Grand Street Parking Protected Bicycle Path
Varick Street to Chrystie Street

Bicycle Program
Traffic Operations Bureau

Presentation to
Manhattan CB 2 & 3
July 2008
Grand Street: Project Area

Grand Street: Varick Street to Chrystie Street
Grand Street: Project Background

- Popular cross-town bicycle route
- Essential bicycle network link to Manhattan Bridge and Williamsburg Bridge
- Safety issues with current operations:
  - Motorists encroaching into the bicycle lane
  - Cyclists must weave into travel lane

Manhattan Bridge Bicycle Path
Grand Street: Current Roadway Operations

**Issues:**
- Double Parking
- Driving in Bike Lane
- Disorderly Traffic
- Cut-Through Traffic
Grand Street: Design Objectives

- Robust Cross-town Bicycle Route
- Safe & Comfortable Cycling Experience
- Pilot Protected Bicycle Path for Narrow Streets
Grand Street: Design Elements

- Protected Bicycle Path
- “Mixing Zones” to Provide Intersection Safety
- Green Bicycle Lane
- Floating Parking Lane

Cycletrack with Mixing Zone, Copenhagen, Denmark
Grand Street:
Parking Protected Bicycle Path

- Loading Lane: 8-9 ft
- Travel Lane: 10-11 ft
- Floating Parking Lane: 8-9 ft
- Buffer Area: 3 ft
- Protected Bicycle Path: 5-6 ft
Copenhagen – Safety Issues of Cycle Tracks Identified

<table>
<thead>
<tr>
<th>Typical accident situation</th>
<th>Specific type of accident and manoeuvre</th>
<th>Results</th>
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<tbody>
<tr>
<td></td>
<td>car against c/m in the same direction</td>
<td>-63 %</td>
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<tr>
<td></td>
<td></td>
<td>-68 %</td>
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<tr>
<td></td>
<td>c/m against c/m in the same direction</td>
<td>+120 %</td>
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<td>+201 %</td>
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<td>car against right-turning car</td>
<td>+72 %</td>
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<td>-177 %</td>
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<td></td>
<td>right-turning car against c/m</td>
<td>+129 %</td>
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<td></td>
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<td>+161 %</td>
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<td></td>
<td>right-turning car against pedestrian</td>
<td>+77 %</td>
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<td></td>
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<td>-84 %</td>
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<td></td>
<td>left-turning car against c/m</td>
<td>+48 %</td>
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<td>+61 %</td>
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<td>left-turning c/m</td>
<td>-41 %</td>
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<td></td>
<td></td>
<td>-45 %</td>
</tr>
<tr>
<td></td>
<td>c/m against parked car</td>
<td>-38 %</td>
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<td></td>
<td></td>
<td>-56 %</td>
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<td></td>
<td>entering and exiting bus passengers</td>
<td>+1951 %</td>
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<td></td>
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<td>+1762 %</td>
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<tr>
<td></td>
<td>c/m against pedestrians</td>
<td>+88 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+63 %</td>
</tr>
</tbody>
</table>

c/m = cyclists/moped riders. NB the category of mopeds in Denmark confined to driving on cycle tracks is limited to a top speed of 30 kph.

Table 1. Significant safety effects in accidents and injuries categorised by accident situation. About 90% of those involved in accidents in category c/m are cyclists. The figures for c/m could therefore be read as for cyclists.
Copenhagen – Adjusting Designs for Safety

- Mixing Auto Turn Lanes and Bikes at Intersection Approach
- Shortening Cycle Tracks
- Dedicated Bicycle Phases where Appropriate

Figure 2. Photos of a shortened cycle track extended into a narrow cycle lane (left), an advanced cycle track with a blue cycle crossing and a pre-green light for cyclists (middle), a shortened cycle track extended into a right turn-lane (right).
Grand Street: Right Turn “Mixing Zone”

“Mixing zones” at right turn opportunities
• Space to negotiate turning conflict
• Mutual visibility for cyclists and turning motorists
• Stress-free right turns for motorists
Grand Street: The Proposed Design

Midblock Cross-section

Mixing Zone Cross-section
Grand Street: Parking Zones and Regulations

Parking regulations

- **North Side**
  - Daytime: (9am-7pm) commercial vehicle muni-meter paid parking
  - Nighttime: (11pm-7am) no standing

- **South Side**
  - Street cleaning regulations 3a-6a
  - New floating parking zone
Enhanced Signs for Floating Parking Regulation

“Floating” Parking Regulation
Enhanced Signs for Mixing Zone

Warning/Regulatory Sign for Motorists

Warning Sign for Cyclists
Next Steps

- Community Feedback
- Refine Design
- Public Notification (Flyers)
- Roadway Repaving
- Implementation Fall 2008