Metro Bike/Bus Interface Study
Agenda

1. Background & Process
2. Corridors & Metrics
3. General Findings
4. Training Recommendations
5. Design Guidelines
6. Questions
L.A. County Bus Service

- LA Metro
  - 1,433 sq miles of service area
  - 170 bus routes
  - 2,248 buses in fleet
  - 15,967 bus stops
- 22 Additional Municipal Operators
Bicycling is On The Rise

- 5% of patrons access Metro bus by bike
- 80% of LA residents live with 3 miles of high frequency bus or rail
- Between 2006–2014, bike commuting increased 81%

Miles of bicycle facilities in LA County

- 305 miles Bike paths
- 151 miles (pre-2007), 154 miles (2007-2016)
- 308 miles (pre-2007), 528 miles (2007-2014)
- 4 miles Protected bike lanes (2007-2014)
- 274 miles (pre-2007), 248 miles (2007-2014)
- 836 miles Bike lanes
- + 930 miles of bikeways built since 2007
- 127% increase since 2007
Bike/Bus Interactions
Existing Design Guidance
Study Steps

- Best Practices & Literature Review
- Before/After Analysis
- Training Guidance for Operators & People on Bicycles
- Bike/Bus Roadway Design Guidebook
Working Group

Planning Staff
- Metro Bike Program & Systemwide Planning
- Long Beach
- Los Angeles/LADOT
- Pasadena
- Santa Monica
- West Hollywood

Engineering Staff
- Caltrans
- Culver City
- LA County DPW
- LADOT
- Long Beach

Transit Operators
- Metro Operations & Service Planning
- Big Blue Bus
- Culver City Bus
- Foothill Transit
- GTrans
- LADOT
- Long Beach Transit
- Pasadena Transit

Bicycle Education & Outreach
- Bike SGV
- LACBC
- MCM
- Santa Monica Spoke
Peer Review

- SEPTA (Philadelphia)
- King County Metro / Seattle DOT
- San Francisco MTA
Outreach

- Municipal Staff Interviews
- Operator & Bicyclist Focus Groups
- Bicyclist Survey

BIKE RIDERS, METRO WANTS TO HEAR FROM YOU!

If you ride a bike in LA, we invite you to share your views. We're conducting a survey to learn more about how you share the road with buses and other vehicles, and how street designs affect your safety and comfort when riding. Complete the survey and you can enter to win an iPad or one of three Bike Metro Prize Packs.

surveyMonkey.com/r/bikebusstudy
# Study Corridors

<table>
<thead>
<tr>
<th>Infrastructure Type</th>
<th>Corridors</th>
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<tbody>
<tr>
<td>Standard bike lanes</td>
<td>7th St</td>
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<tr>
<td></td>
<td>Main St</td>
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<tr>
<td></td>
<td>Pacific Av</td>
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<td></td>
<td>San Pedro St</td>
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<td></td>
<td>Van Nuys Blvd</td>
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<td>Buffered bike lanes</td>
<td>Alamitos Ave</td>
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<td></td>
<td>Colorado Blvd</td>
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<td></td>
<td>Venice Blvd</td>
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<tr>
<td>Separated bikeways</td>
<td>Broadway</td>
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<td></td>
<td>Los Angeles St</td>
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<td></td>
<td>Reseda Blvd</td>
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<td></td>
<td>Rosemead Blvd</td>
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<tr>
<td>Shared Bus/Bike Lanes (Bus Only Lanes)</td>
<td>Figueroa St</td>
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<td></td>
<td>Sunset Blvd</td>
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<td>Wilshire Blvd</td>
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Study Metrics

1. Corridor volumes (ADT, bus frequency, bikes)
2. Ridership
3. Behavior
   - Daily bus on/off
   - Vehicle speeding
   - Bicyclists riding the wrong way / sidewalk
4. Bus operations
   - Change in bus speed
   - Change in reliability
5. Bicycle Traffic Stress
6. Collisions by mode
General Findings

1. Bicycling increased on all study corridors
2. Addition of bike facilities improved safety and standardized riding behavior
3. No apparent correlation between bus frequency and bicycling activity
4. Bus performance largely unchanged on study corridors
5. All users prefer green “skip-stripe” markings
6. Buses and bicycles can share streets safely
Key Takeaways for Training & Education

1. Help bus operators understanding bicycling perspective
2. Sharing information about new street conditions
3. Help bicyclists understand bus operator perspective
4. Proactive bicycle safety education
Design Guidelines

• Eight recommendations
• Focus on bike-bus interaction at stops, intersections and corridors
• Responsive to gaps in existing guidelines
• Supported by corridor analysis, particularly outreach and stakeholder engagement
Implementation Process Recommendations

Recipe for Success

1. Collaborative process
2. Early engagement
3. Follow-up

before

after
Thank You

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Reseda Boulevard

Plummer Street to Parthenia Street (1.0 miles)  Northridge, City of Los Angeles

Corridor Context
The separated bikeway was installed in April 2015 as part of the City of Los Angeles' Great Streets program, which aims to increase economic activity, improve mobility and enhance neighborhood character. This corridor has low connectivity with the bike network.

Focus Group Perceptions
> People on bicycles liked the separated bikeways but some expressed confusion about the unique striping
> Operators said parked cars can limit sight lines of bicyclists in some places
> Operators are concerned about pulling in/out of stops from a wide angle

Findings
> Decrease in the percent of people riding the wrong way or on the sidewalk
> Bicycling along the corridor remains low; bike network connectivity is limited
> Number of collisions involving people on bicycles declined
> Bus OTP has remains relatively unchanged since the installation
> Number of bus related collisions declined

BEFORE
Standard bike lanes

AFTER
Separated bikeways
<table>
<thead>
<tr>
<th>Reseda Boulevard</th>
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<tbody>
<tr>
<td><strong>BEFORE SNAPSHOT</strong></td>
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<tr>
<td><strong>Average Daily Traffic</strong></td>
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<tr>
<td><strong>Average Speed (Posted Speed Limit: 35 MPH)</strong></td>
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<td><strong>Daily Bus On &amp; Offs</strong></td>
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<tr>
<td><strong>Buses Per Hour</strong></td>
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<td><strong>Bikes Per Hour</strong></td>
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<td><strong>Wrong Way Riders</strong></td>
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<td><strong>Sidewalk Riders</strong></td>
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People on bicycles and bus operators expressed some confusion with the painted merging areas, due to the unique striping on the corridor.
### Bus Reliability

Reliability improved somewhat in both directions during the PM peak period.

<table>
<thead>
<tr>
<th></th>
<th>AM</th>
<th>PM</th>
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<tbody>
<tr>
<td>SOUTHBOUND</td>
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<tr>
<td>NORTHBOUND</td>
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<table>
<thead>
<tr>
<th>Change In Reliability</th>
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<tbody>
<tr>
<td>Much Less Reliable</td>
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<tr>
<td>Less Reliable</td>
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<tr>
<td>Minimal Change</td>
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<td>More Reliable</td>
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<tr>
<td>Much More Reliable</td>
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### Change in Bus Speed

Slight increase in average speed southbound in the AM; decreased northbound speed in the PM peak period.

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<tr>
<th></th>
<th>AM</th>
<th>PM</th>
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<tbody>
<tr>
<td>SOUTHBOUND</td>
<td>14.2 MPH</td>
<td>15.4 MPH</td>
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<tr>
<td>NORTHBOUND</td>
<td>14.8 MPH</td>
<td>14.8 MPH</td>
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<table>
<thead>
<tr>
<th>Change in Mean Speed</th>
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<tr>
<td>-3 MPH or More</td>
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<td>-3 MPH to -1 MPH</td>
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<tr>
<td>Minimal Change</td>
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<td>1 MPH to 3 MPH</td>
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### Change in Bicycle Traffic Stress

Comfort increased on street segments but was unchanged at intersections for people on bikes.

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**Units of Analysis**
- Segment
- Intersection

**Level of Stress**
- Much More Comfortable
- More Comfortable
- No Change in Comfort
- Less Comfortable