BikeAble™

Measuring Low-Stress Bicycle Connectivity

Planning Innovations: Tricks and Tools for Implementing Complete Streets
Bay Area Regional Trail Network

- Bay Trail, Ridge Trail, Coastal Trail, paved trail network
- 2700 miles, almost 60% complete
What is BikeAble™?

A tool for measuring bicycle connectivity between origins and destinations via low traffic stress routes.
The Four Types of Bicyclists

- Strong and Fearless - 1%
- Enthused and Confident - 6%
- Interested, But Concerned - 60%
- No Interest - 33%
Level of Traffic Stress

Low Stress

High Stress

Speed Limit

Number of Lanes
Stress Reducers

- Trail
- Protected Bike Lane
- Buffered Bike Lane
- Bike Lane
- Sharro W
**Perceived Traffic Stress**
(based on vehicle speed & # of lanes)

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<thead>
<tr>
<th>Bicycle Facility Improvements</th>
<th>High Stress</th>
<th>Moderate Stress</th>
<th>Low Stress</th>
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<tbody>
<tr>
<td>Trail</td>
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<td>Protected Bike Lane</td>
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<td>No Bike Facilities</td>
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**Perceived Traffic Stress Reduction**

- Most Stress Reduction
- Least Stress Reduction
- Restaurants
- Banks
- Grocery stores
- Schools
- Parks
- Transit stations
- Medical facilities
- Etc.
Residential parcels

Level of Traffic Stress

Origin

Destinations

- Restaurants
- Banks
- Grocery stores
- Schools
- Parks
- Transit stations
- Medical facilities
- Etc.
Assign Level of Traffic Stress

- Roadways categorized by:
  - Travel lanes
  - Posted speed
  - Slope
  - Bikeway type

- Intersection features – traffic controls, bike boxes

- Class I bikeways included in network
Assess Network Connectivity

- Determine % of parcels that can reach each of the selected destinations along low-stress routes
- Identify number of each destination type
- Assumptions
  - Destinations within 2 miles of each parcel
  - Bicyclists willing to travel up to 40% further to be on trail
Seattle, WA
Origins and Destinations

162,057 Residential Parcels
21,723 Destinations
Seattle, WA
Scenario Testing – Assessing Connectivity

42% of residents can reach a majority of important destinations using low-stress bikeways

67% of residents can reach a majority of important destinations using low-stress bikeways
Seattle, WA

Scenario Testing – Changes in Trip Flows

Existing Conditions

BMP Buildout

I-5 overpass: #1 ranked project
Milwaukee, WI

Trail Access in Disadvantaged Communities

Current: 8% within 2 miles of trail access point

After Projects Completed: 66% within 2 miles of trail access point
Planning for Bikeable Communities

Key features of BikeAble™

• Level of Traffic Stress – focuses on needs of the 60% “interested but concerned”
• Considers entire network
• Highly customizable – number and types of destinations, stress tolerance, etc.

Potential BikeAble™ applications include…

• Bike plans – scenario testing, prioritizing projects
• Evaluating access to employment sites, schools, recreation
• Assessing impacts of projects on population groups: Communities of Concern, zero-vehicle households, etc.
For More Information

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