AMSTERDAM AVENUE 110TH ST TO 155TH ST

Safety Improvements

Presented to Manhattan Community Board 9 Executive Committee
May 11, 2017
PRESENTATION OVERVIEW

- **Background**
  - Project Location
  - Safety
  - Key Issues

- **Proposal**
  - Corridor Redesign
  - Intersection Improvements
  - Making It Work

- **Summary**
1. Amsterdam Ave W 110\textsuperscript{th} – W 155\textsuperscript{th} St

2. Corridor Characteristics
   - Mix of high density residential and commercial
   - Columbia University
   - City College

3. Senior Safety Area
   - Hamilton Heights Senior Safety Area
     W 145\textsuperscript{th} St – W 162\textsuperscript{nd} St

4. Community Requests
   - Request from CM Levine to address safety concerns between 110\textsuperscript{th} St and 125\textsuperscript{th} St
   - Additional north/south bike route

5. Citi Bike
   - Phase II expansion scheduled for summer 2017 up to 130th St
SAFETY – Vision Zero

Multi-agency effort to reduce traffic deaths and injuries through improved

- Engineering
- Education
- Enforcement

Priority Intersections on Amsterdam Ave at

- W 125th St
- W 133rd St
### Background

#### SAFETY – Project Area

**4 Pedestrian Fatalities** 2010-2016

(112th, 113th, 122nd, 155th)

**28 Pedestrians Severely Injured** 2010-2014

**8 Cyclists Severely Injured** 2010-2014

---

#### Injury Summary, 2010-2014 (5 years)

<table>
<thead>
<tr>
<th></th>
<th>Total Injuries</th>
<th>Severe Injuries</th>
<th>Fatalities</th>
<th>KSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian</td>
<td>246</td>
<td>25</td>
<td>3</td>
<td>28</td>
</tr>
<tr>
<td>Bicyclists</td>
<td>69</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Motor Vehicle Occupant</td>
<td>445</td>
<td>23</td>
<td>0</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>760</strong></td>
<td><strong>56</strong></td>
<td><strong>3</strong></td>
<td><strong>59</strong></td>
</tr>
</tbody>
</table>

---

Fatalities, 01/01/2010 – 01/09/2016: 4

Source: Fatalities: NYCDOT, Injuries: NYSDOT. KSI: Persons Killed or Severely Injured
Background

KEY ISSUES– Corridor Safety

*Speeding (136th -138th St mid-day)
- 71% Above 25mph (NB)
- 70% Above 25mph (SB)

- Off-peak Speeding
  70% of vehicles travel above the speed limit during off peak time*

- Undefined Lane Assignments
  lead to unpredictable vehicular movements

- No Dedicated Space for Bikes
  cyclists ride with traffic, less predictable locations
Background
KEY ISSUES – Intersection Safety

Wide Roadway
creates long pedestrian crossings

Wide Turn Radii
enable drivers to take turns at high speeds, cut corners

Poor Alignment
creates driver confusion, long pedestrian crossings
KEY ISSUES – Bike Network Connectivity

1. Gap in Network

2. Broadway
   • North/South route requested in 2015
   • Amsterdam Ave preferred alternative

3. No Connection to Existing Bike Lanes
   • Amsterdam Ave north of 160th St
   • Amsterdam Ave (NB ends at 110th)
   • Columbus Ave (SB begins at 110th)
   • Hudson River Greenway

4. Potential Connections
   • 110th St to Central Park
   • 133rd St to Hudson River Greenway
Amsterdam Ave Proposal
1. Corridor Redesign
   4–to-3 lane conversion with left turn lanes and bike lanes

2. Intersection Improvements
   • Pedestrian Refuge Islands
   • Painted Curb Extensions

3. Making it Work
   • Traffic Analysis
   • Transitions
   • Rush Hour Regulations
   • Loading Zones
1. CORRIDOR REDESIGN – Existing Conditions (Typical)

- 60 ft wide
- 2 moving lanes in each direction
- Parking on both curbs

Off-peak Speeding: 70% of vehicles travel above the speed limit during off peak time*

Undefined Lane Assignments lead to unpredictable vehicular movements

No Dedicated Space for Bikes: cyclists ride with traffic, less predictable locations
1. CORRIDOR REDESIGN – Proposed Design ( Typical)

• Remove one travel lane in each direction
• Install left turn bays
• Install bike lanes in both directions
• Maintain parking on both curbs

Narrower Roadway  
discourages speeding

Turn Bays  
create simpler, safer left turns, reduce back pressure

Bike Lanes  
provide dedicated space for cyclists, increase predictability
1. CORRIDOR REDESIGN – Example of Proposed Design

Maintain Consistent Moving Lane
reduces speeding, reduce conflict

Left Turn Bays
organize traffic and create safer left turns

Amsterdam Ave at 172nd St looking north
1. CORRIDOR REDESIGN – Safety Benefits of Left Turn Bays

**Left turn movements are challenging** because motorists:

- Feel **back pressure** from vehicles wanting to go thru while trying to turn
- **Must identify a gap in two lanes**, poor visibility for second lane
- **Must look for pedestrians** in crosswalk

**Motorists traveling thru** get stuck behind left turning vehicles and **weave or merge** into right lane

**Left turn movements are simplified** because motorists:

- Feel less **back pressure** since no thru motorists are stuck behind them
- **Only have to look for gap in one lane** of motor vehicle traffic
- **Find it easier to focus on pedestrians** in crosswalk

**Motorists traveling thru** are already in the correct position, resulting in **less weaving and merging**, which improves safety and **traffic flow**

**Motorists turn less aggressively**, reducing the risk of injury for all road users
1. CORRIDOR REDESIGN – Safety Benefits of Left Turn Bays

Left turn bays **improve traffic organization** by allowing left turning vehicles their own space before turning left, which helps **reduce back pressure** from other vehicles.

<table>
<thead>
<tr>
<th>Injuries on Two-Way Approaches with Left Turn Bays</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motor Vehicle</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Left</td>
</tr>
<tr>
<td>Before (3 Years)</td>
<td>350</td>
</tr>
<tr>
<td>After (3 Years)</td>
<td>191</td>
</tr>
<tr>
<td>Change</td>
<td>-45%</td>
</tr>
<tr>
<td><strong>Pedestrian</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Left</td>
</tr>
<tr>
<td>Before (3 Years)</td>
<td>107</td>
</tr>
<tr>
<td>After (3 Years)</td>
<td>81</td>
</tr>
<tr>
<td>Change</td>
<td>-24%</td>
</tr>
</tbody>
</table>

Before and after analysis of left turn bays installed at 140 intersections (2009-2011):

- **-45%** Left turn motor vehicle occupant injuries
- **-25%** Total motor vehicle occupant injuries
- **-24%** Left turn pedestrian injuries
- **-9%** Total pedestrian injuries
2. INTERSECTION IMPROVEMENTS – Pedestrian Refuge Islands

**Wide Roadway**
- Creates long pedestrian crossings

**Wide Turn Radii**
- Enable drivers to take turns at high speeds, cut corners
2. INTERSECTION IMPROVEMENTS – Pedestrian Refuge Islands

Pedestrian Refuge Islands create safer crossings forces slower left-turns

11 Prioritized Intersections
2. INTERSECTION IMPROVEMENTS – Example of Pedestrian Refuge Islands
2. INTERSECTION IMPROVEMENTS – Painted Curb Extensions

Poor Alignment creates driver confusion, long pedestrian crossings
2. INTERSECTION IMPROVEMENTS – Painted Curb Extensions

Painted Curb Extension improves alignment, creates safer turns, shortens pedestrian crossing, improves visibility.
### 3. MAKING IT WORK – Traffic Analysis (PM)

<table>
<thead>
<tr>
<th>Cross Street</th>
<th>Overall Intersection Delay (sec) /LOS</th>
<th>Max Volume-to-Capacity Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
<td>Proposed</td>
</tr>
<tr>
<td>W 110th St</td>
<td>25.0</td>
<td>24.8</td>
</tr>
<tr>
<td>W 125th St</td>
<td>35.3</td>
<td>38.3</td>
</tr>
<tr>
<td>W 135th St</td>
<td>10.7</td>
<td>14.1</td>
</tr>
<tr>
<td>W 145th St</td>
<td>10.4</td>
<td>11.1</td>
</tr>
<tr>
<td>W 155th St</td>
<td>19.9</td>
<td>22.0</td>
</tr>
</tbody>
</table>

**Minimal impact on traffic**
- Delay at intersections increases by an average of less than 3 seconds
- Sufficient or same capacity maintained at all intersections

* Peak hours vary per intersection*
3. MAKING IT WORK – Southern Transition (110th St - 113th St)

- Maintains capacity at high volume location to ensure traffic flow
- One lane SB from 113th St - 111th St, Two lanes NB from 110th St – 113th St
3. MAKING IT WORK – (135th St - 139th St)

- Maintains capacity at high volume location to ensure traffic flow
- One lane SB, Two lanes NB from 135th St – 139th St
3. MAKING IT WORK – 125th St

- Maintains capacity at high volume location to ensure traffic flow
- Continues one lane SB
3. MAKING IT WORK – Rush Hour Regulations at 145th St, 155th St

- **Increases capacity at high volume locations to maintain traffic flow**
- **Eastern parking lane will turn into travel lane during PM peak hours**
  - Standard parking at all other times
3. MAKING IT WORK – Loading Zones

- Improve access to the curb for commercial deliveries
- Targeted loading zones address varied needs block by block
- Business outreach and surveys completed
3. MAKING IT WORK – Loading Zones (Public Outreach)

Merchant Surveys (full report available soon)
- 12 question survey
  - Number of deliveries
  - Time of day
  - Length of drop off
  - Vehicle type
- 124 surveys completed

Survey Initial Takeaways
- Double parking is a serious concern
  - Drivers constantly receiving tickets for double parking
- General support for dedicated commercial loading zones
- Most managers/owners seemed welcome to any street improvements
- Many restaurants rely on delivery cyclists

Ambassadors attempted to survey every business along project corridor April 24th and April 26th
The proposed project will increase safety for all road users along a corridor that had 4 pedestrian fatalities, 28 pedestrians and 8 cyclists severely injured between 2010 and 2014.

Remove one lane in each direction
Discourages speeding

Install left turn bays
Creates safer left turns, improves traffic flow

Add bike lanes
Addresses gap in bike network, makes cyclist movements more predictable

Build pedestrian refuge islands
Creates shorter crossings

Add left turn treatments
Slows left-turning vehicles

Install painted curb extensions
Improves alignment, shortens crossings

Add rush hour lane at 145th, 155th
Increases capacity at high volume intersections

Create transitions
Maintain vehicle capacity on high volume sections

Add loading zones
Improves curb access, discourages double parking
THANK YOU!

Questions?
Appendix

Broadway (135th-155th) Average Vehicle Speed

Intersections with more than 10 Injuries 2010-2014