Overview

• Types of Cyclists
• Purpose for Riding
• Types of Facilities
  – Bike Lanes
  – Bicycle Boulevards
  – Cycle Tracks
  – Intersections
  – Signals
  – Signing and Marking
• Discussion
### Types of Bicyclists

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong &amp; Fearless, 1%</td>
<td></td>
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<tr>
<td>Interested but Concerned, 60%</td>
<td></td>
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<tr>
<td>No Way, No How, 33%</td>
<td></td>
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<tr>
<td>Enthusiastic &amp; Confident, 7%</td>
<td></td>
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</tbody>
</table>
Purpose for Riding

• Utilitarian
  – Commuting
  – Errands
  – Kids to school

• Recreational
  – Exercise & fun
  – Family rides

• Athletic
  – Competitive riders
  – Events
  – Training rides
Bikeway Networks

On and Off-Street Facilities
Conventional Bike Lanes

- Increases comfort & confidence on busy streets
- Increases total capacities of streets
- Visually reminds motorists of bicyclists
Buffered Bike Lanes

- Greater shy distance between autos & bikes
- More space without being mistaken for travel or parking lane
- Appeals to more users, increases perceived safety
Bike Lanes

Contra-flow Bike Lanes

• Provides connectivity and access

• Decreases trip distance

• Allows bicyclists to use safer, less trafficked streets
Left-side Bike Lanes on One-Way Streets

- Avoids potential right-side bike lane conflicts
- Improves bicyclist visibility by motorists
- Minimizes door zone conflicts
Bicycle Boulevard

- Attractive, convenient shared roadway
- Low-volume, low-speed streets
- Traffic calming and diverters
- Signage & pavement marking
Cycle Tracks

- Includes both a separated path & on-street infrastructure
- Curb-side of parked cars
- Attractive to more types of cyclists
Cycle Tracks

One-Way Protected

• Street level
• Protect from passing traffic
• Increases perceived comfort and safety
• Comparatively low implementation costs
Cycle Tracks

Raised Cycle Track

• Grade separation between cyclists & motor vehicles
  – Some separated from pedestrians

• At intersection go to street or sidewalk level

• Mountable curb for bikes
Cycle Tracks

Two-Way Cycle Track

- Bicycle movement in both directions on one side of road
- Raised or street level
- More driveway & cross-street considerations
Intersection Treatment

- Junctions where modes meet
- Potential source of conflict
- Needs high visibility & clear Right-of-Way indication
- Reduce risk and increase comfort for cyclists
Intersection Treatments

Bike Boxes (or Advanced Stop Line)

- Area reserved for cyclists in front of traffic at signalized intersection
- Provides visibility
- Bicyclist can get ahead of queuing traffic
- Helps prevent “right-hook” accidents with turning vehicles
Intersection Treatment

Intersection Crossings

- Pavement markings through intersection
- Guide bicycles
- Increase visibility for automobile
- Raise awareness of conflict areas
Intersection Treatment

Two-Stage Turn Queue Boxes

• Safe way to make left-turns from right side

• Higher average signal delay

• Reduces turning conflict
Intersection Treatment

Median Refuge Island

- Protected space in center of street
- Reduces crossing length & exposure to vehicles
- Traffic Calming
Intersection Treatment

Combined Bike Lanes/Turn Lanes

- Suggested bike lane within motor vehicle turn lane
- Signage to encourage proper positioning
- Reduce “right hook” conflicts
Intersections

Cycle Track Intersection Approaches

• Bringing cycle track next to (or shared with) motor vehicle

• Similar to conventional bike lane

• Less expensive than full bike signals
Signals

**Bicycle Signal Heads**

- Indicates bicycle signal phases
- Provides priority to cyclists
- Simplifies bicycle movements through complex intersections
Signals

Signal Detection & Actuation

• Activate traffic signal for cyclists
  1. Detect cyclists
  2. Guidance for detection

• Improves efficiency and convenience
Signals

Active Warning Beacon

- Unsignalized intersections & mid block crossings
- User activated
- Higher visibility, supplement signage
Hybrid Signal (HAWK)

- High-intensity Activated Crosswalk (HAWK)
- Bike route crossing at major intersections
- Improve crossings with low side street volumes
Signing and Marking

Bike Route Wayfinding

• Comprehensive signs and markings

• Guide bicyclists to destinations along preferred routes

• Can include destination, time for travel
Signing and Marking

Colored Bike Facilities

• Increases visibility

• Identify potential conflict areas

• Reinforces bicycle priority

• Consistency
Signing and Marking

Shared Lane Markings (Sharrows)

• Indicate a shared lane between vehicles and cyclists
• Pavement marking to support network
• Reinforce legitimacy of bike on roadway
• Provide positioning for cyclist
Discussion