All Ages and Abilities Bicycle Facilities

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All ages and abilities bicycle facilities

A NETWORK THAT WORKS FOR EVERYONE
What kind of cyclist do we design for?
- Middle-aged man
- Wearing a helmet
- Nice (expensive) bike
- Bright clothing and lights
- Maybe does long races
- Performance gear
- No bag or lock
- Nice weather
- Casual woman & child
- Wearing a helmet(?)
- Wide tricycle w/ trailer
- Everyday clothing
- Has basket and lock
Types of Cyclists per FHWA-RD-92-073

- **Group A—Advanced Bicyclists:**
  - Experienced riders who can operate under most traffic conditions
  - Comprise the majority of the current users
  - Desire to operate at maximum speed

- **Group B—Basic Bicyclists:**
  - Casual or new adult/teenage riders who are less confident of their ability to operate in traffic
  - Prefer well-defined separation of bicycles and motor vehicles

- **Group C—Children:**
  - Pre-teen riders whose roadway use is monitored by parents
  - Access to key destinations surrounding residential areas
  - Prefer well-defined separation of bicycles and motor vehicles
Types of Facilities per FHWA-RD-92-073

“Group A Cyclist”

“Group B/C Cyclist”

[Images of cyclists and their surroundings]
Problems with FHWA-RD-92-073

Design Cyclist classification:

- is based solely on skill and confidence and does not include comfort or purpose
- is based on current cycling behavior, not potential
- assumes that the majority of riders fit into “Group A”
- assumes that bike lanes or shoulders are suitable for every adult cyclist
- doesn’t consider how higher stress facilities discourage cycling for transportation
- assumes that children only need to be accommodated near residential areas
Maybe it’s more complicated than A, B, C?
# Four Types of Cyclists

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong &amp; Fearless</td>
<td>Very comfortable <em>without</em> bike lanes</td>
</tr>
<tr>
<td>Enthused &amp; Confident</td>
<td>Very comfortable <em>with</em> bike lanes</td>
</tr>
<tr>
<td>Interested but Concerned</td>
<td>Not very comfortable, interested in cycling more</td>
</tr>
<tr>
<td></td>
<td>Not very comfortable, currently cycling for transportation</td>
</tr>
<tr>
<td>No Way No How</td>
<td>Physically unable</td>
</tr>
<tr>
<td></td>
<td>Very uncomfortable on paths</td>
</tr>
<tr>
<td></td>
<td>Not interested</td>
</tr>
</tbody>
</table>
Four Types of Cyclists

More than just the numbers: who are they?

- **Utilitarian cyclist:**
  - Disproportionately men
  - 43 - 46% of each Type

- **Non cyclist:**
  - Disproportionately women

- **Enthused and Confident:**
  - Between 35 - 54 years old
  - More likely to have ridden to school as a child
Understanding the Target Market

- Interested but Concerned:
  - 58% are recreational or non-cyclist
  - Comfort level on various facilities
  - Levels of social support and influence
  - Fear of being hit
Designing for All Ages & Abilities

Contextual Guidance for High-Comfort Bicycle Facilities

Designing for all Ages and Abilities
Who is the “All Ages & Abilities” User?
All Ages and Abilities Considerations

- Safety:
  - Operational dimensions
  - Built environment

- Comfort:
  - Perception and reaction time
  - Physical ability
  - Decision-making ability
  - Risk perception/tolerance

- Equality:
  - Summer and winter usage
  - Income
Operational Dimensions
The Built Environment

- Prioritize safety and comfort
- Prioritize trips and connections to destinations, not recreation
- Accommodate wider and longer bikes
- Resolve obstacles and missing links

- Prioritize speed, avoid interruptions
- Recreation, to and from home
- Longer distances, hills, obstacles
Perception and reaction time

Physical ability

Risk tolerance
Summer use  Winter use  Equity
Sources of Stress

- Vehicle speed and volume
- Multiple vehicle lanes
- Queuing and congestion
- Peak versus non-peak
- Intersections
- Trucks and large vehicles
- Curbside activity
- Transit routes
### Selecting the right facility

#### Contextual Guidance for Selecting All Ages & Abilities Bikeways

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Any</td>
<td>Any</td>
<td>Any</td>
<td>Any</td>
<td>Any of the following: high curbside activity, frequent buses, motor vehicle congestion, or turning conflicts</td>
<td>Protected Bicycle Lane</td>
</tr>
<tr>
<td>&lt; 10 mph</td>
<td>Less relevant</td>
<td>≤1,000 – 2,000</td>
<td>No centerline, or single lane one-way</td>
<td>Pedestrians share the roadway</td>
<td>Shared Street</td>
</tr>
<tr>
<td>≤ 20 mph</td>
<td>≤500 – 1,500</td>
<td>≤1,500 – 3,000</td>
<td>Single lane each direction, or single lane one-way</td>
<td>≤ 50 motor vehicles per hour in the peak direction at peak hour</td>
<td>Bicycle Boulevard</td>
</tr>
<tr>
<td>≤ 25 mph</td>
<td>≤1,500 – 3,000</td>
<td>≤3,000 – 6,000</td>
<td>Multiple lanes per direction</td>
<td>Low curbside activity, or low congestion pressure</td>
<td>Conventional or Buffered Bicycle Lane, or Protected Bicycle Lane</td>
</tr>
<tr>
<td></td>
<td>Greater than 6,000</td>
<td>Greater than 6,000</td>
<td>Any</td>
<td>Protected Bicycle Lane</td>
<td></td>
</tr>
<tr>
<td>Greater than 26 mph</td>
<td>6,000</td>
<td>Single lane each direction</td>
<td>Low curbside activity, or low congestion pressure</td>
<td>Protected Bicycle Lane, or Reduce Speed</td>
<td></td>
</tr>
<tr>
<td>High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts</td>
<td>≥6,000</td>
<td>Multiple lanes per direction</td>
<td>Protected Bicycle Lane, or Bicycle Path</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>High pedestrian volume</td>
<td>Low pedestrian volume</td>
<td>Bike Path with Separate Walkway or Protected Bicycle Lane</td>
<td></td>
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</tr>
</tbody>
</table>

1. High-speed limited access roadways, natural corridors, or geographic edge conditions with limited conflicts.
Bicycle Boulevard or Shared Street

Conventional Bike Lane

Buffered Bike Lane
Protected Bike Lane
Protected Bike Lane with Separate Pedestrian Facility
Shared used Path
Strategies to Reduce Stress
In summary

- Don’t design based on *current* cycling ability
- Consider all sources of stress
- Provide facilities to reduce stress to encourage utilitarian cycling
- Champion protected bike lanes
- Prioritize bicycle network on lower speed, lower volume roads
- Connect facilities to major destinations
Questions?

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