

# Greenway Use and Users: An Examination Of Raleigh and Charlotte Greenways

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*As with any public facility, the planning and development of greenways should be reflective of the needs of potential users and types of usage. Because of their relative short history, however, almost no effort has been made to follow up the expected use of greenways with empirical evidence concerning their actual usage. Intuitively, greenway planners and designers may have some notion of likely patronage, how the facility will be used, and where patrons will be coming from, but these perceptions may be inappropriate. Without actual information on greenway visitors and use, the planning process is guided by conjecture.*

If greenway development trends of the 1980s are extended, the decade of the 1990s will see the proliferation of new and expanded greenways throughout the United States. The challenges facing greenway planners and managers are varied, but the importance of collecting and using patron data in the planning process cannot be discounted. In order to create viable, user-accessible facilities, better understanding of who patrons are, their patterns of use, and their problems and concerns must be addressed. These are critical ingredients for not only enhancing facility usage, but also building broader community support for the greenway concept.

As a result of an initial request from the North Carolina Greenways Conference Organizing Committee, the Department of Geography and Earth Sciences of the University of North Carolina at Charlotte has been involved in several case studies of greenway patronage designed to address these questions. Our research has used two of North Carolina's oldest and largest greenways, the Capital Area Greenway System in Raleigh and the McAlpine Greenway in Charlotte, as study sites. In our work we have collected data of greenway users, their activity patterns, and their evaluations of these facilities.

The research carried out on Charlotte and Raleigh greenways found several common elements between the two communities and their dissimilar greenways. While these findings relate specifically to the McAlpine and Capital Area greenways, they may have relevance or, at least, provide some insights for other North Carolina communities.

## A Recent History

Greenways were rediscovered in the 1980s. In the face of increasing public concern over the loss of open space and the protection of local quality of life, greenways emerged as a highly touted planning strategy (Little, 1987). A green-

way may be defined as a narrow linear strip of undeveloped land often located along a stream, flood plain, powerline corridor or unused railroad line. Because they represent fingers of open, public space in a larger urban setting, greenways may provide a variety of public benefits. Specialized recreational opportunities, such as bike paths, jogging trails, or par courses, fit well into the greenway concept. At the same time, environmental and aesthetic goals may be enhanced by the maintenance of stream corridors, flood plains, and naturally vegetated areas (Kusler and Southworth, 1988). Nature study, fishing and picnicking are potentially important activities along greenways. Greenways may also be integrated into a local transportation system. Where greenways link neighborhoods and community facilities, they represent an alternative transportation mode to the roadway (Rotolo, 1981). Greenways are uniquely multifaceted facilities; they supply recreational, environmental quality, and transport services for a minimal public investment and occupy only a small portion of the community.

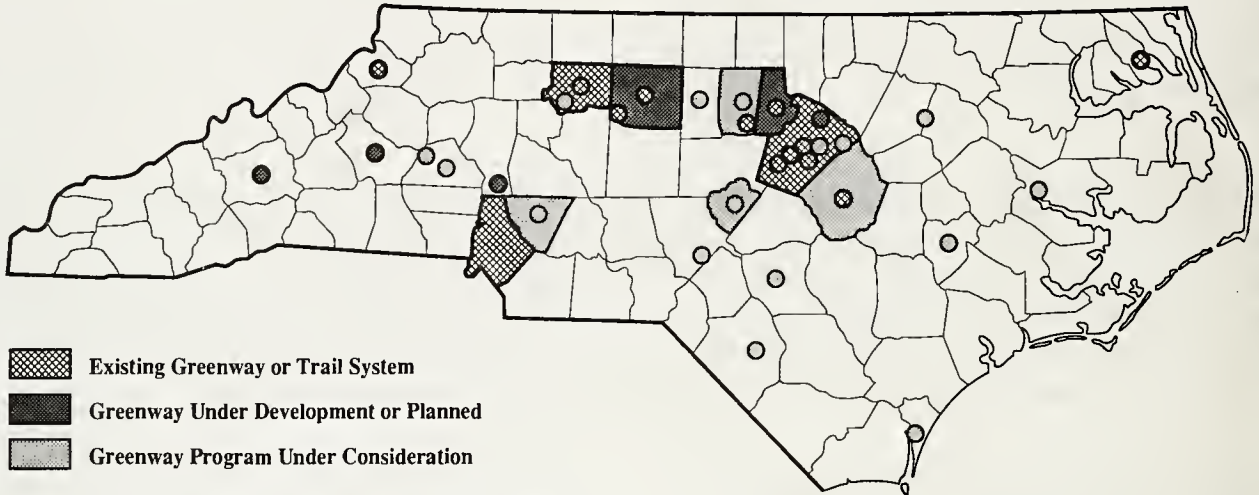
In the past ten years, the greenways concept has spread

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### Greenway Programs in North Carolina



Source: Greenways Incorporated, *Current Status Greenways Programs in North Carolina*, February 1989.

from a few progressive communities, like Denver, Colorado and Portland, Oregon, to over 200 jurisdictions. (Knack and Searns, 1990). The highly regarded President's Commission on America's Outdoors recommended, in their 1987 report, the development of a locally based, nationwide system of greenways as a mechanism for providing public access to open space.

In North Carolina, there are eleven operating greenways or greenway systems, with an additional twenty-eight communities either in the process of developing greenways or considering them (see map above). Although most of the greenway activity in the state is concentrated in the more urban Piedmont, especially the Research Triangle area, greenways are found throughout the state in communities of varying sizes.

#### The Capital Area and McAlpine Greenways

While Raleigh and Charlotte's greenway planning programs have received widespread recognition, these efforts have produced very different products. In 1981, Mecklenburg County adopted a countywide master greenway plan calling for a 65-mile "green necklace" of linear open space linking communities and neighborhoods. The largest component of the greenway would be situated in lowlying floodplains. These water-oriented corridors would, in turn, be joined together using connecting trails along roadways (see illustration on page 39).

Presently, the only operating greenway section is the 350-acre McAlpine facility, extending along the McAlpine Creek. It is located in a middle- to upper-class suburban area in east Charlotte. Opened in 1979, greenway facilities

include three miles of paved bikeways, a three-mile cross-country running trail, and a three-acre lake. It adjoins the county-operated McAlpine District Park. The greenway abuts several neighborhoods and there are community entrances as well as the main entrance, with a shared parking area. The greenway, which has an estimated 5,000 visitors per week, is open daily without admission fee. Because it is a single-segment greenway, the McAlpine facility might be considered a neighborhood-oriented greenway.

The Capital Area Greenway, begun in 1972, is the oldest greenway in North Carolina and ranks among the largest municipal greenway systems in the United States (Flourney, Jr., 1989). The system serves the city of Raleigh and adjacent portions of Wake County, with 12 trail segments extending over 27 linear miles and covering 800 acres (see illustration on page 41). As the greenway winds through the city, it connects neighborhoods and communities of varying social and demographic characteristics.

Unlike the McAlpine greenway, the Capital Area greenway is a comprehensive system of trails, presenting easy opportunities for citizens throughout the city to use, due to its size and accessibility to many different neighborhoods.

#### Data Collection

The research data were collected at both greenways, over a one-month period, using an intercept survey. Greenway users at least sixteen years of age were randomly surveyed at different times of day. In Charlotte, the interviewers were positioned at the main and neighborhood entrances. In Raleigh, the interviewers divided their time equally among

four trails at main and various neighborhood entrances.

The four trails surveyed in Raleigh were the Shelley Lake, Johnson Lake, Buckeye, and Little Rock trails. These trails were chosen because they represent a cross-section of the various types of greenway trails and neighborhood settings for the Capital Area system. Upper middle-income neighborhoods surround the Johnson Lake Trail in southwest Raleigh. Upper middle-income and affluent neighborhoods surround the Shelley Lake Greenway Trail in northeast Raleigh.

The Buckeye and Little Rock trails are smaller greenways. The Little Rock Greenway in southeast Raleigh is situated in a predominantly low-income neighborhood. The Buckeye Trail runs through lower middle- to middle-income blue collar sections of east Raleigh with low-income housing developments situated near it.

The survey questionnaire was composed of multiple choice questions. It queried the respondents about greenway usage, visitors' concerns or problems, as well as collecting socioeconomic, demographic and locational information. Two hundred sixty-one adults completed the McAlpine questionnaire, while 320 persons answered the Capital

Area Greenway survey. The survey was designed to minimize interview time. The number of persons refusing to participate in the survey was extremely low, less than seven percent, in both cases.

### Greenway Patrons

Given the locational and size differences between the Capital Area and McAlpine greenways, we began our research anticipating that there would be significant differences between greenway patronage in Raleigh and Charlotte. Surprisingly, we found that both the "comprehensive" and "neighborhood" greenways tended to draw a very similar user population and had the same service radius.

Tables 1 and 2 present a profile of greenway visitors in Charlotte and Raleigh. The majority of adult visitors in both communities are young to middle-aged, white, and reside in households without children. Socioeconomically, patrons are better educated and live in households with higher incomes than the average non-patron. When the McAlpine background variables are compared with the characteristics of the surrounding census tracts, and the Capital Area greenway background data are compared with citywide socioeconomic and demographic data, greenway users are found to be significantly younger, better educated, more affluent, and include fewer non-whites.

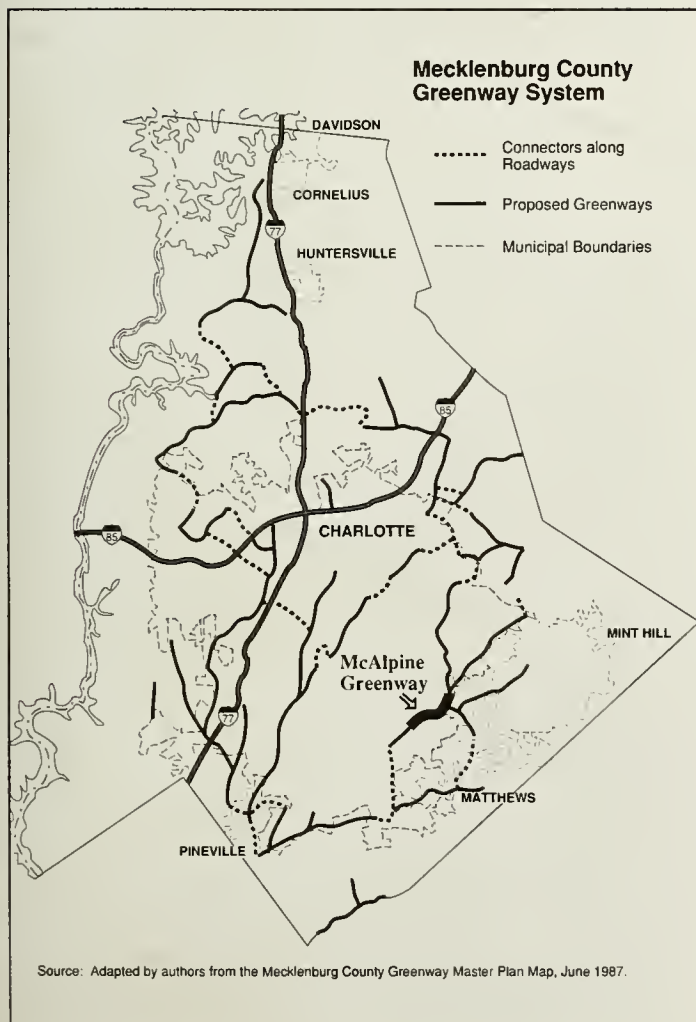


Table 1. Capital Area Greenway User Characteristics

Age	16-24	25-34	35-44	45-54	55-84
	21%	33%	23%	13%	10%
Gender	Female	Male			
	53%	47%			
Race	Non-White	White			
	15%	85%			
Educational Attainment	High School Graduate	Some College	College Graduate	Graduate Studies	
	15%	24%	40%	21%	
Household Income	<\$10,000	\$10,001-\$25,000	\$25,001-\$50,000	\$50,001-\$100,000	>\$100,000
	7.6%	22.1%	42.2%	23.2%	4.8%
Children <13 In Household	Yes	No			
	30%	70%			

One area where the Raleigh and Charlotte findings differ is gender. The majority of McAlpine visitors were men, whereas the largest number of respondents along the Capital Area Greenway were women. This variance might be accounted for by gender-related mobility differences. Transportation studies have shown that women tend to have less travel flexibility than men (Hanson and Hanson, 1981; Pas, 1984). Consequently, the larger, more accessible Capital Area greenway may provide greater opportunity for patronage by women than the McAlpine facilities.

**Table 2. McAlpine Greenway User Characteristics**

Age	18-24	25-34	35-44	45-54	55-64	>65
	15%	31%	25%	18%	7%	4%
Gender	Female	Male				
	48%	52%				
Race	Non-White	White				
	5%	95%				
Educational Attainment	Not H.S.	H.S.	Some College	College Graduate	Graduate Studies	
	3%	13%	25%	45%	13%	
Household Income	<\$10,000	\$10,000- \$25,000	\$25,001- \$50,000	\$50,001- \$100,000	>\$100,000	
	6%	24%	42%	22%	5%	
Children <18 In Household	Yes	No				
	36%	64%				

Although the image of a "yuppie"-type greenway patron emerges from the user profile, this impression is tempered by frequency of use. While younger visitors predominate, they are not the most intensive users of these greenways. The heaviest greenway usage is by a smaller pool of older residents. When respondents were asked how often they used the greenway, the most active users were seniors, persons over 55 years. In Charlotte and Raleigh, a majority of the seniors interviewed visited the greenway daily. For most senior patrons, greenway activities have become an important part of their lifestyle.

The overwhelming majority of greenway visitors in both Raleigh and Charlotte live near the facility (see Tables 3 and 4). The primary service area of the four Capital Area greenway segments and the McAlpine greenway was a five-mile radius. Well over one-half (58%) of the Raleigh patrons live less than five miles from the greenway, and 90 percent reside less than ten miles from the trail on which they were surveyed. Similarly, 52 percent of the McAlpine visitors live within a five-mile radius and 91 percent live in a ten-mile radius.

**Table 3. Capital Area Greenway Distance From User's Residence**

Less than .99 miles	....	16.0%
1 to 1.99 miles	....	10.7%
2 to 4.99 miles	....	32.0%
5 to 10.99 miles	....	31.7%
Over 11 miles	.....	9.6%

**Table 4. McAlpine Greenway Distance From User's Residence**

Less than 1 mile	.....	18%
1 to 5 miles	.....	52%
6 to 10 miles	.....	21%
Over 10 miles	.....	9%

The close correlation in travel distances between the McAlpine and Capital Area greenways was completely unexpected. Because the Capital Area Greenway offers the convenience of proximity to more neighborhoods, it was conversely anticipated that the McAlpine greenway would attract visitors from a much larger area.

The locational characteristics of patrons in both communities suggests that greenways play an important role in neighborhood recreation or activity patterns, but that they have much less importance in a regional context. The absence of large numbers of users living more than five miles from the greenways suggests that competing opportunities from other public facilities are meeting the needs of these potential visitors. In conclusion, persons are not willing to forego nearby recreational facilities in order to visit more distant greenways.

## Patterns of Use

Greenways offer a variety of potential uses ranging from passive to active recreation, as well as transportation. This multi-faceted aspect of greenways is often cited by proponents as one of their most important selling points; however, when we queried Charlotte and Raleigh patrons about how they used the greenway, the respondents indicated a specialized pattern of use (see Tables 5 and 6).

**Table 5. Capital Area Greenway Pattern Of Use**

Activity	Everyday (%)	At least once a week (%)	At least once a month (%)	At least once a year (%)	Never (%)
Bike Riding	5.6	12.6	11.6	4.3	65.8
Walking	27.2	33.2	16.3	11.0	12.3
Jogging	8.3	17.3	10.0	3.7	60.8
Transportation	1.3	2.3	2.0	2.0	92.4
Bird Watching	4.7	6.6	8.0	3.0	77.7
Picnicking	0.0	3.7	15.3	16.6	64.5
Fishing	0.0	2.0	5.0	6.3	86.7
Boating	0.0	1.3	4.7	14.3	79.7

**Table 6. McAlpine Greenway Pattern of Use**

Activity	Very Frequently (%)	Frequently (%)	Seldom (%)	Never (%)
Walking	40	32	16	12
Jogging/Running	28	16	10	46
Bikeriding	8	16	16	60
Birdwatching	3	8	17	72
Picnicking	1	11	25	63
Transportation	2	4	8	86
Fishing	0	1	6	93

Based on our surveys, it would appear that the greenway is most used for walking, jogging or running, and bicycling. All other uses seem ancillary. Picnicking, bird watching, and fishing were regular greenway activities for a relatively small proportion of the greenway visitors. Among these

activities bird watching was the most popular, but only one in five Capital Area patrons and one in ten McAlpine patrons reported regularly visiting the greenway to bird watch.

The heavy use of the greenway for pedestrian- and bicycle-oriented recreation is perhaps not surprising. Their linear shape and separation from vehicular traffic make them an attractive alternative to streets or roadways. Very few urban land uses can provide these same conditions, which are so valued by pedestrian- and bike-oriented recreationists. Information about good places to recreate is often shared among runners, bicyclists and walkers, increasing usage by these groups.

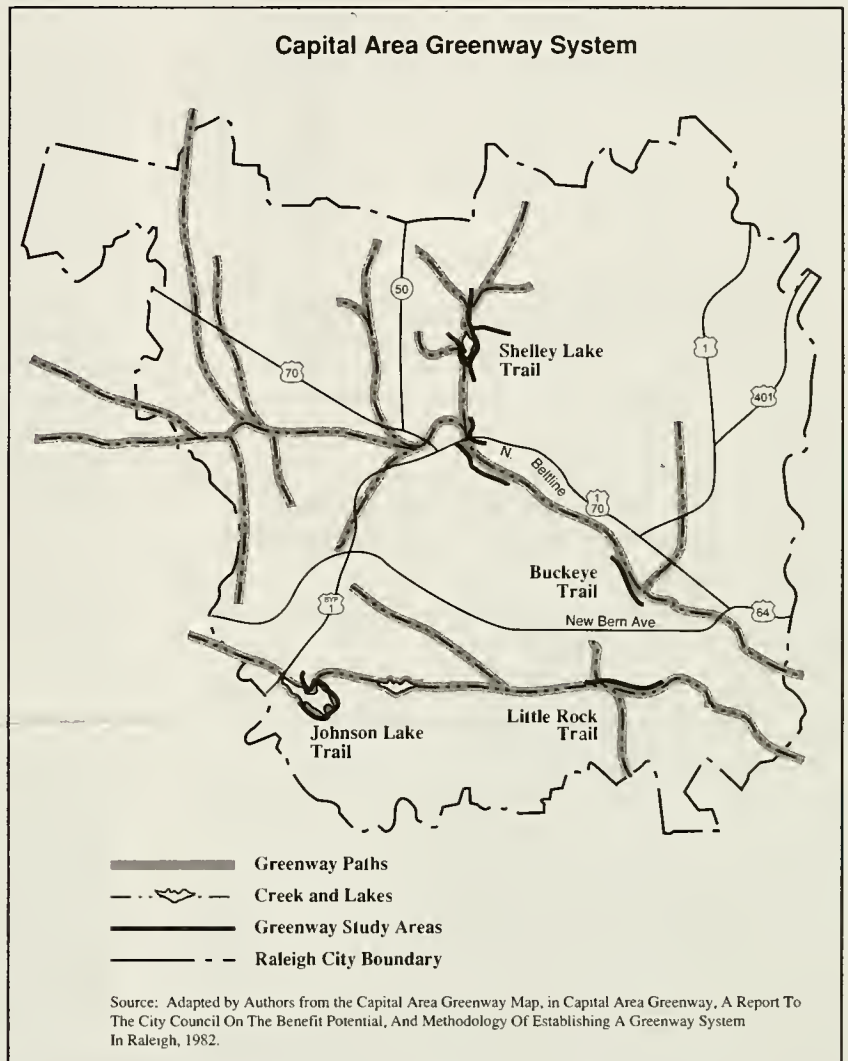
Additionally, greenway planners and managers tend to promote these facilities for these types of activities. In designing greenways, planners and landscape architects are keenly sensitive to pedestrian-related uses. Similarly, park and recreation managers have a tendency to market and operate these facilities with emphasis on walking, running, and biking. The lower usage rates for other types of recreation may be a reflection of a lack of awareness concerning other potential recreational activities in the greenways.

Among the lowest use categories on both greenways was transportation. Very few respondents, less than seven percent, stated that they regularly used the greenway for transportation purposes. This usage rate seems surprisingly low, in light of earlier national reports which emphasized the potential use of greenways for intra-city travel. This result underscores the fact that neither greenway was specifically planned for transportation purposes. The McAlpine greenway is only three miles long, and its present end points are two highway bridges. The Capital Area greenway is extensive, but it also was not planned to connect activity points (e.g., employment centers, shopping areas, community facilities). Lacking accessibility to city-wide travel destinations, extensive use of either greenway for transport is unrealistic.

A second consideration may be the survey population, which was limited to adults. Because both greenways provide linkages between neighborhoods their greatest transportation use is likely to be inter-neighborhood or neighborhood-to-park. Much of this type of local travel would be by youths visiting friends in nearby neighborhoods or going to the park. Had we surveyed all greenway patrons, the youthful visitors might have increased the travel element.

**Patron Satisfaction and Concerns**

One area where user surveys provide insights that cannot be collected through any other mechanism is visitor satis-



faction. Without these data it is impossible to know how effectively a facility or specific design is meeting public needs and expectations. Moreover, one is able to identify user problems and measure the seriousness of these concerns. This type of information can be used to modify existing greenway structures or operations to respond better to public needs, as well as to plan and design more "user friendly" greenways in the future.

Our survey found that both Capital Area and McAlpine greenway visitors were extremely satisfied. Admittedly, we expected greenway visitors to be supportive of greenways, or they probably would not use the facility; however, their enthusiasm for local greenways and greenway expansion was more intense than anticipated.

When respondents were asked to rank the importance of greenways against other types of parks, greenways were perceived more valuable by a majority of the Raleigh patrons and slightly less than a majority of the Charlotte patrons (see Table 7). Clearly, greenway users find these facilities better suited to their recreational needs than traditional parks.

Table 7. Patrons' Attitudes Toward Local Greenways

<b>"Compared to other types of parks, how would you rank the importance of greenways?"</b>				
	<i>More Valuable (%)</i>	<i>Equally Valuable (%)</i>	<i>Less Valuable (%)</i>	
Capital Area	62.8	34.9	2.3	
McAlpine	48.0	50.0	2.0	

<b>"Would you support spending public money to develop and operate additional greenways?"</b>				
	<i>Yes (%)</i>	<i>No (%)</i>	<i>Don't Know (%)</i>	
Capital Area	89.8	2.3	7.9	
McAlpine	90.0	5.0	5.0	

<b>"How likely would you be to support raising property taxes to develop more greenways?"</b>					
	<i>Very Likely (%)</i>	<i>Likely (%)</i>	<i>Don't Know (%)</i>	<i>Unlikely (%)</i>	<i>Very Unlikely (%)</i>
Capital Area	23.3	29.2	21.9	15.3	10.3

<b>"Even if it meant raising taxes would you support developing more greenways?"</b>				
	<i>Yes (%)</i>	<i>No (%)</i>	<i>Don't Know (%)</i>	
McAlpine	73.0	14.0	13.0	

A willingness to spend public funds, or even increase taxes to expand greenways, would indicate a deeper support not measured by the first general question. When queried about increased public spending, roughly 90 percent of the patrons responded affirmatively. But if increased greenway spending were translated into higher taxes, the survey showed that the amount of support would drop. Nevertheless, a majority of the users, 73 percent in Charlotte and 52.5 percent in Raleigh, indicated support for greenway expansion even with higher taxes.

Patron support and satisfaction with their greenways was also evident when respondents were asked about greenway problems (see Table 8). The survey listed several potential problems and asked respondents to indicate whether each problem was "very serious," "serious," "minor" or "no problem." The set of problems was compiled in conjunction with the North Carolina Greenways Conference Organizing Committee to cover a wide range of user concerns.

A review of these survey results shows that most Raleigh and Charlotte greenway users indicated very few problems with their facilities. No more than seven percent of the McAlpine users or fifteen percent of the Capital Area users classified any problem as "serious" and "very serious." On every issue a majority of the respondents indicated "no problem." This perception was completely unexpected.

Based on our discussions with greenway planners, we had expected to find that "security or fear of crime" would be a widespread user concern, but it proved to be much less of a problem than anticipated. Among Capital Area Greenway users, 58.8 percent described it as "no problem," while 75 percent of McAlpine users described security as "no problem." Moreover, among those surveyed who did indicate a concern about crime or security, most considered it to be a minor issue.

Greenway cleanliness, parking limitations, and crowding were somewhat problematic among Raleigh patrons, while area limitations causing overuse and crowding were issues among Charlotteans. In both communities it seems that greenway users have some anxiety about approaching greenway carrying capacity. Some of this concern may have been reflected in the earlier discussions about providing public money to expand the greenways.

The quality of greenways and their condition were minor issues to our respondents. In line with earlier findings, poor facilities, maintenance problems and insufficient staffing were rarely considered problems to the survey participants.

## Conclusions

The survey results indicate that Raleigh and Charlotte greenway users are heavily drawn from surrounding neighborhoods or communities. There is a clear distance-decay function associated with visitation, with the largest number of visitors living close to the greenway where they were surveyed and the number of visitors declining as home-to-greenway distance increased. The service radius in both cities was approximately five miles. The notion that individual greenways or greenway segments act as community-



For most senior patrons, greenway activities are an important part of their lifestyle.

Table 8. Greenway Patrons' Problems And Concerns

	Capital Area Greenway				McAlpine Greenway			
	Very Serious Problem (%)	Serious Problem (%)	Minor Problem (%)	No Problem (%)	Very Serious Problem (%)	Serious Problem (%)	Minor Problem (%)	No Problem (%)
Security/ Fear of Crime	4.7	10.6	25.9	58.8	1	5	19	75
Too Small/ Limited Area	1.0	7.6	12.6	78.7	1	6	20	73
Cleanliness	4.7	8.3	23.3	63.8	0	1	16	83
Crowding	2.0	6.6	22.6	68.8	0	3	20	77
Limited Parking	1.7	13.3	20.9	64.1	-	-	-	-
Inadequate Facilities	2.0	7.3	14.6	76.1	-	-	-	-
Facility in Disrepair	0.3	3.7	15.0	81.1	0	0	10	89
Poor Facilities	0.3	1.3	8.3	90.0	0	4	11	85
Inadequate Staff	-	-	-	-	0	2	13	85

cited by a minority of patrons as considerations, they are relatively unimportant. The message to planners and managers seems to be that existing planning and design efforts have been well received by greenway patrons. The challenge facing planners is to develop strategies to avoid perceived overcrowding and resource degradation (either social or environmental) in the future. Increased patronage and new types of usage could adversely affect user satisfaction. The most obvious solution is to expand systems and spread out users and their activities. If monies cannot be found for greenway expansion, the challenge will be more troublesome.

In a very short time, Raleigh, Charlotte, and other commu-

nities have made enormous progress reviving the greenway concept and implementing community-wide greenway systems. Their accomplishments, as indicated by our research, have been impressive. As more communities across North Carolina initiate new greenway programs, they can learn a great deal from the experiences of the Capital Area and McAlpine Greenways. □

wide recreational resources is not supported by our data. Similarly, the study sites were patronized by a particular subpopulation of the local area. These visitors used the facility intensively for selected types of activities. The profile of the average greenway user was a young to middle-aged, white upper middle class person. Seniors, however, used the greenways most frequently.

While both greenways offered a variety of potential recreation and transportation opportunities, most of those surveyed limited themselves to walking and biking. For our respondents, greenways provide a recreational niche designed for these forms of exercise. One lesson for planners and managers may be to either accept the current perceptions and design and operate their greenways accordingly, or, alternatively, to market the greenway as a broader public resource. The latter option would require greater efforts to structure new programs and activities which are not pedestrian- or bike-related, to attract other user populations.

The use of greenways as viable transportation modes for intra-city adult travel has also not developed in Raleigh. It is important to recognize that if greenways are to function as transportation elements, then greater attention needs to be given to integrating them into transportation planning programs.

Finally, our surveys indicated that the existing greenway user is a very contented patron, with strong political support for greenways and greenway expansion. For patrons there is no single issue which represents a significant problem. Although crime and carrying capacity questions are

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