SUMMARY REPORT
Indiana Trails Study

Summary Report
Indiana Trails Study

A Study of Trails in 6 Indiana Cities

Completed by

Indiana University

Eppley Institute for Parks & Public Lands	Center for Urban Policy & the Environment
Indiana University Bloomington	Indiana University Purdue University Indianapolis

Stephen A. Wolter
Project Director

Dr. Greg Lindsey
Research Director

Project Associates

John Drew
Scott Hurst
Shayne Galloway

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Indiana Trails Study Group

The following individuals provided guidance and review on the Indiana Trails Study Group as representatives of State and Federal agencies, including the Indiana Department of Transportation, Indiana Department of Natural Resources, National Park Service's Rivers, Trails and Conservation Assistance Program, Indiana Department of Commerce and Indiana Governor's Council on Physical Fitness

Dale Brier	Bob Bronson	John Goss
Sharon Kendall	Casey McIntyre	Steve Morris
Eric Myers	Joyce Newland	Michael O'Loughlin
Rory Robinson	Joe Tutterrow	Mariana Weinzapfel

Participating Local Agencies

The Indiana Trails Study could not have been accomplished without the support and assistance of staff from the local trail organizations that participated in the study. The following individuals served as the primary contacts for the Fort Wayne Parks and Recreation Department, Greenfield Parks and Recreation Department, Goshen Parks and Recreation Department, Indianapolis Greenways Division of Indy Parks, Cardinal Greenway, Inc.(Muncie), and Portage Parks and Recreation Department.

Kathy Pargmann, Ft. Wayne	Ray Irvin, Indianapolis
Rich Fay, Goshen	Diane Roach, Muncie
Clark Ketchum, Greenfield	Carl Fisher, Portage

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Background

The development of multi-purpose trails has become an increasingly popular initiative in communities across the country. Many successful trail development projects can be identified throughout the country, and trends in these communities show trail activities are a growing and preferred recreation activity among the populace. Federal, state and local government have made significant commitments to planning, and developing trails in the form of staff and funding. Indiana is among the states that have recently committed federal and state funds to developing trails in local communities. As a result, Indiana officials have become more interested in gathering data on trail use, trends in trail operations, and general attitudes of trail users and trail neighbors.

The Indiana Trails Study was developed to address the growing need for more information on trail use and the general attitudes of trail users and trail neighbors. Originally proposed as a summer-long research study of one trail, the study quickly became an overview, or reconnaissance level study, of six (6) different trails in Indiana.   Funded by the Indiana Department of Transportation (INDOT) with additional funding by the Indiana Department of Natural Resources (IDNR), and the National Park Service (NPS) River, Trail, and Conservations Assistance Program, the Indiana Trails Study conducted research on trail use levels, trail management, economic impacts, property values, and attitudes toward trails in six (6) different types of communities in Indiana. The six (6) communities and trails were:

- Fort Wayne, Rivergreenway Trail
- Goshen, Maple City Greenway Trail
- Greenfield, Pennsy Rail Trail
- Indianapolis, Monon Rail Trail
- Muncie, Cardinal Greenway Trail
- Portage, Prairie Duneland Trail

**Figure 1: Early Morning Bicyclists
On A Trail**

Study Purpose

The purpose of the Indiana Trails Study was to complete a reconnaissance level study of the use levels, user characteristics, management practices, economic factors, and impacts to adjacent properties for the selected trails.

To assist in completing the study an ad-hoc advisory group, known as the Indiana Trails Study Group, was formed to advise

researchers in site selection, preferred information to be obtained, research methods and project completion. This group helped to clarify and specify the purpose of the Indiana Trails Study.

Study Locations

The six study trail sites were selected to reflect differing community populations, geographic locations, trail development-funding methods, trail types and community types. The common parameter for trail selection was that the trail had to be operating for longer than two years.   Figure 2 on the following page shows the location and length of each trail selected for the Indiana Trails Study.

Trail segments included in the study were determined in conjunction with the agencies responsible for managing the six (6) selected trails. Criteria for locations included:

- Selection of trailheads that were frequently used in order to intercept users when starting or ending trail use.
- Selection of trail segments where traffic counter deployment would be centrally located along the length of the trail, and easily accessible by a majority of the communities' population.

Study Methods

The Indiana Trails Study used a number of methods to obtain research data about the trails, trail use levels, trail management, trail users and trail neighbors. These methods included:

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- Traffic (user) counts using infrared trail counters at select trail segments
- User survey through use of intercepts and follow-up mail survey techniques
- Mail survey of adjacent property owners, referred to as trail neighbors
- Phone interviews with local realtors

All research was conducted and completed between June and November 2000 by the Eppley Institute for Parks and Public Lands at Indiana University. A detailed description of study methods is provided in Appendix B for further review.

Figure 2: Location of Indiana Trails Study Cities

Maple City Greenway Goshen
Length: 10 miles
Sept. Traffic: 10,530
Oct. Traffic: 9,107

Prairie Duneland Trail Portage
Length: 6 miles
Sept. Traffic: 12,766
Oct. Traffic: 8,430

River Greenway Trail Ft. Wayne
Length: 15 miles
Sept. Traffic: 26,914
Oct. Traffic: 24,231

Monon Trail Indianapolis
Length: 7.6 miles
Sept. Traffic: 55,148
Oct. Traffic: 45,606

Cardinal Greenway Trail Muncie
Length: 10 miles
Sept. Traffic: 9,275
Oct. Traffic: 9,063

Pennsy Rail-Trail Greenfield
Length: 3.1 miles
Sept. Traffic: 5,218
Oct. Traffic: 6,108

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Study Findings

The Indiana Trails Study is a comprehensive review of trails, and significant amounts of data have been generated. Over 240 different variables were analyzed in the 4 different surveys and traffic counts completed between June and November 2000. The published study consists of 7 volumes, one each for the six (6) different trails studied, and this summary report of all trail research. The most complete and concise summary of data from the Indiana Trails Study is found in Appendix A of this report in the form of Trail Data Summary Tables. In this format, the findings from each of the six (6) trails studied are laid out side-by-side by topical area. The detailed analysis provided in the following summary report is based on the Trail Data Summary Tables.

Trail Use & Counts

In analyzing use patterns, the Trail Study utilized infrared traffic counters originally designed to track wildlife crossing at a specific point. The counters indicate date, and time of an "event" when the infrared light beam is crossed by a traveling object. The counters have a transmit and receiver unit that are mounted across from each other, and are adjustable so that object speed and size can be accommodated. In the case of the Trail Study, the counters were placed in one location along each of the trails over a 2-month period of September and October 2000.

It is emphasized that the trail counters recorded only "events", not separate and distinct users, and could not ascertain the activity in which the user was participating. (i.e. walking, bicycling, etc.). In this way, the infrared trail counters acted much the same as traffic counters used by civil and traffic engineers in measuring use of a specific stretch of highway. The counters measured only the number of events or users that passed by a specific point along each trail.

It is important to note that the trail count study was augmented by work completed by the School of Public and Environmental Affairs at Indiana University Purdue University Indianapolis (IUPUI) where an undergraduate class conducted research designed to estimate the accuracy of the trail counters. By observing activities on the nearby Monon Trail in Indianapolis during specific times in the same location as the infrared counter, this project determined that the infrared counter data represented a systematic 15% undercount of trail users. It is important to note that the traffic count information presented in the Indiana Trails Study **has not been** adjusted for this 15% undercount.

Traffic Counts

Individual trail counts recorded by the infrared counters were downloaded in the field onto information storage devices and then transferred to laptop computers. The traffic counts from trails in the six (6) subject cities were analyzed using descriptive and frequency statistics for trends, similarities and differences. Significant amounts of information were generated for each subject city and corresponding trail, which was aggregated to create more general findings. The traffic count data highlights the following summary findings regarding trail use levels.

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- Total monthly traffic count by trail
- Average weekday traffic count by trail
- Average weekend day traffic count by trail
- Highest single hour traffic count by trail
- Weekday traffic count by hour of day for each trail
- Weekend traffic count by hour of day for each trail

Chart 1 displays the total monthly traffic count for each trail in the months of September and October 2000. The chart indicates that significant uses of each trail occurred in September, with reduced use in October. The resulting findings indicate that trails do attract consistent use regardless of trail type, location and community; and that as daylight hours are reduced, trail use is generally reduced. It is important to note that the trail counters reported a high of 55,148

events on the Monon Trail in Indianapolis during September 2000 with a low of 5,218 events on the Pennsy Rail Trail in Greenfield during September 2000. While one could assume that each event translates into 1 person using these trails, it is unlikely that this is the case. More probable is that about every 2 events translates into 1 person using the trail based on findings presented in Chart 9. Briefly, this chart indicates that between 81% and 98% of trail users surveyed reported they entered and exited the trail at the same location. This would support the view that the number of trail users is between 50% and 60% of the total trail count for the specified time period. Therefore, the best estimate of trail user visits reported for the project ranged from 27,574 on the Monon Trail to 2,609 on the Pennsy Rail Trail.

Chart 1: Total Traffic Count For Study Cities in September/October 2000
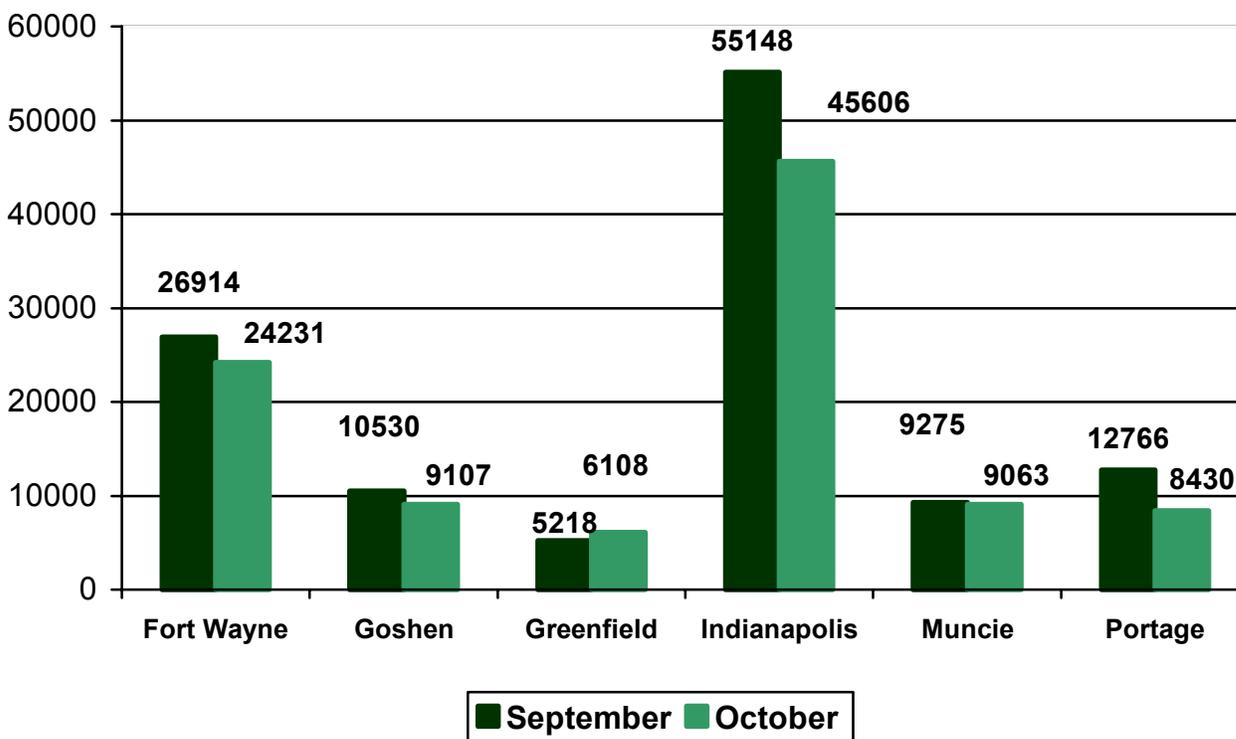
Chart 2: Average Weekday Traffic Count For Study Cities in September/October 2000

Fort Wayne: September 835, October 684
Goshen: September 310, October 251
Greenfield: September 166, October 175
Indianapolis: September 1618, October 1133
Muncie: September 270, October 252
Portage: September 376, October 243
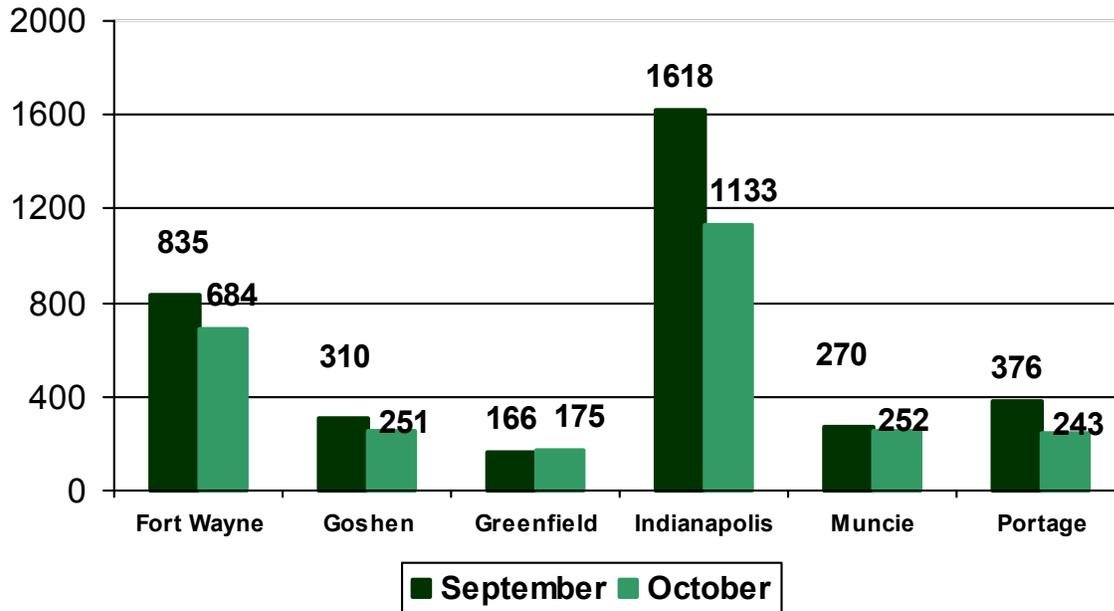
■ September ■ October

Chart 3: Average Weekend Traffic Count For Study Cities in September/October 2000

Fort Wayne: September 1025, October 1017
Goshen: September 447, October 430
Greenfield: September 192, October 252
Indianapolis: September 2352, October 2181
Muncie: September 408, October 372
Portage: September 541, October 398

■ September ■ October

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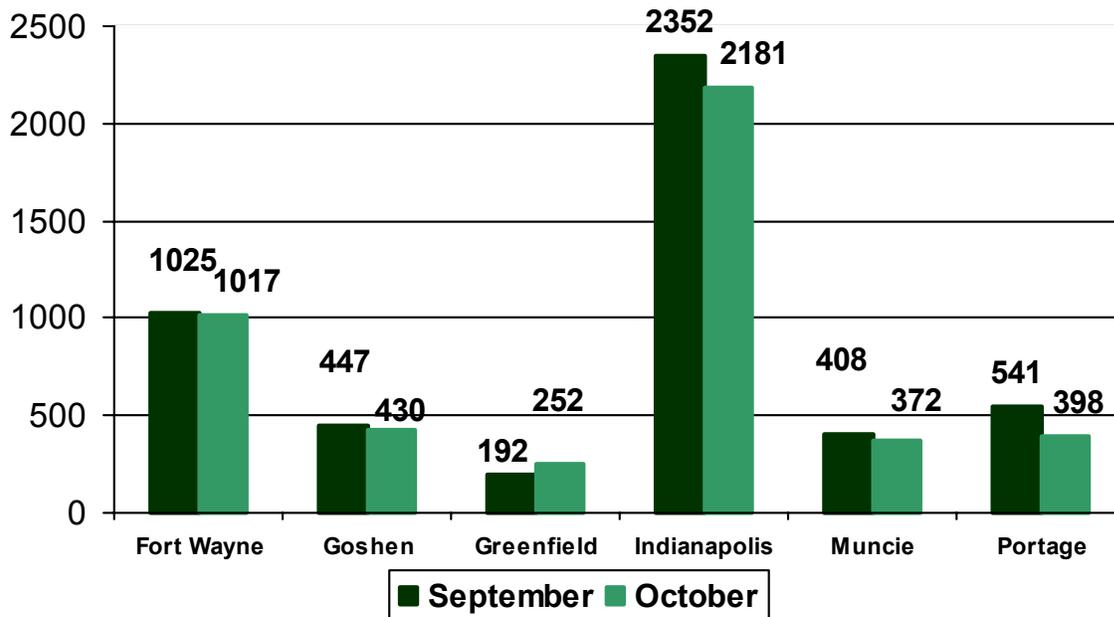
The information displayed in Chart 2 provides an analysis of the amount of weekday traffic for each of the trails studied during the months of September and October 2000. As shown, the daily traffic count ranged from a high of 1618 to a low of 166 events, both in September. A comparison of event counts between September and October generally finds that October events range from 65% to 95% of September events, with an average October event count of 19% less across the six trails. This reduction in trail use is attributed to the reduction in the amount of daylight and/or an increase in cooler weather. It is important to note however, that in all cases, daily events for each site remain at fairly high levels.

Chart 3 shows weekend daily traffic for each of the trails in September and October 2000. Again, it is generally observable that the number of events on each trail was lower in

October in comparison to September. October weekend counts were on average 88% of September counts, and ranged from 76% to 99% of September counts. Trail use levels as measured by events apparently remained more even between October and September in those communities where the trail was more centrally located in an urban community. Specifically, the trail use levels in October, as measured by events, averaged approximately 95% of the September use level in Fort Wayne, Goshen, Indianapolis, and Muncie.   In these 4 cities, the trails are located in more urban places.

The highest single hour count of trail events for the study trails in September and October 2000 is depicted in Chart 4. The pattern of highest single counts across communities generally reflects total traffic patterns. Trail use levels past the single point of the trail counter varied from a high of one person

Chart 4: Highest Single Hour Count For Study Cities in September/October 2000
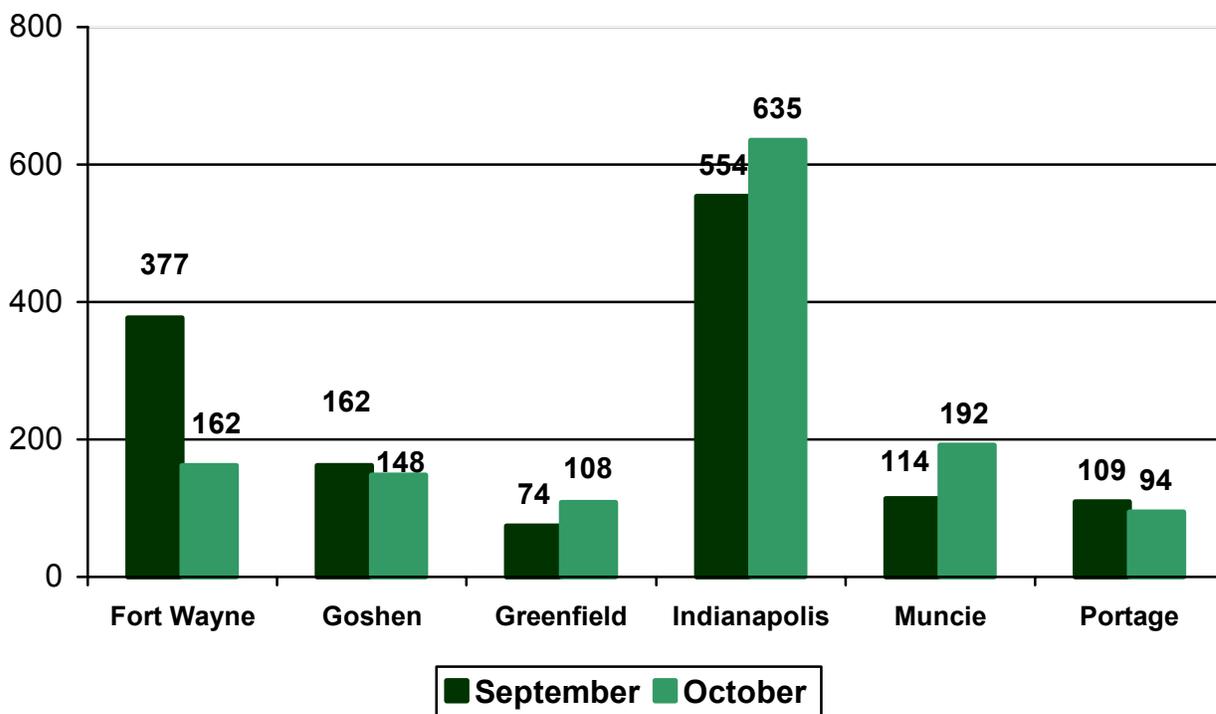
every 6 seconds at the Monon Trail in October, to a low of one person every 49 seconds at the Pennsy Rail Trail in October.

a.m. and rises gradually to approximately 10 a.m. where it decreases slightly and remains consistent until 4 p.m., where it begins to rise

Chart 5: Weekday Traffic by Hour of Day, September 2000
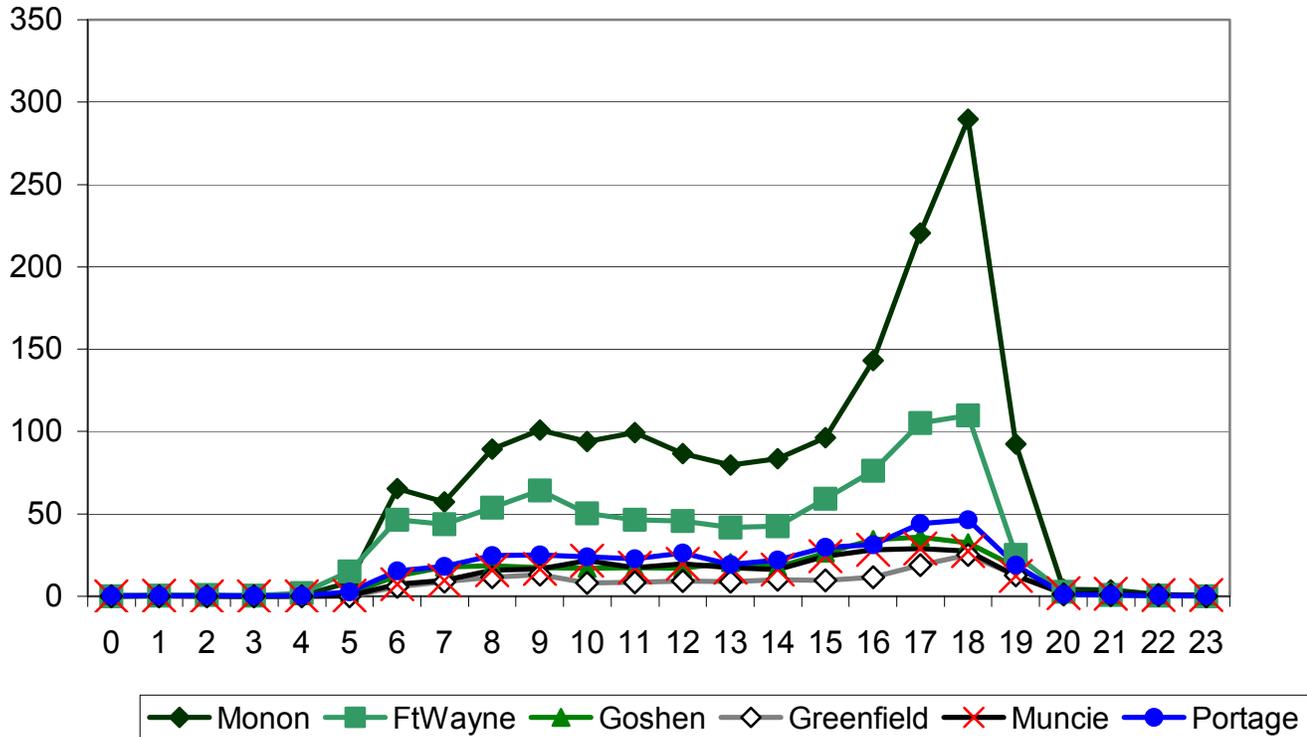
These numbers are significant in that at peak use levels the trails can be considered congested and overcrowded by patrons in a manner that is similar to traffic congestion during rush hours on major streets and highways.

Charts 5-8 display a related analysis of trail "rush" hours as they display hourly rate counts from each of the trails over a 24-hour day. Charts 5 and 6 display hourly rate counts for the 6 trails on weekdays and weekends in September 2000. It is notable that the hourly use pattern for each of the trails follows approximately the same pattern of use with some variations in the intensity of use by location. Generally Chart 5, weekday hourly counts, shows that trail use starts at 6

and peaks during the evening at 6 p.m.   This pattern is consistent for almost all trails, and is almost the same when compared to October hourly rate counts for the same 6 trails. The major difference between September and October hourly use is that peak hourly use starts to climb at 3 p.m. in October, and peaks an hour earlier at 5 p.m. in October as depicted in Chart 7. Chart 6 displays weekend hourly use for September 2000. A consistent pattern of higher trail use in the mid-morning, a drop off during the midday hours, followed by an increase to another peak trail use levels between 2 and 5 p.m. can be observed for all trails in September 2000 as depicted on Chart 6. October weekend hourly use as shown in Chart 8 shows a less consistent

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Chart 6: Weekend Traffic by Hour of the Day, September 2000
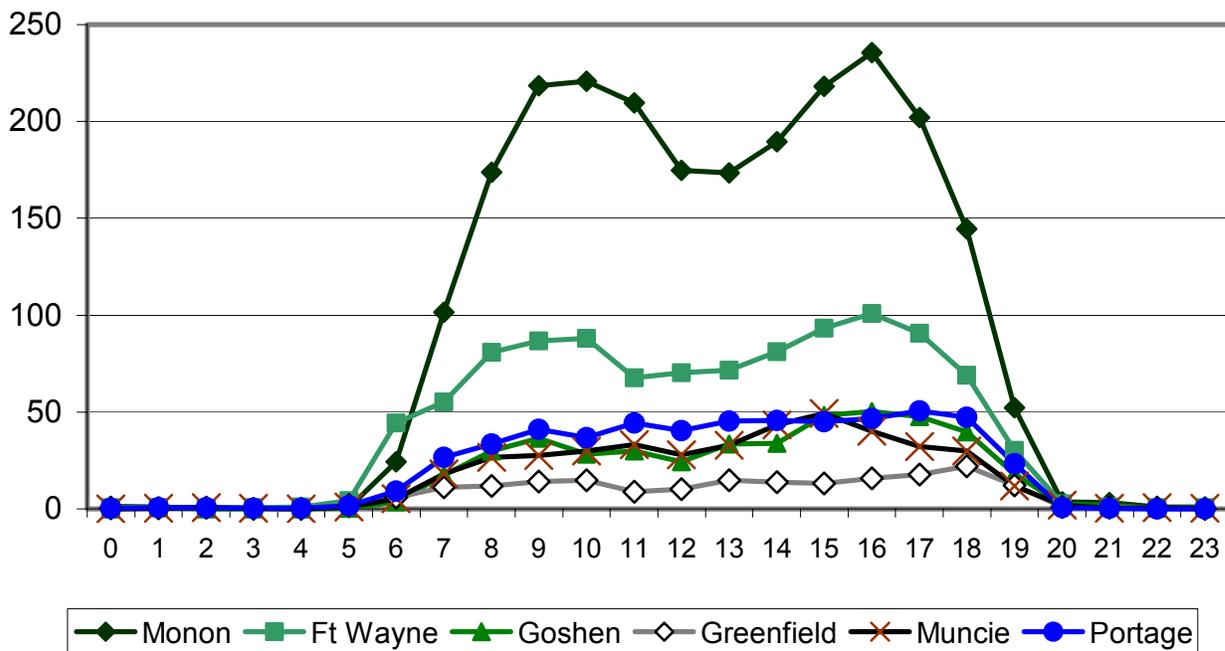
Chart 7: Weekday Traffic by Hour of Day, October 2000
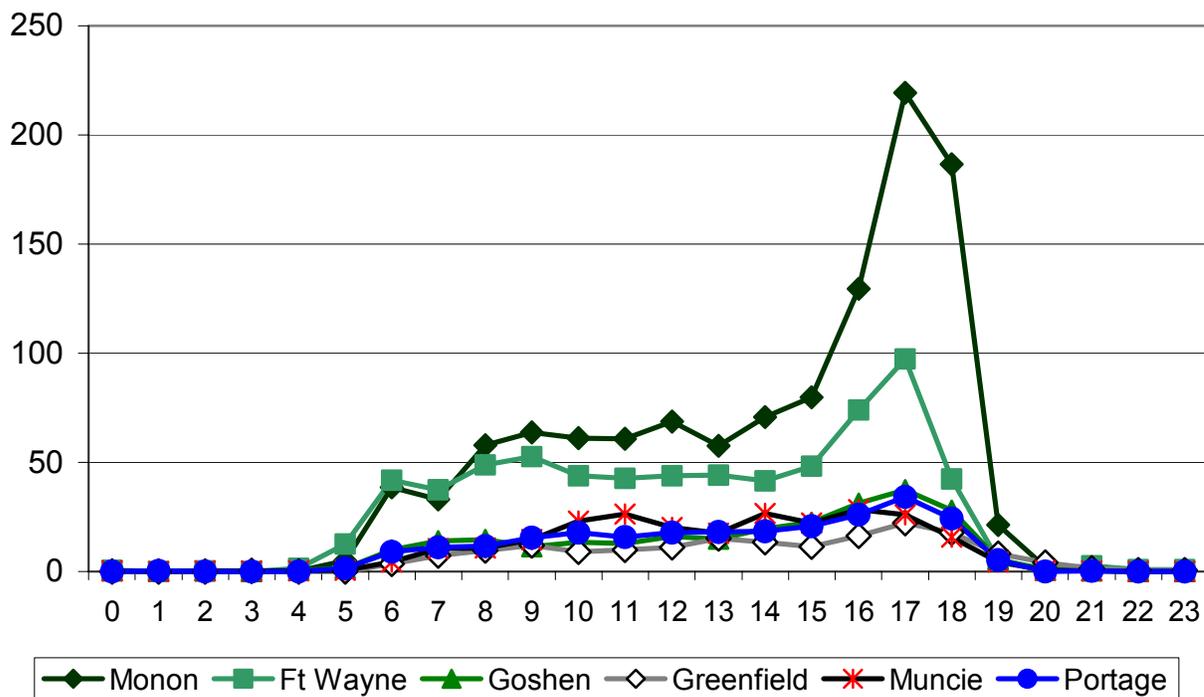
Chart 8: Weekend Traffic by Hour of Day, October 2000
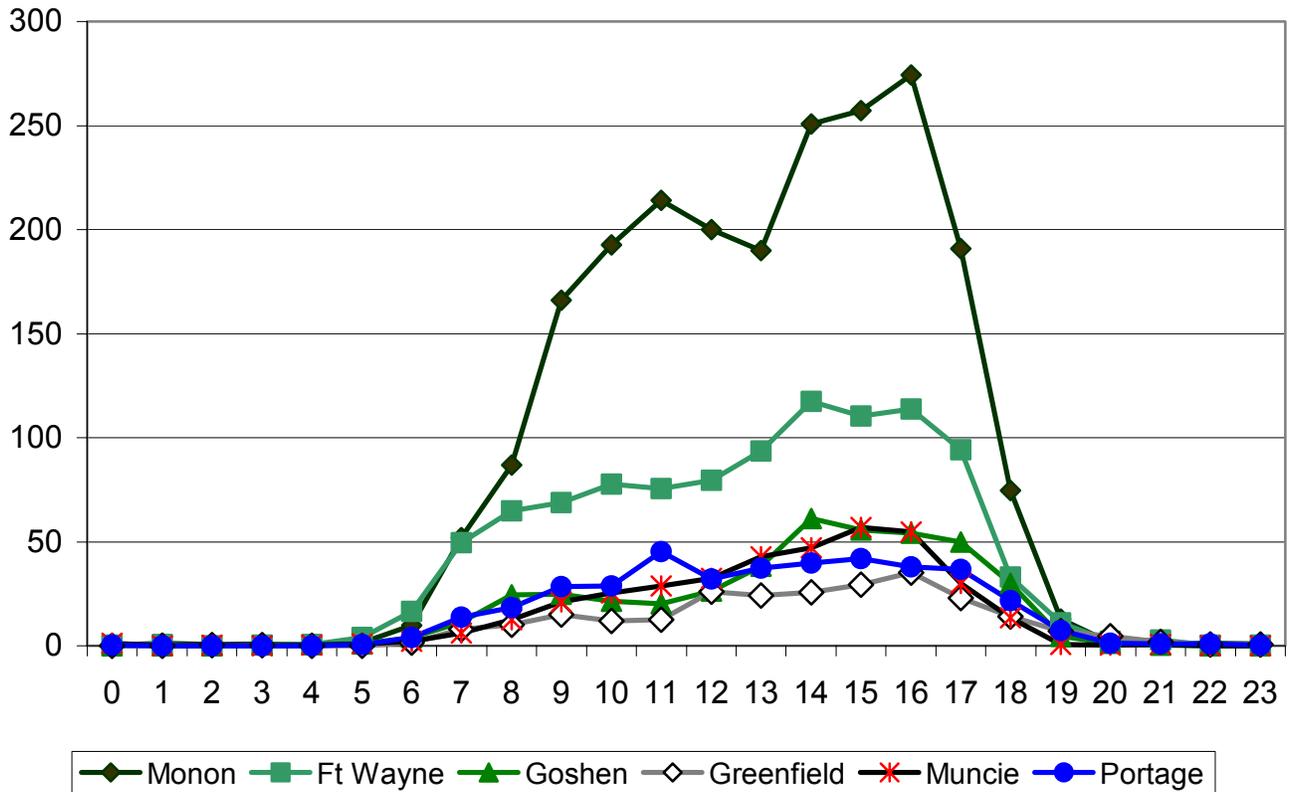
pattern in this regard, but generally supports the same September weekend trail use pattern of increased trail use in mid-morning, dropping off in mid-day and increasing to peak use levels between 2 and 4 p.m.; an hour earlier than in September. Notably, all 4 charts show little, if no trail counter recording of "events" (i.e. trail users) on the trails between 8:00 p.m. and 6:00 a.m. the following morning.

Trail Count Findings

The use of infrared trail counters proved to be successful in the Indiana Trails Study. The counters provided valuable information on trail use patterns; including hourly, daily,

and monthly use patterns by trail, as well as total trail use counts. It is again emphasized that the trail counters recorded only "events", much the same as traffic counters used by civil and traffic engineers to measure traffic "counts" on a specific stretch of highway. The infrared counters measured only the number of these "events" or trail counts that passed by a specific point along each trail. Analysis of trail counter data found:

- Users were counted every day in the sampling period on every trail. Monthly traffic ranged from 5,200 - 55,000 events at a single counter point (estimated 2,600 – 27,500 user visits)
- Average daily traffic ranged from 96 - 2545 events (by day of week)

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- Highest hourly traffic ranged from 74 - 635 events (1every 49 seconds to 1 every 6 seconds)
- Average weekend daily use exceeds average weekday use (by 37% in September)
- Peak daily use for weekdays was at 5:00 p.m. or 6:00 p.m. in September and earlier in October
- Peak daily use for weekends varied more but peaked in the mid-afternoon to early evening in September; earlier in October
- Peak hourly use is 11%-14% of average daily use

Trail Users

Information about the use patterns, attitudes, and opinions of trail users was gathered in the Indiana Trails Study by "intercepting" users at various times, days and locations on each of the 6 trails studied. Paid staff and/or trained volunteers were stationed at pre-determined locations (generally trail access points) and given specific directions on how to intercept trail users and administer a short

Chart 9: Trail Users Entering and Exiting at Same Location

15-item survey. After this approximate 4 minute intercept survey was concluded, survey staff and/or volunteers asked the trail

Figure 3: Infrared Trail Counter Receiver Unit

user if they would complete a much longer (15 page) survey at a more convenient time and return it to the Eppley Institute for Parks and Public Lands using business reply mail. Approximately 65% of all intercept users agreed to complete the more in-depth trail user mail back survey. Data received from the trail user intercept and trail user mail back surveys was analyzed separately and reported separately as reported in the Trail Data Summary Tables found in Appendix A.

Trail Access

Trail access information obtained from trail users centered on factors related to trail entry and exit, distance, and time traveled to and from the trail. Responses from trail users show the average trail user of the 6 trails studied comes from within approximately 5 minutes, and 2 miles of the trail. Chart 9 displays the percentage of trail users who entered and exited the trail at the same location for each of the 6 trails studied. With a range of between 98% and 81% of all trail users entering and exiting at the same location (average of 90%), it is clear that a

very significant majority of trail users live close to the trail and/or utilize the same parking area for entry/exit if they drive.

Chart 10 is a representation of trail user indications of access method to and from the trail. While a large percentage of trail users reported that they arrived at the trail by walking or biking, the majority of trail users (54% mean among the 6 trails) reported they drove to the trail before beginning use of the trail. The secondary means of access to the trail was walking which would appear to be reflective of the short distances and time required to access the trail.

questions included standard demographic information as well as inquiries about their primary purpose and use of the trails.

Trail user ethnicity, as determined by mail back survey, was predominantly Caucasian throughout all 6 trails. The percentage of Caucasian users reported on the trails ranged from a low of 94.3% in Fort Wayne to a high of 100% in Greenfield. In addition to ethnicity, the trail user mail back survey gathered information on education and income. In these inquiries, the survey found a wider variance of education levels ranging from 31.8% to 78.6% of all trail users having graduated from college. The average

Chart 10: Trail User Method of Travel To/From The Trail

percentage of college graduate trail users for all 6 trails was 52.1%. A final demographic result of the trail user survey was income level of trail users. In this case, the survey found notable consistency between the trails in the different cities. Broken down into the categories of income under $40,000, income between $40,000 and $80,000, and income
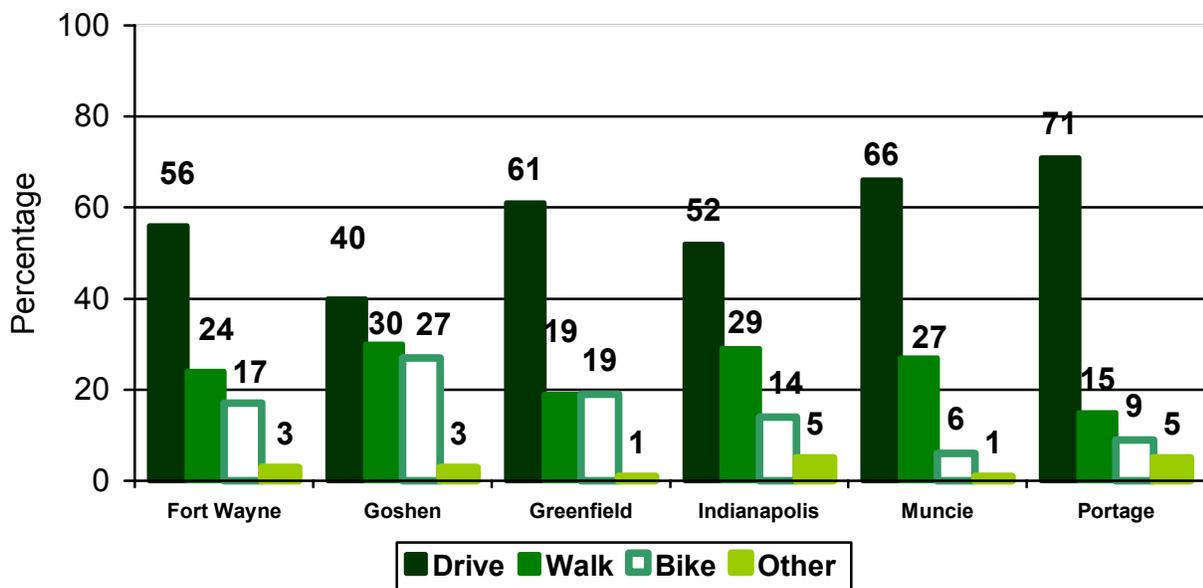
User Profile

Trail users were surveyed on various preferences and demographic factors in order to better understand who was using the 6 trails, and their user preferences. These

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over $80,000, the survey results varied only slightly between users in the various trail cities. The average income for all 6 trails, along with specific income totals for each trail is found in the following table.

Figure 4: Percentage Income Distribution of Trail Users

Trail City	Under $40,000	$40,000-$80,000	Over $80,000
Fort Wayne	35	48	17
Goshen	39	45	16
Greenfield	33	46	22
Indianapolis	22	45	33
Muncie	33	51	16
Portage	33	48	18
Average	32.5	47.2	20.3

The final demographic information obtained from trail users was age. Chart 11 provides a glimpse of trail user ages based on the mail back survey. Most trail users are in the two age categories between 26 and 65. The survey probably under represents trail users who are younger than 18 as survey intercept staff were instructed to only survey trail users over the age of 18.

Trail users utilize many different methods of travel along these multi-purpose trails including walking, jogging, running, bicycling, skating and others. Chart 12 displays the primary modes of travel for the 6 subject trails. It is clearly observable that walking is the preferred trail activity, with the notable exception of Muncie's Cardinal Greenway trail. Without exception however, walking and biking are the predominant types of trail use along the 6 trails, representing approximately 75% of all trail user activities.

Chart 13 represents trail user responses to a survey question inquiring about the trail users' primary purpose for visiting the trail. Without exception, a large majority of trail users in each city indicated they were using the trail primarily for health and fitness (an average of 68%), with the second most frequent purpose being recreation. Roughly 95% or more of all responses fell into these two categories. It is notable that the percentage of trail users utilizing the trail for commuting was largest (5%) in the most

Chart 11: Age Distribution Percentages of Trail Users
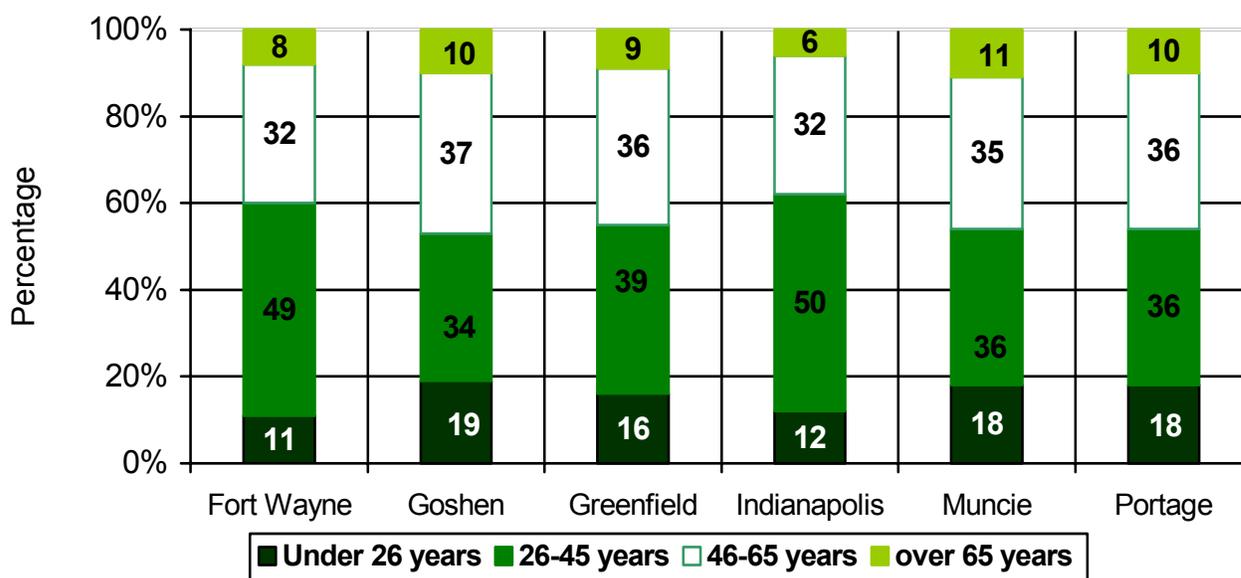
Chart 12: Distribution of Trail User Activities

Values shown in stacked bars (Walk, Bicycle, Run/Jog, Skate/Other):

City	Walk	Bicycle	Run/Jog	Skate/Other
Fort Wayne	43	35	16	6
Goshen	44	44	10	2
Greenfield	59	21	9	11
Indianapolis	51	21	18	10
Muncie	12	77	7	4
Portage	42	38	11	9

Legend: ■ Walk ■ Bicycle □ Run/Jog ■ Skate/Other
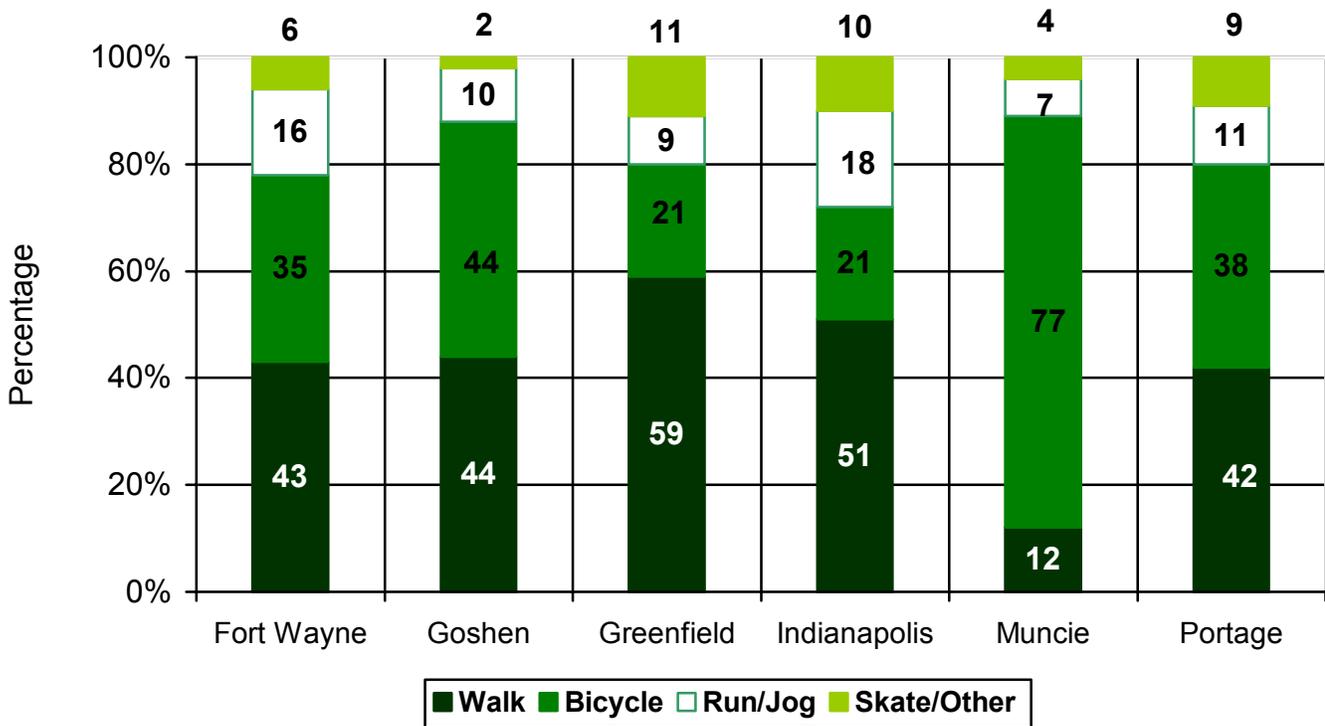
Chart 13: Trail User Primary Reason For Visiting Trail

Values shown in stacked bars (Health/Exercise, Recreation, Commute, Other):

City	Health/Exercise	Recreation	Commute	Other
Fort Wayne	66	32	2	0
Goshen	64	32	4	0
Greenfield	79	19	1	1
Indianapolis	71	23	5	1
Muncie	56	39	3	1
Portage	74	26	0	0

Legend: ■ Health/Exercise □ Recreation ■ Commute ■ Other

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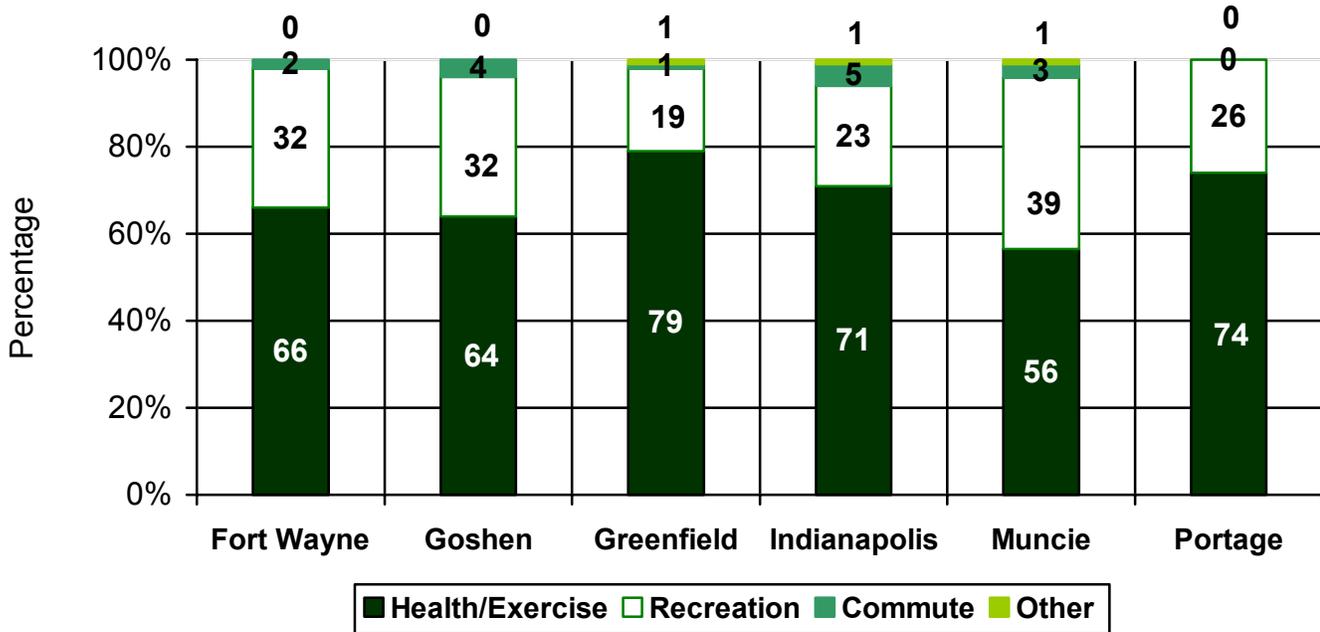
urban community, Indianapolis. Although a small percentage of the whole, the number of trail users potentially using the Monon trail for commuting during this study period is estimated at somewhere between 1,140 and 1,378 monthly, as based on traffic counts for September and October 2000.

Related to use of the trail for commuting is the possible link to other purposes to trail use as a means of cutting down on short trips, and possible motor vehicle traffic. Chart 14 exhibits the results of this survey item based on user responses.   Although ranging greatly, approximately 25% of all trail users in the 6 cities surveyed indicated that they combined their use of the trail with other activities or places.   The highest reported combination of trail use with access to other activities or places was in Indianapolis along the Monon Trail. It should be noted that the trail cities with the next two (2) highest user reported combination of trail use with other activities or places, also have trails constructed in more densely developed, urbanized locations. Survey intercepts in the

remaining 3 cities occurred along trails that were developed in more park-like locations.

User Opinion and Activities

Trail users were surveyed on a wide variety of opinions regarding their experiences and attitudes toward the trail, trail management and associated issues.   In addition, information on trail activity, length of time and distance traveled were obtained in the intercepts. As displayed in Appendix A, the Trail Data Summary Tables show all responses from trail users on the survey questions. Results from the trail user surveys that are highlighted include:

- Trail activity factors
- Level of satisfaction with the trail
- Attitudes toward trail safety
- Opinion of the city based on trail development
- Perceived benefits of trail development
- Importance of trail to daily life

Chart 14:   Percentage of Trail Users Combining Trail Use With Other Activities/Places

City	Trail Use Combined With Other Purpose	Solely Used Trail
Portage	26	74
Muncie	36	64
Indianapolis	52	48
Greenfield	38	62
Goshen	28	72
Fort Wayne	24	76

■ Trail Use Combined With Other Purpose   ■ Solely Used Trail

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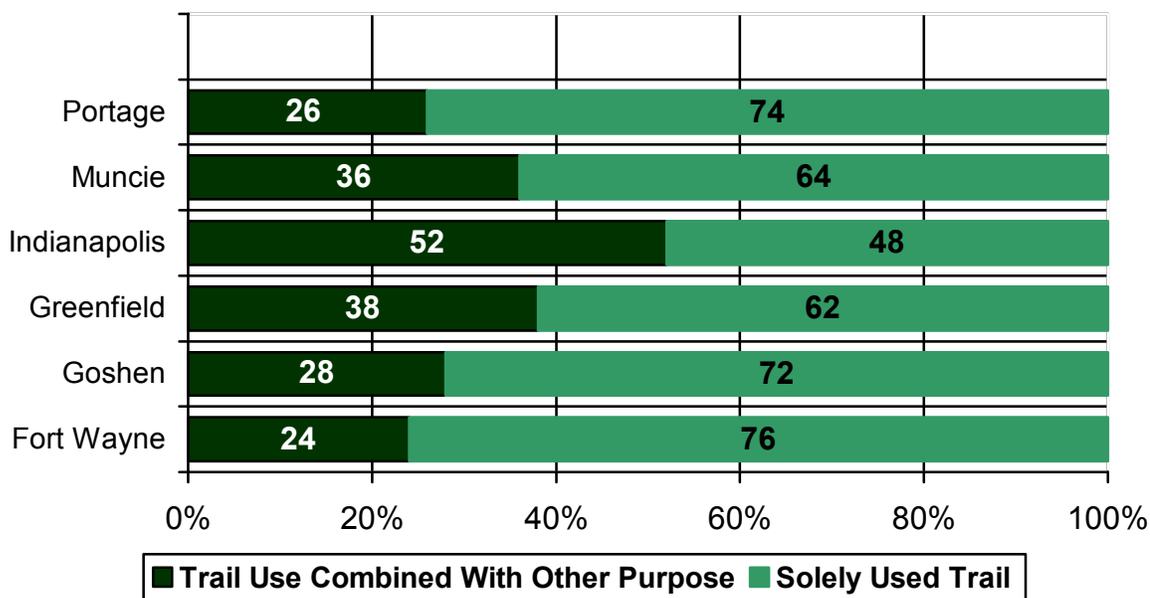
**Chart 15: Percentage of Trail Users Indicating More Participation
Due To Trail**
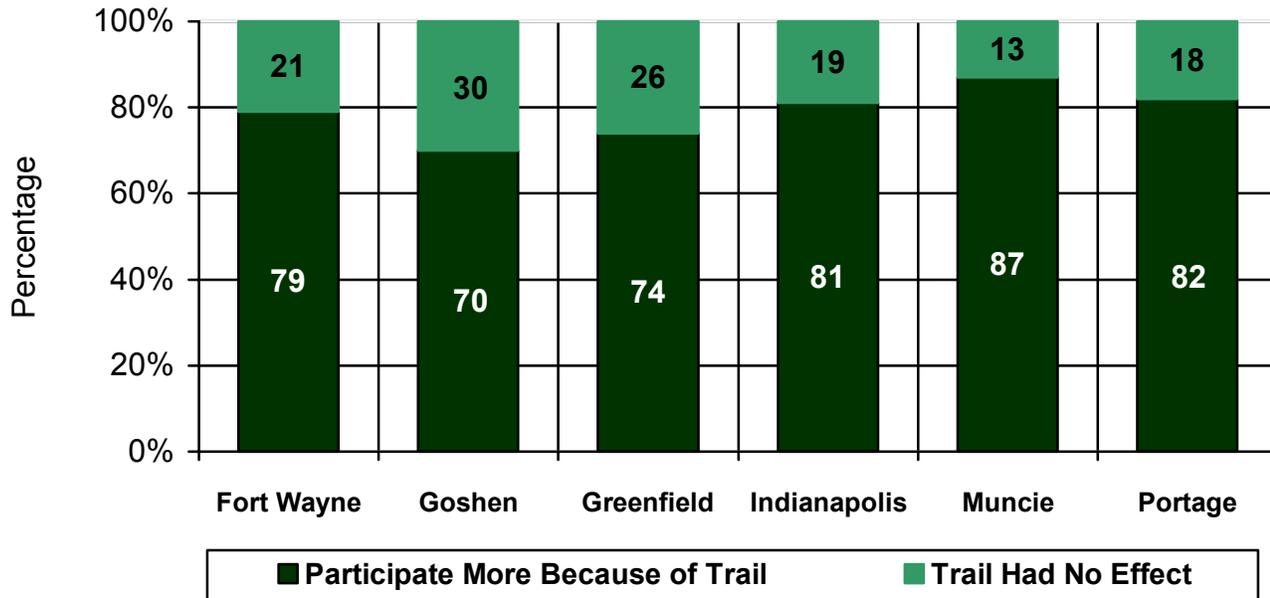
Chart 15 provides a summary of the percentage of trail users who indicated they participate more in their selected activity (i.e. walking, bicycling, running, skating, etc.) due to the trail. In all cities, over 70% of trail users reported they participated more as a result of the trail, although no data were collected to ascertain how much the users participated. Instead trail users were asked to indicate how many minutes they spent on the trail per week. Chart 16 summarizes these responses, which range from a median of 100 minutes (Goshen) to 200 minutes (Muncie) per week.

Trail users were further asked to estimate the distance they traveled on the trail. This distance ranged widely between 3 and 15 miles. The wide variance is more than likely due to the difference in distances that can be covered using the primarily reported activities by trail users (biking vs. walking). The distances that can be covered using these two modes of travel vary considerably and

would tend to support a wide variation in any user reported distance traveled along the 6 trails. No valid or reliable estimate of trail user distance traveled can be obtained from the data.

Trail user perceptions of trail safety and favorableness of the city were sought as part of the follow-up survey. The results of these survey items are displayed together in Chart 17. Clearly, trail users of all 6 trails feel strongly that the trails are safe with between 79% and 95% of all trail users indicating they feel the trail is safe. In addition, the vast majority of trail users reported a more favorable view of the city due to the trail, with between 76% and 100% of trail users reporting this position. This average of 92% of all trail users viewing the city where the trail is located more favorably is important.

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Chart 16: Amount of Time Users Spent Weekly on Trail

Legend: ■ Median Time Spend On Trail Weekly
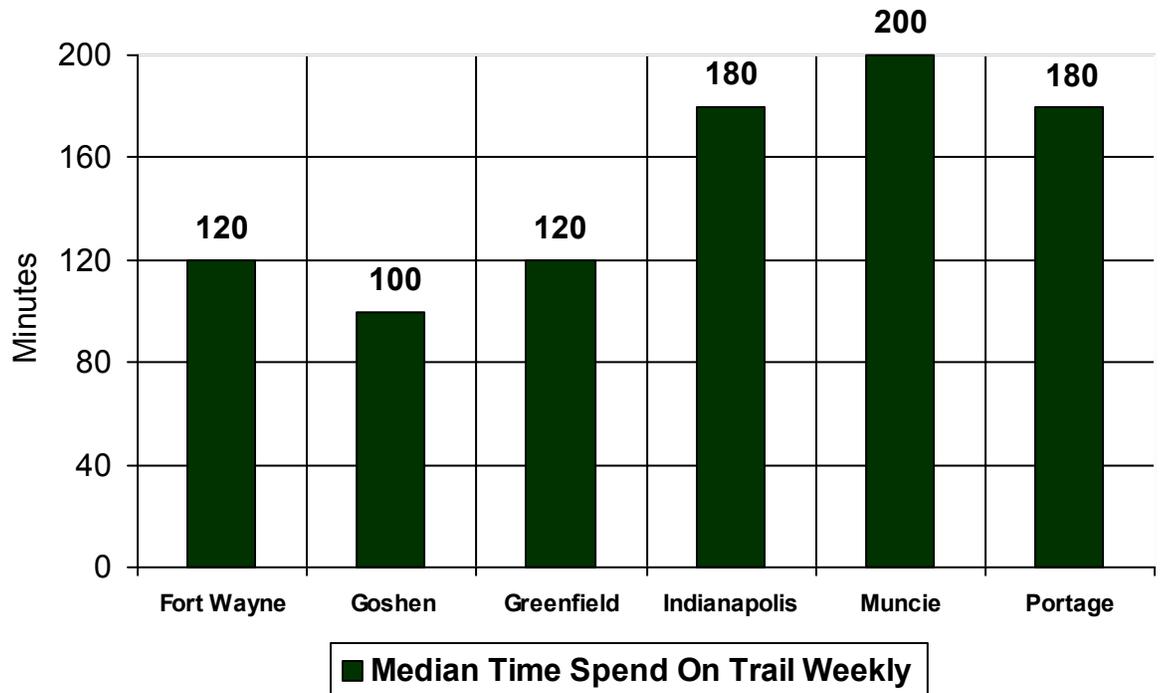
Chart 17: Percentage of Trail Users Viewing Trail As Safe and City As More Favorable Due to Trail

Legend: ■ View Trail As Safe   ■ View City More Favorably

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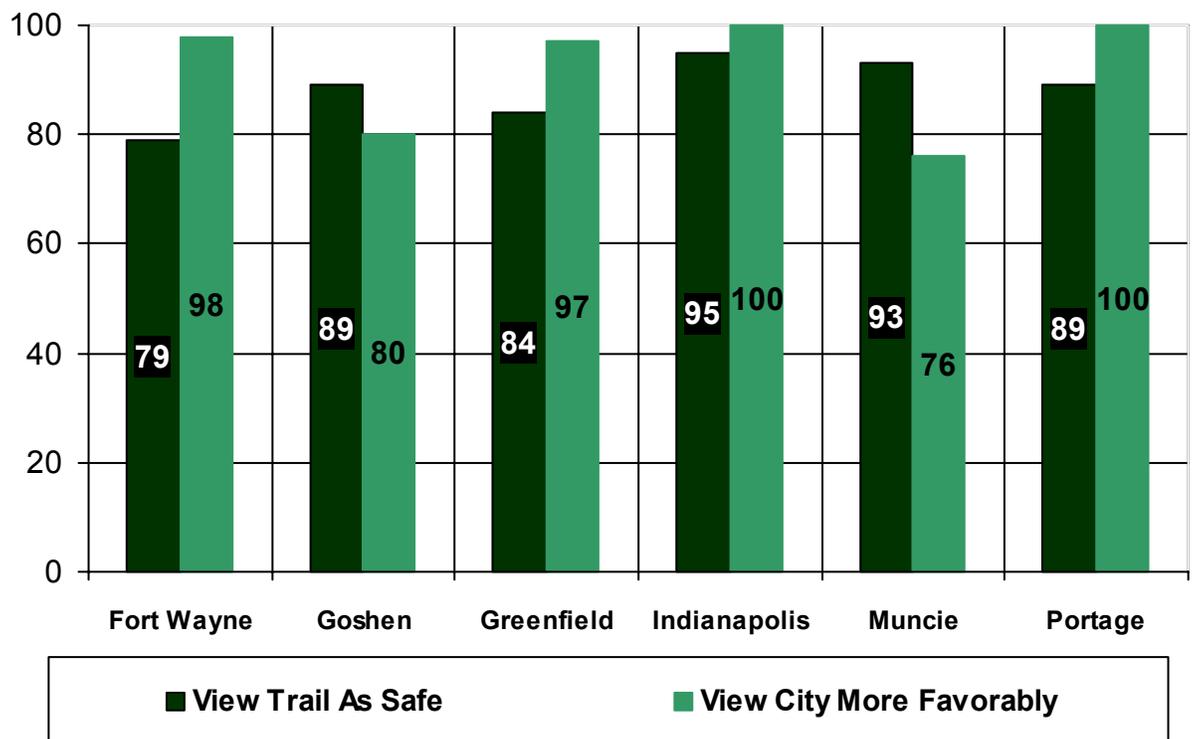
Additional factors related to trail user opinion include level of satisfaction with the trail; perceived public benefits of trail development; and importance of trail to daily life of the user. In responses to these survey items, trail users consistently indicated, across all trail sites, that they were very satisfied with the trail and the trail was very important to them. The trail users also indicated that the most important public benefits of trails were health/fitness and public recreation. Other important benefits of trails rated highly by the trail users included preserving open space, aesthetic beauty, and community pride.   However, these public benefits were not as consistently or highly ranked as health/fitness and pubic recreation.

Economic Factors for Trail Users

Trail users were asked a number of questions related to economic factors including willingness to pay fees, visitor expenditures related to trail activities and other monetary issues. Since few of the intercepted trail users were visitors and were in fact, largely proximate neighbors, those trail users responding to questions relating to visitor expenditures for trail activities were an exceedingly small population. The corresponding data analysis of this visitor and expenditure data was determined to be questionable due to the small sample size and will not be reported.

Survey data from all trail users relating to fees was collected and analyzed. Chart 18 presents the results of a question related to trail user willingness to pay fees. On average 41.5% of trail users were willing to pay fees. When asked how much they would pay for an annual trail use pass, the respondents who indicated **they would** pay a fee further indicated they would pay a fee of between $5-20 annually. Those

Chart 18:   Percentage of Trail Users Indicating Willingness To Pay User Fee

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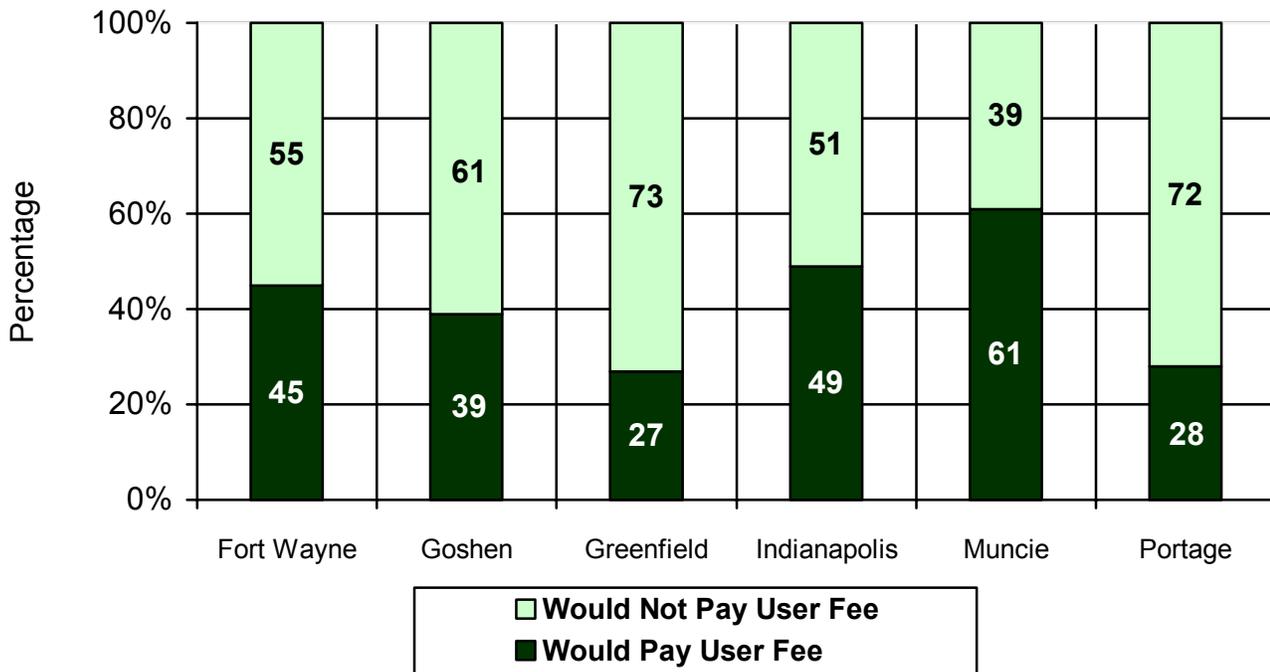
respondents who indicated **they would not** pay a trail use fee further indicated they felt taxes should pay for trail maintenance and operations.

It should be noted that those trail users returning the follow-up survey indicated they had not paid any fees, including parking fees, for trail use on the day they were intercepted.

Trail User Findings

The data collected in the Indiana Trails Study user intercept and follow-up surveys provided a valuable and detailed description of trail user demographics, preferences and use patterns. Analysis of the trail user survey data found:

- Trail users generally live close by, usually within 2 miles of, the trail and enter and exit the trail at the same location
- Trail users include all ethnic, age, education levels and income levels
- Walking and bicycling are the predominant methods of travel along the trails
- Users primarily utilize the trails for health/fitness (65%), and recreation (28 %)
- A small percentage of users commuted along the trails in urban locations (4%)
- On average, trail users are on the trail for between 100 and 200 minutes total over 3 to 4 days during a week
- Trail users feel strongly that their trail is safe
- Trail users report a more favorable view of the city due to trail development
- Trail users are very satisfied with the trail and report that it is very important to them

- The payment of trail use fees was not totally rejected by trail users with 41% of users across all 6 trail sites reporting they would pay an annual use fee of between $5-20
- On average, 79% of all trail users indicated they participated in their preferred activity more because of the trail.

Figure 5: Indiana's Historic Trails: The Country Road
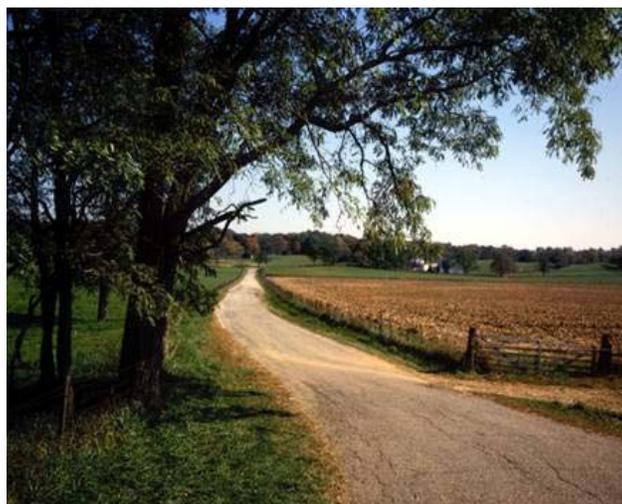
Trail Neighbors

The Indiana Trails Study was designed to obtain attitudes and opinions from those property owners who lived adjacent to the trail, known as trail neighbors. It was determined early that the best method to survey the trail neighbors was a sample of all adjacent property owners as provided by the trail agency. Each agency was asked to provide a listing of trail neighbors from their city records so that all neighbors, as defined by the local trail agency, would receive the mail survey. Response rates from the trail cities ranged from 38% to 51% after follow-up mailings; with an average response rate

of 43.7% for all trail cities. The data received from the Trail Neighbor Survey is summarized in the Trail Data Summary Tables found in Appendix A, and highlighted in the following charts and descriptions.

Property Description

Trail neighbor property varied from city to city and with the exception of one city, was generally principle residential property with the back of the house facing the trail. It is important to note that trail neighbors responding to the survey along the Pennsy Rail Trail in Greenfield all held tracts of commercial property that was purchased before the trail was developed. All properties in the trail neighbor survey were close or adjacent to the trail and varied in size. It is interesting to observe which side of the house faces the trail because most trails are developed along abandoned rail lines, alleys, canals and/or other abandoned areas placing trail users in the back (usually the most private area) of a residential unit. This was

largely found to be true in the case of trails in Goshen, Indianapolis, Muncie and Portage.

Trail Effect on Property

Trail neighbors reported a number of effects on their property based on the survey questions presented to them. A primary interest for most trail neighbors and agencies developing trails is the effect of trail development on property value and quality of life for the neighbors. Chart 19 exhibits trail neighbor perception of the effects of trail development on their property. The chart clearly shows that a very large percentage of trail neighbors viewed trail development as having either no effect or a positive effect on their property's value and on the salability of their property. Specifically 86% to 95% of trail neighbors indicated they felt the trail had either no effect or a positive effect on their property value. Coupled with trail neighbor responses of between 81% and 93% indicating the trail had no negative effect or made it easier to sell their property, it is clear

Chart 19:   Percentage of Trail Neighbors Viewing Trail As Having No or A Positive Effect on Adjacent Property

Legend:
- ■ Trail Increased or No Effect on Property Value
- ■ Trail Has No Effect or Makes It Easier To Sell Property

Indiana Trails Study
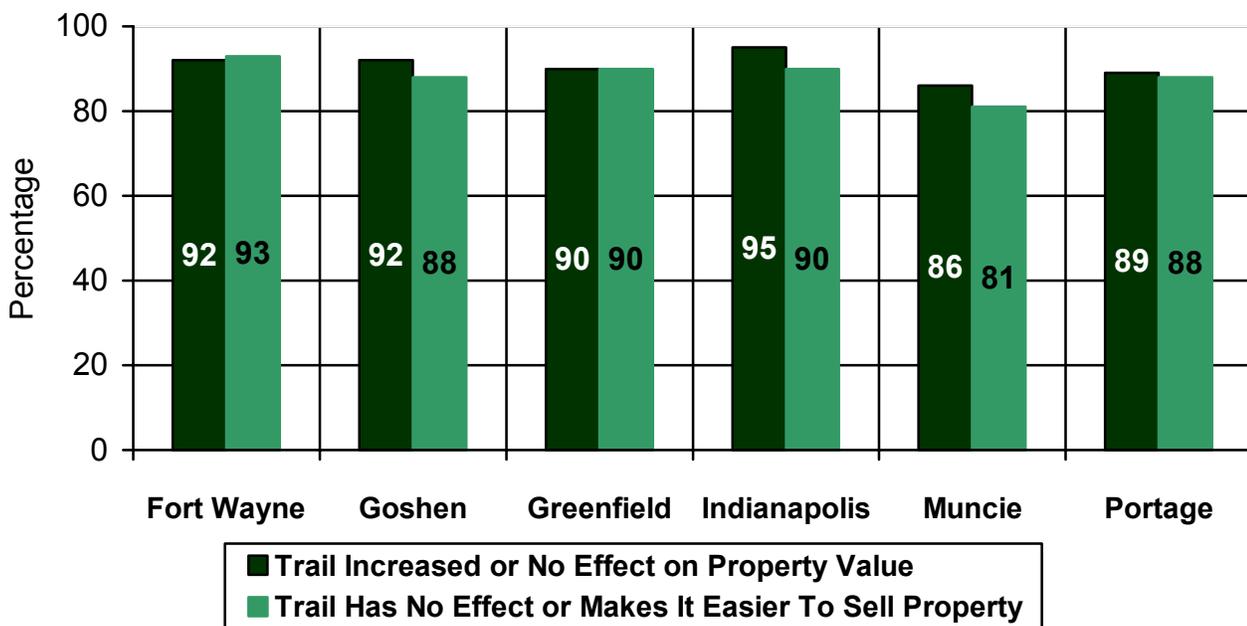
the majority of trail neighbors do not anticipate negative effects on the value and ease of selling their property.

Living Near The Trail

Chart 20 provides a glimpse of trail neighbor opinion about the trail as an improvement to the neighborhood. This survey item was asked of trail neighbors who had purchased

60% to 88% with an average of 69% of all trail neighbors across all 6-trail sites. Trail neighbors also indicated they were satisfied with the trail as a neighbor. These two opinions of trail neighbors, who owned their property before the trail was developed, indicates that living near a trail would have a positive or neutral impact on quality of life in the neighborhood.

Living near or adjacent to a trail can make it

Chart 20: Percentage of Trail Neighbors Viewing Trail As Improving Neighborhood or As Better Neighbor
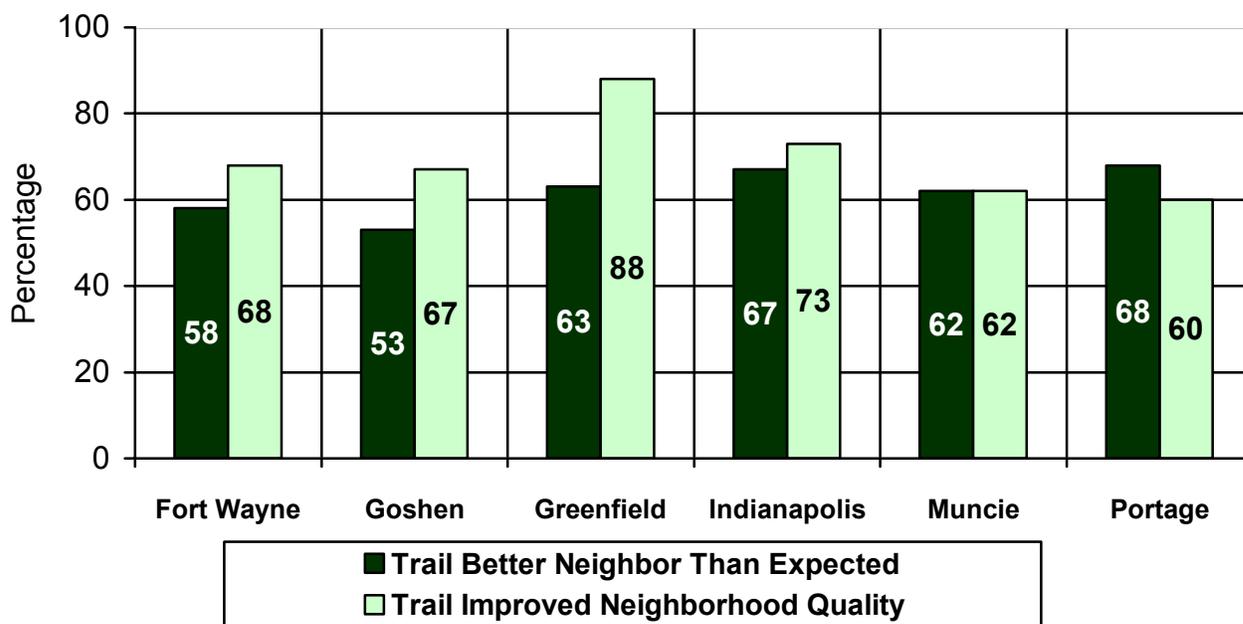
their property before the trail was developed and allowed researchers to gauge changes to the quality of life for those residents living adjacent to the trail. As shown in Chart 20, responding trail neighbors indicated that on an average 61% of trail neighbors in all 6 cities felt the trail was a better neighbor than expected. Trail neighbors reporting this perception ranged from 53% to 63%.

Trail neighbors also indicated their belief that the trail improved the quality of the neighborhood as shown in Chart 20. The percentage of neighbors who felt the trail improved the neighborhood ranged from

easy to use the trail. Trail neighbors were asked to document the amount of use and time of year during which they or members of their household may have used the trail. Charts 21 and 22 provide a description of trail neighbor use patterns by season, and frequency per week. Overall, trail neighbor use ranged from a low of 1.43 to a high of 3.1 days per week. Seasonal trail use reflects the highest activity level in summer, lowest trail use in the winter, and moderately high use levels in spring and fall.

**Chart 21: Average Trail Neighbor Use of Trail By Season**

Chart 21 shows Days/Week for Winter, Spring, Summer, Fall by location:

- Fort Wayne: 1.92, 2.67, 3.01, 2.73
- Goshen: 2.08, 2.84, 2.95, 2.81
- Greenfield: 1.67, 2.14, 2.57, 1.86
- Indianapolis: 1.96, 2.82, 3.08, 2.82
- Muncie: 1.43, 2.33, 2.69, 2.39
- Portage: 1.96, 2.63, 2.9, 2.66

Legend: ■ Winter □ Spring ■ Summer □ Fall
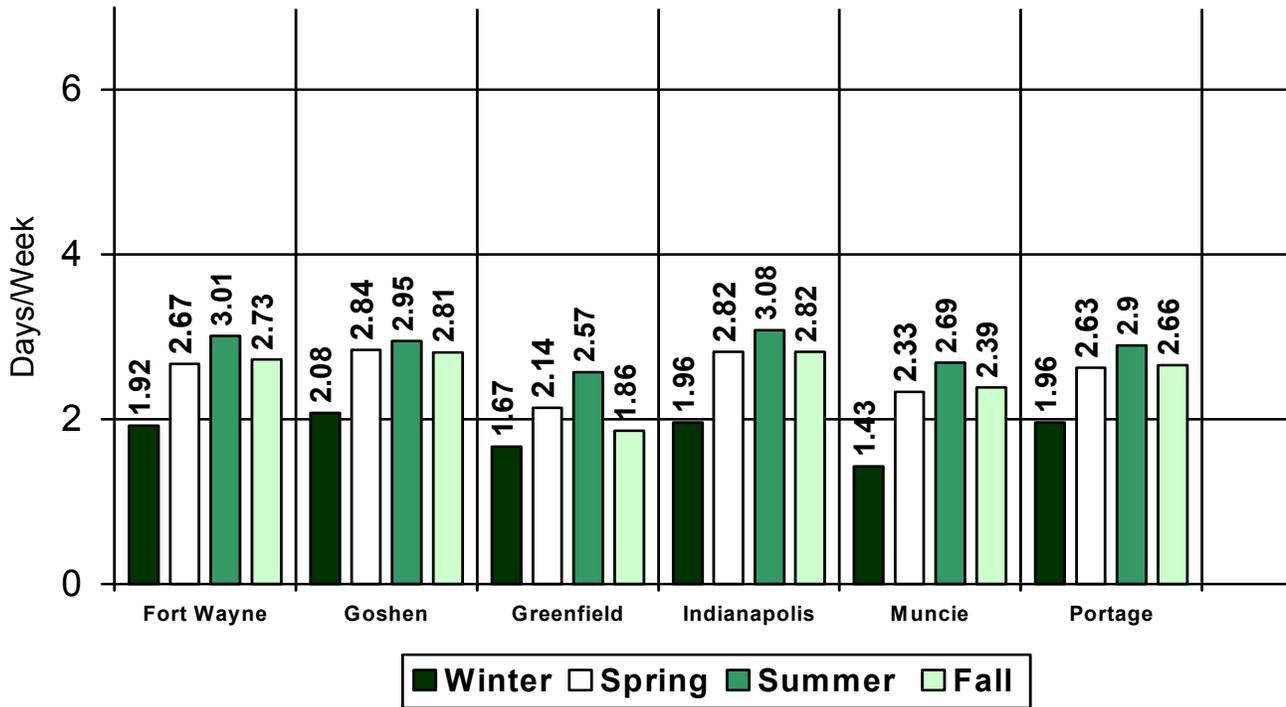
Chart 22:   Percentage of Trail Neighbors Using Trail in Past 12 Months

Chart 22 shows Percentage Used Trail / Did Not Use Trail in Past 12 Months:

- Fort Wayne: 76 / 24
- Goshen: 75 / 25
- Greenfield: 70 / 30
- Indianapolis: 95 / 5
- Muncie: 74 / 26
- Portage: 82 / 18

Legend:
■ Did Not Use Trail in Past 12 Months
■ Used Trail In Past 12 Months

Indiana Trails Study
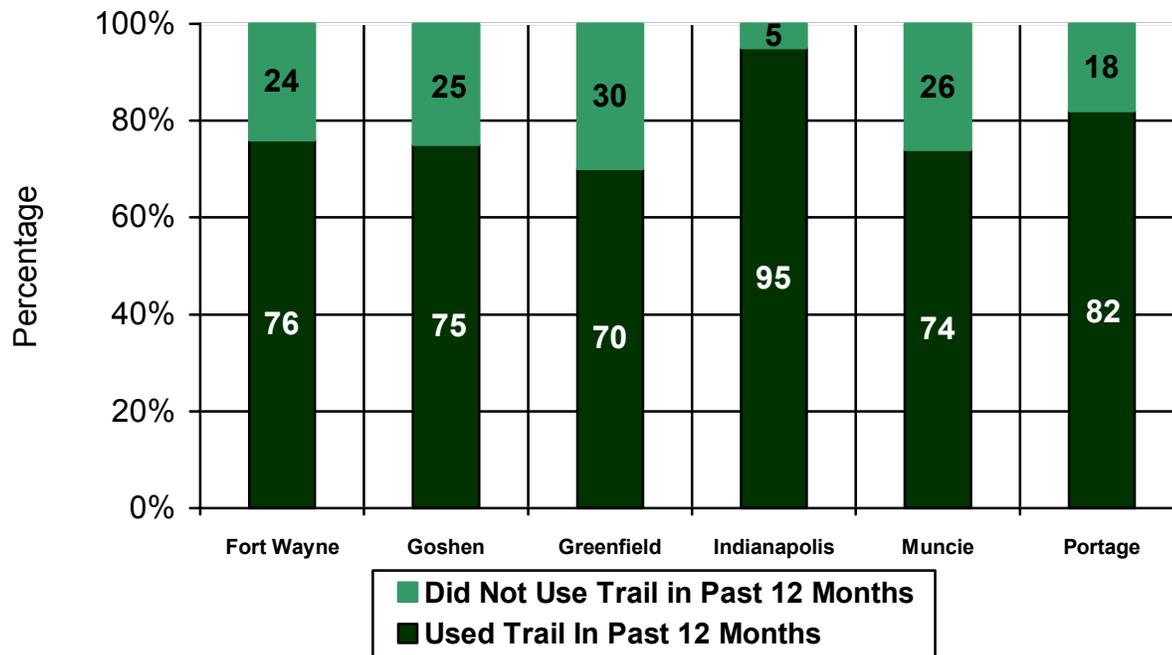
Chart 22 provides detail on the percentage of trail neighbors who reported they used the trail in the past 12 months. Between 70 and 95% of trail neighbors reported they used the trail. This information reinforces the emphasis that trail neighbors find trails to be relatively good neighbors and very convenient for members of their households.

Trail Neighbor Issues, Dissatisfaction and Opinions

The controversy that sometimes occurs when trails are proposed is often the direct result of trail neighbor fears and anticipated dissatisfaction with the trail. The Indiana Trails Study solicited trail neighbor attitudes and opinions with dissatisfaction factors and other issues related to living adjacent to one of the 6 trails studied. An analysis of factors leading to dissatisfaction by trail neighbors is

displayed in Chart 23. The highest dissatisfaction factor reported by trail neighbors in terms of percentage of responses (20% to 29% of responding neighbors) and frequency across all 6-trail cities is lack of safety patrols on the trails. The second most frequently reported dissatisfaction issue reported by trail neighbors was parking problems. This dissatisfaction was reported in 4 of the 6 trail cities (Goshen, Indianapolis, Muncie and Portage) in percentages ranging from 15% to 25% of trail neighbors. Additional dissatisfaction factors were reported that included a lack of maintenance on the trail, and agency responsiveness to problems.

Chart 24 displays trail neighbor response to a survey question asking them to rate the public benefits of trails. With the exception of trail neighbors adjacent to the Pennsy Rail

Chart 23: Factors Leading To Dissatsifaction of Trail Neighbors

Legend:
- Lack of Safety Patrols
- Lack of Maintenance
- Agency Responsiveness
- Parking Problems

Data values by city:
- Fort Wayne: 29%, 13%
- Goshen: 28%, 15%
- Greenfield: 20%, 22%
- Indianapolis: 19%, 27%
- Muncie: 26%, 20%
- Portage: 20%, 26%
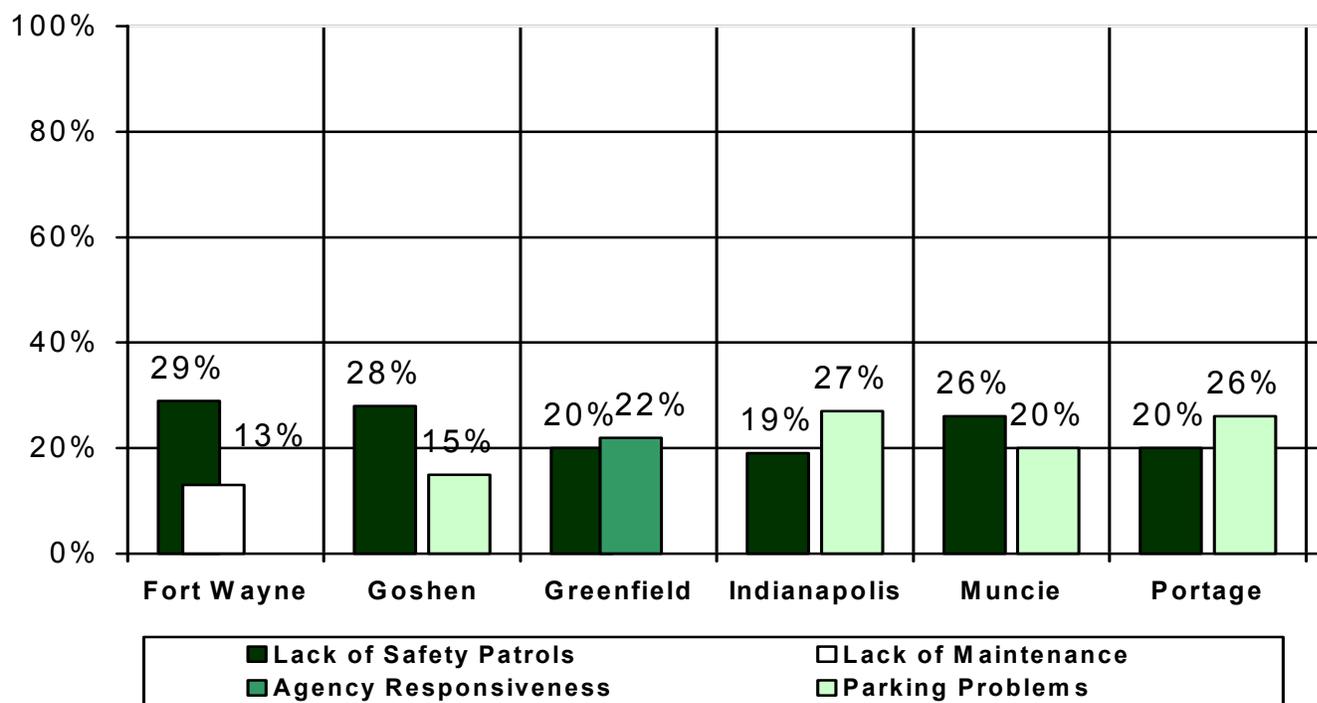
Chart 24: Trail Neighbor Ratings For Extremely Important Public Benefits of Trail

Legend:
- Aesthetic Beauty
- Community Pride
- Disabled Access
- Health/Fitness
- Public Recreation
- Open Space
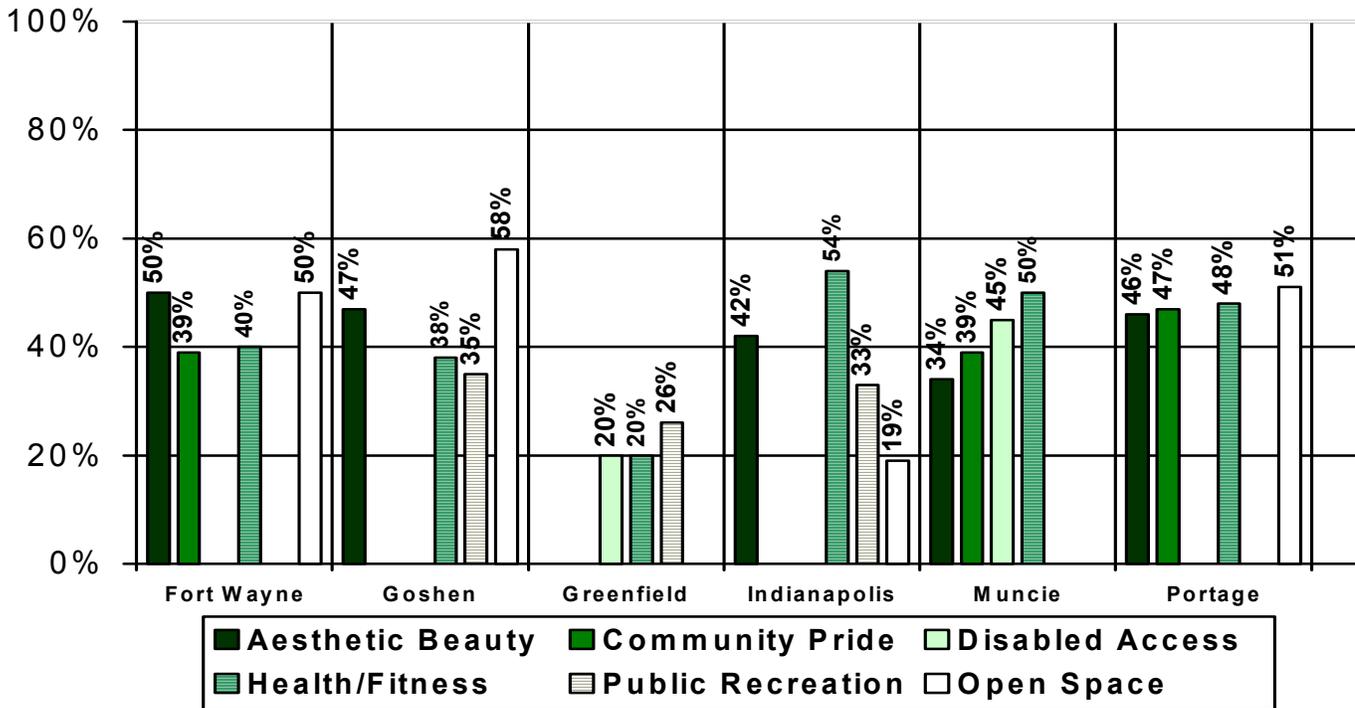
Chart 25: Most Frequent Problems Reported By Trail Neighbors

Legend:
- Illegal Vehicle Use
- Littering
- Unleashed Pets
- Burglary
- Noise From Trail

Indiana Trails Study
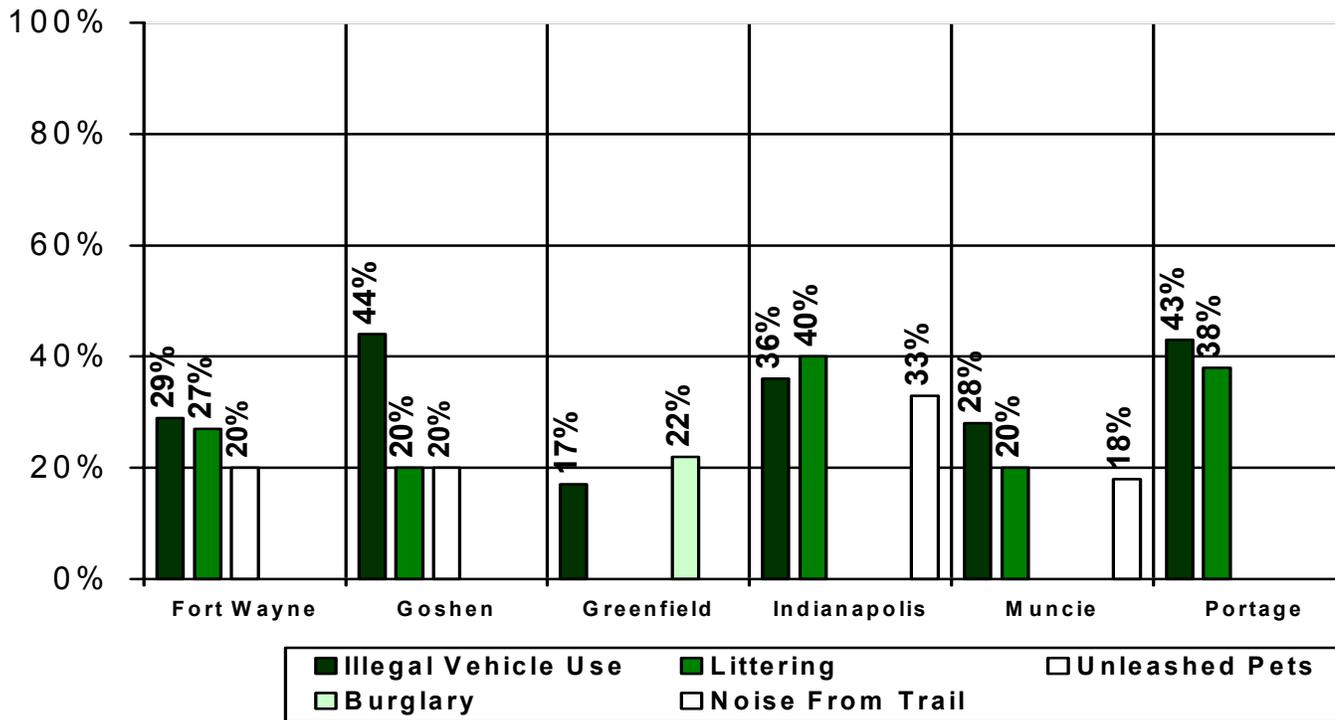
Trail in Greenfield (all commercial property uses), trail neighbors consistently ranked the public benefits of providing open space, providing public recreation, health and fitness opportunity, community pride, aesthetic beauty, and disabled access as extremely important in percentage responses ranging from 33% to 58%. The ratings are not consistent among public benefits, rank order or percentage of neighbors rating the benefit as extremely important, but are notable for the large percentage of trail neighbors having extremely supportive views on the general public benefits of trails.

Of course, trail neighbors do experience incidents or activities that lead to negative perceptions. These problems are thought to occur frequently on adjacent properties, creating issues of concern for trail neighbors. While it is generally known that trail neighbors feel a relative lack of privacy, specific problems are often not quantified. Indiana Trails Study trail neighbors were asked to indicate the most common problems they experienced.

Chart 25 provides a snapshot of the most common problems and the percentage of trail neighbors who reported this as a frequent problem. The most commonly reported problem, illegal vehicle use, relates to use of motorized vehicles on trail right of way and is most frequent in 5 of the 6 trail sites surveyed. The next most commonly reported problem, unleashed pets roaming along trails, was also common to 5 of the 6 trail sites surveyed. Other frequently reported problems included litter from trail users, and excessive noise, which were reported in 2 of the 6 trail cities. Only Greenfield's Pennsy Rail Trail neighbors (commercial property) reported burglary as a frequent problem.

Trail Neighbor Findings

The survey of trail neighbors in the Indiana Trails Study provides valuable and important data regarding trail neighbor opinion, attitude and issues for future trail development and management. The survey indicates that:

Figure 6: Trail in Southern Indiana

- A majority of trail neighbors reported either no effect or a positive effect on property value and ease of selling property located adjacent to the trail
- The trail was felt to be a better neighbor than expected and to improve the quality of the neighborhood by a large majority of trail neighbors
- Trail neighbors are heavy users of the trail itself, reporting, on average, 2-3 days of trail use per week
- Over 70%, and as much as 95% of all trail neighbors reported using the trail during the prior 12 months

- Trail neighbors are most dissatisfied with a lack of safety patrols and parking problems in the vicinity of their property
- Those trail neighbors responding to the survey indicated illegal vehicle use and unleashed pets roaming along the trail are the most common problems

Realtor Conversations

The Indiana Trails Study originally designed a focus group research protocol with local realtors in each city as a means of measuring trail impacts on real estate. After poor attendance at focus groups, and to reduce time and data collection costs, a change was made in research methodology to conduct individual telephone interviews of realtors in each city. The individual telephone interviews were conducted between November and December 2000 with at least 10 realtors in each community. The results of this qualitative research were recorded for analysis of emerging trends.

Consistent findings of emerging trends from all 6-trail cities included:

- The biggest advantages to trail development adjacent to personal property was easy, close to home access to recreational facilities for families with children
- Realtors did not see any major increases in property value, or ease in property sale as a result of trail development
- The biggest disadvantages to trail development adjacent to personal property were a decrease in privacy and an increase in foot traffic near the homeowner yards

Figure 7: Trail Crossing at Clear Creek, Bloomington, IN

Indiana Trails Study

Conclusions & Recommendations

The Indiana Trails Study was conducted between June and November 2000 with the purpose of identifying information and trends on trail use, trail management and trail impacts. The Study was conducted in 6 Indiana cities on trail segments that were at least 2 years old and represented various populations and trail types. In conducting the Indiana Trails Study, trail users and trail neighbors were surveyed, trail use levels were monitored and local realtors were contacted regarding trails in the community. The research process involved significant cooperation from various state agencies including INDOT and IDNR, as well as the support and assistance of the National Park Service and the local agencies managing the 6 trails in the Study.

A review of the Trail Summary Data Tables in Appendix A reveals there is a significant amount of similarity between the users and neighbors of all the trails studied in this project. In fact, it is difficult to find differences in use patterns, trail user demographics and attitudes and trail neighbor opinions and interests between the various trails. This consistency between trail use, trail users and trail neighbors in cities throughout different geographic regions of the State is remarkable. Further conclusions from the Indiana Trails Study are divided into two general areas; those dealing with trail users and those dealing with trail neighbors as follows:

Trail Users were found to use the trail mostly after work and during the weekend. They primarily use the trail for fitness and exercise for a 1/2-hour or more. Trail users were found to mostly use the trail for walking and biking, although smaller percentages of users did use the trail to run and skate. The Study found that most trail users were from upper-middle class income households, college educated and between 26 and 55 years old. The Study found that most trail users lived within 2 miles of the trail, mostly drive to the trail and were highly satisfied with the trail.

Trail Neighbors were found to be regular trail users. The trail neighbors also indicated they were largely satisfied with the subject trail as a neighbor, and that the trail had no effect or a positive impact on their property values. The Study found that trail neighbors are more concerned with problems relating to illegal vehicle use, parking and noise (privacy issue), than litter or maintenance problems.

Recommendations

The Indiana Trails Study was remarkable in the amount of information it obtained. The breadth of questions in the Study sacrificed the gathering of details, instead opting to create preliminary or reconnaissance level information regarding trail preferences and operational issues from trail users and neighbors. This information should be advanced with further research focusing on trail planning and management preferences, privacy, accessibility, crossing preferences and relations to amenities and open space. While further development of trail planning, neighbor privacy, user accessibility, open space and amenity preferences, and other design and management factors should be conducted with sponsoring agency support, it is clear that some preliminary recommendations regarding these issues can be made.

Recommendation 1: Trail planning and development agencies should include all trail neighbors and users in planning and recommendation meetings. It is further recommended, that summaries of this trail

Indiana Trails Study

report be used early in any trail planning process to inform and educate trail neighbors, trail users and agency personnel as to the potential issues and facts about trail use.

In many ways, the Indiana Trails Study confirmed what is already understood about trail development, and has been found in other trail developments across the country. First, it is obvious that the key constituencies in trail development will be trail users and neighbors. The carefully planned involvement of trail neighbors and users in public trail planning and development decisions seems like a logical and appropriate choice. Yet, some agencies have been observed not including these key constituents in planning.

Recommendation 2: Planning for trail development should be expanded beyond physical improvements and financing to consider a) the creation of trail neighbor privacy enhancements such as landscaping, b) operational improvements including safety patrols, c) volunteer litter pickup groups, d) addition of signage and monitoring requiring pets to be leashed, e) peak hour demand design in trail width and parking area size, f) funding linkages of trail operation and construction costs to health and wellness organizations such as local hospitals, and g) implementation of annual use fees to fund safety patrols, and other trail operation or maintenance costs.

Recommendation 3: Trail managers should strongly consider developing staffing and safety patrol scheduling schemes, or arrange for volunteer EMT or paramedic patrols that reflect peak trail use patterns, allowing for high visibility and assistance during these times.

Trail use patterns in the Indiana Trails Study show definite peak demand times for trail use. These peak demands are fairly predictable based on work and leisure schedules of the general populace and can be anticipated fairly easily by trail managers

Recommendation 4: Trail planners should more aggressively support commuter use of trails by requiring requests for trail development funding to include an analysis and survey of potential commuting users, and any work-home nexus identified in the trail area.

Clearly, the Indiana Trails Study found that trail users relied heavily on driving and entry/exit to the trail at the same access point along the trail. With commuters representing a small number of trail users in the Indiana Trails Study, the potential is considered high for the development of enhancements and enticements to trail area employers to increase commuter effectiveness for trails in more densely developed areas.

Recommendation 5: Trail planners should more aggressively support visitor and tourist use of trails, and cooperate in planning for visitor access to the trails through inclusion of visitor serving attractions in route planning and trail development.

The unrealized potential of trails was identified in the Indiana Trails Study, as visitor user patterns were minimal. In comparison, other trails and trails studies have reported a high amount of visitor use of multi-purpose trails, and the ensuing economic impact of visitor expenditures in food/beverage, lodging and ancillary sectors of the local economy. This unrealized potential is considered significant as trails begin to connect between cities.

Recommendation 6: Trail developers and managers should pursue collaborative strategic partnerships with health and wellness service providers based on the Indiana Trails Study that users primarily use the trail for health and fitness.

Another example of unrealized potential from the Indiana Trails Study is found in the significant amount of trail users who reported that health/fitness purposes were their primary purpose for using the trail. With Indiana's ranking by the Center for Disease Control as one of the most obese states in the nation, and the potential societal cost benefits to Indiana of emphasizing cardiac and overall health, the benefits of local trail agency partnerships for trail planning, construction, enhancements and programs with health and wellness organizations are noteworthy. The potential positive impacts of this type of collaborative partnership are estimated to be exceptional.

Recommendation 7: Local trail management agencies and organizations should regularly conduct trail use research and conduct surveys to better understand trail use patterns, user concerns, and trails neighbor issues.

A key benefit of the Indiana Trails Study was the collection and documentation of Indiana trail use patterns, management operational facts, user opinions and neighbor concerns. In retrospect the information obtained represents "base line" research that is an important and effective tool for the pubic agencies managing trails and trail areas. Yet, some agencies do not conduct research in trail use and other factors relating to trail operations and management. An upfront minimum investment of $500- $2,000 (plus agency staff time) for infrared trail counter purchase and conducting mail surveys seems small in light of the positive

information and trend issues this investment can create. It is apparent that collection of data of the type collected in the Indiana Trails Study is essential to documenting use levels and addressing concerns.

Recommendation 8: The Indiana Trails Study should be viewed as a reconnaissance level study that creates the opportunity for more detailed, longer-term, (i.e. one-year) study of additional trails.

Obviously the Indiana Trails Study found many similar conclusions about the 6 trails in the Study. While there are remarkable and very notable similarities between the trails as found in Appendix A, the Trail Data Summary Tables, it should be noted that each trail area is still unique, and future trails areas will be unique. Trail planning agencies should be careful about assuming that trail user patterns, user opinions and neighbor attitudes will be similar to other trail sites. Use of the conclusions and data found in the Indiana Trails Study should be carefully generalized to reflect the broad findings as applied to these 6 specific sites. Additionally, the Indiana Trails Study was a "snapshot" of users over a limited time period of a few months in the summer and fall. This data is limited in many respects, and while it can be generalized to some extent, it is not as comprehensive or complete as it could be.

Indiana Trails Study

Appendices

Appendix A: Data Summary Tables

Trail Summary Data Table: Basic Information

Trail Information	Fort Wayne	Goshen	Greenfield	Indianapolis	Muncie	Portage
Trail Name	River Greenway Trail	Maple City Greenway	Pennsy Rail-trail	Monon Rail-Trail	Cardinal Greenway Trail	Prairie Duneland Trail
Length, miles	15	10	3.1	7.6	10	6.0
Surface	8-12' hard surface	10' -varies - crushed limestone	12' asphalt	10-12' asphalt	12' asphalt	12' asphalt
Year established	1980's	1996 & 2000	1998	1995	1998	1996
Operating Agency	Fort Wayne Parks & Recreation Dept.	Goshen Parks & Recreation Dept.	Greenfield Parks & Recreation	Indy Greenways	Cardinal Greenway	Portage Parks & Recreation Dept

Trail Summary Data Table: Traffic Count Information

Traffic Counts	Month	Fort Wayne	Goshen	Greenfield	Indianapolis	Muncie	Portage
Total traffic	Sep	26,914	10,530	5,218	55,148	9,275	12,766
	Oct	24,231	9,107	6,108	45,606	9,063	8,430
Average Weekday Traffic	Sep	835	310	166	1618	270	376
	Oct	684	251	175	1,133	252	243
Average Weekend Traffic	Sep	1,025	447	192	2,352	408	541
	Oct	1,017	430	252	2,181	372	398
Weekday Average Peak Hour	Sep	6-7:00 p.m.	5-6:00 p.m.	6-7:00 p.m.	6-7:00 p.m.	5-6:00 p.m.	6-7:00 p.m.
	Oct	5-6:00 p.m.	5-6:00 p.m.	5-6:00 p.m.	5-6:00 p.m.	4-5:00 p.m.	5-6:00 p.m.
Weekday Average Peak as Percentage of Average day	Sep	13.2 %	11.6 %	15 %	17.9 %	10.7 %	12.5 %
	Oct	14.2 %	14.9 %	12.5 %	19.4 %	11 %	14 %
Weekend Average Peak Hour	Sep	4-5:00 p.m.	4-5:00 p.m.	6-7:00 p.m.	4-5:00 p.m.	3-4:00 p.m.	5-6:00 p.m.
	Oct	2-3:00 p.m.	2-3:00 p.m.	4-5:00 p.m.	4-5:00 p.m.	3-4:00 p.m.	11-12:00 p.m.
Weekend Average Peak as Percentage of Average day	Sep	9.9 %	11.2 %	11.5 %	10 %	12 %	9.4 %
	Oct	11.5 %	14.2 %	13.9 %	12.6 %	15.3 %	11.3 %
Highest Single Hour	Sep	377	162	74	554	114	109
	Oct	247	148	108	635	192	94

Trail Summary Data Table: Trail User Intercept Information

Trail User Intercept Surveys	Fort Wayne	Goshen	Greenfield	Indianapolis	Muncie	Portage
Demographic Data						
# Trail users intercepted	585	334	175	357	108	375
Male/Female (%)	57/43	57/43	50/50	46/54	68/32	51/49
Trail entrance point = Trail exit point (%)	88	81	89	91	93	98
Age Distribution (%) <25/26-45/46-65/>66	11/49/32/8	19/34/37/10	16/39/36/9	12/50/32/6	18/36/35/11	18/36/36/10
Race (%)	Caucasian (86) Black (10) Hispanic (4)	Caucasian (92) Hispanic (7) Black (1)	Caucasian (98) Black (1) Hispanic (1)	Caucasian (92) Black (6) Hispanic (2)	Caucasian (95) Black (5)	Caucasian (92) Hispanic (5) Black (3)
Trail Access Data						
Mode of travel to trail (%)	Drive (56) Walk (24) Bike (17) Other (3)	Drive (40) Bike (30) Walk (27) Other (3)	Drive (61) Walk (19) Bike (19) Other (1)	Drive (52) Walk (29) Bike (14) Other (5)	Drive (66) Bike (27) Walk (6) Other (1)	Drive (71) Bike (15) Walk (9) Other (5)
Median time to trail(minutes)	17	5	5	5	7	5
Miles from home (Median/Mode)	1.9/1	1/.5	1.5/1	1/1	2/2	2/2
Trail Use Data						
Trail activities (%)	Walk (49) Bicycle (30) Run (15) Skate (6)	Bike (40) Walk (39) Run (20) Other (1)	Walk (54) Bike (25) Run (14) Skate (7)	Walk (51) Bike (23) Run (13) Skate (13)	Bike (77) Walk (11) Run (5) Skate (7)	Bike (40) Walk (39) Run (11) Skate (10)
Miles covered on trail (mean)	6 miles	3 miles	4 miles	8 miles	15 miles	7 miles
Time spent on trail (median)	35 minutes	35 minutes	40 minutes	60 minutes	90 minutes	60 minutes
Combined Visit with other places (%)	24	28	38	52	36	26
First time user (%)	9	7	11	4	9	6
Reason for visit (%)	Health/Exercise (66) Recreation (32) Commute (2)	Health/Exercise (64) Recreation (32) Commute (4)	Health/Exercise (79) Recreation (19) Commute (1) Other (1)	Health/Exercise (71) Recreation (23) Commute (5) Other (1)	Health/Exercise (56) Recreation (39) Commute (3) Other (1)	Health/Exercise (74) Recreation (26)
Run/Walk/Cycle/Skate more because of trail (%)	79	70	74	81	87	82
Median time spent because trail exists (weekly)	120 minutes	100 minutes	120 minutes	180 minutes	200 minutes	180 minutes
Walk/Run/Cycle/Skate because of trail (%)	19%	14%	14%	16%	19%	17%

Trail Summary Data Table: Trail User Survey Information

Trail User Mail Back Survey	Fort Wayne	Goshen	Greenfield	Indianapolis	Muncie	Portage
Demographic Data						
Survey response (%)	39	70.5	70.6	84.6	97.2	50
Usable surveys	200	127	72	165	105	133
Income (%) <$40k/$40k-$80k/>$80k	35/48/17	39/45/16	33/46/21	22/45/33	33/51/16	33/48/18
College Grad (%)	60	57	33.2	78.6	52	31.8
Race Caucasian (%)	94.3	98	100.0	96.8	95.9	96
Trail Use Data						
No trail available (%)	11.9 – Done something different	5.6 – Done something different	12.9 – Done something different	2.2 – Done something different	29.0 – Done something different	22.3 – Done something different
Major uses (%)	Walk (43) Bike (35) Run/Jog (16) Other (6)	Walk (44) Bicycle (44) Run/Jog (10) Skate (2)	Walking (59) Bicycle (21) Run/Jog (9) Skate (9) Other (2)	Walk (51) Bike (21) Run/Jog (18) Skate (10)	Bike (77) Walk (12) Run/Jog (7) Skate (4)	Walking (42) Bike (38) Run (11) Skate (9)
Trail satisfaction						
User opinion of satisfaction (Median score on 7 point scale)	6 – Very satisfied	6 – Very satisfied	6 – Very satisfied	6 – Very satisfied	6 – Very satisfied	6 – Very satisfied
Trail Issues						
Most important issues perceived by users (based on ranking of mean scores)	Personal safety Vandalism Maintenance Safe Intersections	Natural Surroundings Personal Safety Safe Intersections Trail Maintenance	Personal safety Vandalism Drinking water/toilets Safe Intersections	Personal Safety Safe Intersections Natural Surroundings Maintenance	Personal Safety Safe Intersections Vandalism Maintenance	Adequate Access Vandalism Personal Safety Natural Surroundings
Area least satisfied with trail management (based on ranking of mean scores)	Drinking water/toilets Vandalism Adequate patrols Maps/signage	Drinking water/toilets Adequate patrols Historic points Maps/signage	Drinking water/toilets Adequate patrols Personal Safety Vandalism	Drinking water/toilets Reckless behavior Adequate patrols Crowded conditions	Drinking water/toilets Adequate patrols	Drinking water/toilets Adequate patrols Vandalism
Problems associated with other people on the trail (%)	27.4- yes	17.1 – yes	5.7 – yes	56.8 – yes	35.6 – yes	24.6 – yes
User causing most problems (%-age of users reporting problems)	Dog walkers (16) Bikers (13)	Dog Walkers (6)	Bikers (6)	Bikers (32) Skaters (23)	Bikers (21) Walkers (11)	Bikers (11) Dog Walkers (10)
Most common problem indicated (%-age of users reporting problems)	Not courteous (15) Blocking trail (13)	Not courteous (6) Blocking trail (4)	Not courteous (6)	Not courteous (28) Blocking trail (26)	Blocking trail (23) Not courteous (14)	Not courteous (12) Blocking trail (11)
Stop use because of problems? (% indicating "No")	65 - No	86 – No	75 – No	76 – No	87- No	88 – No

Trail User Mail Back Survey	Fort Wayne	Goshen	Greenfield	Indianapolis	Muncie	Portage
User Opinion						
Congestion	Not congested at all	Not congested at all	Not congested at all	Congested	Congested	Not congested at all
Enough restrooms (% indicating "No")	60 – No	43 - No	91 – No	72 – No	27 – No	58 – No
Trail users viewing trail as safe or very safe (%)	79	89	84	95	93	89
City viewed as more favorable (%)	98	80	97	100	76	100
Trail Preferences						
If could, would spend more time on trail (%)	59	47	47	65	41	58
Trail reason for living in city	Disagree	Strongly Disagree	Disagree	Strongly Disagree	Strongly Disagree	Disagree
Very attached to the trail	Agree	Somewhat Agree	Agree	Agree	Agree	Agree
Life is organized around trail	Neutral	Neutral	Disagree	Somewhat Agree	Neutral	Disagree
Benefits of trail						
Most important public benefits of trails (ranked by mean)	Health/ Fitness Public Recreation Aesthetic Beauty Community Pride	Health/Fitness Preserve Open Space Public Recreation Aesthetic Beauty	Health/Fitness Public Recreation Aesthetic beauty	Health/Fitness Public Recreation Community Pride Aesthetic Beauty	Health/Fitness Public Recreation Community Pride Disabled Access	Health/Fitness Public Recreation Community Pride Aesthetic Beauty
Economic Factors						
Pay to park	Nobody paid to park	Nobody paid to park	Nobody paid to park	Nobody paid to park	Nobody paid to park	Nobody paid to park
Willing to pay user fee (%)	55 – No 45 –Yes	61 – No 39 – Yes	73- No 27 – Yes	51 – No 49 – Yes	39 – No 61 - Yes	72 – No 28 – Yes
If yes, how much annually (mean range)	$5-10	$11-20	$5-10	$11-20	$11-20	$5-10
If no, main reason not willing to pay user fee	Taxes should pay	Taxes should pay	Taxes should pay	Taxes should pay	Taxes should pay	Taxes should pay
Trail Activity						
Average reported days on trail	98	78	80	109	56	89
Activity viewed as extremely and more important (%)	75%	69%	64%	81%	68%	75%
Trail viewed as extremely and more important (%)	69%	60%	49%	63%	63%	62%

Trail Summary Data Table: Trail Neighbor Survey Information

Trail Neighbor Survey	Fort Wayne	Goshen	Greenfield	Indianapolis	Muncie	Portage
Demographic Data						
Response rate (%)	39	50.8	50	37.8	38.9	45
Usable surveys	122	66	18	217	137	82
Male/Female (%)	53/47	52/48	90/10	50/50	55/45	51/49
Mean age of respondent (years)	50	55	50	46	55	52
Mean year property purchased	1983	Not applicable	1961	1988	1979	1984
Property Information						
Trail relation to property (%)	Near,not touching (76)	Near,not touching (56) Along the edge (41)	Along the edge (80)	Along the edge (75)	Near,not touching (47) Along the edge (47)	Along the edge (80)
Property size (mean acres)	1.13	8.1	3.4	.75	21.6	4.8
Property used as residence (%)	82	77	0	87	86	85
% of single family homes on property	82	82	0	87	86	89
Most common use of residence	Principle residence	Principle residence	-	Principle residence	Principle residence	Principle residence
Distance of property to trail (mean)	54 ft	100 ft	-	88 ft	75 ft	264
Most common part of house facing trail	Front	Back	-	Back	Back	Back
Trail Benefits						
Neighbor perceptions of extremely important public benefits (% indicating 7 on 7 point scale)	Aesthetic Beauty (50) Open Space (50) Health/Fitness (40) Community Pride (39)	Open Space (58) Aesthetic Beauty (47) Health/Fitness (38) Public Recreation (35)	Public Recreation (26) Health/Fitness (20) Disabled Access (20)	Health/Fitness (54) Aesthetic Beauty (42) Open Space (39) Public Recreation (33)	Health/Fitness (50) Disabled Access (45) Community Pride (39) Aesthetic Beauty (34)	Open Space (51) Health/Fitness (48) Community Pride (47) Aesthetic Beauty (46)
Tail Satisfaction						
Factors leading to greatest level of dissatisfaction with trail (%)	Safety patrols (29) Maintenance (13)	Safety patrols (28) Parking problems (15)	Agency response (22) Safety patrols (20)	Parking problems (27) Safety patrols (19)	Safety patrols (26) Parking problems (20)	Parking problems (26) Safety patrols (20)
Trail Effect on Property						
Perceived trail increased or has no effect on property value (%)	92	92	90	95	86	89
Perceived trail has no effect or makes it easier to sell property (%)	93	88	90	90	81	88

Trail effect on purchase of property						
Trail had no affect or added to appeal to buy property (%)	94	93	No purchase after trail opened	92	81	91
Supportiveness of trail (Median response on 7 point scale)	6 -Very Supportive	7-Extreme Support	-	6- Very Supportive	6 -Very supportive	6 -Very Supportive
User Opinion about living near trail						
Neighbor feelings about trail near property (Median response on 7 point scale)	5 - Satisfied	5 - Satisfied	4 -Neutral	5 – Satisfied	5 – Satisfied	5 - Satisfied
Trail better as a neighbor than originally expected (%)	58	53	63	67	62	68
Trail added to, and improved the quality of the neighborhood (%)	68	67	88	73	62	60
Opinions of trail problems						
Problems reported as less of a problem after trail construction (%)	Users asking to use bathroom/phone (59) Fruits/Veg picked or damaged (52) Noise from users (49)	Users asking to use bathroom/phone (53) Maintenance (43) Burglary (42)	Maintenance (53) Trespassing (50) Animal harassed (50)	Lack of Privacy (36) Trespassing (34) Noise from trail (34)	Users asking to use bathroom/phone (61) Maintenance (61) Crops damaged (59)	Users asking to use bathroom/phone (68) Burglary (65) Cars parking (65)
Most frequent problems reported by neighbors (no. of neighbors reporting problem)	Illegal vehicle use (35) Littering (33) Unleashed pets (25)	Illegal vehicles (29) Littering (13) Unleashed pets (13)	Burglary (4) Illegal vehicle use (3)	Littering (87) Illegal vehicle use (79) Noise from trail (72)	Illegal vehicle use (38) Littering (28) Noise from trail (25)	Illegal vehicle use (35) Littering (31)
Neighbor Trail Use Patterns						
Used in past 12 months (%)	76 – Yes	75 – Yes	70 – Yes	95 - Yes	74 – Yes	82- Yes
Seasonal Use by days/week (mean)	Winter – 1.92 Spring – 2.67 Summer – 3.01 Fall – 2.73	Winter – 2.08 Spring – 2.84 Summer -2.95 Fall – 2.81	Winter – 1.67 Spring – 2.14 Summer – 2.57 Fall – 1.86	Winter –1.96 Spring –2.82 Summer –3.08 Fall –2.82	Winter –1.43 Spring – 2.33 Summer – 2.69 Fall – 2.39	Winter – 1.96 Spring – 2.63 Summer – 2.9 Fall – 2.66
Annual estimated use by household	134 days annually	139 days annually	118 days annually	139 days annually	117 days annually	132 days annually

Appendix B: Methodology

Research Protocol

Trail Use Counts

Trail counts will be conducted using infrared trail counters placed at various locations on each trail throughout the months of July, August and September. Trail counter distribution is defined as below:

	Pensey Trail	Prairie Duneland Trail	Cardinal Trail	Monon Trail	Maple City Trail	Fort Wayne River Trail
Trail length *in miles*	3.1	6	10	7.6	10	15
Counter locations	1	2	3	3	3	3
Rotate counter to new location	n/a	10 days	10 days	10 days	10 days	10 days
Intercept survey locations	4	4	4	4	4	4

Locations: Trail counter locations will be determined in consultation with the local agency responsible for the trail. To compensate for trail users not crossing trail counter locations, a series of passes with bicycle riders and access point observers will be used to create a 100% trail count during these weeks. This process will compensate for the varying use levels on different sections of the trails.

Counters: One (1) type of infrared reflective counter will be used in the study with downloadable data capacity to count 8,000 events. Staff and volunteers will need to download data from the counters to download units throughout the study months. Counters will be validated by observation to determine any error rate in the infrared technology.

Use Levels: Longer trails will be instrumented completely in October by installing more than one trail counter along the length of the trail for one week.

Summary Report

Survey Intercepts/Stops

An assumption that varying use levels are based on location is made for each trail. As such, the survey of users through intercepts/stops will be completed during *one week each* in July and August, in four locations (L^1-L^4) on each trail over 3 time frames in a day.   The intercept survey will be a two-stage survey where every *nth* adult user will be asked if they would participate in a short interview followed up by a more extensive mail survey. Stop rotations on each trail will be scheduled as below.

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
7-11 a.m.	L^1	L^4	L^3	L^2	L^1	$L^1 L^2 L^3 L^4$	$L^1 L^2 L^3 L^4$
11 a.m. – 3 p.m.	L^2	L^1	L^4	L^3	L^2	$L^1 L^2 L^3 L^4$	$L^1 L^2 L^3 L^4$
3-7 p.m.	L^3	L^2	L^1	L^4	L^3	$L^1 L^2 L^3 L^4$	$L^1 L^2 L^3 L^4$

Stop Protocol: Stop every *nth* adult and ask subject to participate in short 3-minute survey with follow-up mail survey.

Decline Bias: If *nth* adult by observation station declines to participate, survey staff will ask the next adult to participate and begin counting for the *nth* adult passing by after acceptance by a trail user.

Mail Survey: Mailed out at end of August using Dillman Technique of reminder card, new survey and reminder card at 2-week intervals. (8-week process)

Survey Number: A target of 250 trail user survey responses has been established. A random sampling of trail users who indicated they would participate in the mail survey will be needed if the number of mail survey participants exceeds 500.

Trail Neighbor Survey

Trail neighbors will be mailed a survey asking them to reflect on management issues and their experiences with the trails in their area. The definition of a trail neighbor will follow a 3-stage protocol for each geographic area as follows:

- Stage 1: Use an agency's pre-existing neighbor list updated as necessary; or
- Stage 2: Use a manual collection of trail neighbors within 150' and visually abutted to the trail as gathered from the assessors parcel list; or
- Stage 3: Use GIS to develop a trail neighbors user list based on line of site and 150'.

Note that all apartment buildings containing trail neighbors will be enumerated by review of names/addresses on mailboxes.
Mailing lists will be developed in June for July mailing and follow up using the Dillman technique.

Indiana Trails Study

Impacts to Property Value

Property value impacts will be determined using focus groups composed of realtors to discuss trail pros and cons and estimated impacts to the land value of neighboring properties. Letters to area realtors in each trail vicinity will be mailed requesting their participation in a 1-hour focus group meeting to discuss trail issues. Realtors will self-select themselves based on preliminary questions regarding arranging for sale or purchase of property near a trail in the past 12 months. A recorder and facilitator will lead discussion on various issues and attempt to gain consensus on the impact of the trail on neighboring property values. This research will be conducted in fall 2000.

June	*July*	*August*	*September*
Obtain counters and orient to their use	Place counters and rotate along trails	Continue trail counter rotation	Continue trail counter rotation
Meet with agencies, orient them on mailings, use of volunteers, survey protocol, and study details	Conduct one week of counts using volunteers and/or paid staff	Conduct one week of counts using volunteers and/or paid staff	Mail out trail user surveys and complete Dillman follow-up process.
Finalize trail intercepts protocol and instruments	Implement trail intercepts and surveys	Continue trail intercepts and surveys	Mail out focus group letters to area realtors
Begin compiling trail neighbor mailing list	Mail trail neighbor survey using Dillman technique	Follow up trail neighbor survey	Finish inputting trail neighbor survey and analyze data
Field check counters and locations for each trail	Input preliminary trail intercepts data	Input preliminary trail intercepts data	Input trail user survey responses in data bank
Train volunteers and p/t staff at each agency on trail stops	Perform 100% user count on each trail and validate counters	Continue 100% user count on each trail as needed	Start to summarize trail count data