
Access, Equity, and Urban Greenways: An Exploratory Investigation*

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Recurring issues in the social sciences concern the distribution of public facilities such as parks and equity of access to them. Geographers have observed that access has perceptual as well as physical dimensions and that perceptions of difference can affect use of public space. This study explores the nature of greenways as public space and a set of issues related to equity of access to greenway trails in Indianapolis, Indiana. The study uses proximity as a measure of access and simple GIS analyses of census and other data to assess equality of access. Evidence is provided that suggests that minorities and the poor have disproportionate access to trails. It is also shown that populations adjacent to the trails differ and that the populations along particular trails are segregated. Spatial differences in trail populations are associated with historic land use patterns and population movements within the city. The implications of the findings of difference for use of the greenways system are explored. Implications for management of the greenways system—including achievement of the goal of linking neighborhoods—are also discussed. **Key Words:** access, equity planning, greenways.

Introduction

Recurring issues in the social sciences concern the nature of public space and the equity of accessibility to public space, facilities, and services. Geographers and political theorists consider public space to be, not a “passive arena for the manifestation of specific predetermined social behaviors” (Ruddick 1996, 135), but a medium through which identities are created, constructed, and contested. Within the fields of geography, planning, and leisure studies, a number of researchers have recently studied equity of access to parks and recreation services (Gobster 1995, 1998; Dwyer and Gobster 1997; Talen 1998; Talen and Anselin 1998). These studies have focused mainly on the physical or spatial dimensions of accessibility. However, accessibility also has social and cultural dimensions, and theorists have observed that the degree to which facilities such as parks truly are public and accessible depends on metaphorical as well as physical boundaries (Mitchell 1996). Ruddick (1996, 135) has observed that inquiries into the “possibilities of public space” have increased as it

“has acquired increased significance in the consumption practices of the middle class.”

In both the academic and the professional literature on parks and recreation, significant attention now is being paid to efforts to plan, develop, and manage greenways, linear open spaces along natural or human-made corridors such as rivers, streams, or historic railroad rights-of-way. As corridors that intersect and connect diverse neighborhoods, urban greenways represent a new type of public space that is both rich with possibility and potentially problematic. The President’s Commission on Americans Outdoors (1987) recommended greenways to draw people together and provide open spaces for all close to their homes. The metaphor that epitomizes the greenways movement is “Greenways for America,” the title of Charles Little’s (1990) influential book.

However, even as proponents promote the ideal of greenways for everyone, the ideal is being called into question. The evidence is mixed, but recent investigations of the use of greenways suggest that users tend to be members of the middle and upper-middle classes—wealthier, well-educated whites with preferences for active, trail-related recreation (Furusetth and Alt-

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man 1991; Moore et al. 1992; PFK Consulting 1994; Mowen, Graefe, and Williams 1998). Few studies, however, have investigated access to urban greenways.

Are greenways for everyone? Who has access to them? What should the goals of a greenways system be? This study analyzes equity of access to greenways in Indianapolis, Indiana and uses the results to explore deeper issues related to the meaning and goals of greenways systems. We take as our point of departure the metaphor of greenways for everyone and begin with brief discussions of the nature of public space and equity-related issues in parks and recreation. Following a description of the greenways system in Indianapolis, we pose three questions:

1. Who has access to the urban greenways system?
2. Are there differences in the populations served by the seven trails in the system?
3. Are there differences in the populations that reside along individual trails?

We characterize the populations along seven greenway trails and compare them with the population of the city as a whole. We then identify differences in the demographic and socioeconomic characteristics of the greenway populations and discuss the implications of these differences for management of the greenways system. We conclude by exploring the nature of greenways as public space.

The Nature of Public Space

Since Jane Jacobs's (1961) seminal analysis of the role of sidewalks and street encounters in city-building, scholars have engaged in vigorous debate about the nature and meaning of public space. The abstraction of public space is multifaceted, conceptually slippery, and metaphorical as well as concrete (Weintraub 1995). Walzer (1995), who observes that attitudes and ideas as much as physical features shape the use of space, builds on the planners' pragmatic dichotomy of single-purpose and multiple-use space. He (1995, 321) distinguishes between "single-minded" and "open-minded" space, the latter being "designed for a variety of uses . . . and used by citizens who do different things and are prepared to tolerate, even take an interest in, things they don't do." Staeheli and Thompson (1997) note that public space can be the medium through

which ideas of citizenship and membership in society are constructed. The notion that use of public space is a function of our conceptions and perceptions of it is a theme that appears in different ways in different literatures.

Urban geographers comment frequently on "exclusions and inclusions in public space based on gender, race, and class" (Mitchell 1996, 128). For example, Ruddick (1996, 133) observes that "gendered and racialized identities function to constrain participation in the public sphere." One of the points here is simply that perceived differences in race or class affect behavior. Anderson (1995) elaborates on the implications of difference for behavior, describing street etiquette and street wisdom, terms coined for the intricate systems of rules and strategies urban residents develop for coping in public spaces. Ruddick (1996, 146) concludes that "those spaces that function as recreational and leisure areas for the new middle class carry with them different political dynamics than those that serve lower-income groups." From a different perspective, Skogan (1990, 3) argues that "perceptions of disorder have many ill effects on neighborhoods" and that "disorder is an instrument of destabilization and neighborhood decline."

In the parks and recreation literature, issues related to class, race, and behavior have often been addressed pragmatically in the context of system management. Incorporating both ideas about difference and the disorder hypothesis, Solecki and Welch (1995) hypothesize that parks adjacent to communities that differ socially and economically in terms of race and class are likely to act as barriers between neighborhoods. Invoking the metaphor of a "green wall," they suggest that perceived differences in the characteristics of potential users may result in lack of use, community neglect, and eventually a lack of maintenance. In a rejoinder based on analyses of park users in a diverse area of Chicago, Gobster (1998, 9) finds that users of the park were racially diverse, a "broad representative cross-section of people." He (1998, 11) does note, however, that other studies have found that "perceptions of fear and safety and experiences of discomfort and physical harm resulted in reports of lowered use (or expectations of), displacement in time or space due to another's presence, and spatial segregation of users within a park." Class distinctions also color managers' perceptions of the need and demand for public space and services.

As Scott and Munson (1994, 79) have observed, "... there is a general belief among park and recreation professionals that people with low incomes have a greater need for government park and recreation services."

Ironically, however, it is well documented that people with lower incomes use recreation facilities less than other sectors of the population (De Grazia 1962; Cheek and Burch 1976; Howard and Compton 1984; Shaw, Bonen, and McCabe 1991). Studies of patterns of use of parks and greenways consistently show that minorities and the poor are less likely to participate in outdoor recreation (e.g., Dwyer and Hutchison 1990). Scott and Munson (1994) report that low-income persons were three times more likely than those with high incomes to be nonusers of parks and that low levels of park visitation were evident among females, older adults, African Americans, and individuals with lower levels of education. In one of the few studies specifically of greenways, Furuseth and Altman (1994, 332) characterized the users of four trails of the Capital Area Greenway System in Raleigh, North Carolina as "somewhat elite," noting that "the average user is well-educated and employed with above average income" and that age, race, and presence of children in the household all had statistically significant correlations with intensity of use. They concluded (1994, 336) that the "greenways do not serve the entire community, but neighborhoods" and that "planning and development of new greenways should be pursued with this in mind."

Measuring Equity and Access to Parks

Another line of research has explored issues related to access to public facilities and equity in delivery of services (Cingranelli 1981; Ottensmann 1994; Talen 1998; Talen and Anselin 1998). Accessibility is used as an indicator of equity in most studies. Talen and Anselin (1998, 596) describe the general relationship between equity and accessibility: "the notion of equity is paramount in research that focuses on determining what factors account for, or are correlated with, territorial variation in service delivery. Accessibility, in turn, is a tool used to discover whether or not equity, variously defined, has been achieved."

Equity and accessibility can be defined in a

number of different ways, and the definitions that are chosen may influence the outcomes of the investigation. With respect to distribution of services, Talen (1998) has identified four main conceptions of equity. These include: (1) equality, in which everyone receives the same public benefit; (2) equity based on need, in which the disadvantaged receive disproportionately more benefits; (3) equity related to political or economic demand for services; and (4) equity based on efficiency and market criteria.

Approaches to defining and measuring accessibility include the container approach, which defines accessibility as the presence of a facility within a specified area, and a set of approaches that conceptualize access as the relationship between an origin and a destination (Talen 1998, Talen and Anselin 1998). The container approach has a discrete notion of accessibility. Common examples include the presence of a facility such as a park, library, or fire station within an area such as a ward or census tract. Political scientists and researchers in public administration and planning have used this approach extensively. Alternatives to the container approach incorporate the idea that users who live further from fixed facilities will use the facilities less and therefore have lower levels of satisfaction with them than users who live closer. From an economic perspective, the distance users must travel imposes costs that reduce the value of the service and therefore its utility (Ottensmann 1994). Examples of approaches that incorporate distance or proxies in estimates of accessibility include gravity models, travel cost minimization models, covering objectives, and minimum distance models. These measures yield important insights but are more complex and time-consuming than the container approach. The choice among them depends on the relevant policy question.

The results of studies of equity of access to facilities or delivery of services are inconsistent and inconclusive: some show inequity while others do not, and some results are surprising. In studies of equity in the delivery of public safety services, for example, Cingranelli (1981) found that in most categories, poor neighborhoods or those with greater concentrations of minorities received greater service benefits than others. It is clear that the location of trails in urban areas can affect who uses them and how they are used (Gobster 1995). Some scholars have recently explored issues related to access

and use of parks and recreation facilities by poor and minorities. Gobster (1996) found that sections of the Chicago River Corridor adjacent to lower-income minority neighborhoods tended to have lower vegetation quality, poorer maintenance, and less access than sections adjacent to higher-income white neighborhoods. He hypothesized that lower-income minority neighborhoods may not have access to quality open space environments like those available to upper-income majority neighborhoods. Talen (1998) used an equity mapping approach and a need-based measure of equity derived from professional park planning standards and planning policy documents to explore accessibility to parks in Pueblo, Colorado. She (1998, 32) found that characterization of access depended on the method used to analyze it, but that with certain definitions of access, low access appeared to correspond to “areas of high Hispanic population.” In an analysis of accessibility to public playgrounds in Tulsa, Oklahoma, Talen and Anselin (1998, 610), concluded that “. . . It may be tempting at this point to characterize the distribution of playgrounds in Tulsa as ‘unpatterned inequality,’ but such a conclusion would mask the complexity of the spatial patterns of access and their correlation with socioeconomic indicators.”

Regardless of the approach used to measure equity of access, researchers have advanced a relatively standard set of factors as explanations of variations and patterns in the delivery of services. These factors include urban form, organizational rules, citizen contacts, politics, and race or class (Talen and Anselin 1998).

The Indianapolis Greenways System

The origins of the greenways system in Indianapolis date from the turn of the century and the era of the City Beautiful movement. In 1885, the Board of Park Commissioners of the City of Indianapolis hired John Olmsted, the son of Frederick Law Olmsted, to assess the city’s park needs. Olmsted developed a plan for parkways along rivers and streams that would connect new and existing parks, but it was never implemented. In 1909, noted landscape architect George Kessler designed a parkway system made up of corridor parks that would link all neighborhoods in the city (Indy Parks 1994). Some progress was made in implementing Kessler’s vision, but the

system of parkways was never fully developed, although the city generally developed along them. The subsequent development patterns within the city closely fit the classic model of urban expansion, with successive waves of suburban residential development outside the central business district, concentrated along thoroughfares. By the 1960s, much of the middle-class white population had fled the city and Center Township for outlying townships outside the city boundaries. In 1969, the city of Indianapolis and Marion County merged and created UniGov, which assumed responsibility for delivery of most urban services such as parks.

In the early 1990s, the city initiated a greenways planning process, and in 1994, following a county-wide series of meetings in each of the alternative greenway corridors, adopted a new greenways plan. The plan calls for the creation of fourteen linked greenway corridors, including some originally planned by Kessler. The system comprises one river, two historic rail lines, an historic 1836 canal towpath, and ten streams. At least seven of these fourteen corridors will eventually include publicly accessible trails, while others will be considered primarily conservation corridors. When completed, the entire system is expected to cover 4,700 acres of trail and conservation corridors, and link 125 destinations and fifty-seven parks. The total length of the corridors will be approximately 175 miles.

Four goals of the plan were established in 1995 (Indy Parks 1994):

- Provide opportunities for recreation, health, and fitness through trail activities;
- Protect important wildlife habitat and promote the conservation of open space, forest and wetland areas;
- Link Indianapolis neighborhoods with each other and with parks and other community assets;
- Educate the public about the importance of the natural environment of the greenways system.

A fifth was added in 1999 (Greenways Division 1999):

- Become an economic asset to the community by promoting economic development and by making Indianapolis a desirable place to which new business can locate.

The demographics of the corridor residents were not explicitly considered when the greenways were developed, and neither the Greenways Plan nor the Division has established specific goals related to equity of accessibility, but equity defined as equality is implicit in policies and programs.

Development of the greenways system began in 1995, with priority being given to greenways that would include recreational trails. By 1998, approximately 45 miles of trails had been completed in six corridors, mostly in the central and

northern townships of the city. An additional 50 miles will be completed by 2004. Figure 1 shows the location of these seven trails, and Table 1 summarizes their characteristics, including available information about levels of use. As of 1999, completed sections of the trails ranged in length from 2.3 to 7.6 miles. When complete, the lengths of individual trails will range from 5.2 to almost 23 miles. Five of the seven trails have or will have asphalt surfaces and will be used for walking, cycling, skating, and, in the winter, skiing. Two have or will have crushed

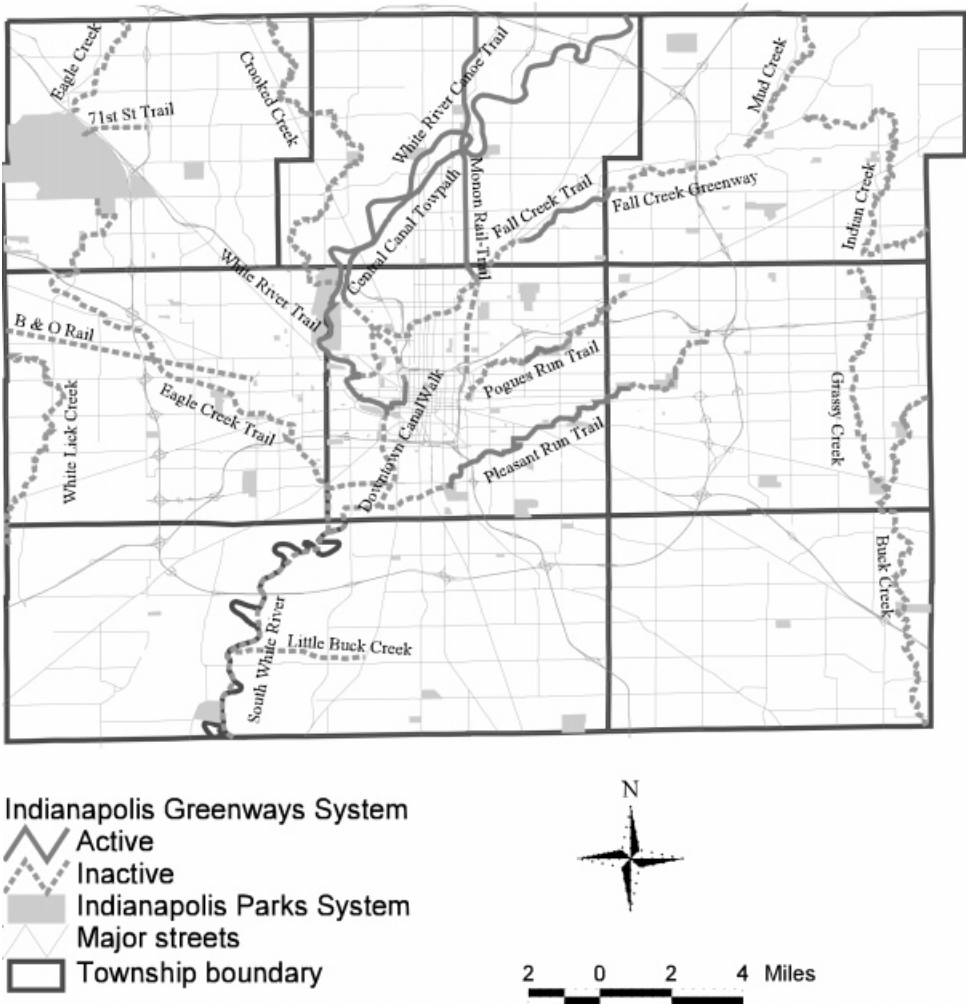


Figure 1 Locations of greenway trails in Marion County.

Table 1 Trail Characteristics and Estimated Users

	Monon Trail	Canal Towpath	White River	Pleasant Run	Eagle Creek	Fall Creek	Pogues Run
Active length (1999, in miles)	7.6	5.2	4.8	6.9	0	3.2	2.3
Planned length (2004, in miles)	10.6	5.2	22.8	6.9	22.4	13.2	2.3
Trail width (feet)	10–15	5–8	8–12	5–12	10–12	7	6
Counts of users (monthly estimates)*							
Northern segment	2,499	5,078	34,497	5,207	NA	NA	NA
Middle segment		13,460		5,369	NA	NA	NA
Southern segment	4,836	2,660	41,509	5,033	NA	NA	NA

Sources: *Indy Parks (1994)*, *Baukert et al. (1996)*, *Planning Workshop (1998)*.

**Monon Trail, Canal Towpath, and White River estimates from October 1996. Pleasant Run estimates from October 1998.*

limestone surfaces and will be used for all the same purposes except skating.

The greenway trails have been extremely popular. Approximately 83 percent of respondents ($N = 1226$) in a household survey conducted as part of the Indy Parks master planning process said that it was very important (52 percent) or somewhat important (31 percent) that “Indy Parks develop greenway trails” (Polis Center 1998, 27). Approximately 31 percent reported using greenways or trails in parks. Based on randomized counts taken in 1996 and 1998 on ten segments of four trails, the annual number of visits to these trails exceeds 1.2 million (Table 1; see Baukert et al. 1996; Planning Workshop 1998, Lindsey 1999). This estimate is a lower bound for these trails, because it includes only users past a point and makes no adjustment for users elsewhere on the trail during the counting period. Monthly use of the ten trail segments, however, varies significantly: the ratio of users on the highest used segment to the lowest used segment was nearly 17 to 1. No estimates of use are available for the other existing trails.

In the household survey, people who were over fifty-five years of age or were from households with incomes less than \$15,000 were significantly less likely to report using the trails (Polis Center 1998). Race was not correlated with reported use of the greenways trails. However, surveys of users of three of them indicate that trail users are more likely to be white and better educated and to have higher incomes compared to the county population (Baukert et al. 1996; Planning Workshop 1998). More than 90 percent of each of these samples was white, and more than half of the population of each sample had median household incomes above the county median. These

results are consistent with studies of greenways elsewhere, although they may suffer from self-selection bias because of the sampling protocol.

The trail system is continuing to expand, and it is useful to consider issues that are encountered when corridors are developed. Each corridor or trail can be considered a transect through the city, and contiguous land along each trail is occupied by the entire complement of urban uses, including parks, residential, commercial, industrial, and institutional. Variations in use along particular corridors generally reflect the growth of the city and the evolution of its urban form. Changes in land uses along the Monon Trail, a rail-trail that is the system’s flagship and most heavily used corridor, provide a good example. The Monon Trail runs north-south, bisecting the northern half of the city. About 3 miles of the Monon Trail had been completed by 1996; by 1999, 4.6 miles had been completed. An additional 3 miles will be completed by 2004. The trail originates near the northern boundary of Marion County in a neighborhood comprised of mixed residential and commercial uses. Going south, the trail then passes through higher-income, single-family residential neighborhoods for about three miles until it reaches an upscale commercial center that is one of the city’s entertainment districts. Immediately south of this area, the land uses along the trail become residential again and then industrial, including a number of abandoned industrial structures or brownfields. Further south, the contiguous uses are mainly lower-income and minority residential. Current plans call for extending the trail an additional 3 miles south through an urban enterprise zone that includes more low-income

minority neighborhoods, areas of light warehousing, more brownfields, and—south of 10th Street at the northern edge of the central business district (CBD)—areas of upscale loft apartments and condominiums.

In 1998, the Indianapolis Urban Enterprise Association held a design charrette that included a community meeting to identify strengths, weaknesses, opportunities, and threats for the enterprise zone. Residents and neighborhood leaders identified the Monon Trail as one of the zone's strengths, and they identified "deteriorating housing stock, negative public perception of safety, and *reduced use of the Monon Trail due to perception of public safety*" as existing weaknesses (Indianapolis Urban Enterprise Association 1999, 14; emphasis added). Threats included drug dealers, prostitution, a high homicide rate, and lack of maintenance of the right of way. Opportunities related to the Monon Trail included eleven items linked to offsetting negative perceptions of the area and to stemming disorder and decline. People believed that development of the trail would increase public safety by increasing pedestrians and park rangers, reduce dumping, create incentives to keep private property clean and encourage improvement in neighborhood appearance, revitalize the neighborhood and stimulate new businesses development, and provide health advantages, transportation opportunities, and increased access to employment (Indianapolis Urban Enterprise Association 1999).

In summary, Indianapolis has devoted significant effort to planning and developing an extensive system of greenways. The greenways are popular and well used, and people see them as tools for economic and community development. However, available evidence suggests that facilities are not used proportionately by all sectors of the city's population. In addition, people believe that use of some segments of the system is limited because users are concerned about public safety and the threats posed by undesirable or illicit behavior such as drug dealing. Issues related to use are also related to questions of access, and can be explored by studies of access. Questions about how use is affected or constrained by perceptions of difference and disorder are more conceptual and lead to fundamental questions about the nature of public space.

Methods

Measuring Access

Measuring equity of access to linear features such as greenways is less intuitive than measuring access to facilities that occupy a particular parcel or group of parcels in a discrete location. In this exploratory analysis, we defined access as proximity and adapt the container approach. The populations that live in census tracts at least partially within one-half mile of each greenway were assumed to have access. One-half mile was used as the cutoff for proximity because we were concerned about pedestrian access and data from surveys indicate that most users who live further than one-half mile drive rather than walk to trails (Planning Workshop 1996). The assumption that populations within tracts are evenly distributed is implicit in our analyses. First, we aggregated the statistics for all seven trails and compared them with the characteristics of the total population. We then examined differences among populations along the different trails and differences in populations along individual trails.

We analyzed eight demographic and socioeconomic variables: population density; proportion of African Americans; educational level attained by the adult population; median household income; proportion of persons in poverty; median housing value; proportion of households without vehicle; and number of assault cases per capita. Sources of data included the 1990 Census and the Social Assets and Vulnerabilities Indicators database developed and maintained by the Community Services Council of Indianapolis and the POLIS Center at Indiana University Purdue University at Indianapolis. The Division of Planning in the Indianapolis Department of Metropolitan Development provided information on the location of greenways, while the Greenways Division in the Department of Parks and Recreation provided information on the status of each greenway. The ArcView geographical information system (GIS) was used to integrate spatial and socioeconomic data. The boundary files for the census tracts and for the street network of Marion County were extracted from the Consortium for International Earth Sciences Information Network (CIESIN) databases. The greenway network was overlain on the census

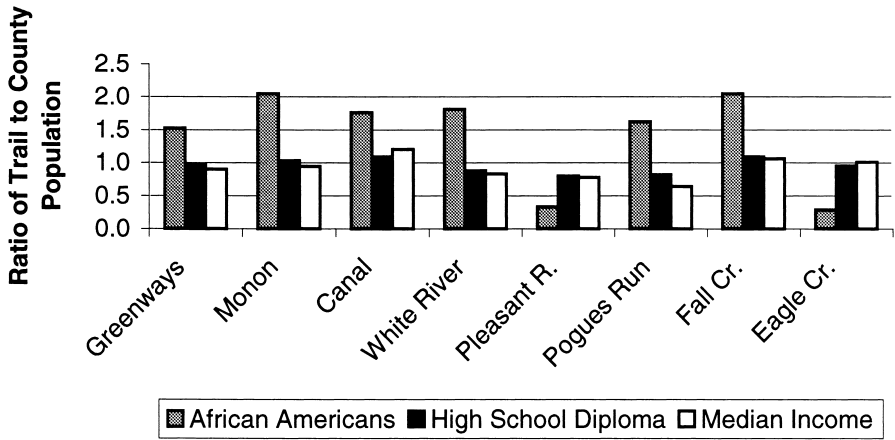


Figure 2 Sociodemographic indicators for trail populations (planned).

tract layer and ArcView was used to create a half-mile buffer around each greenway. To obtain the attribute information for the greenway populations, the SAVI database was then intersected with the census tracts maps, and the data then were analyzed in a Microsoft Excel spreadsheet.

Results

Who Has Access to Urban Greenways?

Our results indicate that the poor and minorities have disproportionately high access to the greenway trails (Fig. 2, Table 2). Planned expansion of the system will diminish some of the differences between the population along the

trails (i.e., the trail population) and the total county population, but the poor and minorities will continue to have greater access.

Equity of access in 1999 For the trail sections completed as of 1999, the population in the census tracts along the six greenways (i.e., the trail population) is poorer and has a higher proportion of African Americans than the population of Indianapolis-Marion County (Table 2). Although only 21 percent of the city-county population is African-American, 35 percent of the population in census tracts within one-half mile of these greenway trails is African-American. About 16 percent of the trail population is living in poverty, while only 12 percent of the

Table 2 Socioeconomic Characteristics of Marion County and Greenway Populations

	Trails Segments Completed Between 1994 and 1999							
	Marion County	Greenway Totals	Monon Trail	Central Canal	White River Trail	Pleasant Run Trail	Pogues Run Trail	Fall Creek Trail
Number of tracts	204		21	16	17	24	8	9
Population density	0.78	1.37	1.29	0.95	0.96	1.85	2.07	1.09
Proportion of African Americans	21%	35%	38%	37%	61%	7%	28%	39%
Proportion of persons with a HS diploma and above	66%	64%	74%	72%	56%	53%	52%	77%
Median income	\$29,039	\$27,576	\$32,392	\$34,909	\$22,219	\$22,559	\$19,994	\$33,380
Proportion of persons in poverty	12%	16%	14%	11%	21%	18%	24%	10%
Median housing values	\$60,276	\$56,968	\$71,509	\$77,737	\$43,729	\$37,183	\$30,950	\$80,700
Proportion of households without vehicles	11%	15%	12%	11%	21%	17%	19%	11%
Assault cases per capita	0.02	0.02	0.02	0.01	0.02	0.02	0.03	0.02

city-county population is living in poverty. Compared to the city-county population, the trail population has a lower median income, lower median housing values, and a smaller proportion of adults with high school diploma, although this latter difference is not large. Approximately 15 percent of the households in the trail population do not have vehicles, 4 percent more than in the city-county population. The density of the trail population is nearly twice as high as that of the city overall. Per capita assault rates are comparable.

Equity of access with planned trail expansion

The analysis was repeated including planned segments on five trails that will be developed by 2004. Two of the trails, Monon and Pogue's Run, will be extended into neighborhoods that are poorer and have a higher proportion of African Americans than do the existing segments of each trail (Fig. 3). Fall Creek will be extended both north and south into neighborhoods that differ socioeconomically, but overall its trail population will become poorer and the proportion of minorities will increase. The

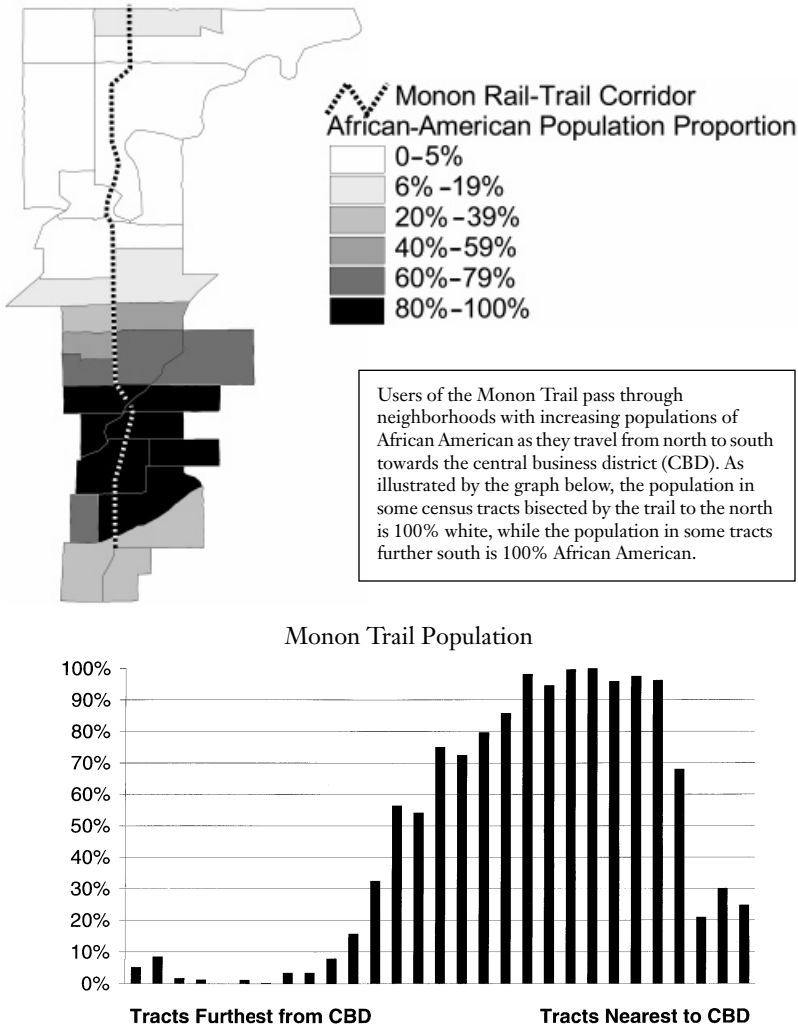


Figure 3 Patterns of difference along the Monon Trail.

White River Trail will be extended into wealthier neighborhoods with higher proportions of white residents, while the new Eagle Creek Trail will be developed in neighborhoods that are mostly white and have incomes comparable to the city-county population overall.

From a system perspective, as the trails provide access to additional neighborhoods, some disparities between some of the characteristics of the trail population and the county population will decrease and will increase, but differences will remain and, overall, poor and minorities will continue to have disproportionate access. For example, when the seven trails are complete, the proportion of African Americans in the trail population will drop slightly to 32 percent, but will remain well above the city-county proportion of 21 percent. Although three trails will extend into African-American neighborhoods, the length of the extensions will be much shorter than the extensions of the Eagle Creek and White River Trails. Conversely, as expansion continues, the differences in indicators of wealth between the trail and city-county population will increase. The average median household income of the trail population will decrease by approximately \$1,500 with expansion, while the value of the average median house will decrease by almost \$4,000. The proportion of households living in poverty, however, will remain essentially the same. These changes in wealth will be accounted for mainly by the extension of the Monon Trail through very poor neighborhoods near the CBD. Indicators of wealth for the trail population along the planned Eagle Creek Trail are comparable to those of the county overall, although the housing values for its trail population are lower.

Are There Differences in the Populations Served by the Seven Trails in the System?

Large differences in the characteristics of the trail populations are masked when data for the greenways system are aggregated. Inspection of the data shows that the populations along the seven trails differ racially and socioeconomically (Table 2; Fig. 2). The neighborhoods contiguous to the Towpath, one of the trails completed by 1999, are disproportionately wealthy but also disproportionately African-American. Conversely, the population along the Pleasant Run Trail, the other trail that has been completed, is disproportionately poor but disproportionately white. The

flagship Monon Trail population is wealthier and has a higher proportion of African Americans than the city-county, but after it expands, its population will be poorer than the city-county population. The same is true for Pogue's Run and Fall Creek. As noted previously, the White River Trail is being extended into neighborhoods that are wealthier and contain higher proportions of whites. Several indicators indicate that the populations along four of the trails are poorer than the city-county population. In sum, when completed, five of the trails will have contiguous populations that are disproportionately African-American; the populations along two trails will be disproportionately white (Fig. 2).

Are There Differences in the Populations That Reside along the Individual Trails?

Aggregation of data for individual trails also masks spatial variations in populations along trails, variations that have important implications for discussions of equity and management of the greenways system. As noted above, the greenways can be thought of as transects through the city. Figure 3 presents the proportions of African Americans for each of the twenty-nine census tracts along the planned and active segments of the Monon Trail. The tracts in the chart have been arrayed from north to south. What is immediately evident is the degree of segregation that exists along the trail. At the extreme northern end of the trail, the population is mostly white and very wealthy, although a multifamily apartment complex that serves moderate and relatively low-income individuals is near the trail. Along the trail south towards the central city, the proportion of African Americans in the population increases, with some tracts being 100 percent African-American, and the population becomes poorer. The proportion of African Americans and persons in poverty in the trail population peaks north of the CBD. At the extreme southern end of the trail, however, the proportion of African Americans in the trail population drops dramatically, as does the proportion of households below the poverty line. The population contiguous to the Monon Trail is clearly segregated, and users who travel its length pass through neighborhoods that differ significantly in terms of race and wealth.

Similar, though less pronounced, degrees of racial and economic segregation exist along

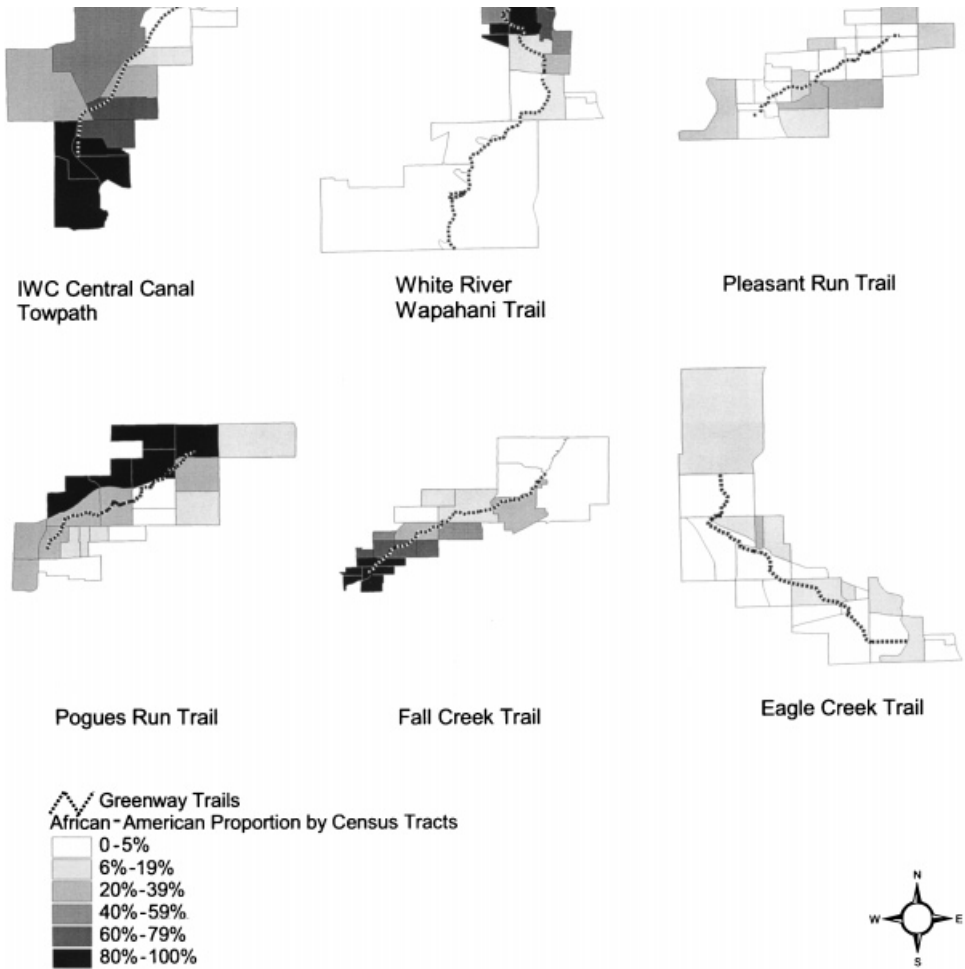


Figure 4 African-American populations near greenway trails.

other trails in the system. Figure 4 presents the proportion of African Americans in the census tracts along each of the six greenway corridors that will include trails. Marked patterns of difference exist along the four trails oriented towards the CBD: Canal Towpath, White River Trail, Fall Creek Trail, and Pogue's Run. The proportion of African Americans increases closer to the CBD, as does the proportion of residents in poverty. Conversely, these spatial variations in characteristics of trail populations reflect historic development processes as well as classic hypotheses about urban form. The populations along Pleasant Run and the proposed Eagle Creek Trail, two

trails not oriented towards the CBD, are more homogenous.

Observations and Discussion

Equity, Access, and Greenway Management

The issue of whether residents of Indianapolis have equal access to the greenways, which depends in part on how equity is defined, has important implications for management of the greenways system. If equity is interpreted to mean residing within a specified distance to a trail, it is clear that all residents of the county do not have the same access to the greenway trails and that the distribution of the benefits

the greenways provide is not equal. A large proportion of the county population does not live within one-half mile of a greenway. Greenway trails in Indianapolis are located along natural watercourses and a canal and an historic rail line that were constructed decades ago. Largely for pragmatic reasons, local officials responsible for the greenways system have taken these landscape features as given and have not attempted to identify or create corridors that would serve residents elsewhere in the county. It is not surprising, therefore, that all residents do not have equal access to the trail system.

If the corridor locations are accepted as given the issue of equity can be explored in other ways. One approach is to assume that the distribution of greenways services is equitable if the populations of the corridors are demographically the same as the city-county population. Alternatively, if a need-based definition of equity is considered, it would be equitable if the disadvantaged receive disproportionately more benefits. Our analyses demonstrate that, compared to the city-county population, the trail population has higher percentages of African Americans, persons in poverty, and persons without vehicles, and lower median household incomes and housing values. The percentage of persons with a high school education is lower, but only slightly. Thus, the access to greenway trails might be considered fair if a need-based criterion is adopted, but not if a criterion based on sameness is adopted. One limitation of both these definitions is that they fail to account for preferences of users.

Two other definitions of equity relate it to demand for services and based it on efficiency and market criteria. Data are not available to assess these criteria fully, but some information on users in Indianapolis suggests that minorities and the poor are not using trails proportionately. To the extent that the poor and minorities are less likely to use trails, or prefer not to use them, questions may be raised about the efficiency or relative priority of developing trails in corridors through disadvantaged neighborhoods. For example, it is not difficult to imagine a situation in which projected levels of use in a poor African-American neighborhood would make development of a trail through it inefficient from a benefit-cost perspective. Yet failure to develop the trail would leave the managers open to

charges of racism or discrimination. Policy norms that call for equitable distribution of resources and pragmatic political considerations would make it difficult not to develop the trail. Regardless of use, the results of the charrette in the enterprise zone make it clear that, in the case of the Monon Trail, there is support for the trails. People in these poor neighborhoods clearly perceive the trails as a means to address a number of problems, including disorder and decline.

Several conclusions can be drawn from these analyses. From a policy perspective, the general concern has been that minorities and the poor may lack access to services and facilities such as parks. In this respect, no inequities in access are apparent at the system level in Indianapolis. In fact, by this simple proximity measure, people who are wealthier and white are less likely to live near a trail. By and large, however, the population that has access to the trail system was not chosen nor established as a matter of policy. Rather, it is a historical outcome, the legacy of the natural landscape of the city and historic development plans and processes that date back more than a century. The city planned to create parkways along the streams that flowed to White River near the center city and partially developed them. The middle and upper classes that first occupied these fashionable areas then began moving out of them in the middle of the twentieth century in search of more spacious neighborhoods. During the 1960s and 1970s, movement of whites into outlying townships and counties accelerated, and African Americans moved into the once-fashionable neighborhoods along the parkways. Now, thirty years later, these populations are the beneficiaries of decisions to develop the greenways system.

Access to the greenway trails is only one important policy issue. While available evidence indicates that residents value the system, it remains unclear who will use the greenways and whether all segments of the greenway trails will be used. The success of the system will ultimately depend on how people perceive the space comprised by the greenways.

Urban Greenways as Public Space

Are greenways for everyone? What are the implications of difference for this type of public space? Will greenways lead to open doors or green walls? Theory and empirical data suggest

that demographic and socioeconomic characteristics of nearby users will affect levels and types of trail use and that minorities and the poor are less likely to use outdoor recreational facilities such as trails. Elsewhere, it has been suggested that greenways serve neighborhoods, not communities (Furuseth and Altman 1994) and that public spaces used by the new middle class for recreation and leisure create different political dynamics than do spaces serving lower-income groups (Ruddick 1996, 146). Patterns of segregation between and especially along trails raise other potentially problematic issues for management of the system.

An explicit goal of the greenways system is to link neighborhoods with other neighborhoods and public facilities. The green wall hypothesis suggests that perceived differences in park users may lead to declines in use that spiral into deterioration of maintenance, neglect, and abandonment of parks. Extension of the green wall hypothesis to greenways suggests that the goal of linkage may be frustrated because of perceived differences between trails or between neighborhoods along individual trails. Residents and neighborhood leaders believe that use is constrained by perceived threats, disorder, and difference. When the trail system is complete, five trails will intersect neighborhoods with African-American populations that range from 11 to 22 percent higher than the population of African Americans in the city-county. Two trails will transverse neighborhoods that are mostly white and have populations of African Americans that are only about one-third of the county proportion. If, as Solecki and Welch (1995) hypothesize, parks that link communities which vary with respect to race and class act as barriers, then differences among individual trail populations may impede achievement of the goal of linking neighborhoods with each other and with park facilities. This is ultimately an empirical question. Additional counts and surveys of users the Indianapolis greenways are needed to determine whether users use all segments of trails or are deterred by changes in characteristics of contiguous neighborhoods.

Another explicit goal of the greenways system is economic and community development. Surveys of users, businesses, and contiguous property owners all show support for the greenways system. Greenway managers, neighborhood leaders, and residents view the greenways

themselves as development tools and means of creating value in neighborhoods. The assumptions behind this approach are that people value greenways, that greenways attract responsible users, that good uses drive out bad ones, and that value will increase along with responsible use. These assumptions are consistent with the ideas put forth by Jacobs (1961) and elaborated on by numerous scholars since then: interactions among pedestrians on sidewalks matter. The thinking of people in the neighborhood clearly reflects theories about ways to mitigate disorder and decline. The success of greenways as a tool for neighborhood revitalization needs to be monitored.

"Greenways for America" is the metaphor that has galvanized the greenways movement. The statement in its boldness can be compared to "Make no small plans," Daniel Burnham's maxim for the City Beautiful movement. In Indianapolis, a plan written by one of the leaders of that movement serves as the foundation for the current master plan for the greenways system. The greenways plan is big and bold. Paradoxically, however, its success will be determined by people's perceptions of the small, individual encounters that occur along the trails. As linear features that transect neighborhoods, urban greenways may be viewed as new types of public space specifically designed to overcome the constraints and obstacles posed by difference. It remains to be seen whether this vision will be realized. ■

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