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**Authors**
Johansen, Christopher
Reynolds, Kim D
Wolch, Jennifer
et al.

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# The Association of Trail Features with Self-Report Trail Use by Neighborhood Residents

**Christopher Johansen, Ph.D.**[1], **Kim D. Reynolds, Ph.D.**[1], **Jennifer Wolch, Ph.D.**[2], **Jason Byrne, Ph.D.**[3], **Chih-Ping Chou, Ph.D.**[4], **Sarah Boyle, Ph.D.**[1], **Donna Spruijt-Metz, Ph.D.**[5], **Brianna A. Lienemann, Ph.D.**[6], **Susan Weaver, M.A., M.Pl.**[7], **Michael Jerrett, Ph.D.**[8]

[1]School of Community and Global Health, Claremont Graduate University

[2]College of Environmental Design, University of California Berkeley

[3]School of Technology, Environments and Design, University of Tasmania

[4]School of Medicine, University of Southern California

[5]Dornsife College of Letters, Arts and Sciences, University of Southern California

[6]School of Medicine, University of California San Diego

[7]Weaver Research and Consulting Group

[8]Fielding School of Public Health, University of California Los Angeles

## Abstract

**Background:** Urban trails are a useful resource to promote physical activity. This study identified features of urban trails that correlated with trail use.

**Methods:** Multi-use urban trails were selected in Chicago, Dallas and Los Angeles. An audit of each trail was completed using the SPACES for Trails instrument identifying built environmental features. A self-report of trail use was obtained from trailside residents (N=331) living within one mile of each trail. Univariate and multivariate Poisson regressions controlled for trail time from home and motivation for physical activity.

**Results:** Positive associations with past month hours on the trail were observed for presence of distance signs, vegetation height, vegetation maintenance, and trail crowding; and a negative association was observed for the presence of crossings on the trail. Positive associations with dichotomous trail use were observed for presence of distance signs, vegetation height and vegetation maintenance, and a negative association was observed for the presence of crossings on the trail.

**Conclusions:** These correlates should be confirmed in other studies and if supported should be considered in the promotion and design of urban trails.

Address correspondence to: Christopher Johansen, PhD., Claremont Graduate University, School of Community and Global Health, 675 W Foothill Blvd, Ste 200, Claremont, CA 91711, 909-607-7300 (phone), 909-592-8411 (fax), christopher.johansen@cgu.edu.

**Keywords**

Physical Activity; Exercise; City Planning; Environmental Design; Recreation

Obesity has reached epidemic proportions with important disparities across age, gender, and ethnicity/race representing major public health challenges.[1,2] Obesity is linked to other comorbidities including coronary heart disease, diabetes, and several types of cancer.[3–5] Prior studies have examined the relationship between obesity and the built environment[6–8] and concluded that residents of low-density, automobile-oriented communities are at higher risk of obesity, likely due in part to adverse effects on physical activity.[7,9,10]

Availability, accessibility, and utilization of trails by neighborhood residents remains an understudied aspect of the built environment, which might promote physical activity and by extension reduce obesity. Previous research found that accessing nature, exercising, commuting, and relaxation were perceived motivating factors for trail use.[4,5,11–15] Although motivating factors for trail use have been examined, characterizing the physical attributes of urban trails and linking these attributes to trail use patterns is less common, but critical for developing a better understanding of the determinants of trail use.[16] Prior literature has identified several trail attributes correlated with trail use, but many predictors remain to be tested.[5,11,25,17–24] Prior studies of trail characteristics suggest that greenness, surface condition, surface type (i.e. paved versus non-paved), and accessibility to a trail may be positively associated with the frequency and duration of trail use.[12,21,23,26–30] Negative associations have been observed between litter, noise, vegetation density, distance from trail and trail use.[5,18,22,23,26,31,32] Few studies have associated self-reported trail use with trail characteristics.[5,18] Self-reports may provide more information about patterns of trail use, including frequency and duration, and among a broader sample than observational studies, trail counts or trail intercept surveys, which may over-represent frequent trail users.

Trail functionality (e.g., slope, obstructions), trail safety (e.g., density of adjoining vegetation), trail attractiveness (e.g., noise, difficulty for walking/cycling), trail continuity, and way-finding have been tested univariately, but have not been tested using multivariate analyses.[26,28] Univariate analyses may yield significant trail attributes as predictors of trail use, but it is necessary to test the independent effects of these determinants using multivariate methods that control for other covariates, potentially explaining more of the variance. For purposes of trail design, it is important to fill the gap in the literature to find potential trail attributes that are associated with trail use.

Additional concerns can be raised regarding the published literature on trail attributes and their association with trail use. Several studies used perceived measures of trail characteristics rather than an audit of trail characteristics completed by an independent rater. The use of perceived trail characteristics may overestimate the association between trail characteristics and trail use given the tendency of the rater to reconcile their reports of trail use with trail characteristics.[12,19,28] A few studies have used both perceived and objective measures, but with a restricted number of trail attributes.[5,19,22] Other studies did not provide a comprehensive assessment of trail attributes leaving many potentially important correlates of trail use untested.[17,18,22,31] Studies often collect data on a trail(s) in a single region, limiting generalizability of the findings to other regions due to climactic, social and urban morphology differences that vary by region.[5,23,25]

The purpose of the present study was to identify trail attributes associated with levels of self-reported trail use by residents living near urban trails in three climatic regions and using a comprehensive audit assessment of trail characteristics. Understanding these characteristics and the direction of their relationship with trail use can assist in the design of future urban trails and efforts to maximize use of existing trails. This paper reports results of research undertaken on three urban trails in Chicago, Dallas and Los Angeles. Building upon our prior work, we used variables representing eight categories of trail features, and hypothesized that the presence of distance signs, vegetation height, vegetation maintenance, street lights, and benches would be positively associated with trail use among neighborhood trail residents; and the presence of crossings, distance to nearest road, and tunnels would be negatively associated with trail use among neighborhood trail residents.

## METHODS

### Design

Methods for the present study have been described in prior publications.[33,34] Three multiuse urban trails were selected in Chicago, Illinois (Chicago Lakefront Trail), Dallas, Texas (White Rock Lake Trail) and Los Angeles, California (Los Angeles River Trail); maps are provided in Figures 1, 2, and 3 respectively. The trails were divided into segments one-half mile in length yielding 102 segments (Chicago n = 34; Dallas n = 30; Los Angeles n = 38). An audit was completed to determine the physical characteristics of the trails (e.g., slope, trees and green cover) using the Systematic Pedestrian and Cyclist Environmental Scan (SPACES) instrument adapted for use on urban trails.[35] A self-report survey was completed by 490 residents living within one-mile on either side of the trail with measures of trail use, demographics, and perceptions of the trail and the trailside neighborhood. Participants with no past trail use ($N$=159) were excluded from analysis yielding a sample size for the present study of N=331.

### Sample for the trail use survey.

The three selected trails were chosen using a web-based search (e.g., www.americantrails.org) and discussion with representatives from the Rails to Trails Conservancy. Candidate trails that maximized a set of a priori selection criteria: trails are available to multiple users, located within large metropolitan areas, a minimum of 15 miles in length, unbroken along their entire length, and located within different climatic regions, traverse neighborhoods with at least two of the following racial or ethnic populations—African-American, White, or Hispanic, and must have received some level of Intermodal Surface Transportation Efficiency Act (ISTEA) funding. When possible, trails were selected that were governed along their entire length by a single jurisdictional entity (e.g., city, county, park authority)."

A random sample of adults living within the one-mile buffer zone of each of the three trails was recruited to complete the self-report survey. Address lists were purchased (Genesys

Sampling Systems) and GIS address-matching verified that the addresses fell within the buffer zone. A recruitment letter was sent and individuals were called by a recruiter to screen for eligibility and solicit verbal consent. Inclusion criteria included being 18 years of age or older, living within the buffer zone, and able to give informed consent, complete surveys in English, and use the trail without motorized support. Once written consent was received, a self-report questionnaire was mailed and a follow-up telephone call verified receipt. Compensation ($50) was given for providing valid questionnaire data. A total of 517 individuals consented and of these, 490 completed the assessments. As noted above, participants who never used the trail were excluded from the analysis yielding a total sample for analysis of N=331; 164 from Chicago, 113 from Dallas, and 54 from Los Angeles.

The trail audits were conducted in Chicago from June 17 to 22, 2004; in Dallas from July 9 to 13, 2004; and in Los Angeles from December 6 to 9, 2004. Despite the difference in seasons, weather in all three locales was generally conducive to outdoor activities during the data collection dates, with daily maximum temperatures averaging 73.1° F in Chicago, 94.8° F in Dallas, and 86.9° F in Los Angeles. There was one day of intermittent rain in Chicago and normally high humidity in Dallas; skies were clear in Los Angeles. Recruitment for the surveys started in Chicago and Dallas in June 2004 and in Los Angeles November 2004. Final survey completion occurred in June 2005. The recruitment rates were 5% overall, 8% in Chicago, 5% in Dallas, and 4% in Los Angeles.

## Measures

**SPACES for Trails instrument.—**SPACES was adapted to US cities and multiuse urban trails, from the original developed by Pikora and colleagues,[35] by comparing the features assessed by SPACES with those present in the Los Angeles urban landscape.[36] SPACES for Trails was divided into several components. Part A covered the trail environment, and consisted of four questions pertaining to buildings and infrastructure, trailside facilities, and natural features found along the trail. Part B consisted of twelve questions on trail functionality (e.g., trail construction material, condition of the trail, slope, demarcation of the trail, road crossings). Part C comprised thirteen questions addressing trail safety (e.g., presence of streetlights, density of vegetation, litter, crowding). Part D contained twelve questions pertaining to trail attractiveness (e.g., noise, odor, views and general attractiveness, and difficulty for walking). Part E included two questions addressing trail continuity and way-finding. Three response options were used including a yes/no response, selection of a single category from a predefined list, and selection of multiple categories from a predefined list. Inter-rater reliability was estimated using data from the Chicago and Dallas trails. Kappas of 0.40 or higher obtained on 96 of 104 ratings, and of less than 0.40 on 8 of 104 ratings.

**SPACES data collection procedure.—**Two assessors walked the length of the trails independently completing the audit for each segment of each trail. The assessors began data collection at segment 1 on each trail and proceeded in ascending, sequential order, covering all trail segments. Observations were recorded on paper forms with the date, time, assessors name, trail name, and trail segment number recorded on every page of all the forms.

**Survey of Trail Use.—**The instrument included items on 1) extent and purpose of trail use; 2) socio-demographics including race/ethnicity, income, education, and household type; 3) motivation for physical activity and self-reported health status; and 4) perceptions of the trail environment including trail safety, access to services, social cohesion, and neighborhood safety and surroundings. Respondent perceptions of the trail environment were not used in the present analyses, with the exception of perceived motivation to engage in physical activity and trail distance/time from home, and are reported elsewhere.[37]

The extent and purpose of trail use was measured using a self-report survey with closed-and open-ended response formats. Distance to and time required to reach the trail from home and work were assessed. Frequency of trail use was assessed by asking "Over the past month, how many times have you used the *LA/Dallas/Chicago Trail* for recreational purposes?" and "Over the past month, how many times have you used the *LA/Dallas/Chicago Trail* for transportation purposes?" The length of time spent on trails was assessed by asking "How much time do you usually spend on the *LA/Dallas/Chicago Trail* per visit when you use it for recreational purposes?" and "How much time do you usually spend on the *LA/Dallas/Chicago Trail* per visit when you use it for transportation purposes?" Responses ranged from (1) "less than 15 minutes" to (8) "more than 5 hours." The time spent on trails for recreation and transportation responses were then combined to create the average time (hours) spent in the past month. Motivation for trail use was measured using three items and a seven-point response scale ranging from (1) "Not At All True" to (7) "Very True". Each of the three items represented a reason respondents would have for using the trail. Respondents were asked "Please indicate how true each of these reasons is for why you exercise regularly" with response options because… "I enjoy exercising", "it is a challenge to accomplish my goal", "it's fun", and "it is interesting to see my own improvement." Perceived health was measured by asking each respondent "In general, compared to other people your age, would you say your health is" with response options ranging from (1) "poor" to (5) "excellent."

## Analyses

Two criterion variables were created to assess trail use; a dichotomous variable indicative of trail use (i.e., yes/no) by residents during the past month (N=234 trail use, N=97 no trail use past month), and a continuous variable which quantified residents' total number of hours on the trail during the past month. Table 1 presents demographic and descriptive statistics for past month trail use variables among the 331 residents reporting past trail exposure. The distribution for hours on the trail during the past month were skewed towards zero. All analyses described employed a transformed, past-month-hours-on-trail variable. One was added to each score then scores were log transformed.

The research team identified 8 qualitative categories to group trail features assessed by the SPACES trail audit instrument. Qualitative categories included trail adjacent characteristics, characteristics of trail, obstacles present on the trail, services present on the trail, trail safety features, trail aesthetic features, ease/attractiveness of use, and continuity and navigation. Table 2 presents the strongest bivariate associations between the dichotomous (logistic regression) and continuous (linear regression) trail use criterions and trail segment features within each qualitative category. The trail feature predictor from each qualitative category with the strongest associations to the trail use criteria in the bivariate runs were selected for consideration in multivariate logistic and linear regression models predicting past month trail use, and total number of hours on the trail.

Initial runs of regression models included a large number of demographic control variables including: participant's age, gender, race, smoking status, income, asthma status, motivation for physical activity, and minutes to trail from home. Only two control variables, motivation for physical activity, and minutes to trail from home, significantly predicted trail use criterion variables and were retained in subsequent model runs.

We also considered controlling for trail city in regression models, to account for urban morphology, and did so in initial runs of regression models. However, including trail city in the regression models eliminated all associations between trail feature predictors and trail use criterion variables. Further inspection of the data revealed that trail features present on segments varied to a much larger degree between cities than within cities. Within a given trail city, there was minimal trail feature variability across trail segments.

## RESULTS

For the linear regression model predicting log transformed past month hours on the trail, the single strongest predictors of trail use from each qualitative feature category were entered into the regression models in a single step following control variables (physical activity motivation and trail minutes from home). Runs were repeated using both forward and backward selection. Trail feature predictors not significantly associated with trail use criterion variables were dropped from models one by one, with the predictor with the smallest standardized coefficients removed before predictors with larger (albeit non-significant) coefficients in subsequent model runs. Table 3 presents the final reduced model with trail features significantly predicting past month hours on the trail. Controlling for trail time from home and motivation for physical activity, the presence of distance signs ($\beta$=.125), higher vegetation height ($\beta$=.153), higher levels of vegetation maintenance ($\beta$=.128), and greater trail crowding ($\beta$=.105) were associated with residents spending more hours on trail segments during the past month. The presence of crossings on the trail segment ($\beta$=−.133) was associated with residents spending fewer hours on the trail segments. After controlling for motivation for physical activity and trail time from home, these trail features accounted for 9.4% of the variability in hours spent on the trail among residents, $F(5, 316)=7.06$; $p< .001$.

For the logistic regression model predicting the dichotomous trail use during the past month criterion, predictors were entered into models following control variables to remove non-significant trail feature predictors. Table 4 presents the final reduced model for trail features predicting trail use during the past month. The presence of distance signs (*OR*=1.69), higher heights of vegetation (*OR*=1.59), and higher levels of vegetation maintenance (*OR*=1.67) on the trail segment were associated with a greater likelihood of trail use during the past month. Meanwhile, presence of crossings on the trail segments (*OR*=.534) were associated with a decreased likelihood of trail use.

Additional analyses examined potential resident-level demographic moderators of the relationships between trail features and use criterion variables. Interactions with resident age, gender, and income level and trail feature variables were tested. None of the interaction terms significantly predicted trail use or hours spent on the trail beyond the control variables and trail feature predictors already present in the models.

## DISCUSSION

The results indicate that trail utilization by neighborhood residents was related to selected trail characteristics. After controlling for proximity to the trail and motivation to engage in physical activity, the presence of distance signs, vegetation height, vegetation maintenance, and trail crowding, were positively associated while the number of trail crossings was negatively associated with time spent on the trail in the last month.

The observed positive association between distance signs and time spent on trails replicates findings from some,[28,38,39] but not all prior studies.[5,11,23,40] The failure to detect this association in some studies may be due to measurement differences including the assessment of signage as part of a larger barriers assessment without an examination of its independent effect on trail use.[5,11,23,40] Distance signs may allow trail users with distance goals to more accurately track and reach those goals. This may be particularly important for individuals setting goals for an athletic event, a target level of fitness or weight loss. Distance signs may also increase the perceived benefits[41] or positive outcome expectancies[42] of utilizing the trail increasing the likelihood of trail use. For initial users, signage on trails may serve as an indicator of the overall quality and safety of the trail increasing intention to use the trail. The lack of distance signs might discourage repeated trail use if first time trail users get lost or have trouble monitoring their exercise expenditure. Urban planners may want to install distance signs on trails where needed as one readily accomplished means for increasing trail usage.

An interesting finding of the present study was that vegetation height was positively associated with the amount of time spent on the trail. This is the first study we are aware of that shows an association of vegetation height with increased trail use, although vegetation density has demonstrated a negative association with trail use in prior research.[26] Vegetation height may contribute to an aesthetically pleasing trail environment with taller trees perceived as more picturesque than shorter trees or bushes, and in turn, vegetation perceived to be aesthetic pleasing has been shown to increase park and trail use in prior studies.[23,40,43,44] Higher vegetation may provide a visual barrier to nearby road traffic and shade, reducing temperatures while using the trail during the summer and cover from inclement weather (especially wind) during other seasons, facilitating trail use. If replicated, urban designers should consider the use of taller trees when designing new trails.

We also found that a higher level of vegetation maintenance (e.g., trimming of bushes) was positively associated with more time spent on trails consistent with previous literature showing that aesthetics are positively associated with trail usage.[8,11,45–47] Trails that are poorly maintained are likely seen as less aesthetically pleasing and are less likely to be used. In addition, trimmed vegetation may create the sense that workers are regularly present and the trail is monitored and therefore safer. Key stakeholders in charge of trail segments can address the issue of vegetation maintenance to help increase trail usage.

Interestingly, perceived trail crowding was positively associated with trail use. A previous study has shown trail crowding to have a negative association with trail usage.[12] However, several studies have not found an association between trail crowding and trail usage.[28,30] Our findings suggest that trails that have high foot traffic can be perceived as safe, therefore increasing trail usage. Increased foot traffic may also increase the number of social interactions, leading to positive social outcomes, and increasing future trail use. Trails have become a popular activity, with displays on social media increasing trail popularity and trail crowding because people want to visit a trail trending on social media. Park managers can use social media or other campaigns to raise awareness of trails to increase trail usage.

The number of trail crossings was associated with lower trail use consistent with previous literature.[11,12] Trail users may view intersections/crossings as a safety hazard and crossings may increase perceived barriers or decrease the perceived walkability of a trail. Crossings help users travel under or over obstacles (e.g., busy streets, railroad lines), but they may increase the perceived difficulty of traversing that recreational environment. Crossings such as bridges, overpasses or tunnels may also lower trail use if they lack lighting and are perceived as unsafe. Finally, crossings may impede the flow of traffic especially by people on bikes and roller skates and this may diminish enjoyment of those sections of the trail. The use of crossings that maximize traffic flow while also utilizing design features that increase perceived safety (e.g., adequate lighting) may diminish the negative impact of crossings on trail usage.

## Implications for future research, policy and management

The present study found that distance signs, vegetation height, vegetation maintenance, and trail crowding were positively associated with the use of multiuse urban trails in three different geographic regions. Although the use of three geographic regions is a strength of the study, replication in additional regions is warranted to enhance generalizability. The association of vegetation height and trail crowding with trail use are interesting findings requiring additional study, particularly to explain the reasons either variable would be associated with trail use. The trail crowding finding is perplexing, having been shown in prior studies to serve as a barrier to trail usage[12,28,30] and reduced trail use. Replication and an explication of the reasons for the effect would be highly beneficial. For example, in some situations, trail crowding may be viewed as enhancing perceived safety and facilitating the formation or activation of social connections, particularly when shared on social media sites. Future studies could use sentiment analysis of social media to verify associations between trail crowding and perceived safety and/or affability.

To promote trail use urban planners might consider the installation of distance signs on existing and planned trails, some use of taller vegetation, consistent high quality vegetation maintenance across the length of a trail, and the use of promotional strategies to engage social networks in support of the trail. Urban planners might also consider ways to enhance safety and reduce barriers at trail crossings (e.g., better lighting at crossings, bike-friendly crossings). Policy makers and public health professionals can also utilize social media to increase trail awareness.

Several limitations should be noted in the study. A cross-sectional design was used limiting causal inference for the associations identified in the research. We were unable to investigate the between-city associations because we only had 3 cities, but future studies with a larger number of cities should investigate both within and between city variation. Trail city was not controlled in the analysis due to greater variation in trail characteristics between cities than within cities. Thus, it is possible that the findings could be attributed to differences between cities rather than differences between trail features. Furthermore, the three selected trails were located in different geographic regions, representing different social and demographic contexts which have been shown to be correlates of trail use;[11,21] future research should investigate these socio-demographic factors. Only self-report of trail usage was obtained and future studies might utilize emerging methods that capture physical location concurrent with objective assessment of physical activity using accelerometers (e.g., GPS embedded in cellphones).[48,49,50,51]

In conclusion, this study found that objectively assessed trail features were positively associated with trail use suggesting directions for future research, and if replicated, informing the design of future trails to facilitate use.

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**Figure 1.**
Chicago Lakefront Trail


**Figure 2.**
Dallas White Rock Lake Trail

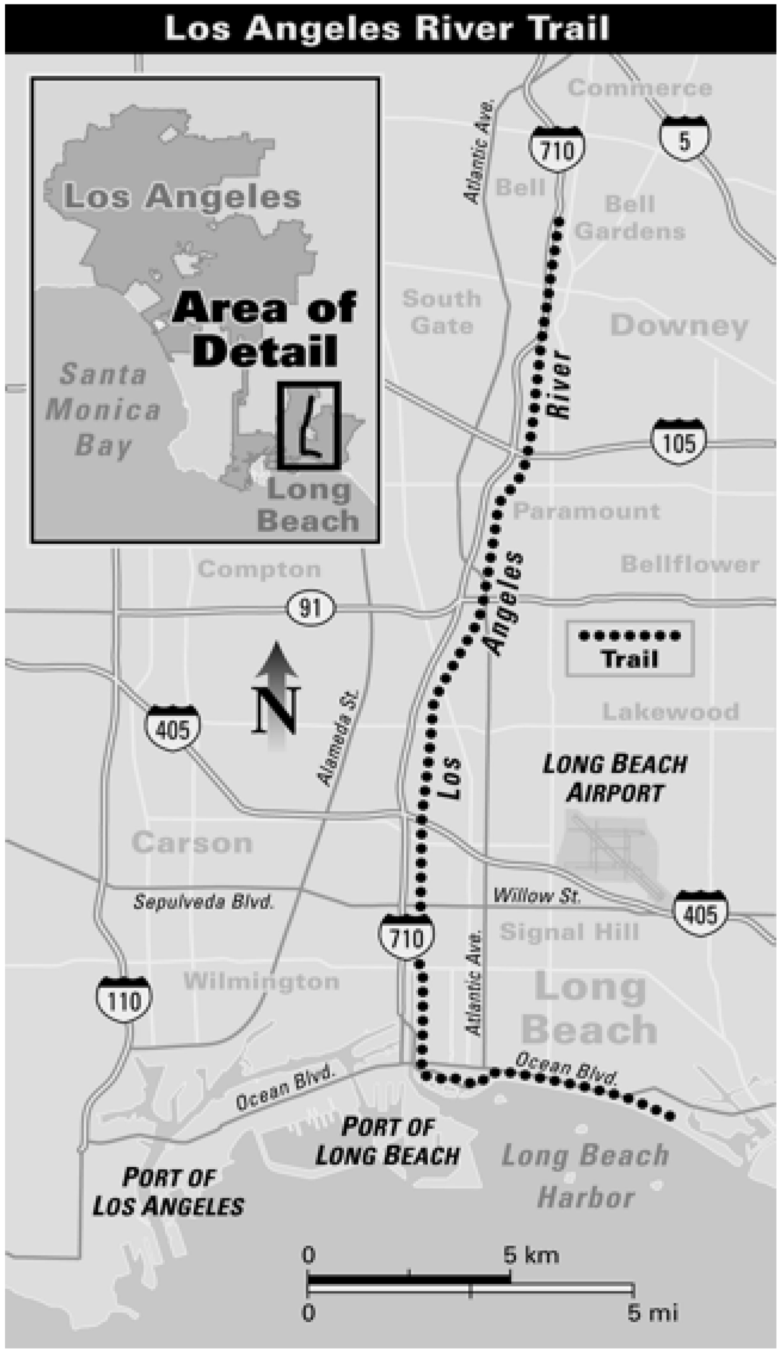


**Figure 3.**
Los Angeles River Trail

**Table 1**

Trail Use and Demographic Characteristics for Residents Completing Trail Use Survey by Trail City and Across the Three Trails.

| | Chicago N=164 | Dallas N=113 | Los Angeles N=54 | All Trails N=331 |
|---|---|---|---|---|
| Trail Used Past Month*** | | | | |
| *(% Yes)* | 78.7% | 69.9% | 48.2% | 70.7% |
| Hours on Trail Past Month*** | | | | |
| *M(SD)* | 13.79 (18.22) | 10.60 (13.35) | 4.75 (9.56) | 11.22 (15.79) |
| Age*** | | | | |
| *M(SD)* | 43.48 (13.86) | 49.04 (12.1) | 53.72 (13.4) | 46.99 (13.7) |
| Gender** | | | | |
| *% Male* | 47.0% | 59.3% | 70.4% | 49.8% |
| Income Level** | | | | |
| % *less than 30,000* | 22.7% | 8.9% | 28.3% | 18.9% |
| % *30,000 to 60,000* | 23.9% | 25.0% | 31.5% | 25.6% |
| % *60,000 to 90,000* | 17.8% | 17.9% | 13.0% | 17.1% |
| % *90,000 to 120,000* | 15.3% | 18.8% | 18.9% | 17.1% |
| % *greater than 120,000* | 20.2% | 29.5% | 7.5% | 21.3% |
| Ethnicity*** | | | | |
| *% Hispanic/Latino* | 4.9% | 1.8% | 9.6% | 4.6% |
| Race*** | | | | |
| *% White* | 58.5% | 92.0% | 68.5% | 71.6% |
| *% African American* | 26.8% | 3.5% | 14.8% | 16.9% |
| *% Asian* | 7.9% | 2.7% | 5.6% | 5.4% |
| *% Other* | 6.8% | 1.8% | 11.1% | 6.1% |
| [a]Motivation for Physical Activity *M(SD)* | 4.50 (1.52) | 5.00 (1.32) | 4.62 (1.49) | 4.69 (1.46) |
| Time to Trail from Home | | | | |
| *% Less than 15 min* | 85.8% | 89.2% | 83.3% | 85.5% |
| *% 15 to 30 min* | 10.5% | 8.1% | 13.2% | 10.0% |
| *% More than 30 min* | 3.7% | 2.7% | 1.9% | 4.5% |

[a]The Motivation for Physical Activity Scale ranged from 1 to 7.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

**Table 2**

Significant Bivariate Associations for SPACE Trail Feature Variables and Trail Use Criterions Among Residents with Trail Exposure (N=331)

| | **PAST MONTH HOURS ON TRAIL** | **USED TRAIL PAST MONTH** |
|---|---|---|
| | ***β (p)*** | ***Expβ (p)*** |
| SPACES FOR TRAILS | | |
| Qualitative Categories | | |
| Trail Adjacent Characteristics | | |
| Distance to Nearest Road | −.123 (.025) | .646 (.016) |
| Trail Characteristics | null | null |
| *Asphalt (vs. concrete)* | | |
| *Steepness* | | |
| *Condition* | | |
| Trail Obstacles | | |
| Crossings (vs. none) | −.179 (.001) | .433 (.002) |
| Tunnels | −.172 (.002) | .438 (.003) |
| Trail Services | | |
| Benches | .143 (.009) | 1.68 (.040) |
| Distance Signs | .160 (.003) | 1.70 (.030) |
| Trail Safety | | |
| Street lights | .108 (.049) | 1.42 (.181) |
| Vegetation height | .144 (.009) | 1.47 (.006) |
| Trail Aesthetics | | |
| Vegetation Maintenance | .154 (.005) | 1.61 (.011) |
| Ease & Attractiveness of Use | | |
| Trail crowding | .133 (.016) | 2.05(.20) |
| Continuity & Navigation | null | null |
| Navigation Ease | | |
| Trail Bifurcate | | |

## Table 3

Summary of reduced hierarchical regression models for variables predicting logged past month hours on trail (N=331)

| Predictors | $R^2$ | B | SE B | β |
|---|---|---|---|---|
| Model 1 | .067 | | | |
| Trail Time From Home | | −.164* | .090 | −.098* |
| Motivation | | .213** | .049 | .233** |
| Model 2 | .160 | | | |
| Trail Time From Home | | −.187* | .087 | −.112* |
| Motivation | | .196** | .048 | .214** |
| Distance Signs | | .337* | .141 | .125* |
| Vegetation Height | | .246* | .084 | .153* |
| Vegetation Maintenance | | .259* | .113 | .128* |
| Trail Crowding | | .548* | .275 | .105* |
| Crossings | | −.360* | .149 | −.133* |

*Note.* $\Delta R^2$=.067, $F(2,322) = 11.47$, $p < .001$ for Model 1; $\Delta R^2$=.094, $F(5, 316) = 7.06$, $p < .001$ for Model 2

*P < .05.

**P < .01.

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**Table 4**

Reduced logistic regression model for variables predicting trail use (yes/ no) during the past month (N=331)

| **Predictors** | ***B*** | ***p*** | **Exp (*B*)** | **C.I. for Exp (*B*)** |
|---|---|---|---|---|
| Trail Time From Home | −.306 | .042 | .736 | .548 – .989 |
| Motivation | .297 | .001 | 1.345 | 1.125 – 1.609 |
| Distance Signs | .522 | .052 | 1.686 | .997 – 2.853 |
| Vegetation Height | .463 | .005 | 1.588 | 1.150 – 2.193 |
| Vegetation Maintenance | .505 | .017 | 1.656 | 1.094 – 2.508 |
| Crossings | −.628 | .028 | .534 | .305 – .935 |