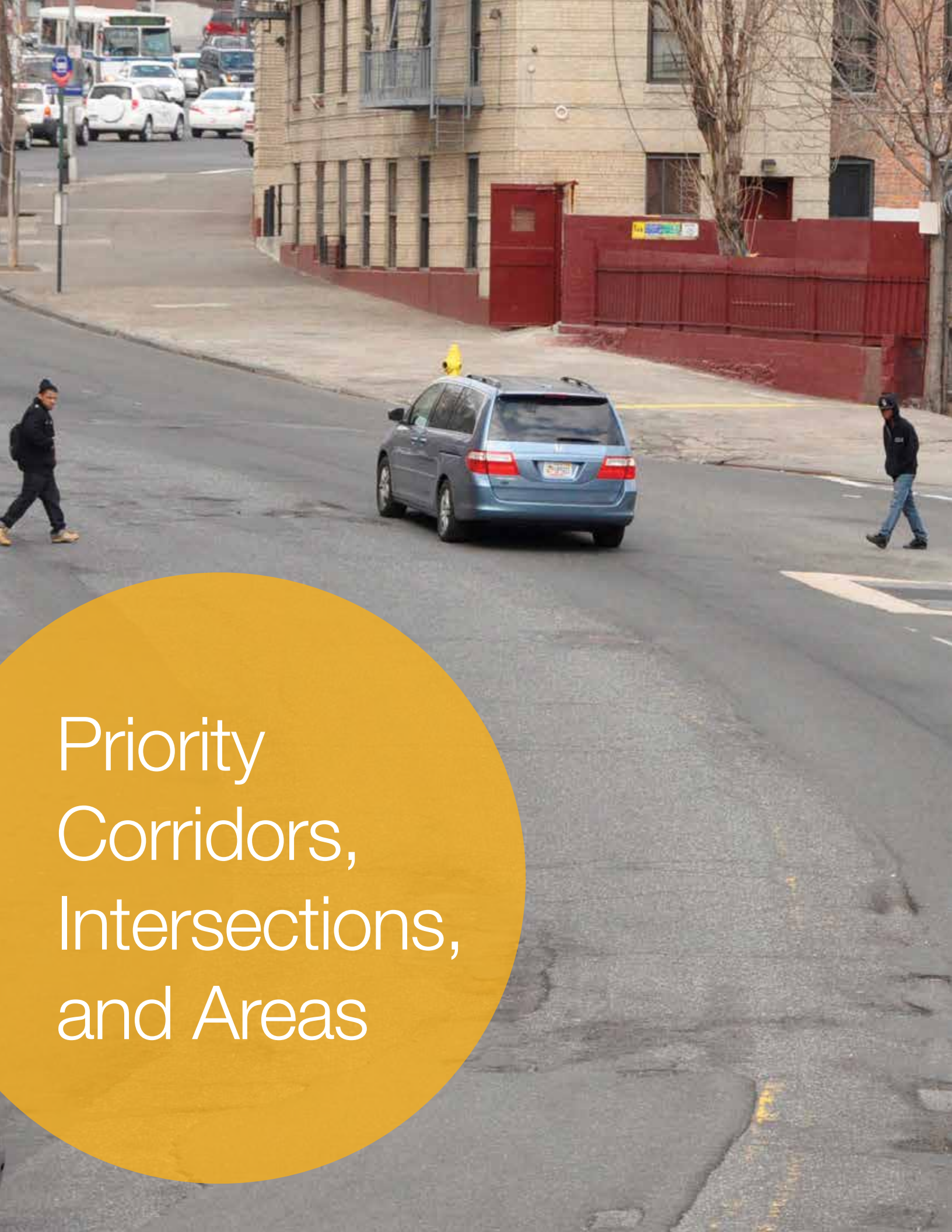
*“The first duty of local government is to save lives and bringing an end to the tragic traffic crashes that take place all too often on our city streets is an essential part of any effective public safety strategy.”*

—Councilmember  
Vanessa L. Gibson

## The Hub

**Crashes with injuries at the Hub decreased by 17% following implementation.**

- Known locally as the Hub, this six-legged intersection is among the busiest and most complex in the South Bronx.
- Sitting at the convergence of four main arterials—East 149th Street and Willis, Melrose and Third Avenues—as well as five bus lines and two subway routes, the Hub has long experienced a high incidence of pedestrian crashes.
- To enhance the pedestrian experience, DOT added 7,500 square feet of pedestrian space, installed pedestrian refuge islands, added a new crosswalk and bicycle lanes, and reduced pedestrian wait times, while re-routing traffic and adding bus-only lanes to simplify traffic patterns.
- Following project implementation, crashes with injuries at the Hub decreased by 17%, while all crashes fell by 31%. Concurrently, vehicle travel times through the Hub have remained the same, even though vehicle volumes have increased.
- These improvements to the pedestrian space are currently being made permanent as part of the Roberto Clemente Plaza capital project.



Priority  
Corridors,  
Intersections,  
and Areas

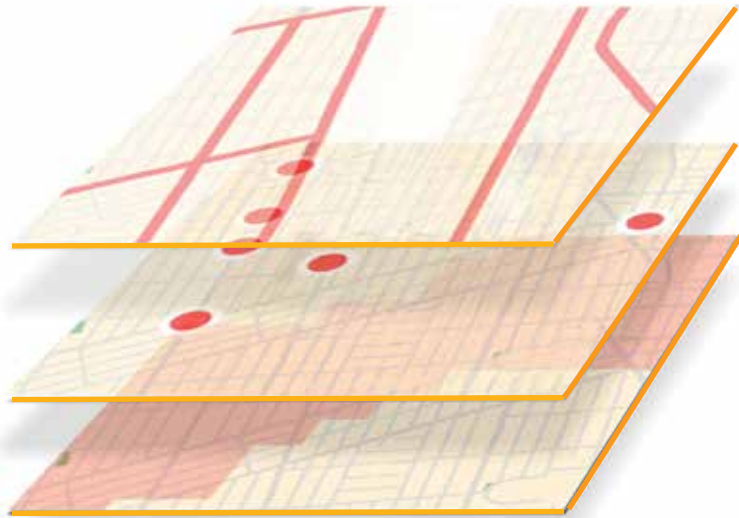


# 2.

The Bronx has more than 790 miles of roadway and nearly 6,500 intersections. Since resources are always finite, it is necessary for New York City to focus its safety efforts on a reasonable number of high-crash locations that demonstrate a need for focused interventions. Using pedestrian KSI data from the last five available years (2009-2013), DOT developed a process for selecting Priority Corridors, Priority Intersections, and Priority Areas. These locations account for 61% of the Bronx's total pedestrian fatalities. See appendices for complete list of Priority Corridors and Priority Intersections.

# 61%

**of pedestrian fatalities in the Bronx occur on Priority Corridors, at Priority Intersections, or in Priority Areas**



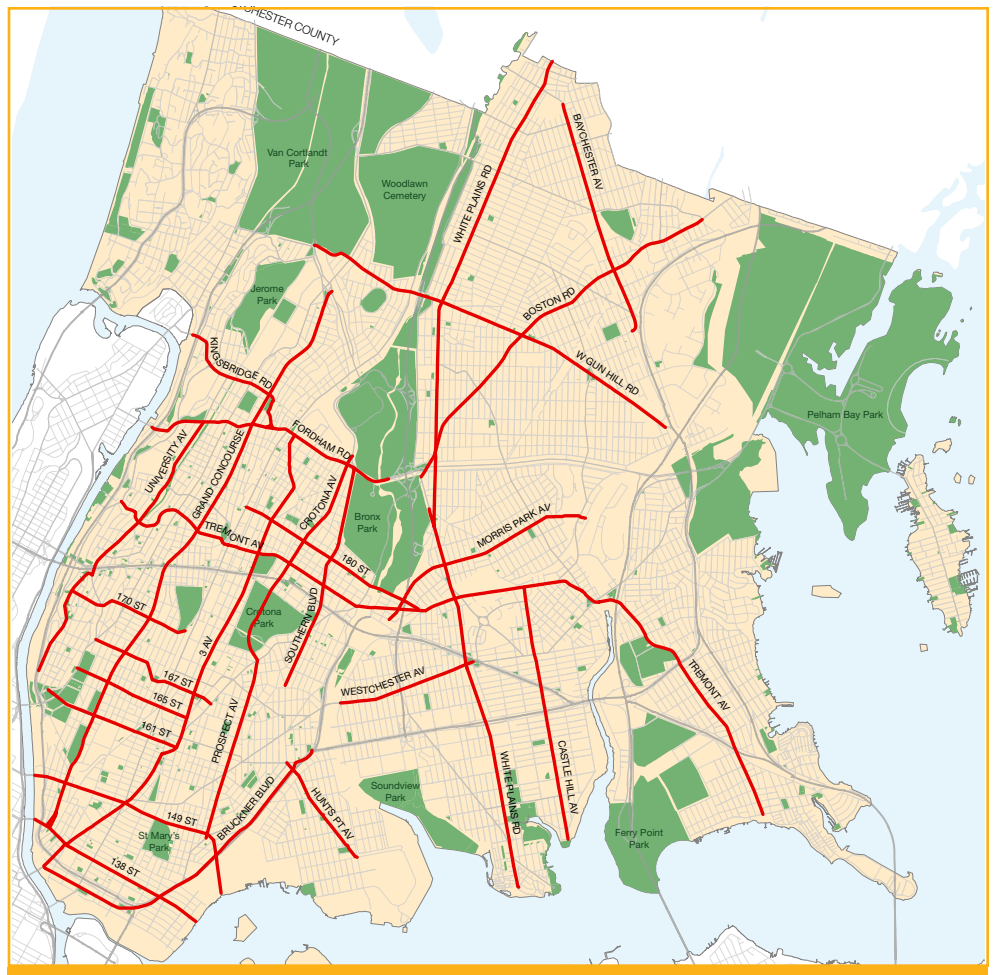


## Priority Corridors

Prioritizing corridors (streets measuring at least one mile in length) reflects the fact that pedestrian KSI crashes are concentrated on particular streets (66% of Bronx pedestrian fatalities are on arterials) 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 (39%) of Bronx pedestrian fatalities that occurs midblock.

To determine the Priority Corridors, all corridors in the Bronx 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. Together, the Bronx's 25 Priority Corridors constitute 8% of the borough's total street network but account for 51% of the borough's total pedestrian KSI.

**51% of pedestrian KSI in the Bronx occur on just 8% of the borough's total street mileage**



Priority Corridors



STREET NAME



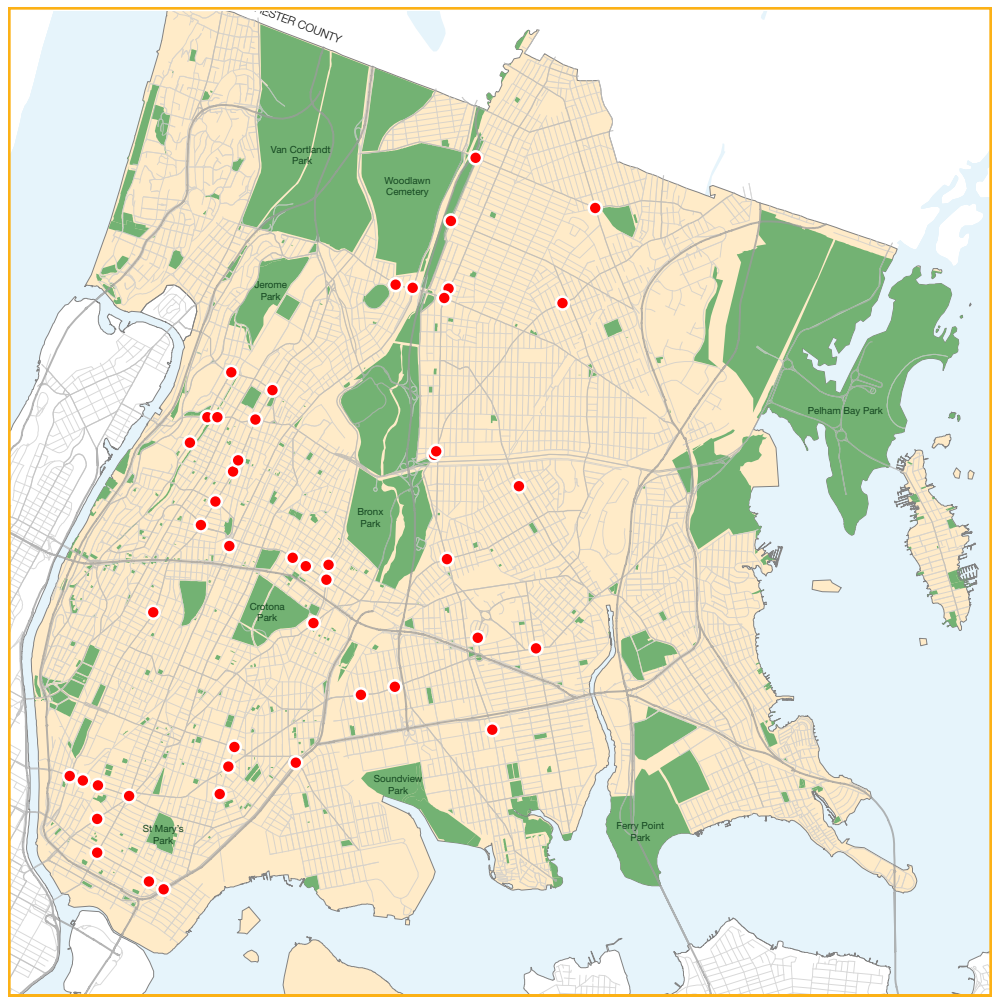


## Priority Intersections

In order to identify which of the Bronx's 6,438 intersections have the highest need and greatest potential safety gains, DOT used an approach similar to the Priority Corridor process. 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 630 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.

This methodology yielded 46 Priority Intersections with a minimum of three pedestrian KSI in the five-year data. Together, these intersections account for 15% of the Bronx's pedestrian KSI but represent less than 1% of all its intersections.

**15% of the Bronx's KSI occurred at only 1% of the borough's intersections**



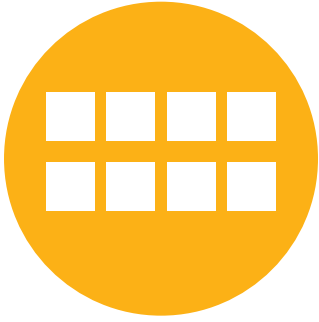
Priority Intersections





ONLY





**There are 8 square miles of Priority Areas in the Bronx**

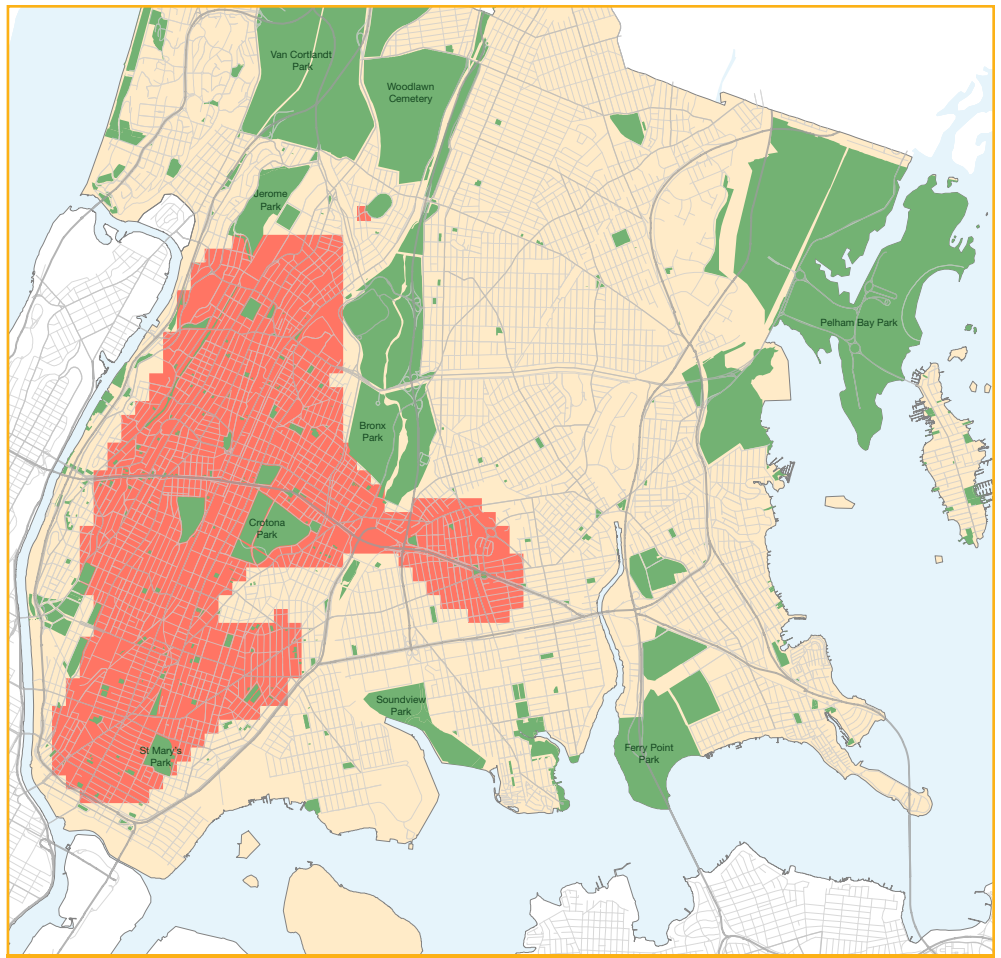


**50% of the Bronx's pedestrian KSI occur in just 20% of the borough's total land area**

## Priority Areas

Some of the safety issues throughout the Bronx 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 the borough.

In total there are 8 square miles of Priority Areas. Although these contain 50% of all pedestrian KSI in the Bronx, they constitute just 20% of the borough's land area.



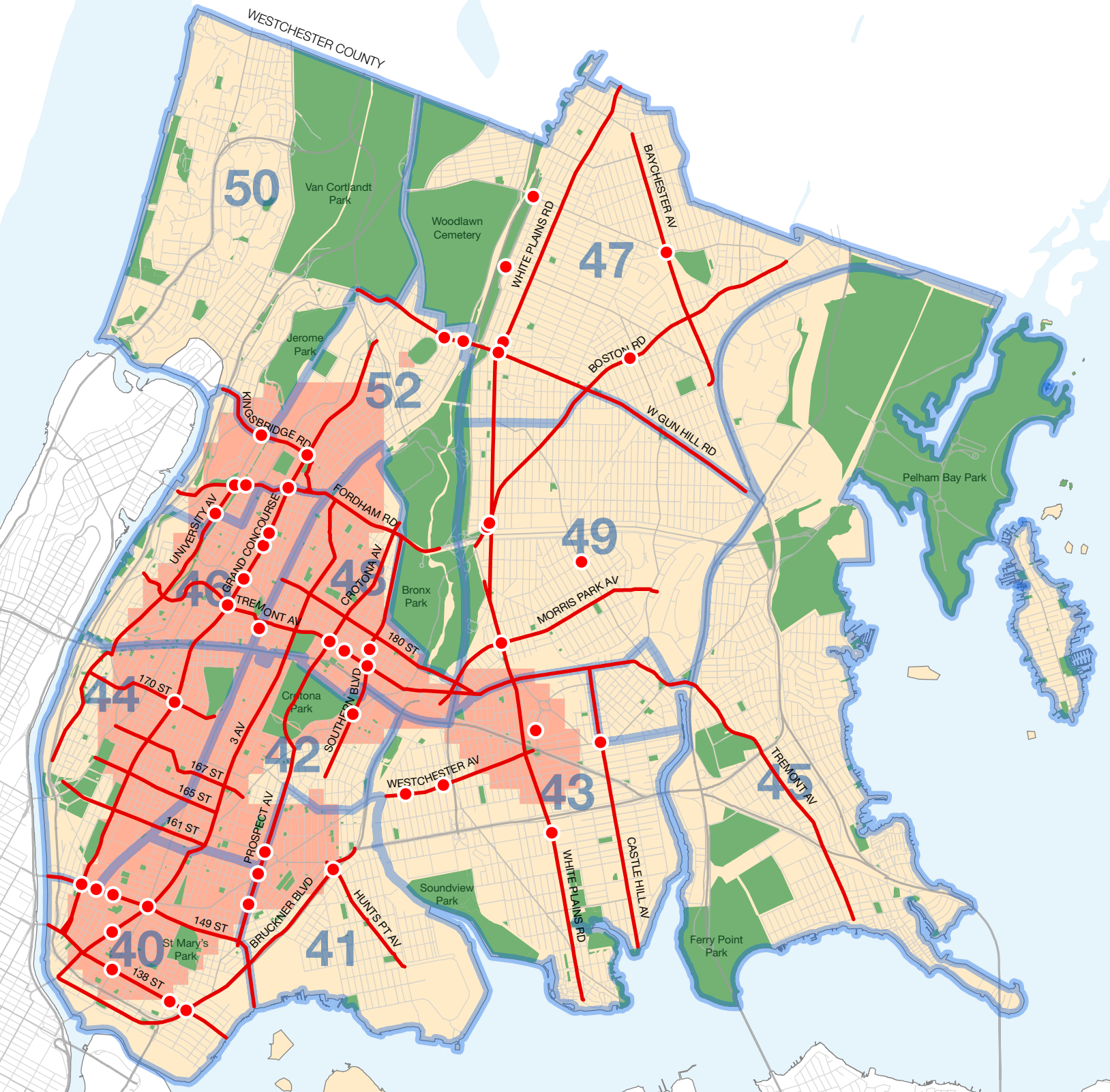
Priority Areas

The combined map of Priority Corridors, Intersections, and Areas covers 74% of pedestrian KSI in the Bronx, and shows where DOT and NYPD interventions are needed most. This map will serve as a guide to where engineering, enforcement, and education measures will be most effective at reducing pedestrian fatalities and severe injuries.



# Bronx Priority Map

	Share of Borough	Borough	% of Borough	Share of Ped KSI*	Total Ped KSI	% of Total Ped KSI	% of Total Ped Fatalities
Priority Corridors	25 corridors (65 miles)	791 miles	8%	534	1,041	51%	44%
Priority Intersections	46 intersections	6,438 intersections	1%	159	1,041	15%	8%
Priority Areas	8.5 sq miles	42 sq miles	20%	521	1,041	50%	37%
<b>Combined Total</b>	—	—	—	<b>774</b>	—	<b>74%</b>	<b>61%</b>



Priority Corridors 
Priority Intersections 
Priority Areas 
NYPD Precincts 



# CASE STUDY: Fordham-University Heights

This western section of the Bronx experiences an extremely dense concentration of pedestrian crashes (see Bronx Heat Map, page 5). Between 2009 and 2013, there were 1,278 crashes in the area involving pedestrians, resulting in 161 severe injuries and 17 fatalities.

The vast majority of this area's residents identify as Hispanic or Latino (69%), with 30% identifying as Dominican. Accordingly, Spanish is the area's predominant language, with just 28% speaking only English at home. The area's median income is slightly lower than the Bronx's overall.



1,278



**Total crashes involving pedestrians between 2009-2013**

**These crashes resulted in 178 pedestrian KSI:**



161  
severe  
injuries



17  
fatalities

68%



**of all traffic fatalities were pedestrians**



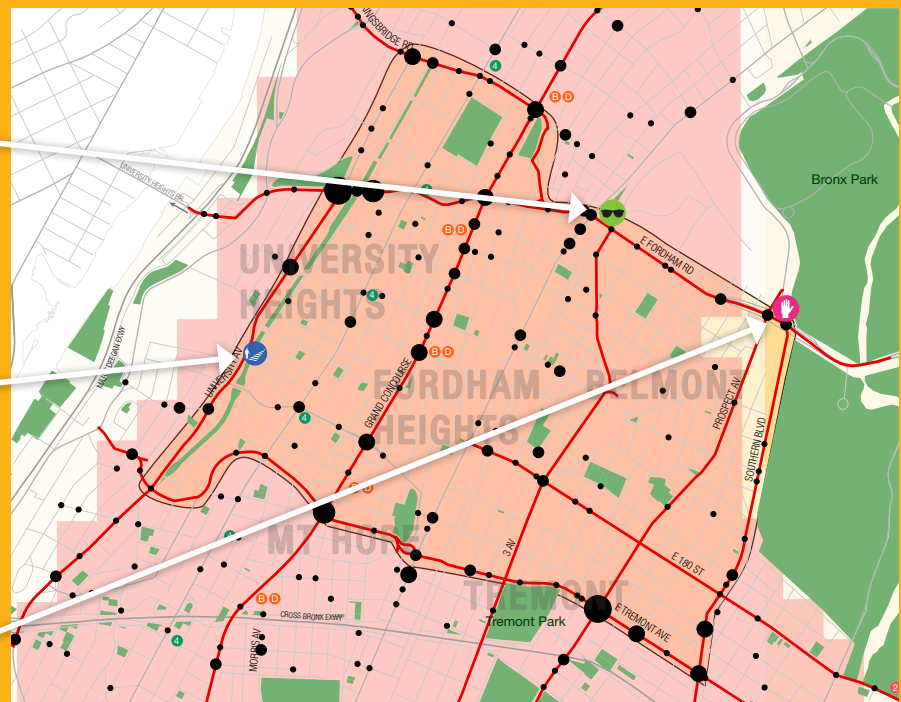
## Community Input

**Poor Visibility @ Webster & E Fordham:** “The low and overlooked visibility green arrow light often results in pedestrians crossing while the cars in the left turn lanes are trying to turn.”

**Long Distance to Cross @ University & 180th:** “You ought to model University Avenue off of the Street improvements on the Grand Concourse between 161st Street and 165th Street.”

**Jaywalking @ Southern & E Fordham:** “The distance [between] crosswalks [is] too far.”

## Fordham-University Heights Case Study Area



Priority Corridors



Priority Intersections



Priority Areas



Subway Stations



Pedestrian KSI



Black outline represents the approximate boundary of the case study area.



# CASE STUDY: Fordham-University Heights

## Pedestrian Safety

Compared to Bronx neighborhoods further south, public transit options are somewhat sparser in the Fordham-University Heights section, with vast portions (particularly east of Webster Avenue) lacking subway access. Nevertheless, a low rate of car ownership (roughly 65% of households do not own a vehicle) and a relatively dense bus network correspond to a high rate of transit usage and a high volume of pedestrian trips.

Several high-crash arterial corridors—including Fordham Road, Grand Concourse, and University Avenue—crisscross this section of the Bronx. Many of these streets are highly congested with pedestrians, cars, and buses, but offer minimal guidance for each in terms of safe and street usage. As a result, residents report a generally chaotic environment on many local streets, and local pedestrians express frequent uncertainty regarding where and when to most safely cross wide, busy streets.

## Community Dialogue and Input

Fordham Plaza is a multi-modal transit hub in the heart of the Bronx. In addition to the Metro-North rail line, it provides access to 11 local, express and regional bus routes, including New York City's first Select Bus Service route, the Bx12. The 54,000 riders, including 11,000 rail passengers, make this the third busiest Metro-North station. Coupled with the Fordham Road retail corridor, the area attracts over 80,000 pedestrians in a 12-hour period, comparable to 7th Ave/Penn Station in Manhattan. Partnering with DOT, the NYC Department of Design and Construction will reconstruct Fordham Plaza to improve pedestrian safety, transit efficiency, and vehicle congestion. The plans reflect extensive community input from those who live, work, and go to school in the surrounding area. Interviews, focus groups, and public meetings were held to develop planted buffers to protect pedestrians from traffic, lighting enhancements, and improved wayfinding signage.<sup>6,7</sup>



## DOT Safety Improvements

DOT has taken other steps to improve pedestrian safety in the Fordham-University Heights section of the Bronx. Several projects created more frequent and protected spaces for pedestrians to cross streets while slowing traffic.



## Fordham-University Heights Senior Pedestrian Focus Area

Pedestrian crashes declined by 38% while crashes with injuries declined by 32%

crashes with injuries  
**↓32%**



*“The initial execution of the Vision Zero initiative is proving to be effective in increasing street safety while raising awareness among motorists and preventing senseless fatalities”*

—Councilmember  
Fernando Cabrera

## Fordham-University Heights Senior Pedestrian Focus Area

- In 2009, DOT developed the Fordham-University Heights Senior Pedestrian Focus Area (SPFA), slating the district for street improvements to enhance pedestrian safety, particularly for the area’s large population of senior citizens.
- The Fordham-University Heights SPFA, which includes Fordham Road, the third-busiest commercial corridor in New York City, encompasses a number of pedestrian safety project locations, including the following:
  - **Creston Avenue Plaza**
    - Closed East 190th Street slip ramp to create pedestrian space
    - Total crashes decreased 57% (3-year crash data)
  - **East 188th Street between Morris Avenue and Grand Concourse**
    - Extended curbs to slow vehicle traffic, installed bike lane, and introduced truck-loading regulations
    - Pedestrian crashes decreased 38%, while all crashes with injuries decreased 32% (3-year crash data)
- **To enhance safety for senior pedestrians, signal timing was modified to accommodate slower walking speeds at 15 intersections**



# Community Dialogue and Input



3.

Achieving Vision Zero, and truly making New York City's streets safe for all users, hinges upon an active dialogue between the public and the City. While DOT utilized quantitative crash data to determine the Bronx's highest-priority intersections, corridors, and geographic areas, qualitative feedback from community members deeply enriches DOT's understanding of these priority locations. Feedback collected online and via public workshops produced a geographic database of community safety concerns that will allow DOT to design high-quality Vision Zero safety projects that incorporate local knowledge of pedestrian issues.

DOT took a proactive and innovative approach to community engagement to yield a robust dataset of local expertise. This section details the public outreach activities DOT conducted to gather feedback from Bronx residents.

# Vision Zero Public Input Map

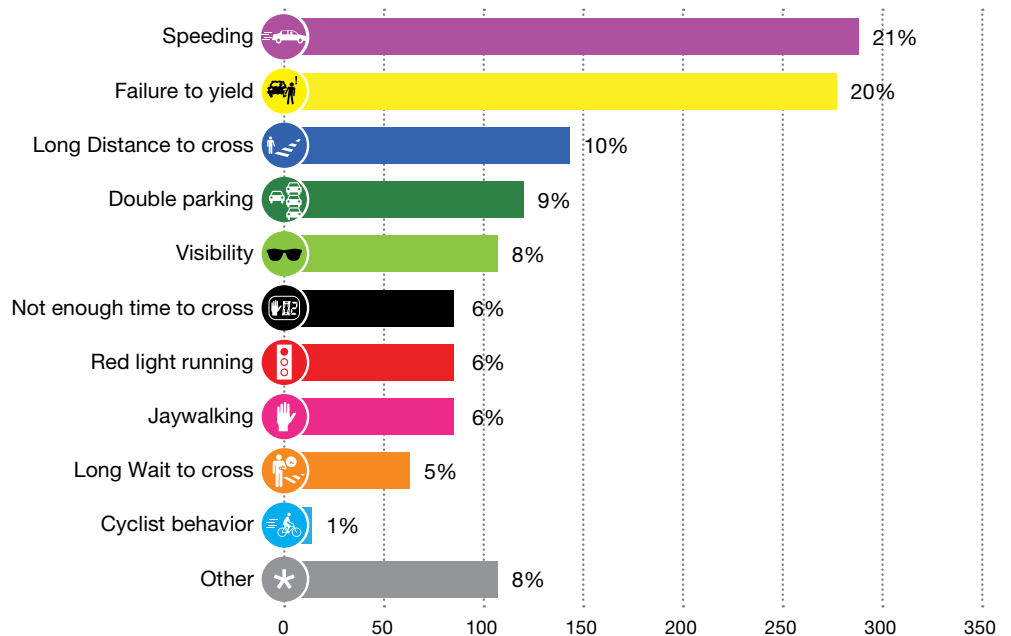
**Bronx residents shared almost 1,400 pedestrian safety issues**

The interactive, online Vision Zero Public Input Map offered New Yorkers the opportunity to identify pedestrian safety issues at any time, from anywhere (even mobile devices). To report a pedestrian safety issue, users panned across a map of New York City and zoomed to an intersection of concern. Clicking on the intersection caused a Google Street View image of the selected intersection to appear. Users then chose one of ten safety issue icons, dragged it to the precise location where the issue occurs, and provided comments detailing their issue (see figure below). Other users could then share additional comments about, or voice their agreement with, existing comments.



**41%**

**of issues shared on the website focus on speeding and failure to yield to pedestrians**



The breakdown of issues by category logged on the Vision Zero website closely reflected that of the issues recorded at the Pedestrian Safety Workshops.



**“Each year, far too many lives are needlessly lost in New York City due to traffic crashes. Traffic safety must be one of our main priorities, and it will take adjustments from everyone - pedestrians, cyclists and drivers - to achieve our Vision Zero objectives.”**

— Councilmember  
James Vacca

**Bronx residents commented on about 10% of all Bronx’s intersections**

## Website Findings

At the close of the three-month online comment period (May–July 2014), location-specific issues collected at the Pedestrian Safety Workshops were geocoded and added to the online map, producing a unified geographic database of residents’ pedestrian safety concerns (see The Bronx Community Input Map, page 35). In total, users shared 1,369 issues at 649 unique locations (representing over 10% of intersections) across the Bronx—an average of 2.1 issues per location. Moreover, Bronx residents not only engaged with DOT on these issues but with each other as well: users commented on others’ issues 102 times and gave clicks of support 204 times.

Of the ten pedestrian safety issues identified on the Vision Zero website, in the Bronx users expressed the highest levels of concern for aggressive driving behaviors, such as speeding (21%) and failure to yield (20%), as well as the long distances required to cross many of the borough’s wide streets (10%).



## Public Events

From March through June 2014, DOT, NYPD, elected officials, and civic organizations hosted six official Vision Zero public events across the Bronx. In the form of participatory workshops and town hall meetings, these events were designed to gather local pedestrian safety concerns, launch an ongoing dialogue about street safety in the Bronx, and instill the message that pedestrian fatalities are preventable and not the inevitable feature of city life they are often perceived to be.

### Town Halls

Kicking off Vision Zero outreach in the Bronx, Councilmember Ritchie Torres hosted a town hall meeting on April 1st at the Bronx Library Center on Kingsbridge Road. Before a packed auditorium of more than 100 attendees, a panel including Bronx DOT Commissioner Constance Moran, Councilmember Vanessa Gibson, and NYPD officers listened to community members' concerns regarding pedestrian safety in their neighborhoods. Specific topics discussed ranged from inadequate bicycling infrastructure and double parking outside auto body shops to praise for safety improvements DOT has recently implemented in the Bronx. On May 22nd, community members gathered at Lehman College to participate in a town hall hosted by the office of City Council Speaker Melissa Mark-Viverito and attended by DOT Commissioner Polly Trottenberg and City Council Transportation Chair Ydanis Rodriguez. Two similar town-hall meetings were also hosted by Bronx Councilmember Vanessa Gibson and Assemblyman Marcos Crespo.



Spanish public outreach flyer used to advertise the workshops





110+

**participants  
attended public  
workshops  
in the Bronx**

## Pedestrian Safety Workshops

Concurrent with the town hall meetings, DOT hosted two public workshops in the Bronx, which drew more than 110 participants. As both workshops were designed to address borough-wide safety concerns, their geographically dispersed locations—Lehman College in the North Bronx and Hostos Community College in the South Bronx—were selected to attract the widest possible audience. DOT also worked with 45 elected officials, community boards, and civic groups to promote the workshops to a broad range of constituencies across the borough. Spanish and Mandarin interpreters were also available to allow participation by a diverse cross section of Bronx residents.



Discussion of pedestrian safety concerns at Lehman College

## Workshop Format

At tables of approximately eight people— including two DOT staff members and one NYPD officer—a DOT facilitator made a brief presentation on Vision Zero safety strategies then led a group discussion around pedestrian safety issues in the Bronx. Next, participants visited a mapping station, where, using ten distinct stickers (which corresponded to the ten issue icons on the Vision Zero Public Input Map), they pinpointed precise locations where pedestrian safety issues occur around the Bronx (see page 35). Participants then recorded these issues and locations on worksheets, which DOT staff collected at the conclusion of the workshop. Finally, participants completed a survey designed to gather both general and specific pedestrian safety concerns and to evaluate DOT’s public outreach strategies.

55%

**of workshop attendees support public education campaigns to promote safe street usage**



Workshop attendee logs safety issues at Hostos Community College



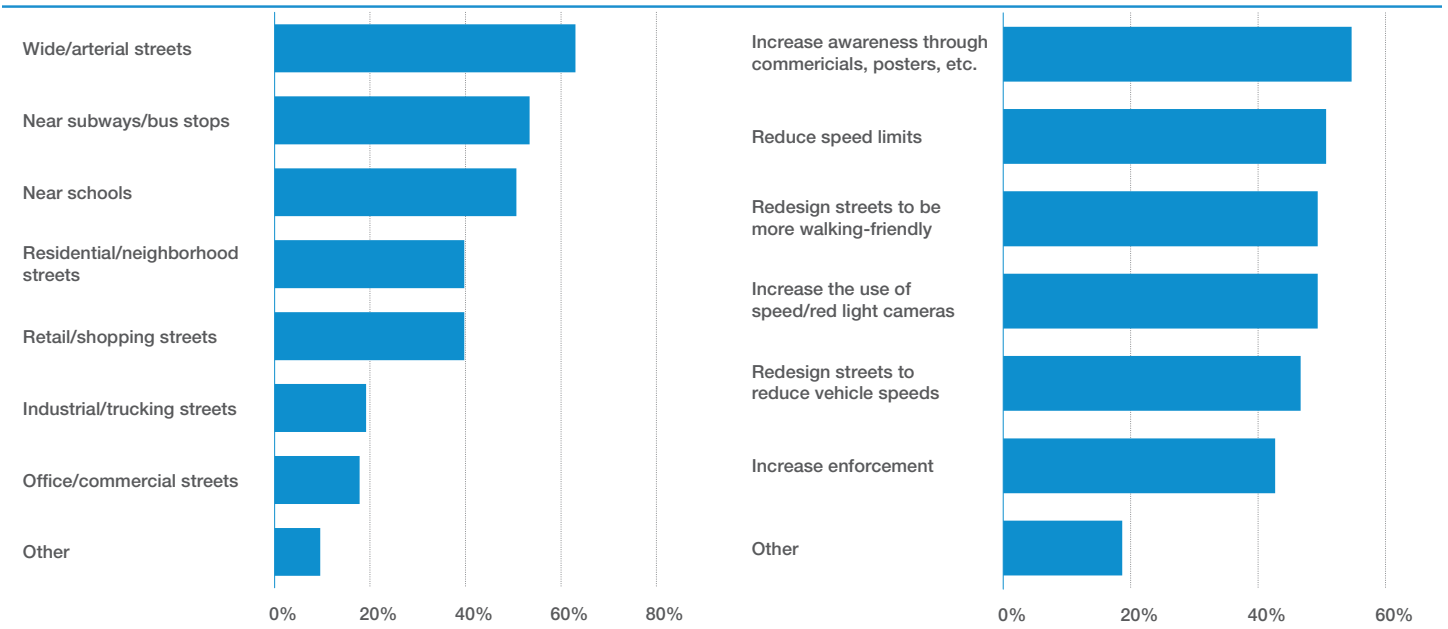
63%

of workshop attendees view arterial streets as one of the most important areas for pedestrian safety improvements

### Workshop Findings

Feedback from the group discussions, worksheets, and surveys shows that aggressive driving behaviors, such as speeding and failure to yield, are the issues of greatest concern to Bronx residents. Over 80% of participants rated each of these issues as problematic, and over 50% said they were “major problems” in the Bronx. Perhaps a testament to the Bronx’s disproportionately high share of mid-block pedestrian fatalities, Bronx residents called out jaywalking (68%) at a significantly higher rate than workshop attendees in any other borough.

Participants stressed the importance of a wide array of measures to help combat these dangerous behaviors including public education campaigns to promote safe street usage (55%) and reducing the speed limit (51%), particularly on wide arterial streets and near transit stops.



Types of locations and interventions workshop attendees would like DOT/NYPD to focus on in the Bronx, by frequency.

## Community Input Influencing Design



45%

**of shared issues fall outside of Priority Corridors, Intersections, and Areas**

In late summer 2014, following the completion of the final workshop and the closure of the online Vision Zero Public Input Map, DOT compiled all community feedback, pedestrian safety worksheets, participant surveys, completed maps, and issues shared on the Vision Zero website. This information is being maintained and analyzed to support future public outreach, education, enforcement, and engineering. It will also be referenced in the following section of this Plan.

The Community Input Map, combined with the Bronx Priority Map laid out in Section 2, forms a geographically specific knowledge base of both quantitative pedestrian crash data and qualitative community feedback. This allows DOT to integrate local knowledge into Vision Zero project planning in order to foster a proactive, responsive project planning process at the borough's highest-crash locations. A composite priority map for the Bronx is shown on the facing page. This map will serve as the basis of DOT's Pedestrian Safety Action Plan in the Bronx.

As the map reveals, the locations with the most public input and high pedestrian-KSI-crash density do not always overlap. There are several factors influencing the likelihood of particular communities throughout the Bronx to log issues, from the strength of local outreach and advocacy groups, to the location of workshops, to language and internet connectivity barriers.

It is vital to the success of Vision Zero in the Bronx that all communities across the borough are given an equal opportunity to share their pedestrian safety concerns. As such, DOT will redouble its outreach efforts to communities with low levels of existing feedback, especially those in high pedestrian-crash areas (explained in further detail in Section 4). Also, DOT and NYPD will ensure that traffic engineering, enforcement, and education work will be conducted in the areas with the highest need, not just those with the loudest voices.



# Bronx Community Input Map



● Not enough time to cross

● Jaywalking

● Failure to yield to pedestrians

● Priority Intersections

● Double parking

● Poor visibility

● Cyclist behavior

— Priority Corridors

● Long wait to cross

● Speeding

● Other

— Priority Areas

● Red light running

● Long distance to cross





# Borough Action Plan



# 4.

Based on the crash findings, prioritization, and community input presented previously in this report, DOT and NYPD have developed a comprehensive set of actions to be implemented in the Bronx. These actions, and the findings that informed their creation, will be reviewed every three years from the release of this plan.

DOT and NYPD use a three-pronged approach to pedestrian safety, including Engineering and Planning actions, Enforcement actions, and Education and Marketing actions. These are vital tools in achieving Vision Zero in the Bronx and across New York City.

DOT and NYPD worked closely together, as well as consulting other city agencies, to formulate these actions. Moving forward, the implementation of the proposed actions will require continuing and strengthening these partnerships. This will enable all aspects of pedestrian safety to continue to improve.



## Engineering and Planning

### **Implement at least 50 Vision Zero safety engineering improvements at Priority Corridors, Intersections, and Areas citywide, informed by community input at project locations**

The *Vision Zero Action Plan* calls for safety engineering improvements citywide at 50 intersections and corridors annually. Starting with the 2015 construction season, DOT will set the goal of building 50 Vision Zero safety engineering improvements at the Priority Corridors, Intersections, and Areas defined in all five Borough Pedestrian Safety Action Plans. This will ensure a laser focus on the chronically high-crash locations where pedestrians are killed and severely injured, where DOT interventions will have a maximum impact. The safety engineering improvements will be informed by Borough Plan outreach findings and, as always, DOT and NYPD will work with communities to shape and develop better safety projects. Lastly, since Vision Zero ultimately means eliminating fatalities for all road users, safety engineering improvements will also include safety-focused bicycle, transit, and motor vehicle projects.



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

High-crash corridors for pedestrians tend to be on wide arterial streets with higher speeds and aggressively turning vehicles. DOT will address these issues by installing Leading Pedestrian Intervals (LPIs) at every feasible school crosswalk on all Bronx 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.

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

DOT will install LPIs at every feasible Bronx Priority Intersection by the end of 2017. As noted previously, the LPI is a signal timing treatment that provides pedestrian-only walk time before vehicles receive the green light.

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

At off-peak times, congestion is diminished and vehicle speeds are higher, increasing the risk for pedestrian crashes as well as increasing the severity of those crashes. To better control speeds, DOT will modify off-peak signal timing on all feasible Bronx Priority Corridors by 2017.

# Bronx Priority Map



Priority Corridors



Priority Intersections



Priority Areas



NYPD Precincts





### **Install expanded speed limit signage on all Bronx Priority Corridors in 2015**

Effective November 7th, the speed limit on all unsigned streets in New York City was reduced to 25 MPH. However, streets that are signed for 30 MPH (or higher) will be evaluated on a case-by-case basis and switched to 25 MPH where feasible. DOT will evaluate all signage on Bronx Priority Corridors in 2015 and convert these to 25 MPH where feasible. In addition, signage will be expanded so the speed limit will be posted at a higher frequency along Bronx 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.

### **Drive community input and engagement at Bronx Priority Corridors, Intersections, and Areas**

As discussed earlier in this plan, areas in the Bronx that have the highest incidence of pedestrian fatalities and severe injuries are not always the loudest voices providing input for transportation improvements. DOT commits to reaching out to these sections of the Bronx and soliciting ground-level input from community members. This dialogue will take many forms, including full-fledged planning workshops and charettes; streamlined, mobile meetings at places where community members already gather (libraries, community centers, parks, etc.); community walk-throughs; and direct communication with elected officials and community leaders in Priority Areas. To further facilitate and institutionalize this effort, DOT will hire a dedicated staff member in their Bronx office. This staff member will be assigned to neighborhoods that have historically been less engaged with the planning process.

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

Streets located under elevated trains are typically high crash in New York City and have long been identified by residents and city officials as dark and shadowed. These conditions create visibility challenges for both pedestrians and vehicles. This problem is more acute in the Bronx, where much of the subway network is elevated. The *Vision Zero Action Plan* called for street lighting to be enhanced at 1,000 intersections. In addition to these enhancements currently in progress, DOT will identify new locations focused on elevated train stops and other key transit locations and will pursue the additional funding necessary for implementation.



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

Nearly three out of ten pedestrian fatalities in the Bronx involve pedestrians crossing midblock on large arterial streets, a higher share than the city as a whole. Long blocks, which make it difficult for pedestrians to cross at intersections without significant waiting or detours, are a likely factor contributing to the high levels of midblock fatalities in the borough. DOT will investigate expanding the use of midblock crosswalks, pedestrian fences, and traffic controls that can help create safer crossings between intersections on Bronx priority corridors.

### **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.<sup>8</sup> Buses are an extremely important part of the city's transportation network and vehicle mix in the Bronx, constantly operating around and interacting with pedestrians (both riders and non-riders), cyclists and other road users. DOT will work closely with the MTA to provide for a safe, efficient, and effective transportation network that coexists with pedestrians and other modes, focusing on routes and stops at and around Priority Corridors and Priority Intersections, ensuring that facilities are designed and located to maximize pedestrian safety.





Pedestrian injuries declined 22% on New York City streets with protected bicycle lanes, like this one on Westchester Avenue.

## Expand a bicycle network in the Bronx that improves safety for all road users

Vision Zero's focus on vulnerable users—those most likely to be severely injured and killed in event of a crash—is an opportunity for a coordinated, complete streets approach to bicycle and pedestrian planning. Although there has been a marked downward trend in cyclist risk in New York in the past ten years, there were still 52 bicyclist fatalities in the city between 2011 and 2013, including 5 in the Bronx. While this plan identifies priority corridors, intersections, and areas for pedestrian safety improvements, these locations also account for 76% of cyclist KSI in the Bronx, and can represent priorities for bicycle safety as well.

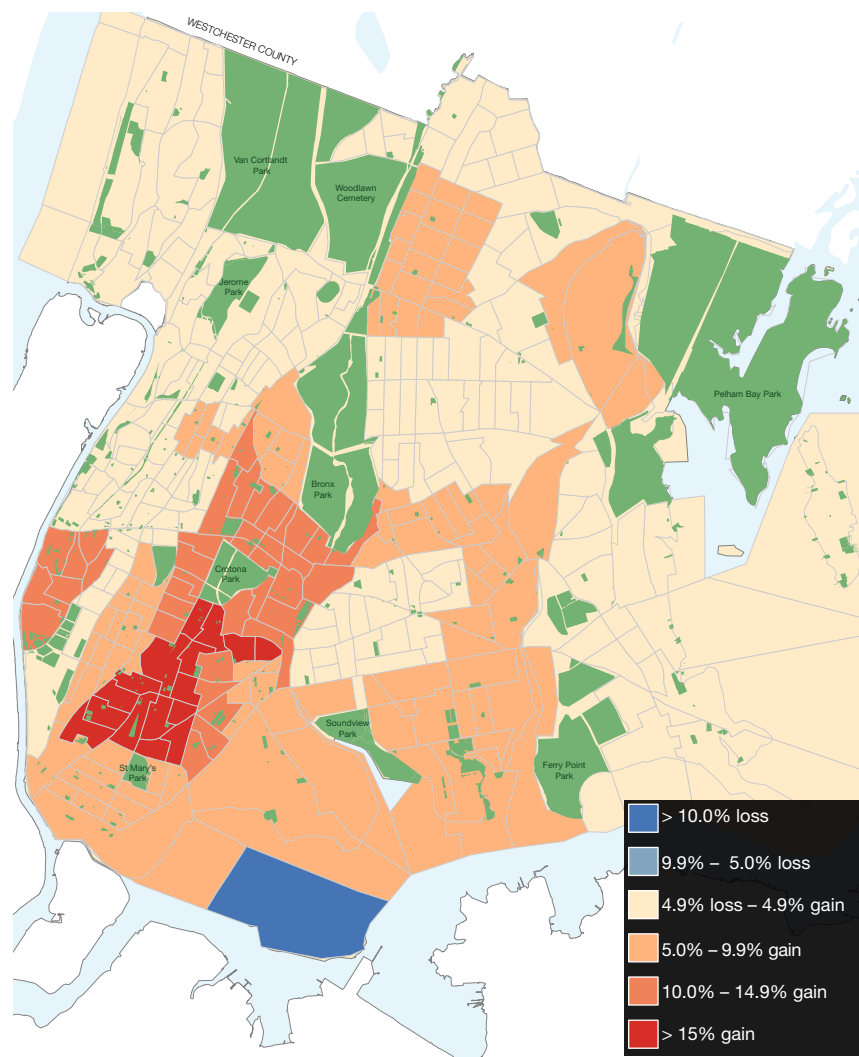
Pedestrian and bicycle planning share many of the same fundamental strategies to increase safety. Both groups benefit from reductions in speeds, efforts to enforce the traffic laws that make streets safe, and comprehensive engineering solutions that better organize traffic flow and reduce conflicts. 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. A recent study found that pedestrian injuries declined 22% on New York City streets with protected bicycle lanes. That is why DOT will work closely with communities in the Bronx to expand a bicycle network that improves safety for all road users, including constructing an additional 5 lane miles of protected bike lanes per year.



Bronx Detail from 2014 New York City Bike Map

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

In his 2014 housing plan—entitled *Housing New York: A Five-Borough, Ten-Year Plan*—Mayor de Blasio has laid out actions to spur affordable housing by increasing density, rezoning neighborhoods, redeveloping underutilized land, adaptively reusing buildings and space, and a host of other tools. Since these new housing locations will often be on vacant and underused sites, they may lack sufficient pedestrian safety infrastructure, and pedestrian activity (and pedestrian crashes) may presently be low.



Bronx Population Growth, 2000-2010



The City will be proactive and will develop pedestrian safety enhancements around housing development locations. DOT will work with the Department of Housing Preservation and Development (HPD), the Department of City Planning (DCP), the School Construction Authority (SCA), and the Mayor's Office to ensure that housing plan projects incorporate the highest-quality, modern standards in pedestrian safety. Development at these locations is an opportunity for New York City to develop streets that are even safer than the status quo.

A model for this collaborative work in a Priority Area is the Tremont Emerging Commercial Corridor project as part of the *Sustainable Communities in the Bronx* initiative, where the City is working with community partners to develop a new mixed-use, middle-income development in concert with street character changes along East Tremont Avenue and adjacent to the Tremont Metro North train station.



Tremont Station rendering, Sustainable Communities in the Bronx

# Enforcement

The *Vision Zero Action Plan* calls upon NYPD and DOT to develop a data-driven, citywide strategy for the enforcement of traffic safety violations. This plan will guide that strategy in the Bronx.



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

The New York State Legislature recently approved the use of speed cameras at 140 total locations near schools in all five boroughs. In the Bronx, DOT will deploy those cameras by schools in and around Priority Corridors, Intersections, and Areas, unless a higher-crash location is also feasible. As always, speed cameras will only be deployed in accordance with their enabling legislation.

## **Focus enforcement and deploy dedicated resources to Bronx precincts that overlap substantially with Priority Areas**

Just as NYPD regularly targets chronically high-crime areas, NYPD will take the same tightly focused approach to chronically high-crash areas. NYPD will increase traffic enforcement at precincts in Priority Areas and provide additional dedicated resources to handle this stepped-up enforcement.

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

- Prioritize enforcement along all 65 miles of Bronx Priority Corridors.
- Prioritize enforcement at all 46 Bronx Priority Intersections.
- Prioritize enforcement within all 8 square miles of Bronx Priority Areas.

To further inform enforcement efforts, DOT will provide detailed crash analyses of Bronx 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.

In 2015, the NYPD plans to launch a major technological upgrade to its traffic analysis capabilities which will allow a more in-depth review, tracking, and accounting of collisions and enforcement in Brooklyn’s Priority Corridors, Intersections, and Areas.

**Focus speeding enforcement in the overnight hours, targeting transit stops and other pedestrian hotspots for off-peak commuting**

In the Bronx, NYPD will place a particular focus on speeding enforcement in the overnight hours, addressing the high concentration of Bronx pedestrian fatalities that occur in that time period.





## Education and Awareness Campaigns



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

The *Vision Zero Action Plan* calls for DOT to make effective, age-appropriate safety curricula available to schools throughout the City. This Borough Action Plan will guide that strategy in the Bronx; DOT's Safety Education team will focus their programs at or near Priority Corridors, Intersections, 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 as well as utilize Bronx Safety City, which is a traffic safety program for children that uses a simulated city street. 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 Bronx councilmembers and community groups.



### Target Street Team outreach at Bronx Priority Corridors, Intersections, and Areas

As directed by the *Vision Zero Action Plan*, NYPD and DOT have been conducting intensive street-level outreach on safety issues and traffic laws. This Borough Pedestrian Safety Action Plan will further guide those efforts, as all future street-level outreach in the Bronx will be conducted along Priority Corridors, at Priority Intersections, or within Priority Areas. Locations will be further prioritized based on pedestrian volumes (for efficient outreach) and by historically problematic locations identified by local communities.

### 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

As noted earlier in this report, a greater share of pedestrian fatalities occurs during overnight hours (12–6am) in the Bronx (31%) than across the City as a whole (21%). One reason for this may be that the Bronx is the only borough in which the majority of commuting (51%), actually takes place outside of traditional peak hours. In the Bronx, DOT will specifically target both night-time drivers and overnight transit commuters in their public information campaigns, helping to build both better risk awareness and safer driving behavior.

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## ENDNOTES

- <sup>1</sup> National Highway Traffic Safety Administration, Traffic Safety Facts, 2012 Data.  
<http://www-nrd.nhtsa.dot.gov/Pubs/811888.pdf>
- <sup>2</sup> Data sources accessed 12-01-2014, killed or severely injured data includes only crashed that can be mapped
- <sup>3</sup> 55% decline in fatalities based on change in 3-year averages (1985-2013)
- <sup>4</sup> <http://www.streetsblog.org/2011/05/23/bronx-teenagers-continue-two-year-fight-for-pedestrian-safety/>
- <sup>5</sup> <http://www.transalt.org/sites/default/files/news/reports/2012/Bronx%20Helpers%20Report%20Final.pdf>
- <sup>6</sup> <http://serrano.house.gov/press-release/nyc-dot-and-ddc-announce-fordham-plaza-phase-2-groundbreaking-bronx>
- <sup>7</sup> <http://www.nyc.gov/html/dot/html/about/projects-2009.shtml>
- <sup>8</sup> American Public Transportation Association, Quarterly Ridership Statistics, Third Quarter 2014.  
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# Appendix A

## Bronx

### Priority Corridors

DOT identified **25 Priority Corridors** encompassing **51% of the Bronx's total pedestrian KSI** and representing **65 miles (8%) of the Bronx's total street network**:

Street Name	From	To	Ped Fatalities (2009-2013)	Ped KSI (2009-2013)	Miles	Ped KSI per mile (2009-2013)
Fordham Rd	Bronx River Pkwy	University Heights Br	4	37	2.2	16.6
Kingsbridge Rd	Fordham Rd	Exterior St	5	19	1.2	15.6
Grand Concourse	138 St	Mosholu Pkwy	12	70	5.5	12.8
138 St	Madison Av Br	Locust Av	1	20	1.6	12.4
149 St	145 St Br	Oak Point Av	3	26	2.1	12.2
Southern Blvd	Louis Nine Blvd	Fordham Rd	1	22	2.0	11.3
170 St	Clay Av	University Av	1	12	1.1	11.3
Westchester Av	Westchester Av Br	Hugh J Grant Cir	1	14	1.2	11.3
Hunts Pt Av	163 St	Halleck St	1	11	1.0	10.9
Boston Rd	Bronx Park E	Eastchester Br	1	33	3.3	9.9
167 St	Jerome Av	Boston Rd	3	11	1.2	9.4
Gun Hill Rd	Hutchinson River Pkwy	Mosholu Pkwy	4	30	3.4	8.8
180 St	Webster Av	Tremont Av	0	15	1.7	8.6
Tremont Av	Schurz Av	Sedgwick Av	4	61	7.2	8.4
White Plains Rd	Sunset Blvd	243 St	7	61	7.5	8.2
Prospect Av	Southern Blvd	Crotona Av	1	13	1.6	8.0
Baychester Av	Hammersley Av	241 St	5	16	2.0	7.9
165 St	Jerome Av	3 Av	2	8	1.0	7.9
Castle Hill Av	Hart St	Tremont Av	2	17	2.2	7.9
Crotona Av	Prospect Av	Southern Blvd	1	15	1.9	7.8
Morris Park Av	Wyatt St	Bassett Av	1	15	2.0	7.6
Bruckner Blvd	3 Av	Whitlock Av	3	25	3.4	7.4
161 St	Jerome Av	3 Av	0	9	1.2	7.3
University Av	Sedgwick Av	Fordham Rd	0	19	2.6	7.2
3 Av	Bruckner Blvd	Fordham Rd	3	33	4.6	7.2

\*Nearest cross street, corridor ends at dead-end.



# Appendix B

## Bronx

### Priority Intersections

DOT identified **46 Priority Intersections** in the Bronx, which cumulatively encompass **15% of the borough's total pedestrian KSI** and approximately **1% of all its intersections**:

Intersection	Ped KSI (2009-2013)	Ped Fatalities (2009-2013)
E 170 St & Grand Concourse	8	1
Hunts Pt Av & Bruckner Blvd	6	0
University Av & W Fordham Rd	6	0
E Tremont Av & Crotona Av	5	0
Thwaites Pl & Boston Rd	5	0
Grand Concourse & Monroe Av & E Tremont Av	4	0
W Fordham Rd & Grand Av	4	0
E 233 St & Grenada Pl & Baychester Av	4	0
White Plains Rd & Morris Park Av	4	0
Corsa Av & Boston Rd	4	0
Metropolitan Av & Wood Av & Parkchester Rd	4	0
Morris Av & E 149 St	3	0
White Plains Rd & E Gun Hill Rd	3	0
3 Av & Willis Av & Melrose Av	3	1
Westchester Av & Prospect Av & Longwood Av	3	0
E Burnside Av & Grand Concourse	3	0
Southern Blvd & Boston Rd & E 174 St	3	0
University Av & W Kingsbridge Rd	3	0
Willis Av & E 138 St	3	0
Story Av & White Plains Rd	3	1
Grand Concourse & E 149 St	3	2
Prospect Av & E 163 St	3	0

Intersection	Ped KSI (2009-2013)	Ped Fatalities (2009-2013)
Westchester Av & Morrison Av	3	0
Westchester Av & Castle Hill Av	3	0
E 183 St & Grand Concourse	3	1
E Tremont Av & Southern Blvd	3	0
E Kingsbridge Rd & Grand Concourse	3	1
E 138 St & Cypress Av	3	0
W 183 St & Dr M L King Jr Blvd	3	0
Wheeler Av & Westchester Av	3	0
Webster Av & E Gun Hill Rd	3	1
Park Av & E 149 St	3	0
Grand Concourse & E Fordham Rd	3	0
Southern Blvd & E 179 St	3	0
E Tremont Av & Prospect Av	3	0
E 233 St & Bronx Blvd	3	1
3 Av & E 143 St	3	0
E Gun Hill Rd & Reservoir Pl & Perry Av	3	0
E 138 St & Bruckner Blvd	3	0
Webster Av & E 176 St	3	0
White Plains Rd & E 212 St	3	0
Boston Rd & Pelham Pkwy N	3	0
E 182 St & Grand Concourse	3	0
Bronx Blvd & E 222 St	3	0
Williamsbridge Rd & Neill Av	3	1
Prospect Av & E 155 St & Dawson St	3	0

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