MTI Research Snaps:

From White Lines to Green Lanes, How does Level of Traffic Stress (LTS) Do against a Ride Feedback App?

Presented by
Chester Harvey (UC Berkeley)
Kevin Fang (Sonoma State)
Daniel A. Rodriguez (UC Berkeley)

November 14, 2019
Access the full research report at http://transweb.sjsu.edu/research/1711-Bicycle-Level-of-Stress-Crowdsourced-Route-Satisfaction
## Levels of Traffic Stress

<table>
<thead>
<tr>
<th>LTS 1</th>
<th>LTS 2</th>
<th>LTS 3</th>
<th>LTS 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separated bike lane</td>
<td>Buffered bike lane on a calm street</td>
<td>Narrow bike lane or shoulder on a busy street</td>
<td>No bike lane on a busy street</td>
</tr>
</tbody>
</table>

Adapted from City of Bend, OR

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Abbreviated Name</th>
<th>Year</th>
<th>Input Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveyal²</td>
<td>Conveyal</td>
<td>2015</td>
<td>4</td>
</tr>
<tr>
<td>Furth³</td>
<td>Furth</td>
<td>2017</td>
<td>6</td>
</tr>
<tr>
<td>Lowry, Furth, and Hadden-Loh⁴</td>
<td>Lowry</td>
<td>2016</td>
<td>4</td>
</tr>
<tr>
<td>Mekuria, Furth, and Nixon⁵</td>
<td>Mekuria</td>
<td>2012</td>
<td>18</td>
</tr>
<tr>
<td>Montgomery County, Maryland⁶</td>
<td>Montgomery</td>
<td>2017</td>
<td>12</td>
</tr>
<tr>
<td>Oregon Department of Transportation⁷</td>
<td>ODoT</td>
<td>2017</td>
<td>15</td>
</tr>
<tr>
<td>People For Bikes⁸</td>
<td>PFB</td>
<td>2017</td>
<td>6</td>
</tr>
</tbody>
</table>
Key Questions

• Do different LTS methods yield comparable results?

• Does LTS reflect how bicyclists actually feel?
Differences Between LTS Methods

Portland, Oregon (n=633)

Austin, Texas (n=445)

LTS Method

Conveyal  Furth  Lowry  Mekuria  Montgomery  ODoT  PFB

LTS
Conveyal  LTS 4
Furth      LTS 3
Lowry      LTS 1
Mekuria    LTS 1
Montgomery LTS 2
ODoT       LTS 1
PFB        High

NW Gilson St Between 19th Ave and 18th Ave in Portland (source: Google)
Differences Between LTS Methods

More Consistency in Austin
LTS vs. Ride Report
LTS vs. Ride Report

Stronger Correlation in Portland

Portland, Oregon
(n=633)

Austin, Texas
(n=445)

Conveyal  Furth  Lowry  Mekuria  Montgomery  ODoT  PFB

LTS Method
LTS vs. Ride Report

Stronger correlations among traditionally underrepresented cyclists

- Trips to/from disadvantaged communities
- Shorter trips
- Midday trips
- Slower cyclists

LTS represents my perspective!
Key Takeaways

$LTS_a \neq LTS_b$

- Worth specifying WHICH method you’re using
e.g.: “...LTS analysis using the Mekuria LTS method...”

LTS is fairly representative of perceptions

- Especially among traditionally underrepresented cyclists

Consider simple(r) methods

e.g.: Conveyal, Furth (“LTS 2.0”), Lowry

- Fewer data requirements
- Well-correlated with cyclists’ perceptions
Thank you for joining us for:
From White Lines to Green Lanes, How does Level of Traffic Stress (LTS) Do against a Ride Feedback App?

View the full report at: [http://transweb.sjsu.edu/research/1711-Bicycle-Level-of-Stress-Crowdsourced-Route-Satisfaction](http://transweb.sjsu.edu/research/1711-Bicycle-Level-of-Stress-Crowdsourced-Route-Satisfaction)

Chester Harvey: chesterharvey@berkeley.edu
Kevin Fang: fangk@sonoma.edu
Daniel A. Rodriguez: danrod@berkeley.edu

Tune in for the next MTI Research Snap webinar “Hands-free texting, is it really safer?” on January 30th, 2020 at 10 a.m.!

Have a suggestion for a webinar topic you’d like to see featured? Email irma.Garcia@sjsu.edu
Differences Between Data Sources

Simpler Methods Less Sensitive to Data Differences