Bicycle Priority Lanes, Bike Lanes in Commercial Areas, & Queuing at Red Lights:
Harmony (or not) between Desired Behavior, Design, and Actual Behavior

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Part 1: Bicycle Priority Lane
“Lane within a Lane” “Enhanced Sharrows”

Brookline, MA

Longwood Ave
(May, 2010)

Washington Street
(Nov, 2010)
Intended Use vs. Actual Use
Longwood Ave Design

- Without priority lane: bike & car tempted to squeeze

- Priority lane design
Do Bikes Ride Where Intended?
Before vs 1, 2, & 17 months After

- Significant increase
- Many bikes still ride near parked cars

Percent with Wheels 4+ ft from parking

<table>
<thead>
<tr>
<th></th>
<th>All bikes</th>
<th>While car is passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Longwd, before</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Longwd, 1_mo</td>
<td>40%</td>
<td></td>
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<tr>
<td>Longwd, 2_mo</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Longwd, 17_mo</td>
<td>60%</td>
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</tbody>
</table>
Washington Street: Maybe a Narrower Lane Would Help!

- 18 ft (instead of 20 ft) from curb to centerline
... but it didn’t

Percent with Wheels 4+ ft from parking

- Longwd, before
- Longwd, 1_mo
- Longwd, 2_mo
- Longwd, 17_mo
- Wash, 11_mo (narrow lane)
Average Bike Wheel Offset from “Dominant Parked Car”

Longwd, beforeLongwd, 1_longwd, 2_longwd, 17_moWash, 11_mo (narrow lane)
Conclusions, Part 1

• Shared lane treatments have some, but limited effectiveness

• Consider advisory lanes with no centerline (a “shared road” treatment)
Part 2:
BIKE LANES IN COMMERCIAL AREAS

314 cyclists observed at
• Massachusetts Ave @ Central Square, Cambridge, MA
• Beacon Street @ St. Mary’s, Brookline
• Commonwealth Ave @ Packard’s Corner, Boston
47% of bikes had to leave bike lane (range = 43% to 49%) due to:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Illegal Parking</td>
<td>15%</td>
</tr>
<tr>
<td>Commercial unloading in bike lane</td>
<td>3%</td>
</tr>
<tr>
<td>Taxi double parking</td>
<td>5%</td>
</tr>
<tr>
<td>Other double parking</td>
<td>7%</td>
</tr>
<tr>
<td>Legal Parking</td>
<td>15%</td>
</tr>
<tr>
<td>In-out parking maneuvers</td>
<td>9%</td>
</tr>
<tr>
<td>Door in use</td>
<td>6%</td>
</tr>
<tr>
<td>Other Motor Vehicles</td>
<td>10%</td>
</tr>
<tr>
<td>Bus at Bus Stop</td>
<td>6%</td>
</tr>
<tr>
<td>Right Turning Vehicles</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>7%</td>
</tr>
<tr>
<td>TOTAL who had to leave bike lane</td>
<td>47%</td>
</tr>
</tbody>
</table>
Conclusions, Part 2

- Bike lanes in commercial areas don’t achieve their objective of protecting cyclists from the need to merge into traffic

- Consider cycle tracks
Part 3: Bikes Queuing at Red Lights
Bike Position Relative to First Stopped Car
(n= 119)

- Fully ahead of car queue: 78%
- Partly ahead of car queue: 19%
- Even or behind car queue: 3%
Bike Position Relative to Stopline and Crosswalk

- Fully behind stopline: 7%
- Past stop line, not fully in crosswalk: 20%
- Fully beyond crosswalk: 33%
- Rear wheel in crosswalk: 40%
- Past stop line, not fully in crosswalk: 20%
- Fully behind stopline: 7%
Conclusions, Part 3

• Cyclists have a strong desire to queue ahead of motor traffic
• Single queuing treatment for bikes & cars ("stop line") is inadequate
• Consider bike boxes, advanced stop lines, and refuge cycle tracks