Urban Trails
Heavily Used in Indiana

Communities across Indiana are interested in building urban greenway trails. These trails offer inexpensive recreation—safe places to walk, bike, run, or skate. Many wind through scenic areas where users can enjoy nature while pursuing fitness, and they are valued for conservation and economic development.

Potential trail neighbors, however, sometimes wonder about the trail users who will pass by their properties. And decision makers need information to decide if trails are good investments.

Studies of trails can inform decision makers as well as those who use and are affected by them. The Indiana Trails Study (Eppley Institute for Parks & Public Lands and the Center for Urban Policy and the Environment 2001) and other ongoing studies of trails conducted by the Center for Urban Policy and the Environment (Center) provide useful information that show:

- People make thousands of trips to urban trails annually, even in small communities.

- Trail traffic is heaviest in larger communities, and can be heavy enough to cause congestion.

- Trail traffic is heaviest when the weather is warm, after 4 p.m. on weekdays, and on weekends, but people use trails every day of the year and every hour during the day.

- Trail users are disproportionately White, younger adults who have above average incomes and rates of college education.

- People use trails mostly for exercise and recreation. Fewer than five percent of Indiana trail users report use for commuting.

- Most people use trails for walking and biking, far fewer for running and skating.

- Most users drive to trails, travel less than five miles to get there, and spend less than 10 minutes traveling to/from the trail.

- Most users spend about an hour on the trails per visit.

- Walkers and runners average three to four miles on a trail per visit respectively; bikers and skaters tend to travel farther.

- Almost all users view the trails as safe, and nearly all view their cities more favorably because of the trails.

- Neighbors who complain about urban trails are a minority, but the most common complaints regard unauthorized motorized vehicles on the trails, litter, parking problems, and unleashed pets.

Indiana Trails Appear To Be Successful

When decision makers consider building new trails in Indiana, they want to know if the existing trails have been successful—if they are heavily used and viewed favorably. For both of these factors, research indicates that the trails are successful.

Methods Differ for Measuring Trail Usage and Trail Traffic

Usage varies widely among trails, but studies have verified that users make hundreds of thousands of trips to trails annually. For any particular trail, the use it receives depends on the size of the community, its location, and many other factors.

It is helpful to first consider how we define *use*. Analysts define use as the number of visits to a trail (including return trips by the same user) during a particular period. However, some estimates of use that are published actually may represent *traffic* or *traffic counts*, defined as the number of people who pass by a specific point on the trail during a particular period. Traffic counts typically overestimate trail use because most users make loop trips and thus are counted twice. Analysts sometimes divide traffic counts in half to develop use estimates. But this method, in turn, tends to underestimate use because it fails to account for people who travel only one way on a trail.

Both use and traffic measures are important. Use estimates provide a measure of economic demand and are useful for cost-benefit analyses, and traffic counts are important for assessing and managing congestion and activity patterns. However, decision makers need to distinguish between use estimates and traffic counts.

The Indiana Trails Study reported monthly traffic counts for six trails in Indiana (Figure 1) in communities ranging in population from 15,000 to 800,000 people. Average monthly traffic during September and October 2000 ranged from 5,700 to more than 50,000 (Table 1). These traffic estimates, which were made with infrared counters, are good estimates for the points where they were taken, but they may not be valid for other points on each trail.

More recent studies in Indianapolis by the Center indicate that annual traffic counts at four locations on the same trail (the Monon Trail) varied approximately by a factor of seven—from 96,600 to 664,300 users (Figure 2). It would be inappropriate to add these numbers together to obtain a traffic estimate for the entire trail because users could be included in traffic counts at different locations on the same visit—thus they would be double or triple counted, depending on the distance they traveled. Additional adjustments would be required to obtain an estimate of total use for the trail from the traffic counts at different locations.

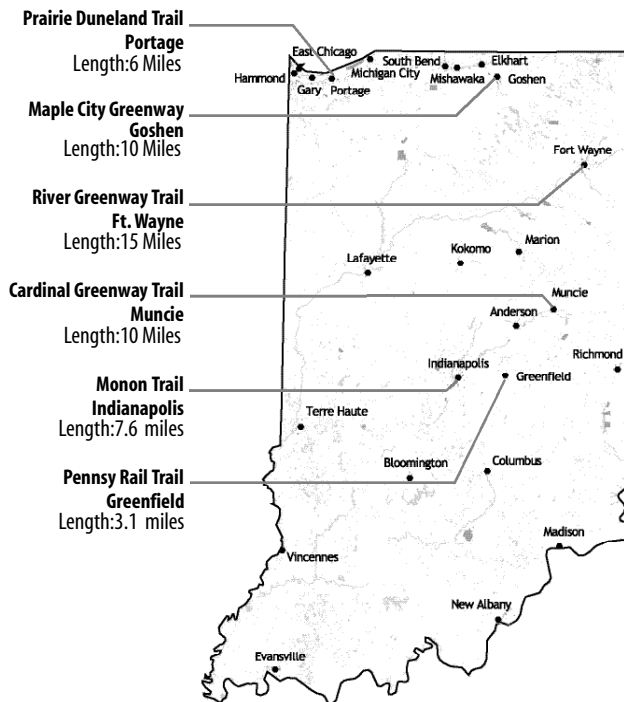## Figure 1: Indiana Trails Included in the Indiana Trails Study

Prairie Duneland Trail
Portage
Length:6 Miles

Maple City Greenway
Goshen
Length:10 Miles

River Greenway Trail
Ft. Wayne
Length:15 Miles

Cardinal Greenway Trail
Muncie
Length:10 Miles

Monon Trail
Indianapolis
Length:7.6 miles

Pennsy Rail Trail
Greenfield
Length:3.1 miles

Table 1: Average Monthly Traffic on Six Multiuse Urban Greenway Trails in Indiana, September–October 2000

Municipality	Population	Average Monthly Traffic
Ft. Wayne	205,727	25,573
Goshen	29,383	9,819
Greenfield	14,600	5,663
Indianapolis*	791,926	50,377
Muncie	67,430	9,169
Portage	33,496	10,598

* Traffic varies widely at different locations on the Monon Trail in Indianapolis. This traffic count was taken at the 75th Street location.

Source: Lindsey & Nguyen, (January 2002)

Figure 2: Monthly Traffic Variations (1,000s) and Average Monthly Temperature on the Monon Trail in Indianapolis, February 2001–January 2002
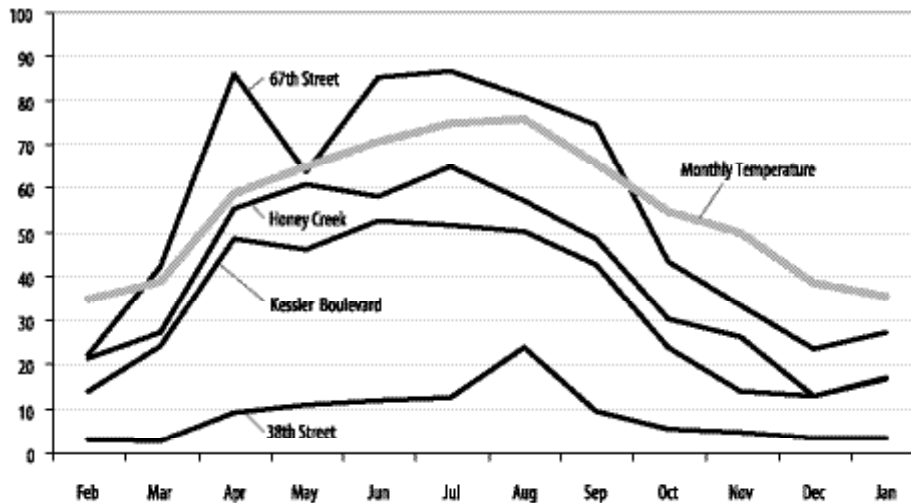
Source: Center for Urban Policy and the Environment

Figure 2 also shows that monthly traffic counts at the 67th Street location (the most heavily traveled point shown) were over 80,000 in April, June, July, and August. Factors that might explain the lower traffic count at 67th Street in May are unknown, but with the exception of this one anomaly, note that the monthly traffic curves mimic the temperature curve.

Surveyed Trail Users and Neighbors View Trails Positively

Attitudes of trail users and trail neighbors also are indicators of the success of the trails. Researchers interviewed people in both of these groups for the Indiana Trails Study.

The researchers asked users if they felt the trails were safe and if their opinions of the city had changed because of the trail development. A high proportion of users (79 to 95 percent) in all six communities felt strongly that the trails were safe. In addition, an average of 92 percent of all trail users said they viewed their community more favorably because of the trail. In fact, in both Indianapolis and Portage, all of the trail users surveyed said they viewed the city more favorably because of the trail.

Trail neighbors were asked if the trail development had affected adjacent property values and whether they viewed their neighborhood as improved because of the trail. Across the six communities, 86 to 95 percent of the neighbors said the trail had either increased or had no effect on adjacent property values. The percentage of neighbors who thought the trail had improved the quality of the neighborhood ranged from 60 percent in Portage to 88 percent in Greenfield.

A Minority of Neighbors Report Some Common Problems

Researchers also surveyed trail neighbors to identify common complaints. In the Indiana Trails Study, fewer than 45 percent of trail neighbors surveyed had complaints about any particular problem. The concerns that were reported stemmed from a lack of safety patrols, trail upkeep, insufficient parking, and lack of agency responsiveness. These were the most common specific complaints:

- Illegal use of motorized vehicles on the trails (17 to 44 percent of trail neighbors had this complaint across the six communities)
- Litter from trail users (This complaint was reported in all communities except Greenfield. The proportion of neighbors with this complaint varied from 20 percent in Goshen and Muncie to 40 percent in Indianapolis.)
- Insufficient parking (This was reported in four cities by percentages ranging from 15 to 25 percent of trail neighbors.)
- Unleashed pets roaming trails (common in two communities)

In addition, two other problems were mentioned frequently by respondents from two sites: Complaints about excessive noise were mentioned in Muncie by 18 percent of those surveyed, and burglary was reported as a problem only by commercial property neighbors of Greenfield's Pennsy Rail Trail (22 percent of those surveyed).

Even with these complaints, however, a majority of respondents in each community said the trails were better neighbors than expected.

User Profiles Are Helpful to Policy Makers

Decision makers and potential trail neighbors want information about the people who will use the trails, so numerous studies have examined the demographics of users, their reasons for using the trails, their preferred activities on the trails, their means of transportation to the trails, and the distance they travel to the trails. These data are useful for marketing, public education and outreach, and other purposes.

Table 2: Reported Reasons for Using Greenway Trails in Indiana

	Health/ Exercise	Recreation	Commute	Other
Ft. Wayne (n=701)	66%	32%	2%	–
Goshen (n=664)	64%	32%	4%	–
Greenfield (n=194)	79%	19%	1%	1%
Indianapolis (n=424)	71%	23%	5%	1%
Muncie (n=108)	56%	39%	3%	1%
Portage (n=368)	74%	26%	–	–

Source:Indiana Trails Study

Table 3: Travel Methods to Greenway Trails in Indiana

	Walk	Bike	Drive	Other
Ft. Wayne (n=533)	24%	17%	56%	3%
Goshen (n=328)	27%	30%	40%	3%
Greenfield (n=167)	19%	19%	61%	1%
Indianapolis (n=332)	29%	14%	52%	6%
Muncie (n=104)	6%	27%	66%	1%
Portage (n=366)	10%	15%	71%	3%

Source:Indiana Trails Study

Figure 3: Distance Traveled to Greenway Trails in Indiana, Percentage of Users
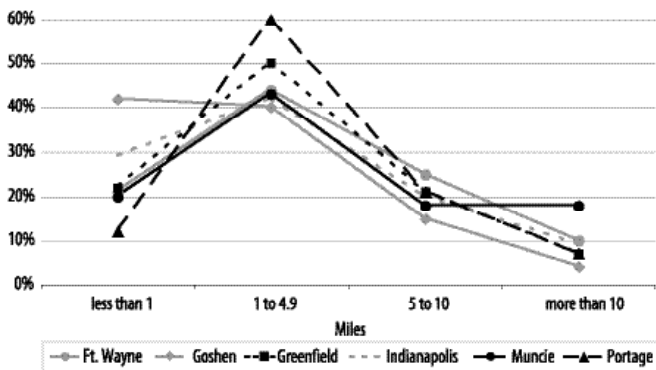
Source: Center for Urban Policy and the Environment adapted from the Indiana Trails Study

Demographics of Trail Users Are Similar in Various Studies

Research consistently suggests that users are likely to be young adults who are well educated, White, and middle to upper middle class. In a study in North Carolina, for example, Furuseth and Altman (1991) found that greenway users were employed and well educated with above average incomes. The Indiana Trails Study found similar results. The proportions of users younger than 46 years of age ranged from 53 to 60 percent. Compared with the age distributions in their respective communities, adults younger than age 46 were disproportionately represented among trail users in five of six communities. The proportion of users with household incomes greater than $80,000 ranged from 16 to 33 percent, and users with college degrees ranged from 31 to 79 percent. According to the 2000 U.S. Census, only 19.4 percent of adults over age 25 in Indiana have college degrees (Indiana Business Research Center). Similarly, Whites, who represented from 86 to 95 percent of the users surveyed, were disproportionately represented among trail users in four of the six communities.

Health and Recreation Are Primary Reasons for Using Trails

The overwhelming majority of people use trails for health and exercise or for recreation. For the six trails in the Indiana Trails Study, well over half (56 to 79 percent) of users surveyed said they use the trail for health and exercise (Table 2). Recreation was the only other frequently mentioned primary reason for using the trails. No more than five percent of users surveyed in any location said they use the trails for commuting.

One important implication of these findings is the impact of trails on public health. Since experts recommend moderate exercise at least three times a week for cardiovascular fitness and weight control, an important area of future research is whether greenway development helps improve public health.

Most Users Drive to the Trails

In Indiana, most users report driving to use trails, so ample parking near trail entrances is important when planning new trails. In the six communities in the Indiana Trails Study, the proportion of users who drive to the trails ranged from 40 to 71 percent (Table 3). Users who walk to trails ranged from just 6 to 29 percent.

Users Live Near the Trails

Regardless of how they travel to the trail, almost all users surveyed (90 percent) visited the trails from within a 10-mile radius, and most traveled no more than five miles to a trail. Figure 3 shows the percentage of users who traveled particular distances to use the trails. Across the six communities, 63 to 81 percent of the users surveyed said they traveled five miles or less to the trails. The patterns are similar in all six communities, but there are some differences. For example, a higher proportion of people traveled more than 10 miles to use the Cardinal Greenway in Muncie.

Table 4 shows the median distance to trails by method of transportation. The results are intuitive: people who drive and bike to trails typically travel farther than those who walk. The median distance all users walked to trails was a half-mile. The median is the value in the middle of a distribution when the distances are ranked from highest to lowest. It is a more stable statistic than an average because unusually high or low values do not distort it. For individual trails, the median distances users walked to the trail ranged from .3 to one mile. Across communities, the median distances biked and driven to the trails were, respectively, one and four miles.

Time Spent Traveling to Trails Varies Little across Trails

Table 5 presents related information: the median times users said they spent traveling to trails. These results are interesting because there is little variability. More than half the users in each community, regardless of their travel method, said they spent 10 minutes or less traveling to the trail. These results indicate that travel time to the trail is an important factor affecting level of use.

Walking and Biking Are the Most Popular Trail Activities

When activities on trails were observed in the Indiana Trails Study, walking and biking were by far the most popular activities (Table 6). On all six trails, 74 to 88 percent of users were walkers or bikers. However, when walking is combined with running, "foot traffic" accounts for more than half of all user activities on all trails except Muncie.

Users Spend About One Hour on Trails, Regardless of Activity

The typical user spends about an hour on a trail per visit, with skaters and bikers generally reporting longer times on trails than walkers and runners (Table 7).

Table 4: Median Distance Users Travel to Greenway Trails per Method of Transportation (Miles)

	Walk	Bike	Drive
Ft. Wayne (n=501)	1.0	1.0	5.0
Goshen (n=310)	0.3	1.6	3.0
Greenfield (n=153)	0.5	1.0	2.8
Indianapolis (n=328)	0.4	1.3	5.0
Muncie (n=97)	1.0	1.0	5.0
Portage (n=296)	0.5	2.0	3.0
Overall (n=1,685)	0.5	1.0	4.0

Source: Indiana Trails Study

Table 5: Median Time for Travel to Trails by Method of Transportation (Minutes)

	Walk	Bike	Drive
Ft. Wayne (n=501)	5	5	10
Goshen (n=310)	5	6	8
Greenfield (n=153)	5	5	5
Indianapolis (n=328)	4	5	10
Muncie (n=97)	10	5	10
Portage (n=296)	5	5	5
Overall (n=1,685)	5	5	8

Source: Center for Urban Policy and the Environment adapted from the Indiana Trails Study

Table 6: Proportions of User Activities on Greenway Trails in Indiana

	Walk	Run	Bike	Skate
Ft. Wayne (n=533)	49%	15%	30%	6%
Goshen (n=326)	39%	20%	40%	–
Greenfield (n=162)	54%	14%	25%	7%
Indianapolis (n=315)	51%	13%	23%	12%
Muncie (n=100)	11%	5%	77%	6%
Portage (n=355)	39%	11%	40%	10%

Note: A small number of "others" (1 percent or less) included skateboarders, babies in strollers, people in wheelchairs and on horseback, etc.

Source: Center for Urban Policy and the Environment adapted from the Indiana Trails Study

Table 7: Median Time Spent on Trail by Activity (Minutes)

	Walk	Run	Bike	Skate
Ft. Wayne (n=470)	60	60	60	60
Goshen (n=311)	45	30	30	–
Greenfield (n=157)	55	35	30	38
Indianapolis (n=299)	60	60	60	60
Muncie (n=95)	60	90	90	60
Portage (n=346)	60	60	70	60
Overall (n=1,678)	60	45	60	60

Source: Center for Urban Policy and the Environment adapted from the Indiana Trails Study

Use Patterns on Various Indiana Trails Are Similar

Research has shown that use patterns are consistent for trails in different locations, though as noted, levels of use vary greatly since larger communities have more users within easy access of the trail.

Seasonal and Daily Use Patterns Are Predictable

People naturally prefer to use trails when weather is pleasant and when they have more free time, so use is highest when weather is warmer and on weekends or after working hours on weekdays. In Figure 2 (page 3), monthly trail traffic at four locations on the Monon Trail is shown along with average monthly temperatures for one year. With a few exceptions, traffic at each location illustrates comparable seasonal patterns and fluctuates relative to the temperature. Warmer temperatures exert a strong positive influence on trail use. One other pattern is apparent—the most popular trails have proportionally greater increases in use during warm weather.

Average hourly traffic also follows a predictable pattern on Indiana trails. Figure 4 shows the average hourly traffic at 67th Street on the Monon Trail for September and October 2000. Weekday traffic increased between daybreak and 8:00 a.m., remained steady until mid-afternoon, and increased until the peak hour between 5:00 and 7:00 p.m. (Peak hour traffic is defined as the hour of the day when traffic is greatest.) Traffic then dwindled to almost zero after dark.

Weekend traffic, which was significantly higher on all of the Indiana trails studied, was more even throughout the day. Traffic
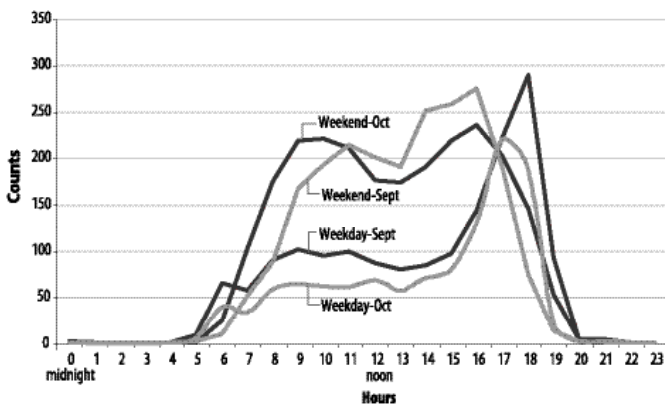
peaked in mid-to-late afternoon, dropped through early evening, and dwindled to very low levels after dark.

Knowledge of peak hour traffic is important for managing congestion. It generally accounts for a larger percentage of daily traffic on weekdays than on weekends. At one location on the Monon Trail in Indianapolis in September, for example, peak hour traffic on weekdays averaged 289, or 18 percent of the average weekday daily traffic (1,618) (Lindsey and Nguyen 2002). At the same location in the same month, peak hour traffic on weekend days averaged about 235—about 10 percent of total daily traffic (2,352). These counts mean that about four to five people per minute passed the counters during the peak hour—equivalent to one user every 12 to 15 seconds. During the same month, the highest hour of traffic recorded was 554, about double the average peak hour rate, and equivalent to a user passing by every six to eight seconds.

For all six sites in the Indiana Trails Study, weekday peak hour traffic averaged about 14 percent of average daily traffic in September and October 2000. Comparable values for average weekend peak hour traffic were 11 and 13 percent.

Peak hours typically account for a smaller percentage of average daily weekend traffic because weekend use is higher and people are less constrained by work schedules. The fact that the percentage of traffic that occurs during peak hour is stable is important because it means that total traffic can be estimated from peak hour traffic counts.

Weather Affects Use Patterns

Trail use drops significantly during cold or rainy weather, but some people use trails every day, regardless of the weather. During the Indiana Trails Study, counters recorded some traffic each day on each trail during a two-month monitoring period, despite some days of heavy rainfall. Similarly, at each of four locations on the Monon Trail in Indianapolis, some traffic was recorded every day over a one-year period.

Rain reduced the daily weekday trail use on the Indiana trails studied from 21 percent (in Fort Wayne and Goshen) to 59 percent (in Indianapolis) and, on weekend days, from 25 percent (in Muncie) to 45 percent (in Indianapolis).

Figure 4: Average Hourly Traffic, Monon Trail, 67th Street, September and October 2000

Source: Center for Urban Policy and the Environment adapted from the Indiana Trails Study

Trail Information Is Important for Policy Makers

When considering building new urban trails, decision makers examine the benefits to the community. These benefits may include recreation, conservation, economic development, and a positive influence on the health of residents and on attitudes about the community.

Policy makers should be aware that most users of any new trails probably will be people who are young, well educated, middle to upper class, White, and interested in walking or biking. Trails near densely populated areas are likely to attract more users since people are most likely to use a trail if they live or work within 10 miles of it and can travel to it in less than 10 minutes. Since most trail users drive to the trails, analysts can consider the number of people who live or work within a 10-minute drive of a planned trail site to help estimate potential usage.

Although people who have complaints about the trails are a minority among trail neighbors, their concerns are important. Adequate patrols can help ensure the safety of users and residents and can reduce the number of unauthorized motorized vehicles and unleashed pets on the trails. Adequate trail maintenance will reduce litter and enhance the beauty of a trail. And careful planning can alleviate parking problems. Trail planners also should consider the implications of activity patterns and possible congestion during peak hours to ensure that the experience of both trail users and trail neighbors is positive.

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Indiana's Future:
Identifying Choices and Supporting Action to Improve Communities

This project, funded by an award of general support from Lilly Endowment, Inc., builds on the Center's research to increase understanding of the Central Indiana region. The Center's faculty and staff work to identify choices that can be made by households, governments, businesses, and nonprofit organizations to improve our quality of life. Our goal is to understand the people, economics, problems, and opportunities in Indiana, and to help decision makers understand the impacts of policy decisions. The Center also works to mobilize energy to accomplish these goals.

One ongoing research effort at the Center involves urban greenway trails. Researchers at the Center study characteristics of the trails and the people who use them. They are interested in the factors that can affect the success of these trails in Indiana communities and in information that can help decision makers and municipalities ensure that trails will function as assets to the communities where they are located.

The Center for Urban Policy and the Environment is part of the School of Public and Environmental Affairs at Indiana University–Purdue University Indianapolis. An electronic copy of this document and other information about urban trails and other community issues can be accessed via the Center Web site at www.urbancenter.iupui.edu. For more information, visit the Web site or contact the Center at 317-261-3000.
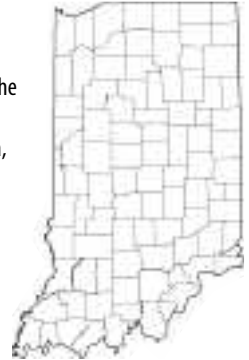
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