OVERVIEW

1. Protected Bike Network Implementation Update
2. Evaluation of Off-Peak Protected Bike Lane
3. Filling the Gaps
4. Proposal
5. Next Steps
Protected Bike Network Implementation Update
**Northbound: 1\textsuperscript{st} Ave**
- Continuous 9-mile protected bike lane connecting Brooklyn, Manhattan and the Bronx.

**Southbound: 2\textsuperscript{nd} Ave**
- Challenges to creating continuous protected bike lane:
  - 2\textsuperscript{nd} Ave Subway construction
  - High traffic volumes approaching Queensboro Bridge and Midtown Tunnel
PROTECTED BIKE LANE

96 St – 88 St
2016 (MTA)

88 St – 82 St
Functional, not yet completed (MTA)

82 St to 74 St
2016 (DOT)

74 St – 68 St
Functional, not yet completed (MTA)

ENHANCED SHARED LANE

68 St – 59 St Bridge
Fall 2016/17 (MTA/DOT)

PROTECTED BIKE LANE

59 St – 43 St:
2017 (DOT)

52 St – 43 St: *Off-peak Protected Bike Lane Design*
2017 (DOT)

ENHANCED SHARED LANE

43 St – 34 St Tunnel
2011 (DOT)
Evaluation of Off-Peak Protected Bike Lane Design
BEFORE: 2 Ave, 52 St – 43 St

Evaluation of Off-Peak Protected Bike Lane Design

- Gap in the protected bike lane network where facilities were most needed
- High traffic volumes, lack of organization in roadway
- Site specific curb access and parking needs
AFTER: Peak Period Design

Curbside bike lane provides dedicated space for cyclists
Maintains five moving lanes
Loading not permitted
Evaluation of Off-Peak Period Bike Lane Design

AFTER: Off-peak Design

Parking protected bike lane provides dedicated space for cyclists, separated from moving vehicles

Removal of travel lane calms traffic when speeding is more likely to occur

Loading permitted
**Evaluation of Off-Peak Protected Bike Lane Design**

### VEHICLE SPEEDS: MIDTOWN IN MOTION EZPASS DATA

<table>
<thead>
<tr>
<th>Street</th>
<th>AM</th>
<th>MD</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>49 ST - 57 ST</td>
<td>2016</td>
<td>10.3 mph</td>
<td>9.3 mph</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>11.2 mph</td>
<td>10.3 mph</td>
</tr>
<tr>
<td>42 ST - 49 ST</td>
<td>2016</td>
<td>10.5 mph</td>
<td>6.9 mph</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>10.4 mph</td>
<td>7.5 mph</td>
</tr>
<tr>
<td>34 ST - 42 ST</td>
<td>2016</td>
<td>8.1 mph*</td>
<td>10.6 mph*</td>
</tr>
<tr>
<td></td>
<td>2017</td>
<td>7.2 mph</td>
<td>9.2 mph</td>
</tr>
</tbody>
</table>

**Note:** No operational changes made south of 43 St

Data show no significant change to average vehicle speeds in the project area (2nd Ave 59th St to 43rd St). Overall, average motor vehicle speeds on streets in Midtown Manhattan decreased during this same time period.**

Source: EZPASS 2017 October Mid-week Vs. 2016 October Mid-Week.

Note *: 2nd Avenue - Southbound - 42nd St to 34th St, 15 min Average Travel Time using 2017 October midweek vs. 2016 October midweek. (The 2016 data for this link is approximate using the historical travel time as EZPASS reader at 34 St was down during this month).

Note **: Taxi GPS is used as a proxy for travel speeds.)
**BLOCKING OF BIKE LANE: TIME LAPSE CAMERA OBSERVATIONS**

**Bike Lane Blockages**

<table>
<thead>
<tr>
<th>Locations</th>
<th>43 St</th>
<th>44 St</th>
<th>45 St</th>
<th>46 St</th>
<th>48 St</th>
<th>50 St</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Analyzed (Days)</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Video Analyzed (Minutes)</td>
<td>1,200</td>
<td>1,200</td>
<td>1,440</td>
<td>2,160</td>
<td>2,880</td>
<td>2,160</td>
</tr>
<tr>
<td>Number of Times Bike Lane was Blocked</td>
<td>26</td>
<td>13</td>
<td>20</td>
<td>3</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Total Time Bike Lane was Blocked in Minutes</td>
<td>81</td>
<td>48</td>
<td>86</td>
<td>21</td>
<td>46</td>
<td>36</td>
</tr>
<tr>
<td>Percentage of Time Bike Lane was Blocked</td>
<td>6.8%</td>
<td>4.0%</td>
<td>6.0%</td>
<td>1.0%</td>
<td>1.6%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

**No Stopping Left Turn Area Blockages**

<table>
<thead>
<tr>
<th>Locations</th>
<th>43 St</th>
<th>44 St</th>
<th>45 St</th>
<th>46 St</th>
<th>48 St</th>
<th>50 St</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Analyzed (Days)</td>
<td>5</td>
<td>9</td>
<td>12</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video Analyzed (Minutes)</td>
<td>1,200</td>
<td>2,160</td>
<td>2,880</td>
<td>2,160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Times No Stopping LT was Blocked</td>
<td>29</td>
<td>15</td>
<td>61</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Time No Stopping LT was Blocked in Minutes</td>
<td>454</td>
<td>72</td>
<td>1,380</td>
<td>201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of Time No Stopping LT was Blocked</td>
<td>37.8%</td>
<td>3.3%</td>
<td>47.9%</td>
<td>9.3%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Bike lane is clear 97% of the time**
- **Left Turn Area is clear 75% of the time**
Evaluation of Off-Peak Protected Bike Lane Design

BIKE VOLUMES: BEFORE/AFTER COUNTS

Off-Peak Protected Bike Lane installed on 2nd Ave (59 St to 43 St) in Spring/Summer 2017

+Bike Volume Data: Average of three 12-hr (7AM-7PM) counts conducted on weekdays in May, July, and September for each year reported.

+36% increase in cycling (2015-2017)
Overall, protected bike lanes improve safety for all road users

Pedestrian experienced the most significant decrease in injuries:
- 29% decrease on 2-way paths
- 21% decrease on 1-way paths

The number of injuries to cyclists increased only slightly, despite a 61% increase in bicycle volumes

Data from 25 separate protected bicycle lane projects installed from 2007-2014 with 3 years of after data. Includes portions of 1 Ave, 2 Ave, 8 Ave, 9 Ave, Broadway, Columbus Ave, Hudson St, Lafayette St / 4 Ave, Sands St, Allen/Pike St, Kent Ave, Prospect Park West, Flushing Ave, Bruckner Blvd & East 163 St, Imlay St / Conover St, Paerdegat Ave. Only sections of projects that included protected bike lanes were analyzed.

Source: NYPD AIS/TAMS Crash Database
Filling the Gaps
BIKE VOLUMES ARE GROWING

Bike Counts on 2\textsuperscript{nd} Ave:

\begin{itemize}
  \item \textbf{2\textsuperscript{nd} Ave at 86\textsuperscript{th} St}:
    \begin{itemize}
    \item 2011: 631
    \item 2015: 940
    \item 2016: 1,024
    \item 2017: 1,924
    \end{itemize}
    \textbf{+105\% (2015-2017)}

  \item \textbf{2\textsuperscript{nd} Ave at 50\textsuperscript{th} St}:
    \begin{itemize}
    \item 2011: 1,241
    \item 2015: 2,070
    \item 2016: 2,239
    \item 2017: 2,814
    \end{itemize}
    \textbf{+36\% (2015-2017)}
\end{itemize}

In the third quarter of 2017, 699,000 Citi Bike trips either started or ended in CB 6 and CB 8.

On Average, 5,406 cyclists use the Queensboro Bridge bike lane daily (between April and October).
### SAFETY CONCERNS

#### 2nd Ave is a Vision Zero Priority Corridor

**2 Ave, 68 St – 59 St**  
Injury Summary, 2012-2016 (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>87</td>
<td>9</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Bicyclists</td>
<td>32</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Motor Vehicle Occupant</td>
<td>244</td>
<td>16</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>363</strong></td>
<td><strong>26</strong></td>
<td><strong>0</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

**Fatalities, 01/01/2012 – 03/19/2018:** None

**2 Ave, 43 St – 34 St**  
Injury Summary, 2012-2016 (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>118</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Bicyclists</td>
<td>64</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Motor Vehicle Occupant</td>
<td>194</td>
<td>7</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>376</strong></td>
<td><strong>23</strong></td>
<td><strong>0</strong></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>

**Fatalities, 01/01/2012 – 03/19/2018:** None

*Source: Fatalities: NYCDOT. Injuries: NYSDOT. KSI: Persons killed or severely injured*
Proposal
### CORRIDOR: EXISTING CONDITIONS

#### Proposal

#### 1. High Traffic Volume
- High volume especially approaching bridge and tunnel

#### 2. Curb Access/ Parking
- Commercial un/loading, drop-off/pick-up of passengers

#### 3. Heavily Used Cycling Route
- No dedicated space for cyclists
- Gap in the protected bike network
CORRIDOR: PROPOSED DESIGN (68th – 60th St)

**Gap in the Protected Bike Network**
- No dedicated space for cyclists
- Enhanced Shared Lane breaks down during peak hour

**Peak Period**
- Curbside buffered bike lane
- Maintains vehicular capacity

**Off-Peak Period**
- Parking protected bike lane
- Traffic calming
- East curb access (loading/unloading)
- West curb access (loading/unloading) when bus lane not in effect
2. QUEENSBORO BRIDGE: EXISTING CONDITIONS

Complex intersection
- High, constant vehicle volumes
- Limited pedestrian and bicycle access
QUEENSBORO BRIDGE: EXISTING/ISSUES

Vehicle Volumes:

1. High volumes throughout the day
2. No pedestrian and bike crossing on east side from 60th and 59th St
3. Southbound cyclists forced to merge turning vehicles to continue traveling through
Add pedestrian and bicycle crossing
- Allows pedestrian crossing along east side
- Closes the gap on the protected bike network on 2nd Ave

Add island and tip extension
- Shorter pedestrian and bicycle crossing that works with signal timing
QUEENSBORO BRIDGE: OPERATIONAL CHANGES

1. Phase 1
2. Phase 2

EXISTING

PROPOSED

No changes to signal timing

No changes to existing signal timing minimizes impact in traffic flow
QUEENSBORO BRIDGE: OPERATIONAL CHANGES

Change in lanes configuration

Existing:
- 3 SB through
- 1 shared SB/left lane
- 1 left lane onto QBB

Proposed:
- 3 SB through
- 2 left lanes onto QBB

Ban EB left turn from 2nd Ave onto E 59th St
- Low volumes for left turn
- Banning left turn allows for conflict free pedestrian and bicycle crossing
QUEENSBORO BRIDGE: PROPOSED THREE STAGE CROSSING

Phase 1

Phase 2

Phase 1
BENEFITS OF PROPOSED DESIGN

1. Off-Peak Protected Bike Lane
   Continuous bike lane along east curb, protected during off peak, protected crossing at bridge entrance

2. New Pedestrian Crossing
   Three-stage crossing along east curb between E 60th St and E 59th St

3. Rush-Hour Design
   Minimal impact on traffic capacity, no changes to signal timing
QUEENS MIDTOWN TUNNEL: ISSUES

- Complex intersection
- High vehicular volume for most of the day
- Planned water main work directly south of tunnel
- Ongoing MTA work around the Tunnel area
- DOT is currently working with MTA to develop a plan
Next Steps
NEXT STEPS

QUEENSBORO BRIDGE

- Project Development
  - Complete analysis and design of corridor during all traffic configurations
  - Finalize proposal for rush hour/parking regulations

- Community Outreach
  - Present finalized designs to
    - Elected Officials
    - Community Board 6 and 8

- Implementation
  - Late 2018 / Early 2019

QUEENS MIDTOWN TUNNEL

- DOT is working with MTA to develop a plan for the area

- Due to ongoing work and coordination efforts, facilities between 34th and 43rd Streets will not be implemented at the same time as QBB
THANK YOU!

Questions?