Trail Characteristics as Correlates of Urban Trail Use

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Rationale for Examining Correlates of Trail Use

- Benefits & availability of trails
- Correlates identified in prior studies
  - Distance to trail, barriers (busy streets, hills)
  - Age, education, income and gender of user
- Further research needed on environmental correlates
Elements of the Research

- Trail selection
- Trail count
- Trail audit
- Characterize built & social environment
  - Divide trail into ½ mile segments
  - Create buffer 1 mile on each side of trail
- Survey of trailside residents
Trail Selection

♦ Trail selection criteria
  – Trails from different regions
  – Continuous, multi-use, >15 miles
  – Urban or suburban setting
  – Traverse neighborhoods: Hispanic, African-American, European-American

♦ Identified through websites, key informant interviews, literature
Chicago Lakefront Trail
Dallas White Rock Lake Trail
Los Angeles River Trail
Trail Count Procedures

- Observers working in pairs recorded:
  - Age (<18, 18-39, 40-64, 65>)
  - Gender
  - Type of activity (cycling, jogging)
- Two weekdays, two weekend days
- Segment boundaries (every ½ mile) verified by GPS and marked in advance
- Observations in 15 minute intervals
- Inter-rater agreement (A:.67; G:.90; T:.94)
Trail Use

- 17,738 users counted on all three trails
- Users were 67% male
- Use varied by age (6% 18 years or less; 56% 18-39; 36% 40-64; 2% 65+)
- Use varied by activity (67% Cyclists; 14% joggers; 13% walkers; 5% skaters; 1% other activities)
- 57% weekend users and 43% weekday
Trail Audit

- Systematic coding of trail characteristics
- Searched for existing audit instruments (Moudon AJHP 2003;18(1):21-37)
- Adapted Systematic Pedestrian And Cycling Environmental Scan (Pikora AJPM 2002;23(3):187-194)
- Adapted for use on trails
- Two auditors rated each trail
Elements of the Trail Audit
Data Analysis Procedures

- Poisson regression (SAS; GENMOD)
- SPACES variables allocated to categories
  - Aesthetics
  - Continuity & navigation
  - Ease of use
  - Safety
  - Trail & adjacent characteristics, obstacles, services
- Trail use regressed on SPACES variables in univariate and multivariate models
- Variables added to multivariate runs by category and based on strength of univariate association
- Sensitivity analyses with negative binomial model
- No evidence for global autocorrelation or influential cases
### Correlates of Trail Use Using Poisson Regression

**Aesthetics, Ease & Attractiveness, Safety**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Estimate</th>
<th>Wald 95% CI</th>
<th>Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litter Present</td>
<td>-0.16</td>
<td>-0.24,-0.07</td>
<td>-15</td>
</tr>
<tr>
<td>Trail Noise</td>
<td>-0.51</td>
<td>-0.61,-0.40</td>
<td>-47</td>
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<tr>
<td>View: Mixed vs Natural</td>
<td>0.34</td>
<td>0.22,0.47</td>
<td>40</td>
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<tr>
<td>View: Urban vs Natural</td>
<td>0.15</td>
<td>-0.07,0.38</td>
<td>17</td>
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<tr>
<td>Trail Crowding</td>
<td>0.75</td>
<td>0.63,0.86</td>
<td>111</td>
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<tr>
<td>Vegetation Density</td>
<td>-0.13</td>
<td>-0.19,-0.07</td>
<td>-12 Medium vs D</td>
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<tr>
<td></td>
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<td>-23 Light vs D</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>-32 None vs D</td>
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<tr>
<td>Streetlights Present</td>
<td>0.29</td>
<td>0.20,0.39</td>
<td>34</td>
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<tr>
<td>Parameter</td>
<td>Estimate</td>
<td>Wald 95% CI</td>
<td>Percent Change</td>
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<tr>
<td>-----------------------------------------------------</td>
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<tr>
<td>Trail Condition</td>
<td>0.23</td>
<td>0.15,0.31</td>
<td>26 Fair vs Excel</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>58 Poor vs Excel</td>
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<tr>
<td>Drainage Canal as Predominate Built Feature</td>
<td>-0.64</td>
<td>-0.92,-0.36</td>
<td>52</td>
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<tr>
<td>Natural Features</td>
<td>-0.30</td>
<td>-0.37,-0.23</td>
<td>-74</td>
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<tr>
<td>Tunnel Present</td>
<td>-0.20</td>
<td>-0.36,-0.03</td>
<td>-18</td>
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<tr>
<td>Café Present</td>
<td>0.54</td>
<td>0.44,0.64</td>
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<tr>
<td>Count of Trailside Facilities</td>
<td>0.09</td>
<td>0.05,0.13</td>
<td>10</td>
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</tbody>
</table>

Correlates of Trail Use Using Poisson Regression
Trail & Trail Adjacent Characteristics
Discussion

- Built environmental correlates of urban trail use identified in 7 of 8 categories
- Continuity and Navigation not a correlate
- Features that diminish aesthetic appeal may decrease trail use
- Features boosting perception of safety and ability to be seen may increase use
- Trailside services, particularly food service are related to increased use
Future directions

- Explore correlates by type of trail use, gender, age
- Confirm the model (split sample or bootstrap)
- Utilize GIS variables
- Complete multi-level models with individual level data