Outline

• Background
• Design Discussion
• Making it Work
• Summary
• Next Steps
Background
Amsterdam Avenue

- Logical northbound pairing for Columbus Ave
- Recent Citi Bike expansion uptown to W 86th St
- Over 19 people killed or severely injured per mile (including three fatalities)
- High traffic volumes, bus route, local truck route, active curbside loading
CB 7, CM Rosenthal, and CM Levine requested that DOT study Amsterdam Avenue
DOT Street Ambassadors surveyed 439 people on the street and surveyed 165 merchants along the corridor.

Ambassadors were on Amsterdam Ave November 2\textsuperscript{nd}-7\textsuperscript{th}, November 28\textsuperscript{th}, and December 16, 2015.
93% of people surveyed either walked or took transit to get to Amsterdam Ave

Only 2% of people used a personal vehicle to get to Amsterdam Ave

33% of merchants reported that customer parking was a concern for their businesses

Note 1: DOT Street Ambassadors surveyed 439 people on the street and surveyed 165 merchants along Amsterdam Ave on 11/2-7/15, 11/28/15, and 12/16/15
Note 2: 86% of people said that this was the mode of transportation that they typically used to make this trip
61% of merchants that deliver use a bike to do so, another 19% deliver on foot.

52% of merchants reported that delivery vehicles typically double-parked in front of their businesses.
Numerous comments regarding:

• Speeding, especially during the morning
• Vehicles running red lights
• Vehicles failing to yield when turning from side streets
• Vehicles failing to yield when turning at major two-way cross streets
• Cyclists running red lights and riding on the sidewalk
Citi Bike expanded to W 86th Street in the fall of 2015

Citi Bike will expand to 130th St by end of 2017

In October 2015, 29% of Citi Bike trips that started in CB 7 also ended in CB 7

In October 2015, 45% of Citi Bike trips that started in Midtown ended in CB7 (CB 4, 5, or 6)
### Background

#### Bike Volumes

<table>
<thead>
<tr>
<th>Amsterdam Ave</th>
<th>12-hour Bike Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 85th to W 86th St</td>
<td></td>
</tr>
<tr>
<td>October 2007</td>
<td>217</td>
</tr>
<tr>
<td>October 2011</td>
<td>515</td>
</tr>
<tr>
<td>October 2015</td>
<td>609</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Columbus Ave</th>
<th>12-hour Bike Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 87th to W 86th St</td>
<td></td>
</tr>
<tr>
<td>October 2007</td>
<td>486</td>
</tr>
<tr>
<td>October 2011</td>
<td>594</td>
</tr>
<tr>
<td>October 2015</td>
<td>724</td>
</tr>
</tbody>
</table>

- A three fold increase in cycling on Amsterdam since 2007 and almost double on Columbus.

Source: ATI Data, Bicycles btw. W 85th St and W 86th St on Amsterdam Ave and btw. W 87th St and W 86th St on Columbus Ave in October 2007, 2011, and 2015. 7am-7pm.
Design

Existing Issues

59% of vehicles are speeding at off-peak times

Long crossing distances

High peak vehicle volumes

Current design encourages bad driver behavior

Not designed to a neighborhood scale

Source: Radar speed study taken on October 6, 2015 btw. W 81st St and W 82nd St on Amsterdam Avenue
Curbside parking protected lane
Pedestrian safety islands
Lane reduction with turn lanes
Updated curb regulations
Design Proposal

- Off-peak traffic calming
- Bicycle lane protected from traffic
- New trees
- Reduced crossing distances
- Neighborhood scale design

Columbus Avenue at W 107th St
In general protected bike lanes in Manhattan improve safety for all users:

- Total injuries have dropped by 20%
- Crashes with injuries have been reduced by 17%
- Pedestrian injuries are down by 22%
- Cyclist injuries show a minor improvement even as bicycle volumes have dramatically increased

Protected bicycle lane projects with 3 years of after data include the following: 9th Ave (16th-31st), 8th Ave (Bank-23rd, 23rd-34th), Broadway (59th-47th, 33rd-26th, 23rd-18th), 1st Avenue (Houston to 34th), 2nd Ave (Houston-34th), Columbus Ave (96th-77th) Note: Only sections of projects that included protected bicycle lanes were analyzed

Source: NYPD AIS/TAMS Crash Database
27% fewer injuries overall, including 39% fewer pedestrian injuries, on Columbus Ave between W 96th St and W 77th St*

10% fewer injuries overall, including 27% fewer pedestrian injuries, on Columbus Ave between W 110th St and W 96th St and between W 77th St and W 69th St**

### Speeding Data

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th></th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>May 2010 87th – 86th St</td>
<td>March 2012 87th – 86th St</td>
<td></td>
</tr>
<tr>
<td>Average Speed</td>
<td>26.8</td>
<td>22.3</td>
<td></td>
</tr>
<tr>
<td>Percent of Vehicles Over 30 mph</td>
<td>14%</td>
<td>6%</td>
<td></td>
</tr>
</tbody>
</table>

* 3-yrs of after data
** 2-yrs of after data
The **volume-to-capacity** ratio is a measure of how “full” a roadway feels and is calculated as a ratio between the measured traffic volume and calculated capacity of the roadway. The result is expressed as a number between 0 and 1. A value of “1” would indicate that the roadway is “full.”

**Delay** is a measure of the average time a vehicle will spend processing through an intersection.
Mixing zones at all non-two way left turns

Improves visibility of cyclists

Provides space to negotiate conflict

Removes left turns from through lanes

Creates left turn vehicle storage
Making it Work

Left Turns

Left-turn bays at 79th, 86th, 96th

Turning vehicles queue for turn phase

Bike lane continues the length of the block

Split phase allows through traffic to move while holding left turns, up to 23% more green time given to through

Pedestrians and cyclists have a leading phase to get a head start
Indicates a combination of open metered parking and metered commercial

Indicates metered commercial 7am-7pm Monday to Friday

Note 1: Metered parking to remain unless otherwise indicated.
Note 2: Specifics of regulations north of W 106th St pending further consultation with the Columbus Amsterdam BID
Trucks remain curbside during load-ins and load-outs

Use temporary barriers to create a protected lane on the east side of truck activity

Maintain visibility of cyclists to left turning vehicles
Ban the left turn from Amsterdam Ave to W 91st St for vehicles

Maintain the existing No Parking regulation in the floating parking
### Proposed Condition v/c Ratios

<table>
<thead>
<tr>
<th>Cross Street</th>
<th>Volume-to-Capacity Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 96th</td>
<td>0.78</td>
</tr>
<tr>
<td>W 86th</td>
<td>0.83</td>
</tr>
<tr>
<td>W 79th</td>
<td>0.72</td>
</tr>
<tr>
<td>W 77th</td>
<td>0.69</td>
</tr>
</tbody>
</table>

### Existing

<table>
<thead>
<tr>
<th>Cross Street</th>
<th>Amsterdam 6-7 PM Peak Volumes (veh/hr)</th>
<th>Delay (s)</th>
<th>Volume-to-Capacity Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 96th</td>
<td>1,687</td>
<td>12.8</td>
<td>0.91</td>
</tr>
<tr>
<td>W 86th</td>
<td>1,704</td>
<td>6.5</td>
<td>0.81</td>
</tr>
<tr>
<td>W 82nd</td>
<td>1,545</td>
<td>3.0</td>
<td>0.66</td>
</tr>
<tr>
<td>W 79th</td>
<td>1,330</td>
<td>40.9</td>
<td>0.85</td>
</tr>
<tr>
<td>W 77th</td>
<td>1,377</td>
<td>4.8</td>
<td>0.62</td>
</tr>
</tbody>
</table>

### Proposed

<table>
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<tr>
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<td>12.7</td>
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<td>1,530</td>
<td>5.9</td>
<td>0.83</td>
</tr>
<tr>
<td>* W 79th</td>
<td>1,317</td>
<td>35.5</td>
<td>0.72</td>
</tr>
<tr>
<td>W 77th</td>
<td>1,363</td>
<td>4.5</td>
<td>0.69</td>
</tr>
</tbody>
</table>

* Benefit from conversion from LPI to Split LPI
Parking Consideration

21% of the parking space on the corridor will be repurposed for turn treatments and pedestrian safety islands.

Convert specific blocks to daytime (7am-7pm) commercial loading zones on east and west sides of the street.
Making it Work
Overall

**Existing**

- West Sidewalk
- 10' Parking Lane
- 10' Travel Lane
- 10' Travel Lane
- 10' Travel Lane
- 10' Parking Lane
- East Sidewalk

**Proposed**

- West Sidewalk
- 6' Parking / Island
- 9' Island / Parking Lane
- 10' Travel Lane
- 10' Travel Lane
- 10' Travel Lane
- 10' Parking Lane
- East Sidewalk

3 through lanes process efficiently

Traffic is organized into through, turns, and proper loading zones

Efficient signal progression
Amsterdam Avenue

- Protected bicycle lane provides northbound route for cyclists
- Reduced pedestrian crossing distances with islands
- Design for neighborhood street with safety benefits expected for all users
- Lane reduction with left turn treatments
- High peak hour traffic volumes require some signal adjustments
- Left turn treatments and paid commercial spaces reduce parkable area
- Traffic flow will be maintained
- Connections to new route via CPW at 77th/78th and 90th/91st
Phase 1 – 72nd – 110th
• Implementation begins Spring 2016, nearly two miles of protected lanes and new infrastructure

Phase 2 – South of 72nd
• Gather feedback & develop proposals
• Consider network connections
• Coordinate with 2016 capital project at 71st/Amsterdam/Broadway
• Complete improvements on Columbus south of 65th St
• Any route will require careful planning through complex intersection of 71st/Amsterdam/Broadway
Questions?

Thank You