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
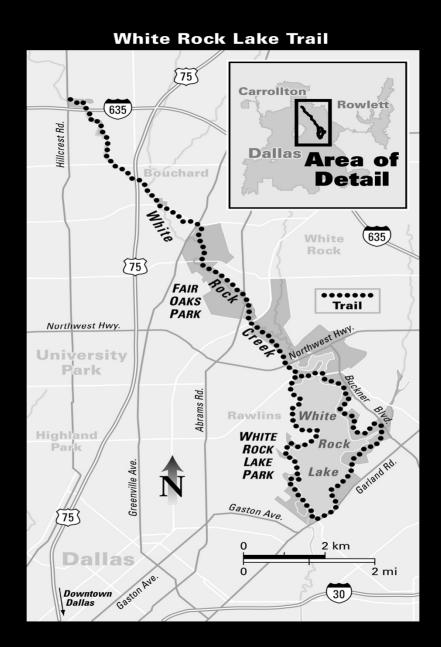
Chicago Lakefront Trail

Chicago Lakefront Trail

0 ——— 4 km
0 ——— 4 mi
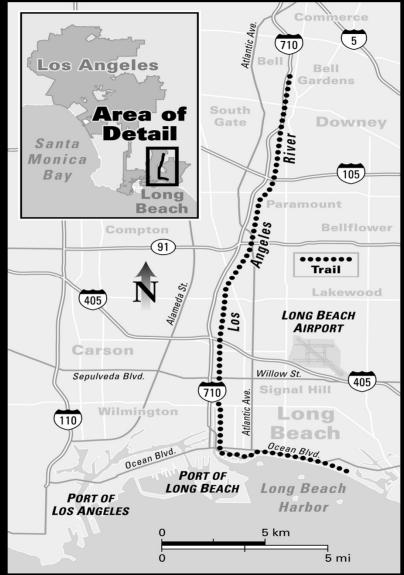
N

[41] [14]
Peterson Ave.

Foster Ave.

Uptown

Irving Park Rd.

[19]

[90] [94]

Lakeview

Lake

Lincoln Ave.

LINCOLN PARK

Lake Michigan

[41]

North Ave.

[64]

Near North Side

Chicago

Western Ave.

Ogden Ave.

Halsted St.

Michigan Ave.

Loop

NAVY PIER

GRANT PARK

●●●●●●●●●
Trail

[290]

Cermak Rd.

[55]

Shore

BURNHAM PARK

43rd St. [41]

Chicago Lakefront Trail parallels U.S. Highway 41

JACKSON PARK

Hyde Park

Dr.

71st St.

[94] [90]

Dr. MLK Jr. Dr.

South Shore

Area of Detail

WI

Waukegan

Lake Michigan

Highland Park

IL

Chicago

IN

Dallas White Rock Lake Trail

White Rock Lake Trail

Area of Detail

Carrollton

Rowlett

Dallas

Hillcrest Rd.

Bouchard

White

Rock

Creek

FAIR OAKS PARK

White Rock

Trail

Northwest Hwy.

Northwest Hwy.

University Park

Abrams Rd.

Rawlins

White

Buckner Blvd.

Highland Park

WHITE ROCK LAKE PARK

Rock

Lake

Garland Rd.

Greenville Ave.

N

Gaston Ave.

Dallas

0   2 km

0   2 mi

Gaston Ave.

Downtown Dallas

30

Los Angeles River 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

Parameter	Estimate	Wald 95% CI	Percent Change
Litter Present	-0.16	-0.24,-0.07	-15
Trail Noise	-0.51	-0.61,-0.40	-47
View: Mixed vs Natural	0.34	0.22,0.47	40
View: Urban vs Natural	0.15	-0.07,0.38	17
Trail Crowding	0.75	0.63,0.86	111
Vegetation Density	-0.13	-0.19,-0.07	-12 Medium vs D -23 Light vs D -32 None vs D
Streetlights Present	0.29	0.20,0.39	34

Controls for population density & city

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

Parameter	Estimate	Wald 95% CI	Percent Change
Trail Condition	0.23	0.15,0.31	26 Fair vs Excel 58 Poor vs Excel
Drainage Canal as Predominate Built Feature	-0.64	-0.92,-0.36	52
Natural Features	-0.30	-0.37,-0.23	-74
Tunnel Present	-0.20	-0.36,-0.03	-18
Café Present	0.54	0.44,0.64	29
Count of Trailside Facilities	0.09	0.05,0.13	10

Controls for population density & city

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