

# High Pedestrian Crash Locations

## Pedestrian Safety Improvements at the Top 20 Intersections

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Commissioner

# Introduction

In 2009, New York City experienced the **lowest** number of annual traffic fatalities in a century at 256. Annual traffic fatalities have decreased 63% since 1990, and 35% since 2001 alone. New York City Department of Transportation's (DOT) 2008 *Safe Streets NYC* report, available on the DOT website ([www.nyc/dot.gov](http://www.nyc/dot.gov)), provides detailed statistics and descriptions of significant safety improvement projects. The decrease in fatalities, as well as in crashes and injuries, is due in large measure to the Department's data-driven efforts to focus its resources on high crash locations and corridors and on particular groups of at-risk pedestrians.

DOT has developed a multi-faceted approach to improving safety citywide through its *Safe Streets for Seniors* and *Safe Routes to Schools* programs which use crash statistics to identify and address safety problems experienced by the most vulnerable populations – the elderly and children. Launched in 2008, *Safe Streets for Seniors* focuses on 25 neighborhoods that have a high number of pedestrian fatalities or injuries involving older adults. Already the program has made improvements in six neighborhoods. Safety improvements have already been completed at 135 schools through the *Safe Routes to Schools* program and another 135 schools are in the planning phase for round two of this program. The Department's *Safe Routes to Transit* program improves safety and security for pedestrians at intermodal transit hubs. In addition, the *Speed Reducer* program has installed over 1,300 speed humps in neighborhoods citywide, with a majority located adjacent to schools.

DOT's traffic calming projects have transformed several corridors into "complete streets" utilizing left turn bays, roadway narrowing, pedestrian refuge islands and bike lanes. These changes have contributed to substantial reductions in crashes, as well as reductions in vehicular speeding. Signal timing modifications and the installation of Leading Pedestrian Intervals (LPIs) where pedestrians get a head start in crossing streets before turning vehicles get a green signal have also contributed to improved safety.

DOT's *Safety Education* programs provide information and guidance to school children, senior citizens, drivers, pedestrians and cyclists, keeping New York City informed about traffic laws and the best techniques for avoiding danger and protecting other road users.

DOT is also using social marketing techniques to promote its safety messages more broadly through television, radio, outdoor and online media. DOT's *LOOK* Campaign aims to reduce risky behaviors of drivers and cyclists: aggression on the streets, lack of attention and disobeying traffic rules. This campaign has made over 1.4 million impressions via television, radio, direct mail, as well as online and outdoor advertising. In February of 2010, DOT launched a new anti-drinking and driving marketing campaign aimed at young men, the most likely people to drink, drive and crash in New York City.

# Introduction (con't)

While traffic fatalities have continued to decrease, even one death is one too many and DOT is committed to finding new ways to further improve safety on our City's streets.

## **Pedestrian Safety Improvements at the Top 20 Intersections**

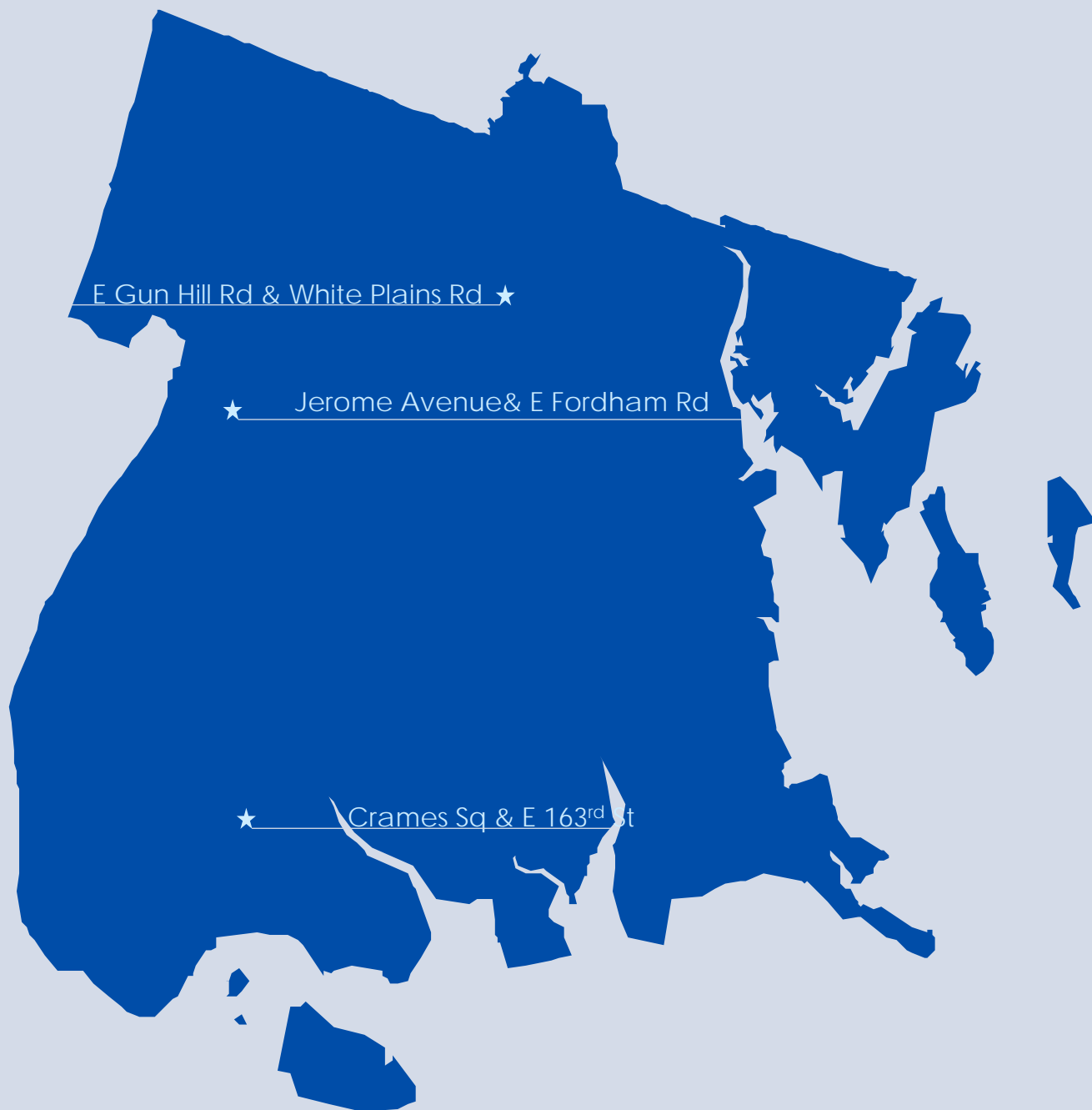
This report specifically addresses DOT's ongoing commitment to improve safety at high pedestrian crash locations. Local Law 11 enacted on April 1, 2008 amends the administrative code of the City of New York (§19-180) to require DOT to "identify the twenty highest crash locations based upon a ranking of the total number of crashes involving pedestrians" within 180 days of receiving data from the State Department of Motor Vehicles and "inspect and conduct audits at such locations."

The top twenty high pedestrian crash locations for 2007 are addressed in this report. The number of locations in each borough is based on the proportion of citywide pedestrian injuries by borough. Safety improvements have been recently implemented at a majority of the locations and some are scheduled to be implemented in the near future. Other locations, because of their complex roadway geometry, land use and other constraints, require further study.

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# Bronx



# East Gun Hill Road & White Plains Road

## 7 Pedestrian Crashes



### Background

- Ranked 2<sup>nd</sup> (tie)
- Seven pedestrian crashes in 2007

### Location/Context

- Neighborhood: Williamsbridge
- Land Use: Mixed Use, Commercial (retail) & Residential
- Bus Routes: BX28, BX30, BX39 and BX41; BxM11
- 2 & 5 Subway Station
- Local Truck Routes: White Plains Road and East Gun Hill Road
- Within boundaries of Congested Corridors White Plains Road Study



East Gun Hill Road & White Plains Road intersection under the elevated subway

### Issues Identified During Safety Audit

- Long pedestrian crossing at East Gun Hill Road
- Free right turns from slip
- Heavy vehicular volumes creating pedestrian conflicts in crosswalks
- Midblock pedestrian crossing at East 212th Street



East Gun Hill Road at White Plains Road under the elevated subway





Improvements (MTA plans to reconstruct intersection in 2010 with the following improvements)

- ▲ Refurbish Markings and Install High Visibility Crosswalks
- ▲ Install Advanced Stop Bars
- Construct Neckdowns on center southeast corner
- Reconstruct & Widen Pedestrian Space north of intersection
- Ban Left Turn eastbound to northbound
- Signalize Intersection at East 212th Street & White Plains Road
- Signalize Right Turn southbound to westbound
- Construct Pedestrian Refuge Islands on northbound White Plains Road in south crosswalk and eastbound East Gun Hill Road in the center east crosswalk
- Construct Bus Bulb on northbound White Plains Road north of intersection
- Install BUS ONLY Curbside Lanes eastbound & northbound
- Provide Bus Layover & Turn-around Areas
- Allow U-turn (northbound to southbound) south of 213th Street

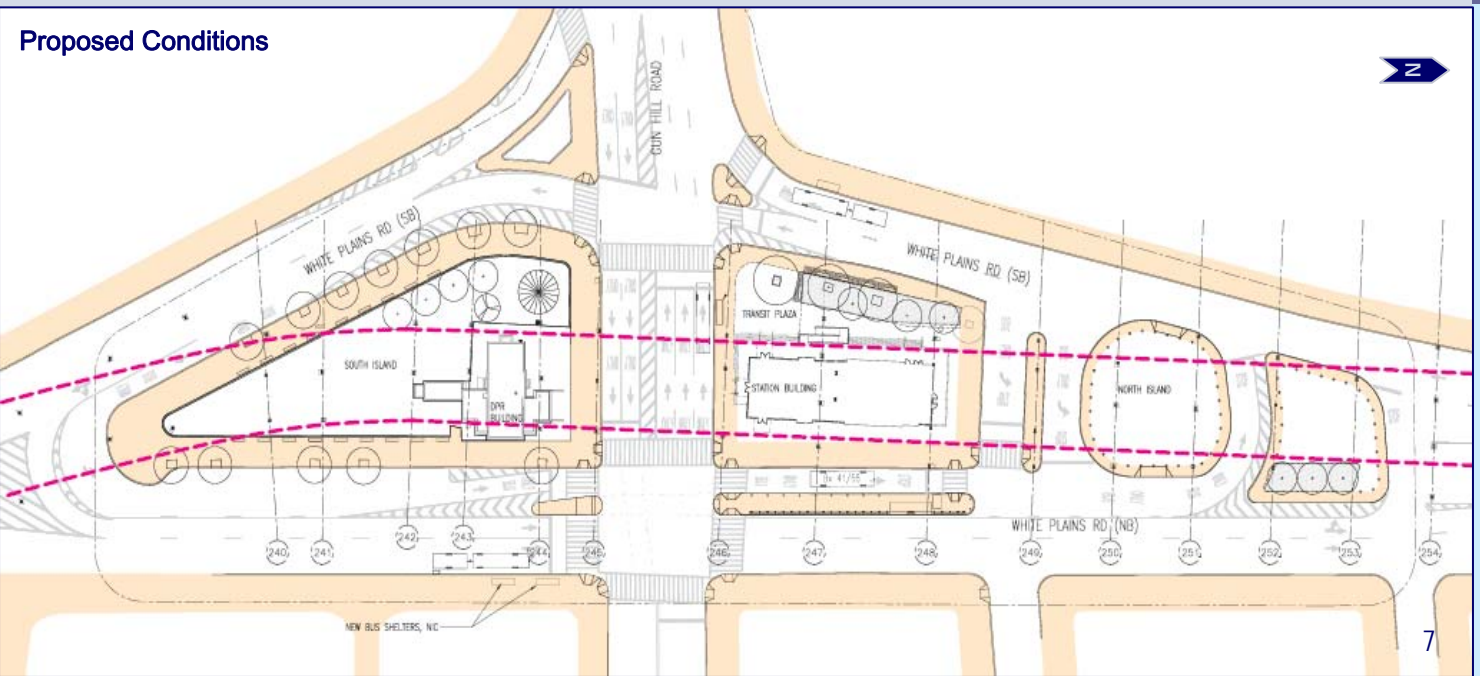
■ Planned

▲ Implemented

## Benefits

- Safer and shorter pedestrian crossings
- Reduced vehicle/vehicle and vehicle/pedestrian conflicts
- Improved bus service with safer boarding zones and layover areas
- Improved vehicular access to White Plains Road
- Better managed traffic

## Proposed Conditions



# Crames Square & East 163<sup>rd</sup> Street

## 7 Pedestrian Crashes



### Background

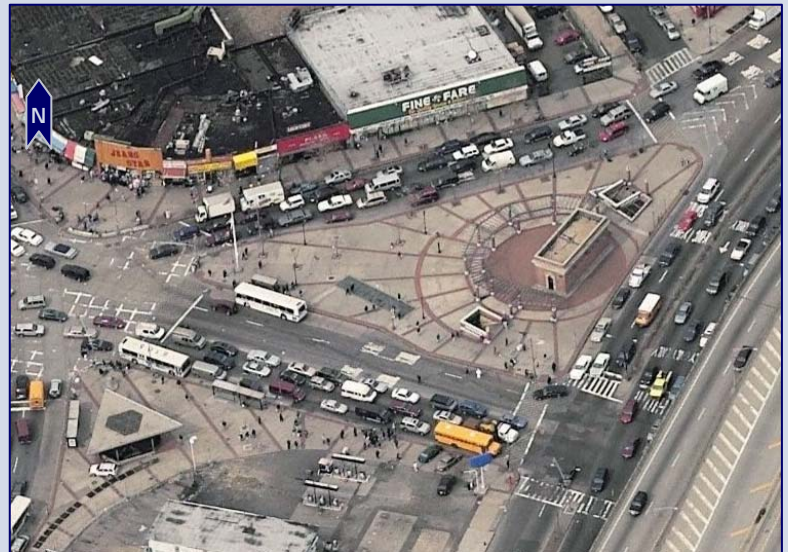
- Ranked 2<sup>nd</sup> (tie)
- Seven pedestrian crashes in 2007

### Location/Context

- Neighborhood: Longwood/Morrisania
- Land Use: Mixed Use, Commercial (retail), Residential & Transportation (highway)
- Bus Routes: BX5, BX6 and BX19
- No. 6 Subway Station
- Local Truck Routes: East 163rd St, Southern Boulevard, Bruckner Boulevard
- Congested Corridors Study Project

### Issues Identified During Safety Audit

- Long pedestrian crossings
- Irregular, wide and complex intersection
- Disorganized traffic flow and conflicts
- Heavy pedestrian volumes from retail and transit uses, heavy vehicle volumes from highway and arterial uses
- Heavy truck traffic serving Hunts Point Market
- High pedestrian volumes due to multiple bus lines and bus to subway transfer
- Buses weave in and out of traffic stream
- Illegal turning movements
- Numerous turning vehicle/pedestrian crossing conflicts



Crames Square Aerial



### Improvements

- Install pedestrian refuge islands
- Realign traffic patterns
- Simplify signal phasing
- Calm traffic with new markings
- ▲ Refurbish markings

### Benefits

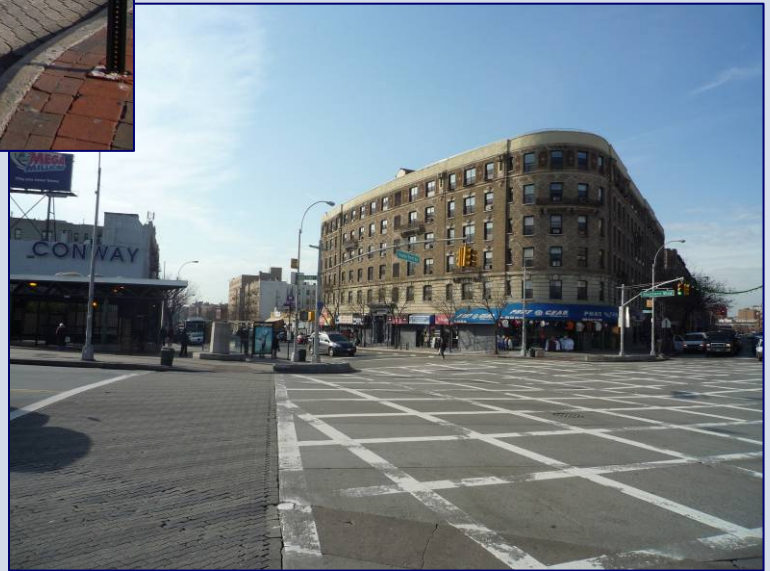
- Improves traffic flow
- Safer and shorter pedestrian crossings
- Eliminates illegal u-turns
- Eliminates dangerous weaving behavior
- Increases and enhances landscaped areas
- Reduces congestion for multiple bus lines



# Crames Square & East 163<sup>rd</sup> Street (Cont.)



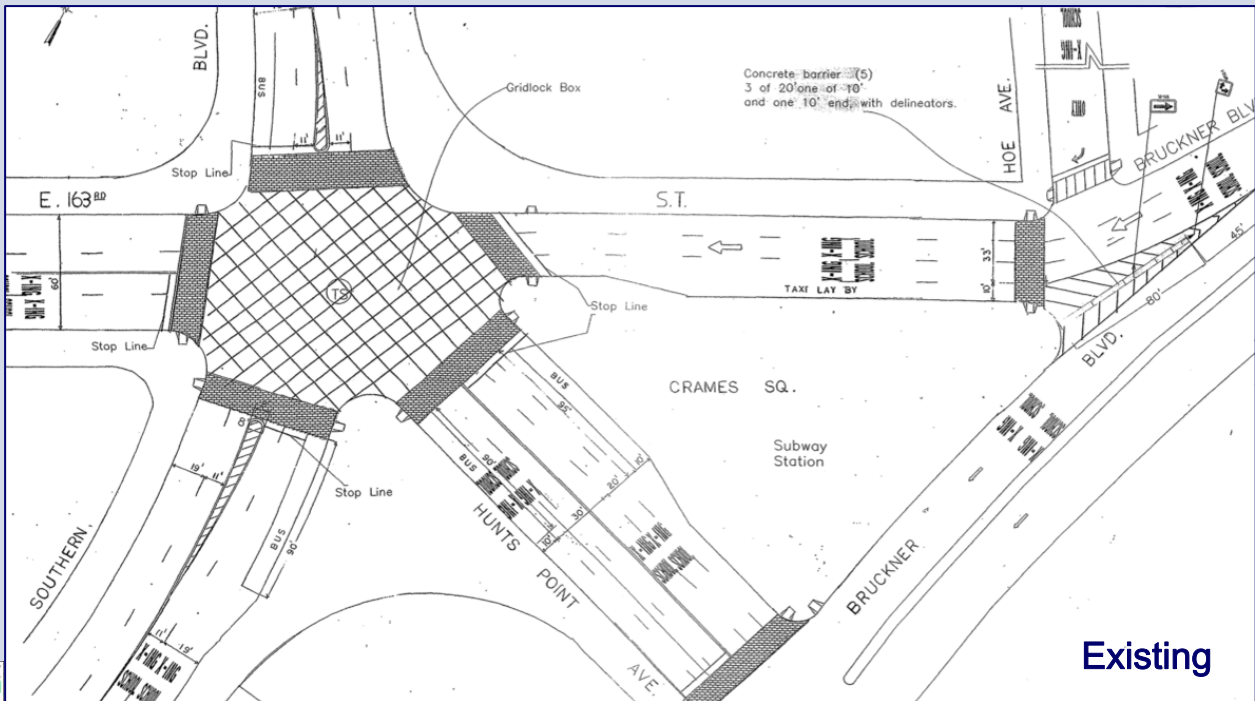
East 163<sup>rd</sup> Street at Hoe Avenue facing east – uncontrolled crosswalk



Southern Boulevard at East 163<sup>rd</sup> Street facing south – long crossing distances



East 163<sup>rd</sup> Street at Crames Square – wide intersection



# Jerome Avenue & East Fordham Road

## 5 Pedestrian Crashes



### Background

- Ranked 17th (tie)
- Five pedestrian crashes in 2007
- Safe Streets for Seniors Area

### Location/Context

- Neighborhood: Fordham/University Heights
- Land Use: Mixed Use, Commercial (retail), & Transportation (elevated subway)
- Bus Routes: BX12 and BX32
- Select Bus Service Route on Fordham Road
- Local Truck Routes: Fordham Road, Jerome Avenue
- No. 4 Subway station

### Issues Identified During Safety Audit

- Heavy vehicle and pedestrian volumes and conflicts
- Missing advance stop bars
- Worn pavement markings



East Fordham Road and Jerome Avenue under the elevated subway



East Fordham Road free right turn onto Jerome Avenue with uncontrolled crossing





## Improvements

- ▲ Refurbish markings
- ▲ Install advance stop bars
- Closure of the eastbound slip from Fordham Road onto southbound Jerome Avenue

■	Planned
▲	Implemented

## Benefits

- Safer pedestrian crossings



Wide right turn from southbound Jerome Avenue onto W. Fordham Rd



Slip ramp from eastbound W. Fordham Rd. onto southbound Jerome Ave

# Brooklyn



# Empire Boulevard & Troy Avenue

## 7 Pedestrian Crashes



### Background

- Ranked 2nd (tie)
- Seven pedestrian crashes in 2007

### Location/Context

- Project area: Empire Boulevard between Bedford Avenue and Utica Avenue
- Neighborhood: Crown Heights/Wingate
- Land Use: Residential, Mixed Use, Commercial (retail) and Industrial
- Bus Routes: B12, B14, B17, B43, and B46
- Local Truck Routes: Empire Boulevard, Rogers Avenue, Nostrand Avenue & East New York Avenue
- Bike Route: Class 2 lanes on Bedford Avenue



High pedestrian crash location of Empire Boulevard and Troy Avenue

### Issues Identified During Safety Audit

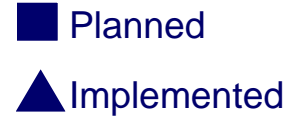
- Empire Boulevard: 60-foot wide roadway with excess capacity and high incidence of speeding
- Vehicles traveling through left turn at high speeds and failing to yield to pedestrians
- Observed speeding on northbound Troy Avenue
- Visibility issues for the northbound to westbound turn from Troy Avenue onto Empire Boulevard
- Low pedestrian visibility on south leg of Troy Avenue
- Difficult for pedestrians to cross Empire Boulevard





## Improvements (All implemented Summer 2009)

- ▲ **Reduce Travel lanes** on Empire Boulevard from two moving lanes in each direction to one in each direction between Bedford Avenue and Utica Avenue
- ▲ **Construct Pedestrian Refuge Islands** on Empire Boulevard at Nostrand, Brooklyn and Schenectady Avenues in the west crosswalks and New York, Kingston and Troy Avenues in the east crosswalks
- ▲ **Create Left Turn Bays** on Empire Boulevard at the intersections of Bedford, Nostrand, Brooklyn, Albany and Schenectady Avenues in the westbound directions and Rogers, New York Avenue, Kingston and Troy Avenues in the eastbound direction
- ▲ **Provide Class 2 Bike Lanes** eastbound and westbound on Empire Boulevard between Bedford Avenue and Utica Avenue
- ▲ **Install Right Turn Bays** in the eastbound direction at Nostrand, Troy and Schenectady Avenues
- ▲ **Install Bike Box** on Empire Boulevard at Bedford Avenue, eastbound
- ▲ **Install 10' Advance Stop Bars** at all approaches on Empire Boulevard
- ▲ **Upgrade crosswalks to High Visibility** along Empire Boulevard at the intersections of Rogers, Brooklyn and Kingston Avenues
- ▲ **Provide Angle Parking** on Lefferts Avenue between Schenectady Avenue and Utica Avenue



## Benefits

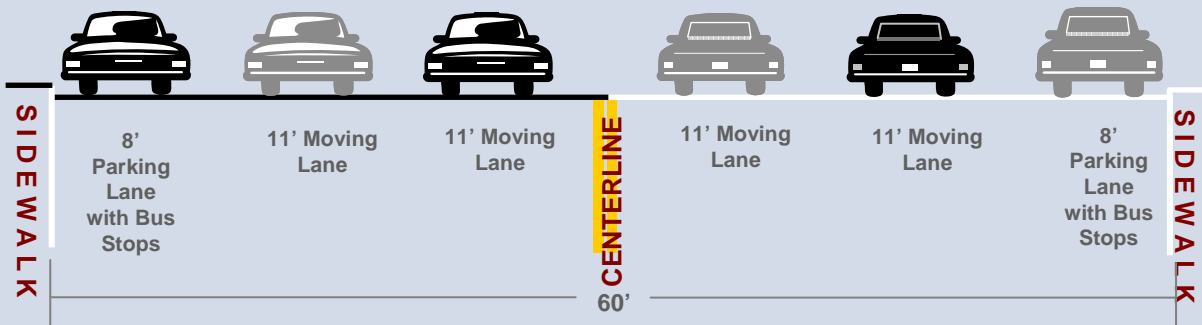
- Traffic calmed on Empire Boulevard and Lefferts Avenue
- Safer pedestrian crossings
- More organized traffic flow
- Expanded bike network
- Additional on-street angle parking

# Empire Boulevard & Troy Avenue

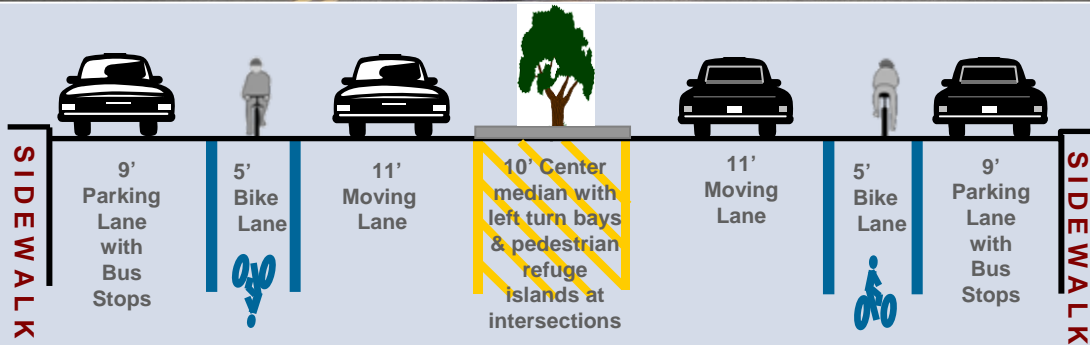
Top 20 High Pedestrian Crash Locations: 2007

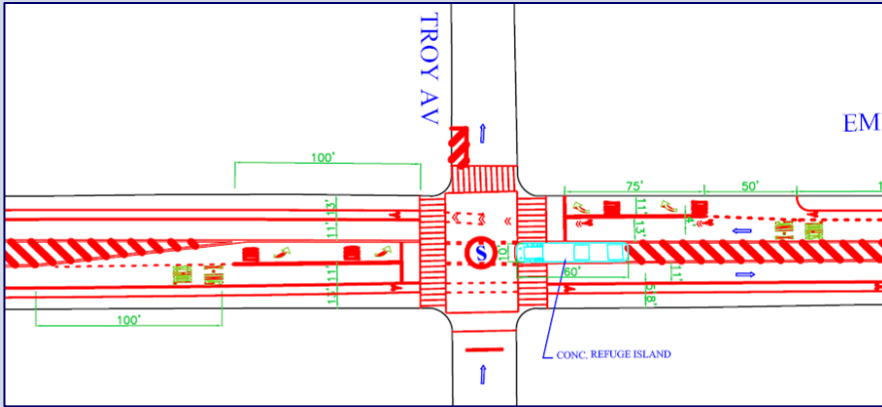
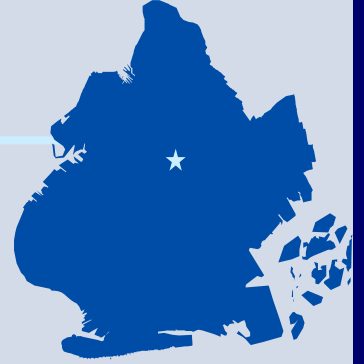


Before Conditions Along the Corridor - Empire and Nostrand, facing West



After Conditions Along the Corridor - Empire and Nostrand, facing West

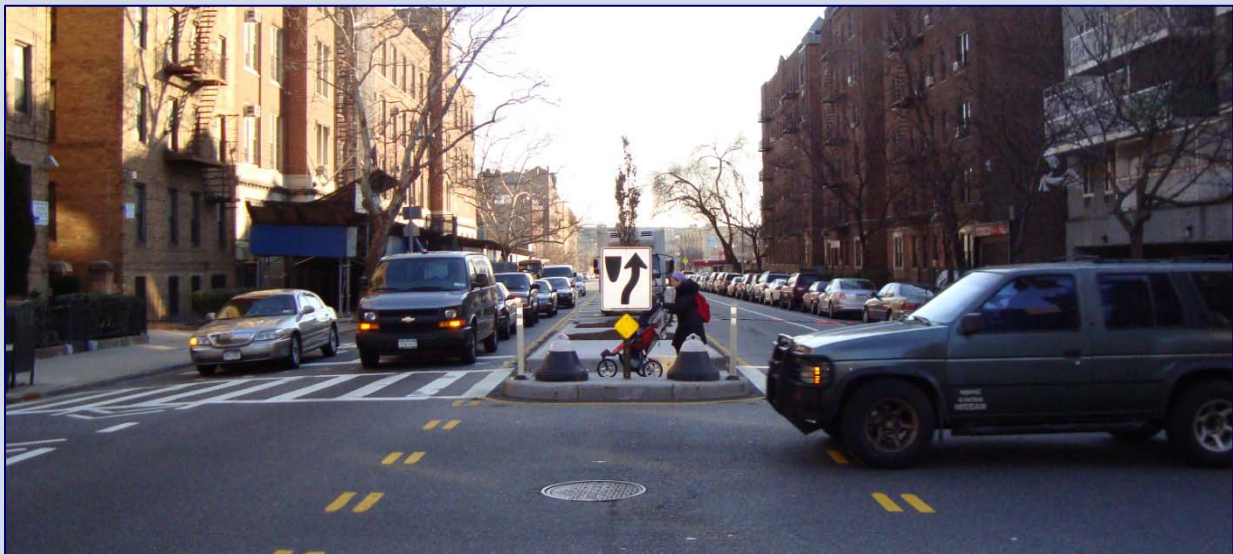




The Plan



BEFORE: Empire Boulevard at Troy Avenue facing east, Wide open lanes with excess capacity



AFTER: Empire Boulevard at Troy Avenue facing east, Traffic aligned and pedestrians protected



# Flatlands Avenue & Ralph Avenue

## 6 Pedestrian Crashes

### Background

- Ranked 9<sup>th</sup> (tie)
- Six pedestrian crashes in 2007

### Location/Context

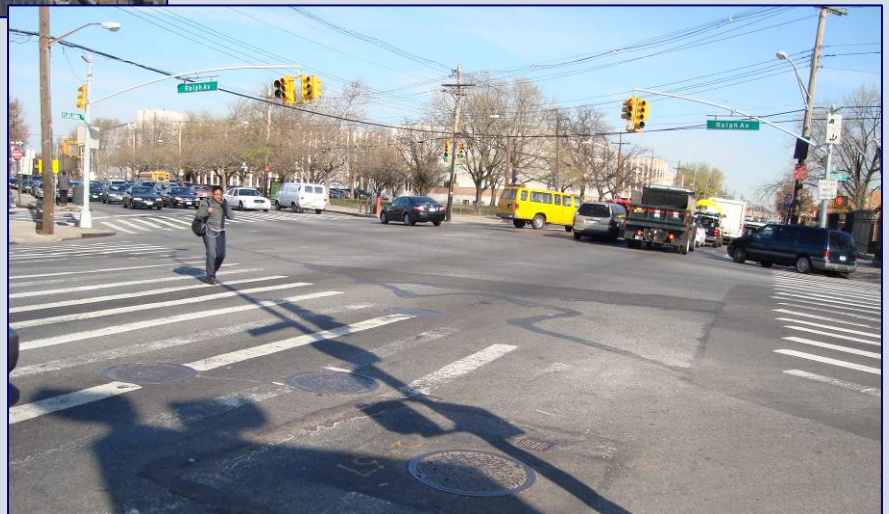
- Neighborhood: Canarsie
- Land Use: Institutional, Commercial and Industrial
- Bus Routes: B6 and B82
- Local Truck Routes: Flatlands Avenue & Ralph Avenue
- Bike Routes: Class 2 lanes on East 56th Street, Class 3 facility on Avenue I



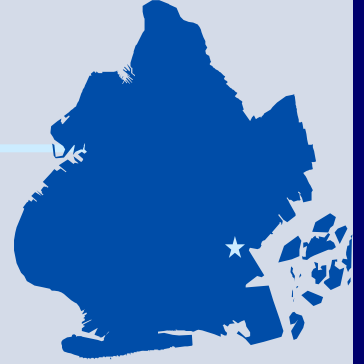
Flatlands Avenue and Ralph Avenue

### Issues Identified During Safety Audit

- Skewed crosswalks
- Northbound to eastbound right turning vehicles failing to yield to pedestrians at excessive speeds
- Northbound to eastbound right turning vehicles illegally use middle lane to bypass right-turning queue, overtaking legal right turning vehicles



Flatlands Avenue and Ralph Avenue facing northeast – wide intersection



## Improvements

- ▲ Refurbish Markings
- Convert Paerdegat Avenue South to 1-way northbound
- Remove Right-turn signal from southbound Paerdegat Avenue
- Shorten crosswalks
- ▲ Realign north crosswalk (currently skewed) with markings
- Install Peg-a-Tracs for all left turning movements
- Install signal timing modifications to benefit pedestrians
- Regrade roadway at southwest corner

■	Planned
▲	Implemented

## Benefits

- Reduce vehicle/vehicle and vehicle/pedestrian conflicts
- Provide shorter, safer pedestrian crossing on all crosswalks
- Slow turning vehicles
- Realignment better separates vehicles and pedestrian
- Reduce accumulation of standing water
- Better manage traffic
- Improve visibility



West crosswalk of Flatlands Avenue and Ralph Avenue facing north – heavy vehicle volumes



Flatlands Avenue and Ralph Avenue facing north – long crossing distances



# Flatbush Avenue Extension & DeKalb Avenue

## 6 Pedestrian Crashes

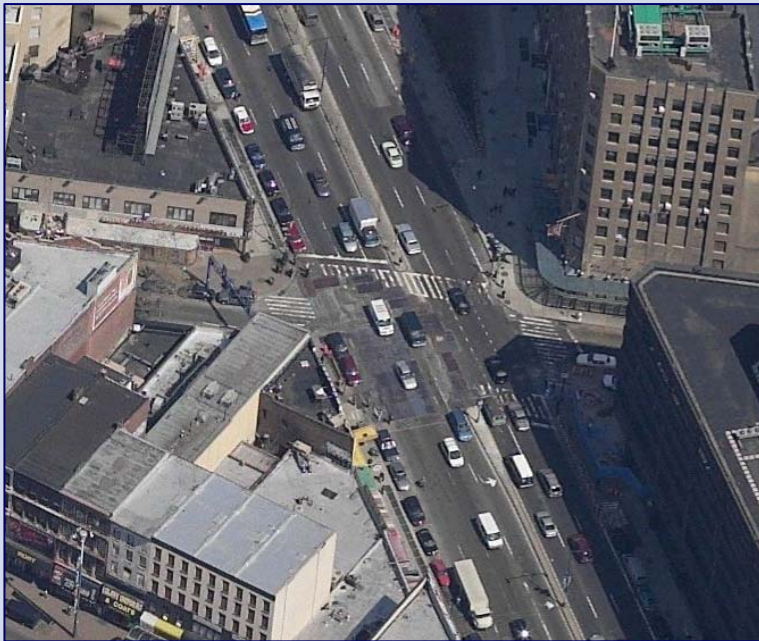


### Background

- Ranked 9<sup>th</sup> (tie)
- Six pedestrian crashes in 2007

### Location/Context

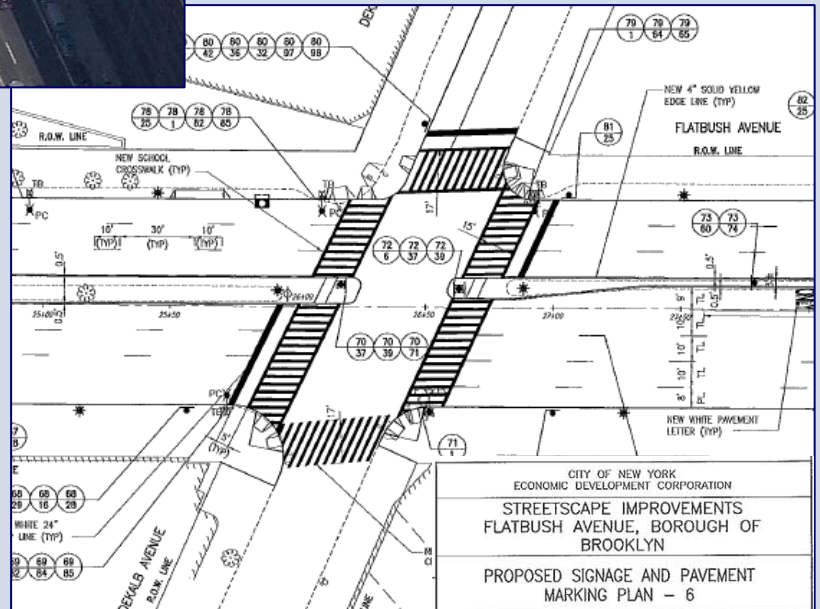
- Neighborhood: Downtown Brooklyn
- Land Use: Institutional, Commercial and Mixed Use
- Bus Routes: B54 and B38
- Local Truck Routes: Flatbush Avenue, DeKalb Avenue
- Bike Routes: Class Two lanes on DeKalb Avenue, Ashland Place with Bike Parking Shelter
- B, M, Q, R, 2, 3, 4 & 5 Subway Stations



Flatbush Avenue Extension and DeKalb Avenue

### Issues

- Long and difficult crossing on Flatbush Avenue Extension
- High volume of westbound vehicles turning onto Flatbush Avenue Extension failing to yield to pedestrians
- Heavy pedestrian and vehicle volumes



EDC Proposed Plan





## Improvements (Capital improvements part of EDC project 2010-2011\*)

- ▲ Refurbish Signs
- Widen sidewalk at north, south sidewalk (road width reduction) on DeKalb Avenue at westbound approach to Flatbush Avenue
- Widen sidewalk (road width reduction) on east side of Flatbush Avenue Extension north of DeKalb Avenue
- Construct median tip at south leg crosswalk median
- Install signal timing modifications to benefit pedestrians



## Benefits

- Slow turning vehicles
- Provide safer pedestrian crossing
- Allow more conflict-free crossing time for pedestrians



Flatbush Avenue Extension at DeKalb Avenue facing south – a median tip will be extended through the crosswalk to provide more pedestrian protection



DeKalb Avenue and Flatbush Avenue Extension facing southeast – DeKalb road width will be reduced and sidewalks widened



# Linden Boulevard & Nostrand Avenue

## 6 Pedestrian Crashes

### Background

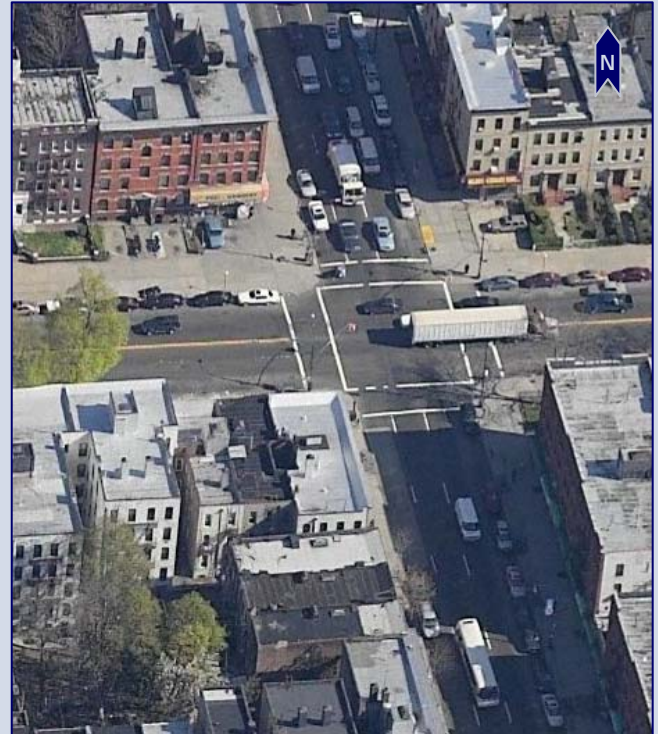
- Ranked 9<sup>th</sup> (tie)
- Six pedestrian crashes in 2007
- Nostrand Avenue is planned Bus Rapid Transit (BRT) Route

### Location/Context

- Neighborhood: Flatbush
- Land Use: Mixed Use and Residential
- Bus Route: B44
- Local Truck Routes: Linden Boulevard, Nostrand Avenue
- No. 2 & 5 Subway lines

### Issues Identified During Safety Audit

- Heavy southbound turning movements
- Heavy truck volumes



Linden Boulevard and Nostrand Avenue



Linden Boulevard and Nostrand Avenue north crosswalk – possible neckdown treatment



Linden Boulevard and Nostrand Avenue facing north – peg-a-trac will help guide turning movements



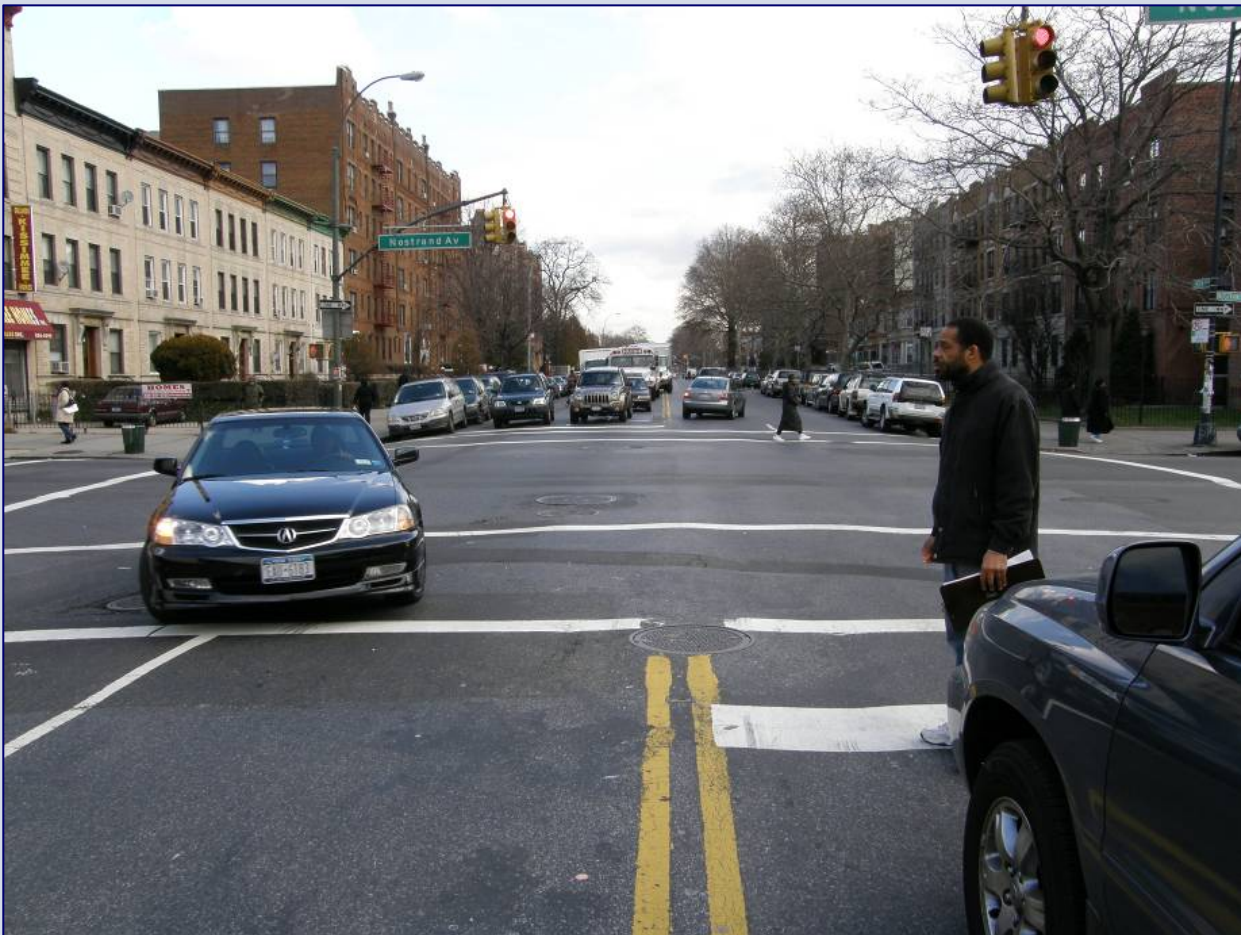
## Improvements

- Install **neckdowns** to shorten crossing distances at all four corners
- ▲ Install **high visibility crosswalks** at all legs of intersection
- ▲ Install **advance stop bars** at all approaches

## Benefits

- Provide safer, shorter pedestrian crossings
- Slow turning vehicles
- Calm through traffic
- Provide additional parking
- Reduce pedestrian crossing wait times

■	Planned
▲	Implemented



Linden Boulevard at Nostrand Avenue facing east – LPIs help pedestrians establish themselves in the crosswalk, making it easier for turning vehicles to see them.



# Flatbush Avenue & Avenue H

## 6 Pedestrian Crashes

### Background

- Ranked 9<sup>th</sup> (tie)
- Six pedestrian crashes in 2007

### Location/Context

- Neighborhood: Flatbush/Midwood
- Land Use: Mixed Use and Commercial with large Target Store on SW corner
- Bus Routes: B41, B44, B103, BM2 and Q35
- Local Truck Route: Flatbush Avenue
- Bike Route: Class 3 facility on Avenue I
- No. 2 & 5 Subway stations



Flatbush Avenue and Avenue H

### Issues Identified During Safety Audit

- Multi-legged, skewed intersection
- Westbound to southbound left turning vehicles into skewed crosswalk
- Failure to yield to pedestrians
- Long pedestrian crossing distance at the north crosswalk of Flatbush Avenue and Avenue H
- Wide approach to East 31<sup>st</sup> Street is an uncontrolled and free-right turn with no crosswalk encourages speeding and wide turns
- High incidence of mid-block pedestrian crossings on Flatbush Avenue between Avenue H and Nostrand Avenue



Flatbush Avenue and Avenue H facing south – Target department store generates heavy volumes of pedestrian traffic at this busy intersection







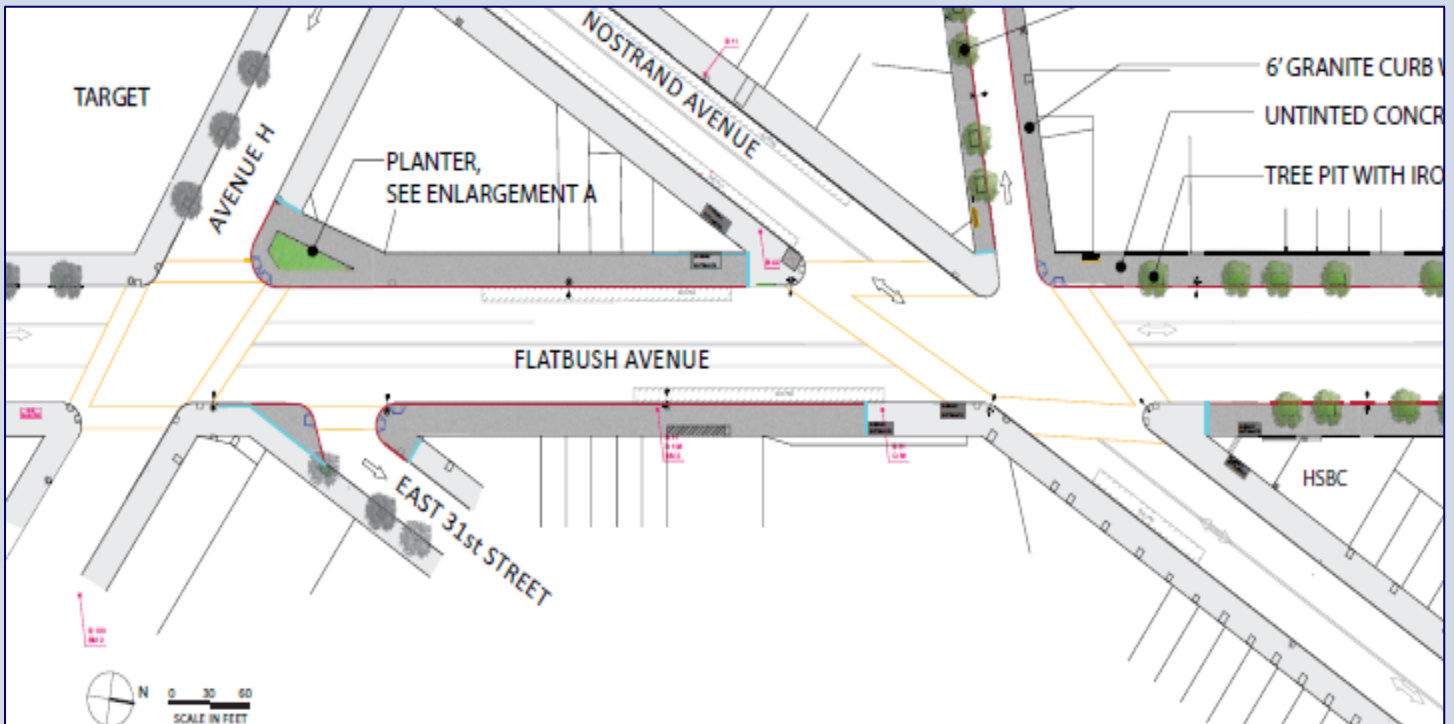
**Improvements** (will be installed as part of EDC Flatbush Junction project in 2010)

- ▲ **Construct neckdown** in west crosswalk of Avenue H at E. 31<sup>st</sup> Street
- ▲ **Install “Yield to Pedestrians in Crosswalk”** signage at East 31<sup>st</sup> Street
- **Extend curb** on northwest corner of Flatbush Avenue and Avenue H across the existing slip ramp and striped area with large planting bed
- **Install left turn bay** on the westbound approach of Avenue H
- **Install granite curbs and street trees**

■	Planned
▲	Implemented

## Benefits

- Slower turns through uncontrolled pedestrian crossing
- Provide more pedestrian space at busiest pedestrian crossing site and mall entrance
- Create shorter, safer pedestrian crossing of Flatbush Avenue
- Better manage traffic



# Flatbush Avenue & Avenue H (Cont.)



Flatbush Avenue and East 31<sup>st</sup> Street facing north – construction of a neckdown and installation of crosswalk will provide more protection for pedestrians from turning vehicles



Flatbush Avenue and Avenue H facing north – current painted slip configuration provides no protection to pedestrians waiting to cross Flatbush Avenue

# Flatbush Avenue & Willoughby Street

## 6 Pedestrian Crashes



### Background

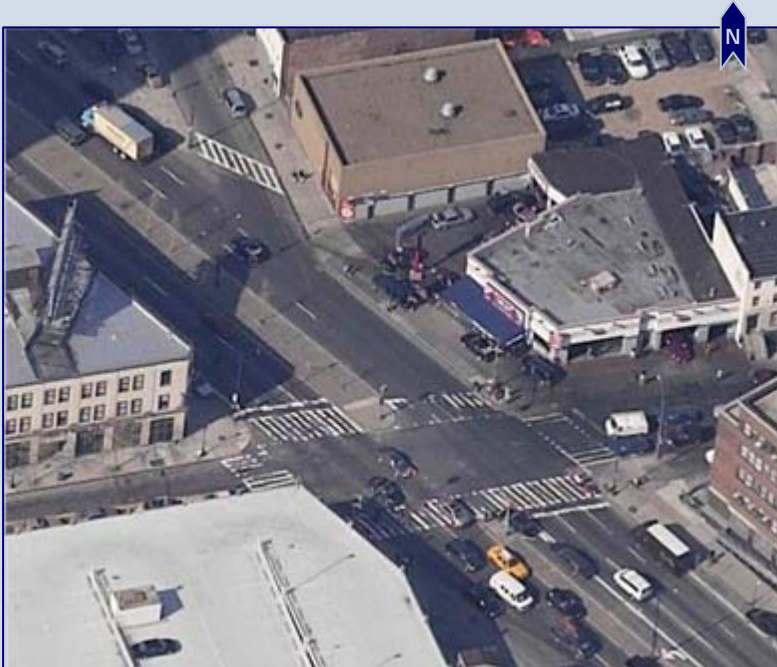
- Ranked 9<sup>th</sup> (tie)
- Six pedestrian crashes in 2007

### Location/Context

- Neighborhood: Downtown Brooklyn
- Land Use: Institutional, Commercial & Mixed Use
- Bus Route: B54, B57 and B61
- Local Truck Route: Flatbush Avenue and Myrtle Avenue

### Issues Identified During Safety Audit

- Skewed crosswalks create dangerous condition for pedestrians and turning vehicles
- Long crosswalks
- Low yield compliance at unsignalized southeast corner of intersection



Flatbush Avenue and Willoughby Street



Flatbush Avenue at Willoughby Street facing south – long crossing distance with no protection at median from turning vehicles

# Flatbush Avenue & Willoughby Street (Cont.)



## Improvements (Capital improvements part of EDC project 2010-2011\*)

-  Refurbish Markings
-  Widen Willoughby Street west of Flatbush Avenue Extension
-  Install pedestrian refuge island in newly widened portion of Willoughby Street
-  Extend south leg crosswalk median into protected crosswalk
-  Expand northwest corner crosswalk
-  Skew west leg crosswalk away from southbound vehicles
-  Install pedestrian ramps
-  Install Leading pedestrian interval (LPI) traffic signal phase across Flatbush Avenue

 Planned
 Implemented

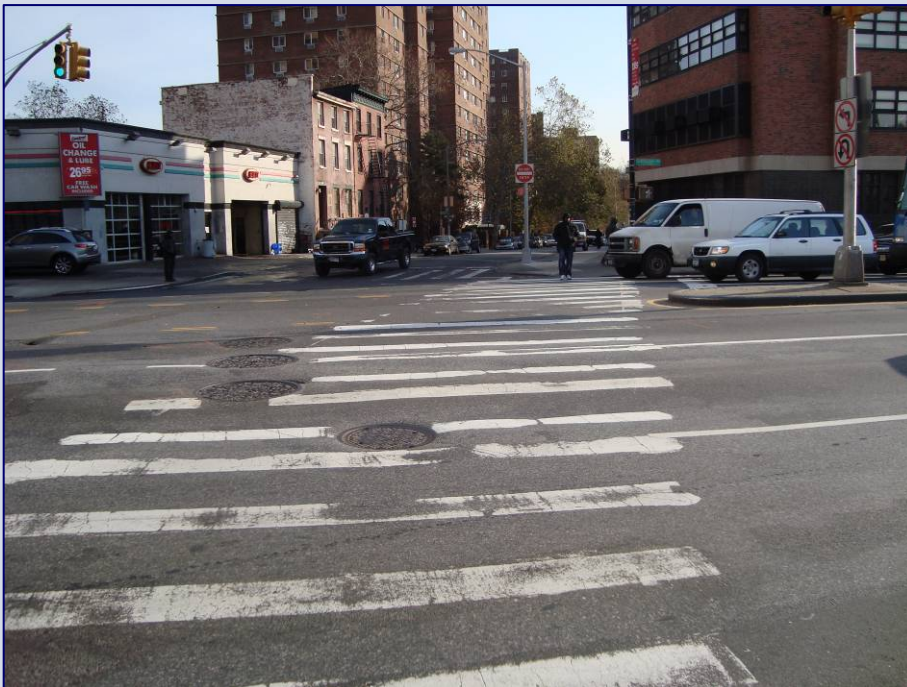
## Benefits

- Provide safer, shorter pedestrian crossings
- Less pedestrian/vehicular conflict
- More accessible sidewalks





Northwest corner of Flatbush Avenue and Willoughby Street – heavy pedestrian and vehicle volumes



Skewed south crosswalk of Flatbush Avenue and Willoughby Street facing east

# Church Avenue & Ocean Avenue

## 5 Pedestrian Crashes



### Background

- Ranked 17<sup>th</sup> (tie)
- Five pedestrian crashes in 2007
- Intersection is part of the Church Avenue Congested Corridors Study

### Location/Context

- Neighborhood: Prospect Park South
- Land Use: Mixed Use & Commercial (Retail)
- Bus Route: B35
- Local Truck Route: Church Avenue

### Issues Identified During Safety Audit

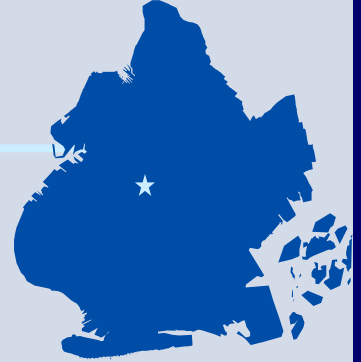
- Ocean Avenue is a wide two-lane roadway that is difficult for pedestrians to cross due to high volumes of turning vehicles
- Vehicular/pedestrian conflicts due to heavy vehicle volumes and turning movements



Ocean Avenue and Church Avenue



Ocean Avenue Island – This island implemented in 2009 gives pedestrians protection from turning vehicles and a safe place to wait if they are unable to cross the street in one cycle.



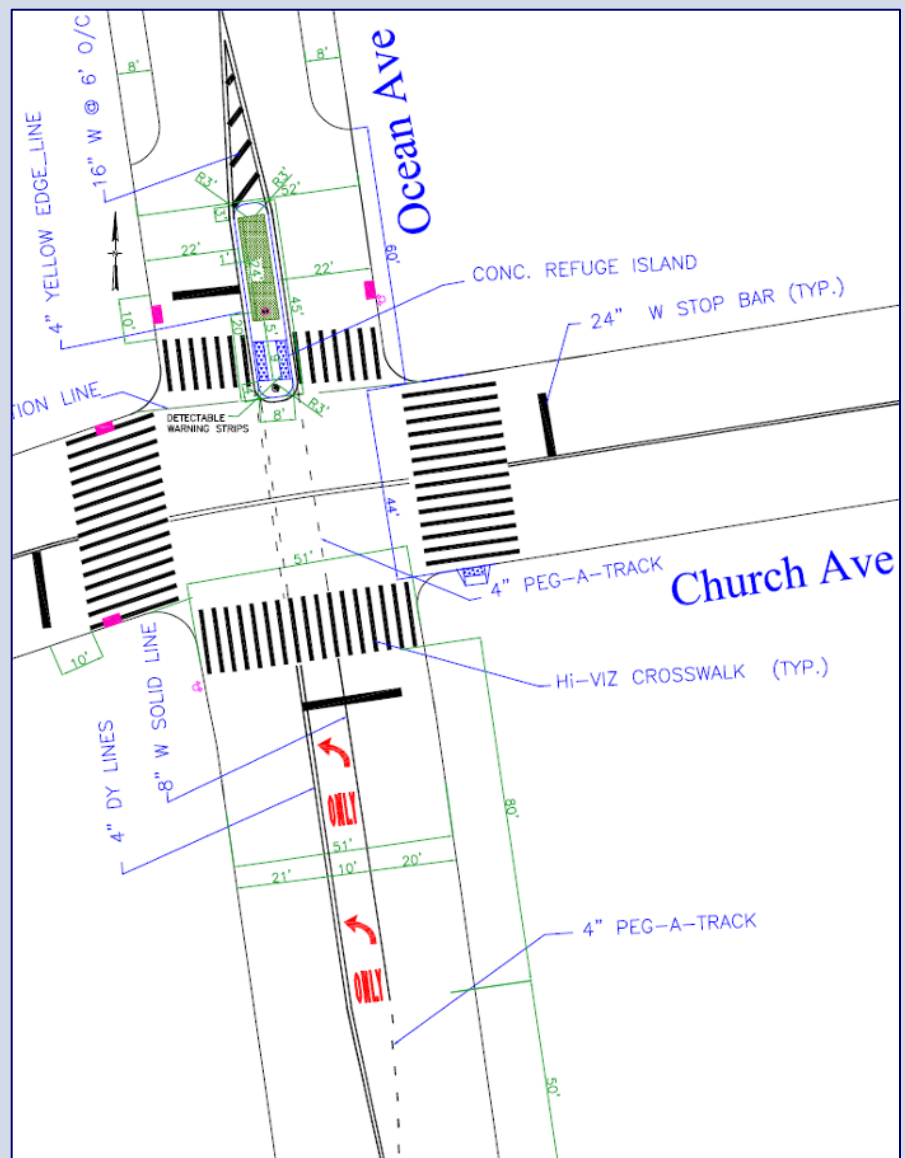
## Improvements

- ▲ **Green Pedestrian Refuge Island** in north crosswalk on Ocean Avenue
- ▲ **Daylight Corners** (remove parking) to provide space for vehicles to maneuver around cars waiting to make turns
- ▲ **Upgrade to High Visibility Crosswalks** and install **Advance Stop Bars** at all approaches
- ▲ **Install Left Turn Bay** for northbound Ocean in combination with refuge island

<span style="display: inline-block; width: 15px; height: 15px; background-color: #000080; border: 1px solid black;"></span>	Planned
<span style="display: inline-block; width: 15px; height: 15px; background-color: #000080; clip-path: polygon(50% 0%, 61% 35%, 98% 35%, 68% 57%, 79% 91%, 50% 70%, 21% 91%, 32% 57%, 2% 35%, 39% 35%); border: 1px solid black;"></span>	Implemented

## Benefits

- Provide safer, shorter pedestrian crossings
- Create better vehicle and pedestrian sightlines
- Organize traffic flow
- Reduce vehicle/pedestrian conflicts



Proposed Conditions



# Church Avenue & Ocean Avenue (Cont.)

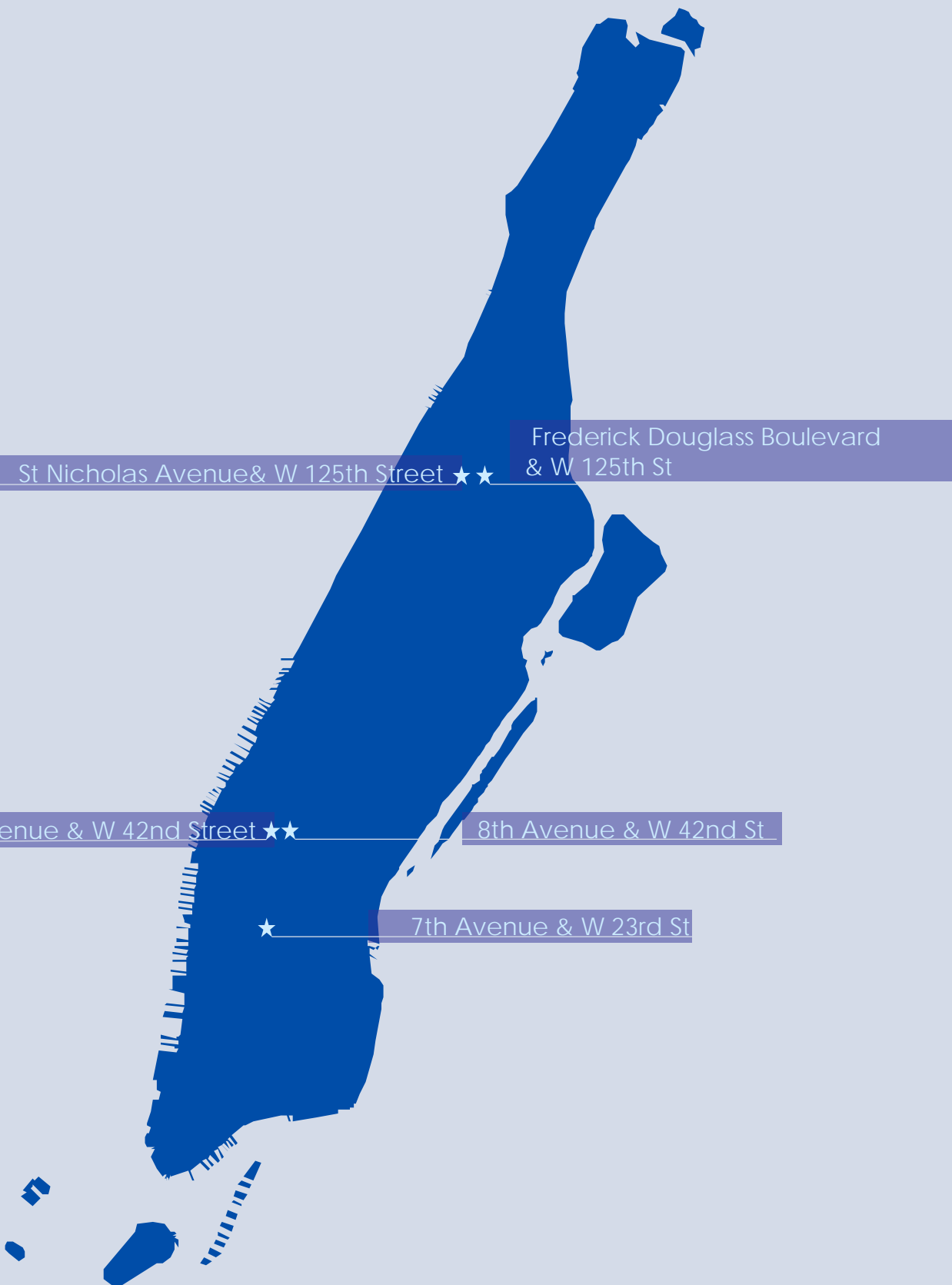


Ocean Avenue at Church Avenue facing south – heavy traffic volumes on Ocean Avenue



Ocean Avenue at Church Avenue facing north – wide travel lanes

# Manhattan



# 8th Avenue & West 42nd Street

## 11 Pedestrian Crashes

### Background

- Ranked 1st
- Eleven pedestrian crashes in 2007

### Location/Context

- Neighborhood: Times Square/Midtown
- Land Use: Mixed Use & Commercial (office and retail)
- Bus Routes: M10, M16, M20, M27, M104
- Local Truck Route: 9th Avenue, West 42nd Street
- A, C & E Subway Station
- Port Authority Bus Terminal
- Bike Route: Class 2 lanes on 8<sup>th</sup> Avenue
- Midtown West Senior Pedestrian Focus Area
- Hell's Kitchen Area wide Planning Study

### Issues Identified During Safety Audit

- High pedestrian and vehicle volumes
- Long crossing distance for pedestrians on all crosswalks
- Vehicle / Pedestrian conflicts
- Taxi stand

### Implementation

- ▲ Refurbish Markings
- Shortened crossing

■	Planned
▲	Implemented





# 9th Avenue & West 42nd Street

## 7 Pedestrian Crashes

### Background

- Ranked 2<sup>nd</sup> (tied)
- Seven pedestrian crashes in 2007



### Location/Context

- Neighborhood: Hell's Kitchen
- Land Use: Mixed Use, Residential & Commercial (office and retail)
- Bus Routes: M11, M16, M42
- Local Truck Routes: 9th avenue, West 42nd Street
- Bike Route: Class 2 lanes on 8<sup>th</sup> Avenue, proposed lanes on West 40th Street & West 39th Street
- Midtown West Senior Pedestrian Focus Area
- Hell's Kitchen Area wide Planning Study

### Issues Identified During Safety Audit

- High pedestrian and vehicle volumes
- Long crossing distance for pedestrians on all crosswalks
- Heavy turn volumes toward Lincoln Tunnel

### Implementation

- Install left turn bay for westbound 42<sup>nd</sup> Street
- Modify signal to provide lagging left turn and through phase for westbound 42<sup>nd</sup> Street instead of leading left turn and through

■	Planned
▲	Implemented

### Benefits

- Allows platoon of pedestrians to cross the street before left turns are made
- Provides safer pedestrian crossing

# St. Nicholas Avenue & West 125<sup>th</sup> Street

## 7 Pedestrian Crashes

### Background

- Ranked 2<sup>nd</sup> (tie)
- Seven pedestrian crashes in 2007

### Location/Context

- Neighborhood: Harlem
- Land Use: Mixed Use, commercial & residential
- Bus Routes: M18, M60, M100, M101, M103 and Bx15
- Local Truck Route: West 125th Street
- Bike Route: Class 2 lanes on St. Nicholas

### Issues

- High pedestrian volumes
- Left turns are banned at rush hour but heavy vehicular/pedestrian conflict at other times
- Faded markings

### Implementation

- ▲ Refurbish intersection markings
- Install Neckdowns to shorten crossing distances

- Planned
- ▲ Implemented



North crosswalk of St. Nicholas Avenue and West 125<sup>th</sup> Street facing east – pedestrians and turning vehicles in constant conflict



West 125<sup>th</sup> Street at St. Nicholas Avenue facing west - despite left turn restrictions, vehicles still make turns.



# St. Nicholas Avenue & West 125<sup>th</sup> Street (Cont.)



St. Nicholas Avenue at West 125<sup>th</sup> Street facing north – Heavy vehicle volumes



St. Nicholas Avenue at West 125<sup>th</sup> Street facing north – Long crossing distances



# Frederick Douglass Boulevard & West 125<sup>th</sup> Street

## 7 Pedestrian Crashes

### Background

- Ranked 2<sup>nd</sup> (tie)
- Seven pedestrian crashes in 2007

### Location/Context

- Neighborhood: Harlem
- Land Use: Mixed Use and Commercial
- Bus Routes: M10, M60, M100, M101 and Bx15
- Local Truck Route: West 125th Street



Frederick Douglass Boulevard and West 125<sup>th</sup> Street

### Issues Identified During Safety Audit

- High pedestrian volumes
- Existing peak hour left turn bans but heavy vehicular/pedestrian conflicts exist at other times
- Faded markings
- Long pedestrian crossing distances
- Bus stops at intersection limit visibility of crossing pedestrians for right turning vehicles



West 125<sup>th</sup> Street at Frederick Douglass Boulevard facing south – Turning vehicles and pedestrians in constant conflict

# Frederick Douglass Boulevard & West 125<sup>th</sup> Street (Cont.)



## Improvements

■	Planned
▲	Implemented

- ▲ Refurbish markings
- Install LPI
- Shortened crossing
- Ban left turns from Frederick Douglass Boulevard at all times
- Relocate bus stop from near to far side on Frederick Douglass Boulevard

## Benefits

- Provide safer and shorter pedestrian crossing of Frederick Douglass Boulevard
- Allow more conflict-free pedestrian crossing time
- Organize traffic flow and visibility
- Reduce vehicle/vehicle and vehicle/pedestrian conflicts
- Create greater pedestrian visibility for right turning vehicles



Frederick Douglass Boulevard at West 125<sup>th</sup> Street facing east – long crossing distance



Frederick Douglass Boulevard at West 125<sup>th</sup> Street facing north – Many area residents frequently use bus services, crossing the wide boulevard to do so.

# 7th Avenue & West 23rd Street

## 6 Pedestrian Crashes

### Background

- Ranked 9th (tie)
- Six pedestrian crashes in 2007

### Location/Context

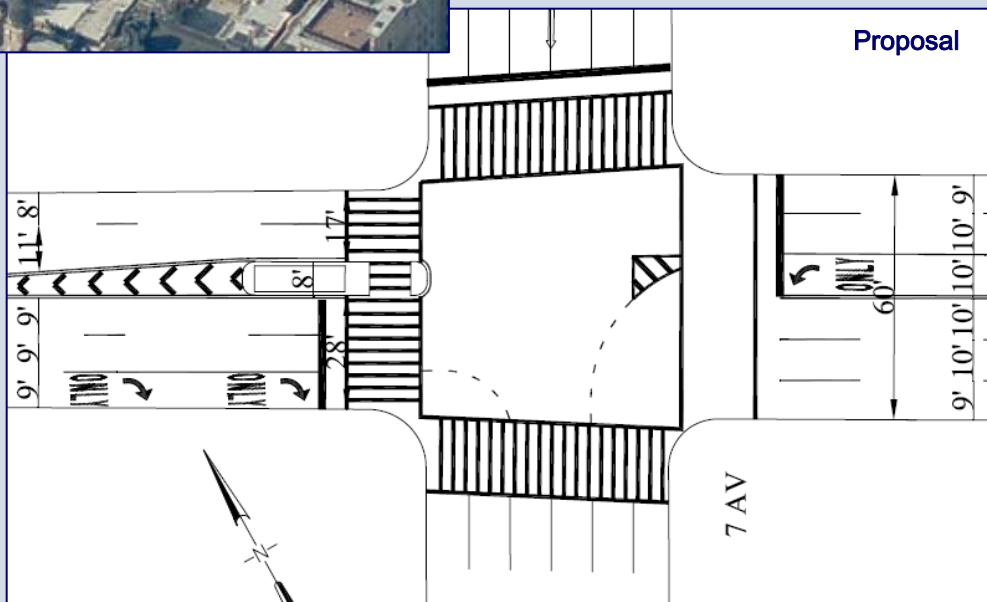
- Neighborhood: Chelsea
- Land Use: Mixed Use, Commercial & Residential
- Bus Routes: M20, M23
- Local Truck Routes: 7th Avenue and West 23rd Street
- Bike Route: Class 1 lanes on 8th Avenue, Class 2 lanes on 6<sup>th</sup> Avenue, West 21<sup>st</sup> Street and West 20<sup>th</sup> Street
- No. 1 Subway Station
- Safe Routes to School Crossing



7<sup>th</sup> Avenue and East 23<sup>rd</sup> Street

### Issues Identified During Safety Audit

- Vehicle/Pedestrian conflicts
- Heavy vehicle and pedestrian volumes



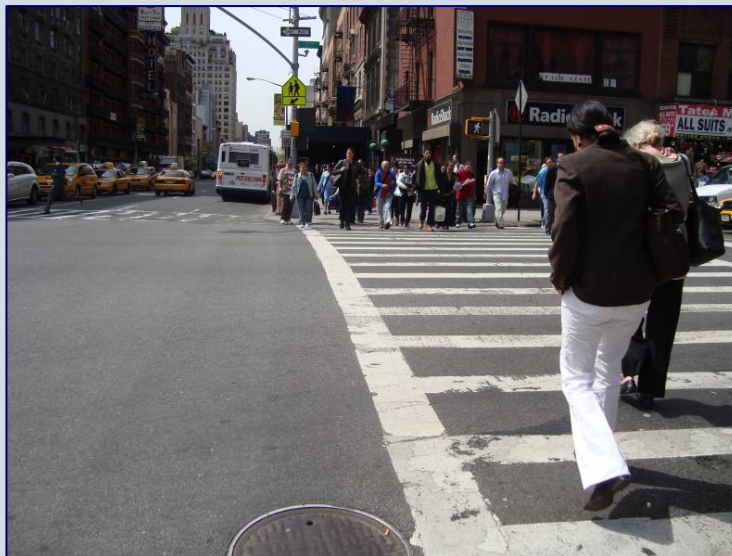


# 7th Avenue & West 23rd Street (Cont.)

## Improvements

- ▲ Refurbish markings and signs
- Ban left turns for westbound approach at all times
- Modify Signal Timing to provide protected crossing phases
- Install right turn lane for southbound and eastbound traffic
- ★ Additional audible signals to be installed

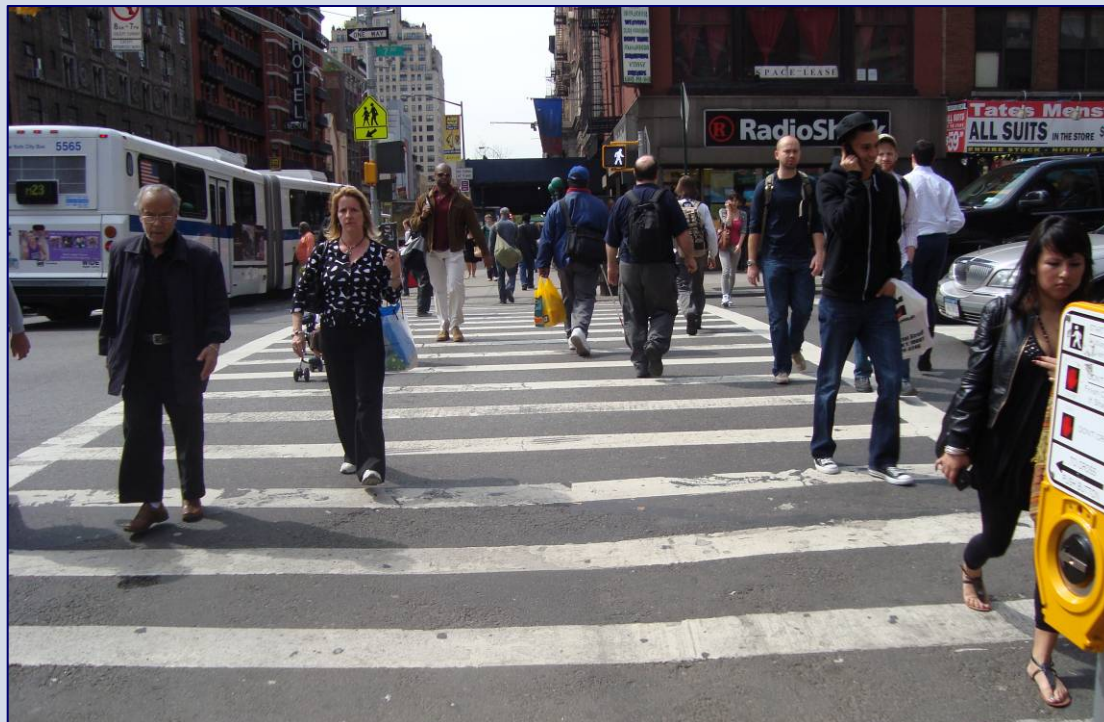
■	Planned
▲	Implemented
★	Under Study



North crosswalk of 7<sup>th</sup> Avenue and West 23<sup>rd</sup> Street facing west

## Benefits

- Provide safer pedestrian crossings
- Organize traffic flow
- Provides protected crossing opportunities



North crosswalk of 7<sup>th</sup> Avenue and West 23<sup>rd</sup> Street facing west – heavy pedestrian volumes and existing audible signal

# Queens



# Booth Memorial Avenue & Main Street

## 7 Pedestrian Crashes

### Background

- Ranked 2<sup>nd</sup> (tie)
- Seven pedestrian crashes in 2007

### Location/Context

- Neighborhood: Queensboro Hill
- Land Use: Commercial (Retail) with Hospital on northeast corner
- Bus Routes: Q20A, Q20B, Q44 and X51
- Local Truck Route: Main Street

### Issues Identified During Safety Audit

- Vehicles traveling through left turn at excessive speed and failing to yield to pedestrians
- Loitering cabs parked in travel lanes
- Skewed crosswalks



Booth Memorial Avenue and Main Street



Booth Memorial Avenue at Main Street facing west – Skewed crosswalks create long crossing distances





## Improvements

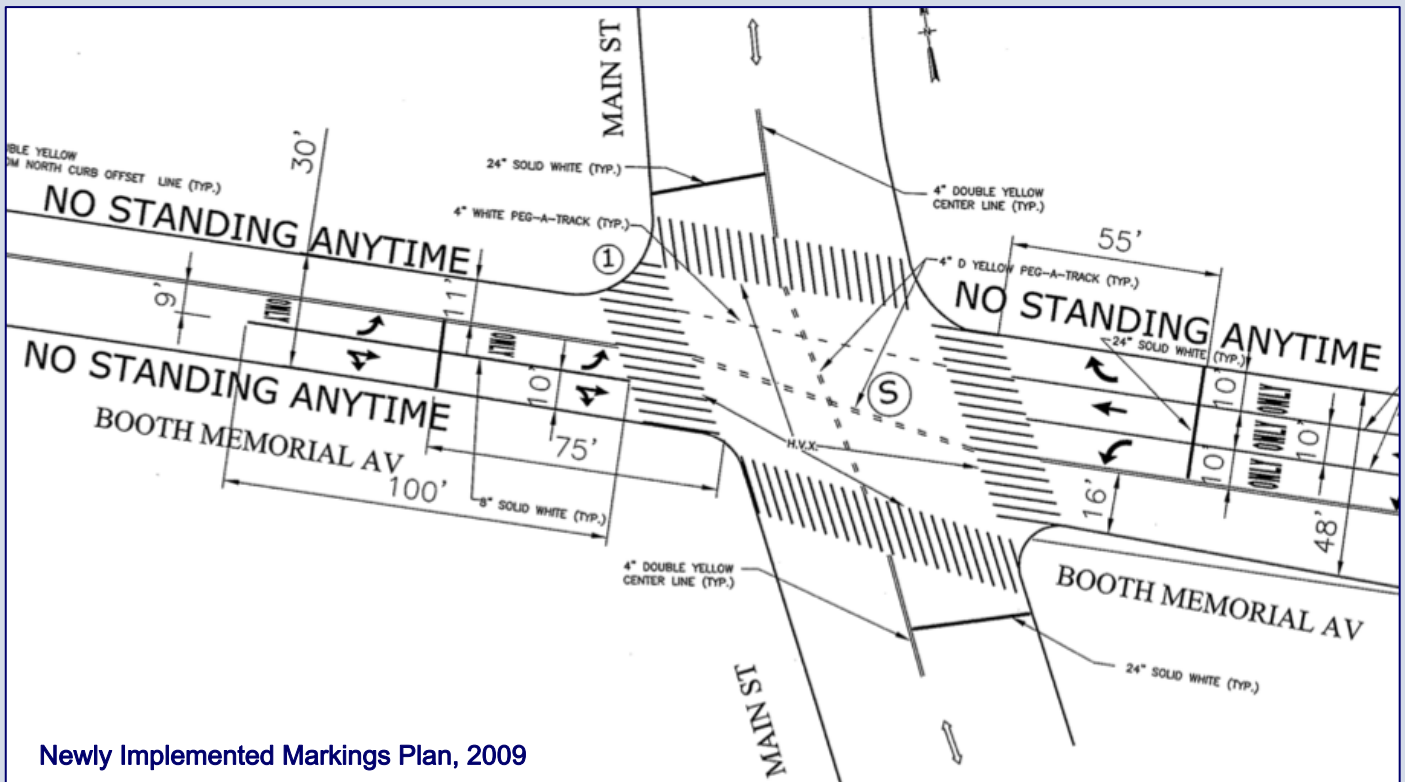
- ▲ Upgrade to High Visibility Crosswalks at all approaches
- ▲ Install Advance Stop Bars at all approaches
- ▲ Install “Yield to Pedestrian” Signage
- ▲ Install Lane Designation Markings for eastbound and westbound directions
- ▲ Install Midblock crossing and signal on Booth Memorial Avenue in front of hospital entrance between Main Street and 141 Street

■ Planned

▲ Implemented

## Benefits

- Provide safer pedestrian crossings
- Organize traffic flow



Newly Implemented Markings Plan, 2009

# Parsons Boulevard & Archer Avenue

## 6 Pedestrian Crashes

### Background

- Ranked 9th (tie)
- Six pedestrian crashes in 2007

### Location/Context

- Neighborhood: Jamaica Center
- Land Use: Commercial (Retail) and Institutional
- Bus Route: Q20A, Q20B, Q24, Q25, Q30, Q31, Q34, Q44, Q65, Q83, Q111, Q112, Q113
- E, J and Z Subway Station and Long Island Railroad
- Bike Route: Proposed Class 2 lane on 160<sup>th</sup> Street



Parsons Boulevard and Archer Avenue

### Issues Identified During Safety Audit

- Archer Avenue is a 60-foot wide road with a long pedestrian crossing
- Double parked commuter vans stand on east side of Parsons Boulevard
- Diagonal pedestrian crossings from southwest to northeast corners
- Narrow sidewalk and little pedestrian storage at northeast subway exit/bus stop
- Southbound left and right turning vehicles onto Archer Avenue failing to yield to pedestrians



North crosswalk of Parsons Boulevard and Archer Avenue facing east – Pedestrians must cross five lanes of traffic, an LPI would give them a head start



## Improvements (All Implemented Fall 2008)

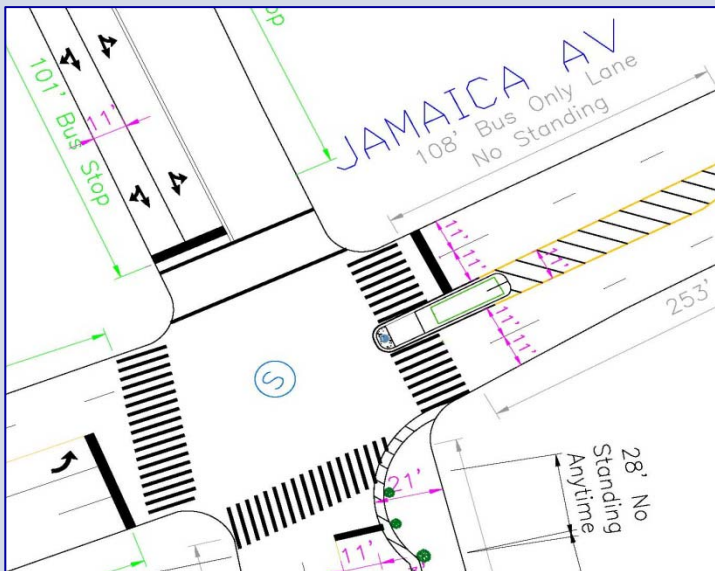
- ▲ Narrowed Parsons Boulevard between Archer and Jamaica Avenues
- ▲ Installed “painted sidewalk extension” on Parsons Boulevard
- ▲ Installed Leading Pedestrian Interval (LPI) for Archer Avenue
- ▲ Banned left turn from westbound Jamaica Avenue onto southbound Parsons Boulevard and installed pedestrian refuge island
- ▲ Extended bus stop on Parsons Blvd. north of the Jamaica Avenue intersection by 20 feet
- ▲ Refurbished Markings

■ Planned

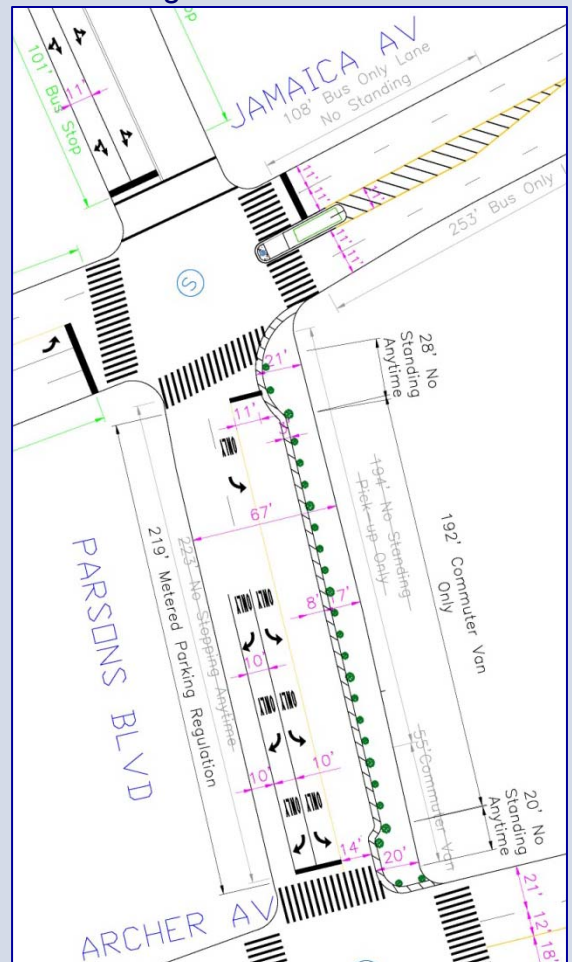
▲ Implemented

## Benefits

- Created additional pedestrian space for overcrowded sidewalks
- Provided additional space for commuter van pick up/drop off
- Provided shorter, safer pedestrian crossings
- Reduced vehicle/pedestrian conflicts
- Prevented bus stops from queuing in the pedestrian crossing



New Design



New Design





### Before & After Photos



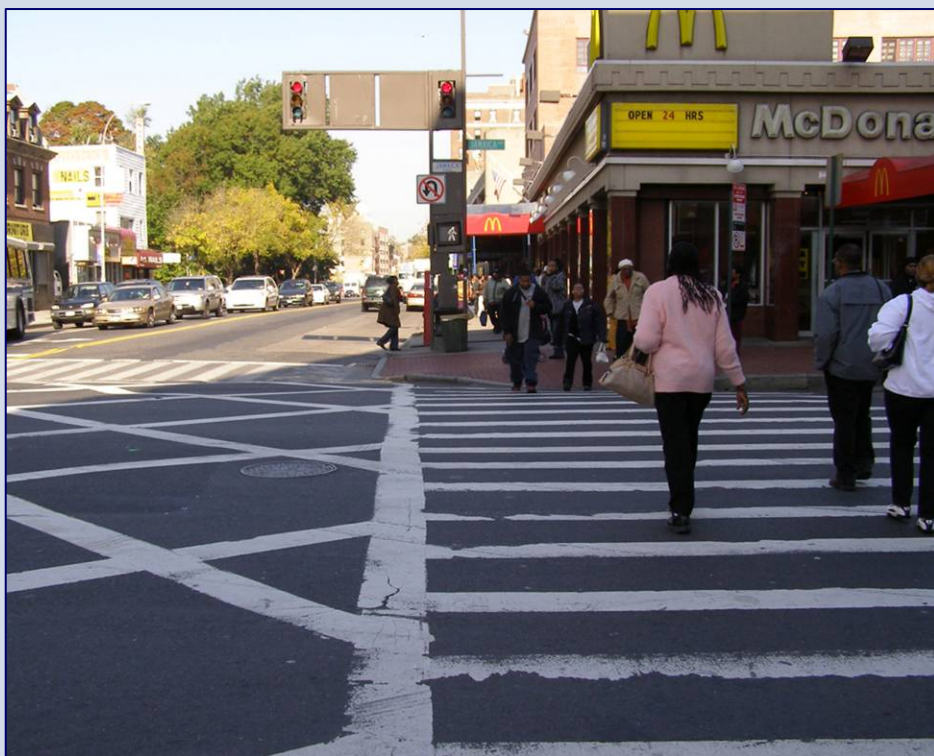
**BEFORE:** Parsons Boulevard and Archer Avenue facing north



**AFTER:** Parsons Boulevard between Archer Avenue and Jamaica Avenue facing north



## Before & After Conditions



**BEFORE:** Jamaica Avenue and Parsons Boulevard facing north



**AFTER:** Jamaica Avenue and Parsons Boulevard facing north



# Kissena Boulevard & Sanford Avenue

## 6 Pedestrian Crashes

### Background

- Ranked 9th (tie)
- Six pedestrian crashes in 2007
- Safe Streets for Seniors Area

### Location/Context

- Neighborhood: Flushing
- Land Use: Commercial and Residential
- Bus Route: Q17, Q25, Q27, Q34 and Q65; X32 and X51; N20 and N21
- Local Truck Route: Kissena Boulevard
- Bike Route: Proposed Class 2 lanes for Sanford Avenue
- No. 7 Subway station

### Issues Identified During Safety Audit

- Sanford Avenue west of Kissena Boulevard has a long pedestrian crossing
- Heavy volume of turning vehicles
- Buses at stops constrain driver sightlines at crosswalks



Kisena Boulevard and Sanford Avenue



Kisena Boulevard and Sanford Avenue facing northwest – Long, skewed crosswalk





# Kissena Boulevard & Sanford Avenue (Cont.)



## Improvements (All Implemented 2009)

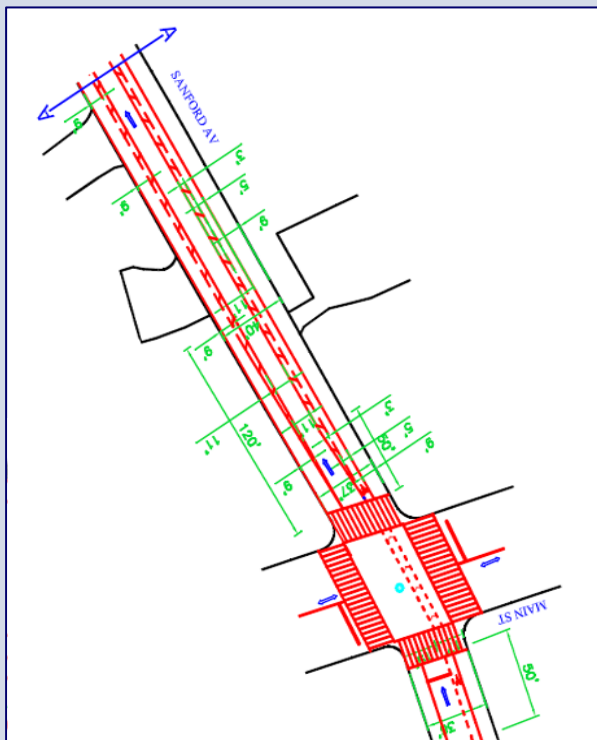
- ▲ **Narrow roadway** on Sanford Avenue west of Kissena Boulevard to College Point Avenue
- ▲ **Install buffered bike lane** on Sanford Avenue west of Kissena Boulevard to College Point Avenue
- ▲ **Install signal timing modifications to benefit pedestrians**
- ▲ **Relocate bus stop** on Kissena Boulevard southeast corner to northeast corner
- ▲ **Relocate bus stop** on Sanford Avenue northeast to Kissena Boulevard northeast corner
- ▲ **Allow parking** in place of bus stop on Kissena Boulevard southeast corner
- ▲ **Daylight** southeast corner of Kissena Blvd
- ▲ **Peg-a-trac** westbound Sanford Avenue through intersection

■ Planned

▲ Implemented

## Benefits

- Calm traffic
- Provide safer pedestrian crossings
- Reduce bus/vehicle and bus/pedestrian conflicts
- Create better sightlines for vehicles and pedestrians



Kissena Boulevard from Sanford Avenue to Main Street - proposed buffered bike lane



Kissena Boulevard and Sanford Avenue - drawing of proposed improvements

# Kissena Boulevard & Sanford Avenue (Cont.)



Kissena Boulevard and Sanford Avenue , north crosswalk facing east – heavy pedestrian volumes



Kissena Boulevard and Sanford Avenue, east crosswalk facing north – vehicle / pedestrian conflicts occur at this acute corner



# 35<sup>th</sup> Avenue & Union Street

## 5 Pedestrian Crashes



### Background

- Ranked 17th (tie)
- Five pedestrian crashes in 2007
- Safe Streets for Seniors Area

### Location/Context

- Neighborhood: Flushing
- Land Use: Institutional, Mixed Use and Residential
- Bus Routes: Q14, Q16, Q20A, Q20B, Q44 and X32
- Local Truck Route: Northern Boulevard

### Issues Identified During Safety Audit

- Heavy truck traffic on non-truck routes
- Crashes: 38% during school hours
- Nearside bus stops block restrict of pedestrians in crosswalk



35th Avenue and Union Street



35<sup>th</sup> Avenue and Union Street facing south – Presence of heavy vehicles creates poor visibility of pedestrians



# 35th Avenue & Union Street (Cont.)



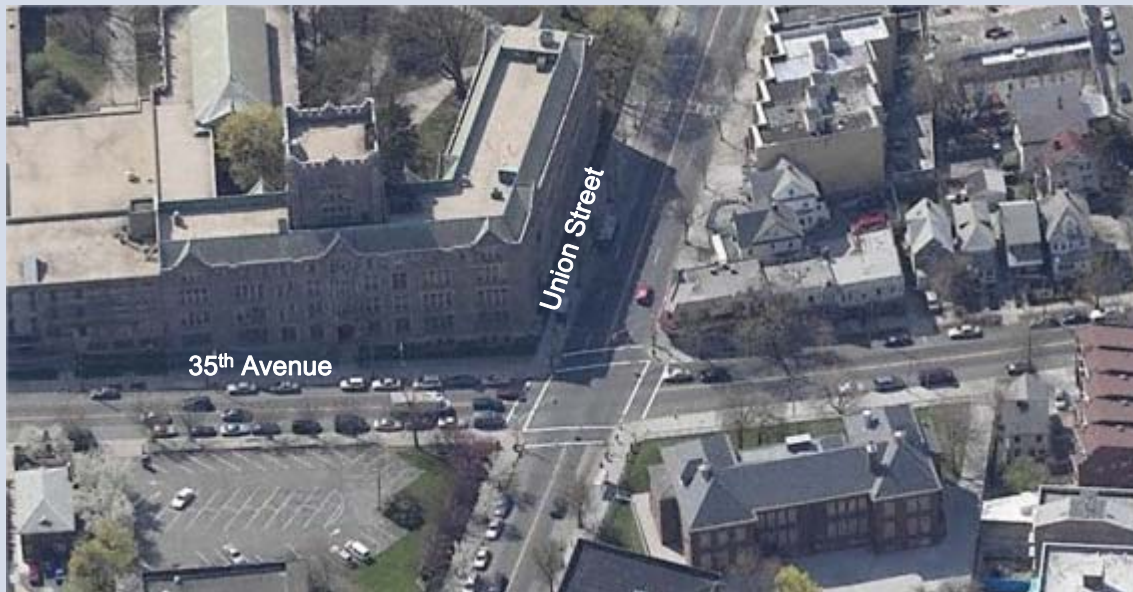
## Improvements

- ▲ Upgrade crosswalks (north, east and west) to high visibility
- Install lane designation markings for eastbound 35th Avenue: left lane, through and right lane
- Relocate bus stop from Union Street south of intersection to north of intersections

## Benefits

- Provide safer pedestrian crossings
- Organize traffic flow
- Reduce bus/vehicle and bus/pedestrian conflicts

■	Planned
▲	Implemented



35th Avenue & Union Street facing north



35th Avenue & Union Street west crosswalk facing south

High visibility markings would stand out better to drivers in this constantly-shadowed intersection

# Staten Island

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# Forest Avenue & Broadway

## 4 Pedestrian Crashes



### Background

- Ranked 20th
- Four pedestrian crashes in 2007

### Location/Context

- Neighborhood: West New Brighton
- Land Use: Mixed Use, Commercial (Retail) & Residential
- Bus Routes: X16, X30, S53 and S98
- Local Truck Route: Forest Avenue, Broadway
- Bike route: Proposed Class II lanes on Purcell Street and West Raleigh Avenue
- Safe Routes to School crosswalk

### Issues Identified During Safety Audit

- Narrow lanes
- Weaving around bus stops

### Improvements

▲ Refurbish Crosswalks

- Planned
- ▲ Implemented



Forest Avenue and Broadway



Forest Avenue and Broadway facing southwest – roadway curvature creates poor visibility conditions of pedestrians