Trail Use Assessment

Speaker - John Drew
Methods of Measuring Trail Use

• Measuring and Monitoring Trail Use: A Nationwide Survey of State and Federal Trail Managers
  – January 2002
  – Michigan State University
  – www.prr.msu.edu/trails/pere_marquette_rail
Methods of Measuring Trail Use

- Observation
- Mechanical or electronic counting devices
- Registrations at trailheads
- On-site interview or questionnaire
- Permit
- Entrance or user fees
- Mail Survey
- Photography or video
- Aerial Photography
Indiana University Methodology
Eppley Institute
Center for Urban Policy and the Environment

• Indiana Trails Study
• Monon Trail Research
• Bloomington Trail Research
• Combine Methods
  – Observations
  – Infrared Counters
  – On-site Surveys
  – Return Mail Surveys
Observations

- Six minute periods
- Randomly selected hours from 12-hour, 31-day observation periods

- Total counts
- Type of use
- Demographics
Combining the Data

• Goal: Accurate use measures = number of visits

• Counters = traffic counts
  – includes same person passing same counter several times in one trip

• Adjusting formula (calibration)
Clear Creek Trail User Study

Date:___________  Time:___________  Location___________

<table>
<thead>
<tr>
<th>Walkers</th>
<th>Runners/Joggers</th>
<th>Cyclists</th>
<th>Rollerbladers/Skaters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Walkers-

Total Runners/Joggers-

Total Cyclists-

Total Rollerbladers-

Submitted by:______________
Clear Creek Trail User Study - Demographics

Date:______________   Time:______________   Location______________

<table>
<thead>
<tr>
<th>Caucasian</th>
<th>Minority</th>
<th>Female</th>
<th>Male</th>
<th>Adult</th>
<th>Adolescent</th>
<th>Child</th>
</tr>
</thead>
</table>

Submitted by:______________________
Infrared Monitors

- Mount on 6 x 6 posts
- Inconspicuous locations
- Safety Boxes
Collecting the data

• Counters store 16,000 events
• Bloomington, Winter, Collect Monthly
Download to Data Collector on site
Then from Data Collector to Computer
Results—Indiana Trails Study, Monon


- Sunday: [Traffic Count]
- Monday: [Traffic Count]
- Tuesday: [Traffic Count]
- Wednesday: [Traffic Count]
- Thursday: [Traffic Count]
- Friday: [Traffic Count]
- Saturday: [Traffic Count]
Results—Indiana Trails Study, Monon

**Daily Trail Traffic**

**M1. Daily Trail Traffic**
(Monon Trail, September 2000)

**M2. Daily Trail Traffic**
(Monon Trail, October 2000)
Results—Indiana Trails Study, Monon

M6. Mean Hourly Trail Flow
(Monon Trail, October 2000)

Weekends

Weekdays

Hour of Day
Clear Creek Trail, Bloomington

Daily Average Trail Usage

<table>
<thead>
<tr>
<th>Days</th>
<th>Sun Avg</th>
<th>Mon Avg</th>
<th>Tues Avg</th>
<th>Wed Avg</th>
<th>Thur Avg</th>
<th>Fri Avg</th>
<th>Sat Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users</td>
<td>1007</td>
<td>548</td>
<td>591</td>
<td>631</td>
<td>548</td>
<td>358</td>
<td>768</td>
</tr>
</tbody>
</table>
Benefits and Use of Data?

• Michigan State Study
  – Data increasingly needed in future

• Planning & Construction of New Trails

• Maintenance and Operations
  – Maintenance Schedules
  – Staff Needs

• Locations of Facilities or Services

• Access points
Existing Research Related to Trail Use

Literature Review
Places to Walk

• Direct correlation between convenience of the place and meeting physical activity recommendations
• Those able to walk to the place in less than 10 minutes were most likely to be active
• Neighborhood streets and sidewalks and public parks are most commonly reported safe and convenient places to walk

Powell, Martin, & Chowdhury, 2003
Environmental Barriers

- Minuteman Bikeway--Arlington, MA
- Busy Street Barrier
- Distance
- Steep Hill Barrier

Troped, Saunders, Pate, Reininger, Ureda, & Thompson, 2001
Indiana Trails Study, 2001

- Trail counts using infrared counters
- Intercept surveys with follow-up mail back surveys

- People use trails for health and recreation.
- Most common uses: Walking and Biking
- Most users drive to trails: less than five miles and less than 10 minutes
- On average less than 20% walk to the trail
- 90% lived within a 10 mile radius
- Most users spend about an hour on the trail per visit
- Nearly all view trail as safe
Access to Trail

- Use of walking trails in rural Missouri communities
- Self-reported—Phone survey
- 38.8% Used trails; 55.2% of these reported increased amounts of walking
- Women and high school or less were more likely to have increased amount of walking
- Non-regular walkers more likely to report increased activity due to trail use
- Enabling factors—scenic beauty and free and convenient access
- Construction of walking trail may be viable intervention strategy for increasing physical activity.

Brownson, Housemann, Brown, Jackson-Thompson, King, Malone, & Sallis, 2000
Misc. data

- Environmental Barriers--BRFSS collected in five states showed perceived neighborhood safety was associated with higher levels of physical activity, especially in 65+
More Misc. Data

• Australia focus groups: people believe access to both free and pay facilities can make physical activity more likely

• High density, mixed-use neighborhood development has been associated with more walking trips

• Mass-transit oriented neighborhoods have been associated with more walking trips
More Misc. Data

- ALR—43% of people with safe places to walk nearby met recommended activity levels, compared to 27% without safe trails.

- Worksite interventions have yet to demonstrate a statistically significant increase in physical activity or fitness.
Summary

• Growing amounts of empirical evidence that environmental factors, such as distance to trail, perceived safety, and barriers to access are associated with trail use and physical activity levels.

• Mostly cross-sectional studies reporting correlations and associations between trails and physical activity

• Very few empirical studies showing causal relationships between environmental interventions such as trails and increased physical activity
Research Needed

• Longitudinal studies to determine if walking trails have maintenance effect on walking behavior.

• Experimental studies to determine causal relationships between outdoor recreation facilities like trails and increased physical activity levels.

• Methods to evaluate the overall impact of completed TEA trail projects: Approaching $2 billion since 1991.