Designing each mile of 200 mile, 3 year bicycle route commitment

Targeting Areas of High Demand & Key Connections

**Design Approach:**

1. Study Best Practices
2. Apply & Interpret Standards & Guidelines to Constrained NYC Environment
3. Build off of Existing Plans
Evaluating Routes

**NYC Criteria**

1. **Safety** to cyclists
2. **Accessibility & Directness** to major origins/destinations
3. **Connections** with other routes
4. **Attractiveness** of the route
5. Low **Conflicts** with other users
6. **Feasibility** of implementation

**Safety / Stress Level**

- Curb Lane **Width** (larger is better)
- Curb Lane Traffic **Volume** (lower is better)
- Vehicle **Speed** (lower is better)
Routes Evaluated

- **Eastbound**
  - Bleecker St (p)
  - W. Houston
  - Spring St (p)

- **Westbound**
  - 3rd St (p)
  - W. Houston
  - Prince St (p)
  - Broome St (p)

(p) – Considered “Parallel” Routes
## Corridor Characteristics

<table>
<thead>
<tr>
<th>W. Houston</th>
<th>Parallel Routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>- High traffic volume</td>
<td>- Low traffic volume</td>
</tr>
<tr>
<td>- Multiple lanes</td>
<td>- Single lane</td>
</tr>
<tr>
<td>- 2 conflicts per intersection</td>
<td>- 1 conflict per intersection</td>
</tr>
<tr>
<td>- Truck route</td>
<td>- Trucks restricted</td>
</tr>
<tr>
<td>- Bus routes</td>
<td>- No buses</td>
</tr>
<tr>
<td>- Med/High vehicle speeds</td>
<td>- Low vehicle speeds</td>
</tr>
<tr>
<td>- Limited destinations</td>
<td>- Significant Destinations</td>
</tr>
</tbody>
</table>

**Preliminary Conclusion:** Safety advantages of parallel route outweigh reduced directness
Difficult Turning Movements from a Curbside Bike Lane
Issues w/ Two-Way Class 1 Bike Path on W. Houston

- “Protected” Paths Not Protected at Intersections
  - 89% of fatalities,
  - 70% of serious injuries, at intersections

- Intersection Frequency for Paths
  - Ideal = 4 or less per mile
  - Maximum = 8 per mile
  - W Houston = 18 per mile

- Bus stop conflicts

- Neckdown conflicts
  - 5 neckdowns on s. side

- Contra-flow Conflicts

- No Curbside Access
“Protected” Side-Paths Exacerbate Intersection Conflicts

- Cyclist Speed v. Ped
- Right Turns - Set Back
- Left Turns - unexpected conflict
- 2 of 3 Houston Cyclist Fatalities Involve Turning Trucks
Parallel Bike Routes

■ Establishing “Parallel” Bike Routes Begun in Mid-1990s
  - Avoids Arterial roadway volumes, vehicle type
  - Avoids routes with frequent turns
  - Simple turns for cyclists

■ Foundation of Successful “Bicycle Boulevard” Concept
  - Berkeley, Portland, Palo Alto
  - Parallel streets engineered to maximize bikefriendliness

■ NYC’s Parallel Facilities Popular
  - Dean/Bergen → Parallels Atlantic Avenue
  - Grand St → Parallels Delancey Street
  - 77th/78th St, UWS → Parallels 79th St
Berkeley, CA – Bike Boulevards Use “Parallel” Routes
Milvia Street
Bicycle Boulevard

Matchline

Berkeley, CA – Bike Boulevards Use
“Parallel” Routes
Bergen-Dean “Parallel” Lanes

Atlantic Ave

Bergen St

Dean-Bergen Lanes on NYC Cycling Map
Grand Street Bike Lanes

- Parallel to Delancey Street
- Feed Williamsburg Bridge
- Positive Response from Cyclists
Effective Parallel Routes

1. **Proximate** - to the major route
2. **Direct** -- minimize circuitousness
3. **Bike Friendly** – potential for quality bike facility (avoid signed only, class 3)

**Successful result**: Attracts cyclists from more direct, less bike friendly route
Bleecker Corridor Evaluation

- **Proximity**
  - Good: 490’ (1st block) north of Houston

- **Directness**
  - Fair: 5 turns, W Village complicated

- **Bike Friendliness**
  - Good: >30’ wide, fits lane, modest traffic

**Conclusion:** Bleecker St can be an attractive route, but some changes to curb regulations necessary
Bleecker St. Corridor - Eastbound

Potential Route
Existing / planned Lanes

Parking Removal Needed
Parking Removal Needed
Option 1: Allow Evening/Overnight Parking

Option 2: No Standing Anytime

Bleecker St (6th Ave to Laguardia) – Design Options
Bleecker Street
@ Crosby Street

Bleecker Street
@ Mercer Street
Bleecker St Route – Changes Needed

■ **Carmine, S Side, 7 Ave to Bleecker, 700’**
  - Current: 2 Hr Meters 830-7; Except Sunday, 25 metered spaces/nighttime parking spaces
  - Needed: No Standing Anytime (curb bike lane)

■ **N Side, 6th Ave to LaGuardia, 980’**
  - Current: N/P 6a – 6p; No Standing 6p – 6a
  - Needed:
    ▪ No Standing Anytime (curb bike lane); or
    ▪ Curb access permitted evenings/overnight (lane next to parking)

■ **N Side, Lafayette to Bowery, 620’**
  - Current: No Parking 7a-6p Except Sunday, 36 nighttime & Sunday parking spaces
  - Needed: No Standing Anytime (curb bike lane)
Prince Corridor Evaluation

- **Proximity**
  - Good: 460’ (1st block to S.) of Houston St.

- **Directness**
  - Fair: 4 turns

- **Bike Friendliness**
  - Mixed: Too narrow (~26’) for Class 2 or 3
  - Bike Lane OK - if parking/loading removal

**Conclusion:** Prince Ideal Conditional on Curb Loading Parking Removal
Prince St. Corridor - Westbound

Potential Route

Existing / planned Lanes

Parking Removal Needed
Prince Street
@ Mott Street

Prince Street
@ Mercer Street
## Prince St Curb Occupancy

### Regulations
- Typical No Parking 8a – 6p Mon-Fri
- ~20% of curbs allow all day parking (ASP regulation)

### No Loading Access Impacts of change to N/S/A regulations
- <20% capacity utilization by commercial vehicles
- 126 mostly Nighttime & Weekend spaces need removal

<table>
<thead>
<tr>
<th>Time</th>
<th>Day</th>
<th>Date</th>
<th>Trucks</th>
<th>Vans / Other Commercial</th>
<th>Passenger Cars (not commercial)</th>
<th>Total</th>
<th>Capacity Utilization - Commercial</th>
<th>Capacity Utilization - All</th>
<th>Permits</th>
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<tbody>
<tr>
<td>8a - 9p</td>
<td>Fri</td>
<td>27-Oct-06</td>
<td>10</td>
<td>9</td>
<td>61</td>
<td>80</td>
<td>8%</td>
<td>35%</td>
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<td>11a - 12p</td>
<td>Thurs</td>
<td>26-Oct-06</td>
<td>7</td>
<td>29</td>
<td>73</td>
<td>109</td>
<td>16%</td>
<td>47%</td>
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<td>12p - 1p</td>
<td>Thurs</td>
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<td>24</td>
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<td>124</td>
<td>19%</td>
<td>54%</td>
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<tr>
<td>2p - 3p</td>
<td>Thurs</td>
<td>26-Oct-06</td>
<td>2</td>
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<td>84</td>
<td>119</td>
<td>15%</td>
<td>52%</td>
<td>23</td>
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<tr>
<td>2p - 3p</td>
<td>Fri</td>
<td>27-Oct-06</td>
<td>8</td>
<td>28</td>
<td>82</td>
<td>118</td>
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<td>51%</td>
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<tr>
<td>5p - 6p</td>
<td>Thurs</td>
<td>26-Oct-06</td>
<td>3</td>
<td>9</td>
<td>101</td>
<td>113</td>
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<td>49%</td>
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<tr>
<td>5p - 6p</td>
<td>Fri</td>
<td>27-Oct-06</td>
<td>1</td>
<td>25</td>
<td>100</td>
<td>126</td>
<td>11%</td>
<td>55%</td>
<td>9</td>
</tr>
</tbody>
</table>
Prince St - Conceptual Design
Effectiveness of Curbside Bike Lane

1. Successful Precedents
   - Clinton Street (Downtown Brooklyn)
   - Sands Street (Brooklyn Bridge Approach)

2. Potential Green Lane Markings
   - Henry Street, Brooklyn; Effective in Helping Compliance

3. Enforcement Plan
   - DOT outreach and coordination with NYPD
   - Clear sidewalks
**Summary of Parking Impacts**

Quality 3 Mile Parallel Bike Facility is Feasible if Parking is Strategically Removed

<table>
<thead>
<tr>
<th>Street</th>
<th>Parking Loss</th>
<th>Parking Type</th>
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</thead>
<tbody>
<tr>
<td>Carmine*</td>
<td>25</td>
<td>Meters/Night</td>
</tr>
<tr>
<td>Bleecker (Lafayette to Bowery)</td>
<td>36</td>
<td>Night/Sunday</td>
</tr>
<tr>
<td>Prince</td>
<td>126</td>
<td>Night/Weekend</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>187</strong></td>
<td></td>
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</table>

* Possible Class 3 Alternative
Conclusions

- Regardless of Street, Bike Routes Takes from Other Public Space
- Quality route feasible and favored by DOT
  - Based on nationally recognized approaches
- Requires community sacrifice of parking availability
- Parallel facility will provide:
  - Higher mobility for cyclists (turns)
  - Safer travel
    - Fewer conflicts on one-way streets
    - Lower volumes
    - Lower speeds
Key Input Needed

1. Type of Lane/Curb Regulation for Bleecker Street
2. Prince Street Colored Lane
3. Carmine Street Alternatives
End of Presentation