Urban greenways in diverse neighborhoods: Public use and perceptions of greenway-related benefits

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Greenways are...

“multiple objective, open space corridors that perform natural functions while offering desirable aesthetic qualities to humans as they recreate or commute along trails.” (Shafer et al., 2000)
## Greenway Classification Spectrum

**Table 3**  
A Spectrum Based Greenway Classification Scheme  

<table>
<thead>
<tr>
<th>Type of Greenway</th>
<th>Functions</th>
<th>Connectivity</th>
<th>Characteristics</th>
<th>Access</th>
<th>Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>Primary</td>
<td>Secondary</td>
<td>Overall</td>
<td>A</td>
<td>Highest</td>
</tr>
<tr>
<td></td>
<td>flood control recreation</td>
<td>habitat for flora &amp; fauna utility corridor</td>
<td>Between businesses and other public use areas important. Grade separation from roadways most important for convenient human travel.</td>
<td>Highly visible access points from many adjacent use areas.</td>
<td>Designed for multiple and high intensity use. Typical hard surface and wide tread.</td>
</tr>
<tr>
<td></td>
<td>transportation</td>
<td>economic development</td>
<td>Grade separation bridges designed for passage by humans and wildlife</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>aesthetic quality</td>
<td></td>
<td>Entire floodplain is ideal. May require more for trails and buffer if floodplains are narrow.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suburban</td>
<td>flood control</td>
<td>economic development</td>
<td>Between residences and key destinations. Grade separation bridges designed for passage by humans and wildlife</td>
<td>Access points dispersed to key entry and exit &quot;collectors&quot; points in neighborhoods.</td>
<td>Designed for multiple use. Softer surface. Multiple treads may be needed to provide for recreational diversity.</td>
</tr>
<tr>
<td></td>
<td>recreation</td>
<td>habital for flora &amp; fauna utility corridor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>transportation</td>
<td>aesthetic quality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>flood control</td>
<td>economic development</td>
<td>Between wildlife habitat areas important. Grade separation bridges designed for passage by humans and wildlife</td>
<td>Entire floodplain with additions to include critical conservation areas the corridor touches.</td>
<td>Natural soil surface and minimal width. Minor improvements to control erosion and allow safe passage (e.g., bridge).</td>
</tr>
<tr>
<td></td>
<td>habitat for flora &amp; fauna</td>
<td>transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>recreation</td>
<td>aesthetic quality</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Shafer, Scott & Mixon, 2000
Greenway use

- Promote physical activity
- Activities
  - Bicycling
  - Walking
  - Running
  - Skating
Benefits of greenways

• Urban connectivity
  – (Ahern, 2002)

• Quality of life/ Well-being
  – (Shafer et. al, 2000)
  – (Chiesura, 2004)

• Social inclusion
  – (Kazmierczak & James, 2007)

• Physical health & wellness
  – (Harnik & Welle, 2011)

• Alternative transportation
  – (Shafer et. al, 2000)

• Access to/ interaction with nature
  – (Chon & Shafer, 2009)

• Economic benefits
  – (Boyd & Banzhaf, 2007)

• Ecosystem services
  – (Boyd & Banzhaf, 2007)
General greenway users

• Socio-demographics (Reed, 2014; Wolch et al, 2010)
  – White
  – High-income
  – Well educated
Accessibility

• Users travel less than 5 miles from their home to greenway
  - (Reed et al., 2011; Gobster, 1995; Furuseth & Altman, 1991)

• Minorities have high access to greenways
  - (Lindsey et al., 2001)
Green walls or green magnets?

- Green walls
  - (Solecki & Welch, 1995)

- Green magnets
  - (Gobster, 1998)
  - (Coutts & Miles, 2011)
# Greenway Classification Spectrum

**Shafer, Scott & Mixon, 2000**

<table>
<thead>
<tr>
<th>Type of Greenway</th>
<th>Functions</th>
<th>Connectivity</th>
<th>Width</th>
<th>Access</th>
<th>Trail</th>
<th>Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban</td>
<td>Primary flood control recreation transportation economic development aesthetic quality</td>
<td>Primary flood control recreation transportation economic development aesthetic quality</td>
<td>Primary flood control recreation transportation economic development aesthetic quality</td>
<td>Primary flood control recreation transportation economic development aesthetic quality</td>
<td>Primary flood control recreation transportation economic development aesthetic quality</td>
<td>Primary flood control recreation transportation economic development aesthetic quality</td>
</tr>
<tr>
<td>Suburban</td>
<td>flood control recreation transportation economic development aesthetic quality</td>
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<td>flood control recreation transportation economic development aesthetic quality</td>
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<td>flood control recreation transportation economic development aesthetic quality</td>
<td>flood control recreation transportation economic development aesthetic quality</td>
</tr>
<tr>
<td>Rural</td>
<td>flood control recreation transportation economic development aesthetic quality</td>
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</tr>
</tbody>
</table>
Research Questions

• What types of people are using these greenways, and how (activity, use frequency/intensity, etc.)?

• What motivates people to visit the different types of greenways?

• How do greenway users from each type of trail perceive greenway-related benefits?
San Antonio, Texas

Leon Creek Greenway

SUBURBAN

San Antonio, Texas
Methods

- Direct observation (SOPARC)
- Intercept surveys
- May – August 2015
- Data Analysis
  - Chi square tests
  - ANOVA
  - Descriptives
  - ArcGIS
Direct Observation

- System for Observing Play and Recreation in Communities (SOPARC)
- Sample size
  - Leon Creek Greenway: 464
  - Eastside Trail: 2,111*
- Adequate coverage throughout time of day and day of week
- 30-minute intervals
- Construct basic profile of users
- Observer trained by experienced SOPARC researcher
Intercept Surveys

- Greenway access points
- Adequate temporal coverage
- Incentives
  - Cold water in Atlanta and shade in San Antonio
- Approached as many users as possible
- Response rate
  - Leon Creek Greenway: 78%
  - Eastside Trail: 65%
- Sample size
  - Leon Creek Greenway: 429
  - Eastside Trail: 505
Intercept Surveys

• Items
  – Demographics
  – Use patterns
  – Access
  – Motivations
  – Importance/Performance
  – Perceived Benefits
Atlanta Beltline Visitor Survey

Clemson University is conducting a study of visitors to the Atlanta Beltline trail. Your responses will help the city manage the trail for your use and enjoyment. Please take a few minutes to complete this questionnaire. Your help is voluntary and responses are anonymous and confidential.

1. Including today, how many times have you visited the Atlanta Beltline trail in the past month? _______ visits

2. How does your use of the Beltline trail change during October through March? (Check ONE.)
   - ☐ Decreases
   - ☐ Does not change
   - ☐ Increases

3. How many people, if any, traveled with you to the trail today? _______ people

   3a. How many of those traveling with you today are under age 18? _______ people

4. How much time will you spend on the trail today? _______ hour(s) and/or _______ minutes

5. Please check ALL the activities you participated in during your visit to the Beltline trail today.
   ☐ Walking
   ☐ Skating or skateboarding
   ☐ Jogging/running
   ☐ Dog walking
   ☐ Biking
   ☐ Wildlife viewing/photography
   ☐ Other (specify): ____________________________

6. How do you usually get to this trail? (Check ONE.)
   - ☐ Walk or Bicycle
   - ☐ Car or personal motor vehicle
   - ☐ Public transportation (bus, train)
Eastside Trail (Urban)
Race/Ethnicity

- White
- Hispanic/Latino
- Af. American/Black
- Other

Observed vs Reported
Leon Creek Greenway (Suburban)
Race/Ethnicity

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Observed</th>
<th>Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Af. American/Black</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Race/Ethnicity (% of Observed Users)

- **Leon Creek (Suburban)**
- **Eastside Trail (Urban)**

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Leon Creek (Suburban)</th>
<th>Eastside Trail (Urban)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Hisp./Latino</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>Af. American</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Asian</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Age, Gender & Education

• Majority adult
  – Eastside Trail (Urban): 96% adult
  – Leon Creek (Suburban): 92% adult

• Majority male
  – Eastside Trail (Urban): 54% male
  – Leon Creek (Suburban): 62% male

• Majority college educated
  – Eastside Trail (Urban): 93% college degree
  – Leon Creek (Suburban): 80% college degree
Activity Distribution (%)

Leon Creek Greenway (Suburban)
- Bicycle
- Walk
- Run
- Skate

Eastside Trail (Urban)
- Bicycle
- Walk
- Run
- Skate
Trip Purpose (%)

- **Recreation**: Leon Creek (Suburban) - 95%, Eastside Trail (Urban) - 90%
- **Parks/HS**: Leon Creek (Suburban) - 5%, Eastside Trail (Urban) - 10%
- **Work**: Leon Creek (Suburban) - 10%, Eastside Trail (Urban) - 5%
- **School**: Leon Creek (Suburban) - 5%, Eastside Trail (Urban) - 10%
- **Dining/Stores**: Leon Creek (Suburban) - 5%, Eastside Trail (Urban) - 10%
- **Other**: Leon Creek (Suburban) - 5%, Eastside Trail (Urban) - 10%
Density & Distance

• Density of users (per 30 minutes)
  – Eastside Trail (Urban): 169 users
  – Leon Creek (Suburban): 25 users

• Distance from home ZIP Code to trail
  – Eastside Trail (Urban): 1.3 miles
  – Leon Creek (Suburban): 3.7 miles
Mode of access to trail

Leon Creek Greenway (Suburban)
- Car
- Walk/Bicycle

Eastside Trail (Urban)
- Car
- Walk/Bicycle

Public Transportation
Motivations to visit trail

- Leon Creek (Suburban)
- Eastside Trail (Urban)

- Family/friends
- Rest/relax
- Exercise
- Experience nature
- Transportation
Perceived Benefits

- **Environmental**
  - Protect city’s air quality
  - Protection against extreme weather
  - Protect the city’s water quality

- **Experiential**
  - Provides important habitat for plants and animals
  - Provides a place for outdoor recreation
  - Provides attractive natural scenery
  - Provides a place for people to experience nature

- **Cultural**
  - Connects people from different neighborhoods
  - Creates economic benefits
  - Cultural or historical significance in local communities
Perceived Benefits

- Environmental
- Experiential
- Cultural

Leon Creek (Suburban) vs. Eastside Trail (Urban)
Urban vs Suburban Greenway Users

**Urban Greenway**
- Access by walking/bicycling
- Live less than 3 miles away
- Connects many destinations
- Unique motivation to socialize
- Unique benefits
  - Economic
  - Community connectivity/transportation

**Suburban Greenway**
- Access by car
- Live more than 3 miles away
- Connects few destinations
- Unique motivation to experience nature
- Unique benefits
  - Natural aesthetics
  - Plant/animal habitat
Discussion

• Provides user-based support for Greenway Classification Spectrum

• Insight to greenway planners for identifying goals and locations of greenways

• White users do not dominate all greenways
  – Leon Creek Greenway: 52% non-white

• Atlanta Beltline is constructing trail through different types of neighborhoods
Future Research

• Interviews among residents of adjacent neighborhoods
  – Constraints for non-users
  – Design elements to attract non-users
  – Public involvement in planning decisions

• Further research on other urban, suburban AND RURAL greenways
Questions?

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