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A Tale of Two Trails: Exploring Different Paths to Success

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Abstract

Background—This comparative case study investigates 2 successful community trail initiatives, using the Active Living By Design (ALBD) Community Action Model as an analytical framework. The model includes 5 strategies: preparation, promotion, programs, policy, and physical projects.

Methods—Key stakeholders at 2 sites participated in in-depth interviews (N = 14). Data were analyzed for content using Atlas Ti and grouped according to the 5 strategies.

Results

Preparation: Securing trail resources was challenging, but shared responsibilities facilitated trail development.

Promotions: The initiatives demonstrated minimal physical activity encouragement strategies.

Programs: Community stakeholders did not coordinate programmatic opportunities for routine physical activity.

Policy: Trails' inclusion in regional greenway master plans contributed to trail funding and development. Policies that were formally institutionalized and enforced led to more consistent trail construction and safer conditions for users.

Physical Projects: Consistent standards for way finding signage and design safety features enhanced trail usability and safety.

Conclusions—Communities with different levels of government support contributed unique lessons to inform best practices of trail initiatives. This study revealed a disparity between trail development and use-encouragement strategies, which may limit trails' impact on physical activity. The ALBD Community Action Model provided a viable framework to structure cross-disciplinary community trail initiatives.

Keywords

bicycling; environment; physical activity; policy; qualitative research; walking

The need to increase physical activity among all age groups is a well-established public health objective,[1] and emerging trends in physical activity promotion place a greater emphasis on the creation of policy and environments that support active lifestyles.[2,3] Multiuse trails provide access to recreational and utilitarian walking and bicycling in various settings and are suggested as a means to increase physical activity.[4,5] Such advantages make trail initiatives relevant to professionals as diverse as public health officials, transportation and urban planners, parks and recreation specialists, environmentalists, pedestrian and bicycle advocates, developers, and others.

Despite recent research efforts to study the impacts and process of trail building, the relationship between trails and physical activity remains unclear. The most rigorous population-based prospective studies have failed to detect significant population-wide differences in physical activity after trail construction.[6–8] However, many highlight potential moderating factors of the relationship between trails and physical activity. Trail use has been associated with neighborhood income, population density, amount of neighborhood commercial use, street length,[9] scenic beauty,[10] and absence of busy street intersections and steep hills.[11] Interestingly, other studies indicate that lack of community awareness of trails existence, a certain barrier to their use, is common.[10,12]

Although findings from studies of trails and physical activity demonstrate the need for more evidence to determine how, when, and why multiuse trails affect physical activity in various contexts, some available evidence already helps to inform trail initiatives. For instance, qualitative studies show that individual ‘champions’ and advocacy groups are key to advancing trail development, and community engagement generates a constituency of support for trail development.[4,13] Additionally, policy decisions including master plans, funding, land acquisition, liability, and interagency agreements can facilitate successful trail initiatives. Still absent, however, is a unifying framework, or implementation model, that practitioners could use to apply the best known practices to each local situation.

The lack of implementation models may limit the effectiveness of trail initiatives and other policy and environmental efforts to increase physical activity.[14,15] Such an implementation model may exist in Active Living By Design’s (ALBD’s) “5P Community Action Model,” a practice-based framework used by community-led partnerships in the implementation of diverse demonstration projects across the United States aiming to increase routine physical activity.[16] Rooted in a socioecological theoretical tradition, the model calls for the coordination of 5 strategies—preparation, promotion, programs, policy, and physical projects—around a common implementation objective. *Preparation* strategies involve laying the groundwork for an initiative through steps such as partnership development, assessment, training, and resource procurement. *Promotion*s increase awareness about local venues for physical activity and about the need for more policies and environments that enable active lifestyles, while *programs* often provide structured, ongoing opportunities, such as walking clubs, in which individuals can participate. *Policy* strategies may influence public decisions,

regulations, or guidelines, or may change standard practices among organizations and agencies that increase opportunities for physical activity. Finally, *physical projects* make the physical environment safer and more conducive for routine physical activity and often result from preparation, policy change, and advocacy work that takes place in advance.

This study aims to strengthen the body of knowledge around trail development and physical activity through a socioecologic perspective.[17] Using a comparative case study framework, this study examines trail development initiatives in 2 Southeastern United States communities: Durham, North Carolina (NC) and Georgetown County, South Carolina (SC). The sites were characterized by government versus grassroots advocacy-led initiatives, respectively. The exploratory analysis examines each site's use of 5P strategies to determine what key lessons can inform future trail initiatives. Exploring 2 trail initiatives from a socioecological perspective can provide a better understanding of community trail initiatives' potential to influence physical activity and findings from this study can inform best practices for future trail initiatives.

Methods

A comparative case study analysis was used to compare 2 successfully-built multiuse greenway trails in the Southeastern United States. A summary of trail characteristics and population demographics of the 2 study areas are listed in Tables 1 and 2, respectively, with descriptions following. For maps of both areas, see Figures 1 and 2 (available online at http://tinyurl.com/45adl5z).

Trails and Community Initiatives

The North-South Corridor / American Tobacco Trail (ATT) is located in Durham, a medium-sized city (population 209,009) in central NC.[18] In 1982, when Durham's Public Works Department requested a greenway feasibility study, 2 interested city council members created an initial report and recommendations. Findings led to the 1983 establishment of the volunteer-based Durham Open Spaces and Trails Commission (DOST), an official government commission tasked with creating urban open space and trails. The group of community members, advocates, city staff, and policy makers spearheaded development of a trail system via creation of Durham's Master Greenway Plan, most recently updated in 2001. Another partnership, the Triangle Rails-to-Trails Conservancy, proved critical in bringing about Durham's ATT connections. Since the initiative began, approximately 20 total miles of the trail system have been constructed. The city's greenway master plan involves 118 miles of trail. The trail study site in Durham extends for 13 miles, encompassing portions of the city's North-South Corridor and ATT.

The Waccamaw Neck Bikeway multiuse trail is located in a small but rapidly growing costal area in Georgetown County, South Carolina (population 60,860)[18] Two Georgetown County residents became advocates for a trail system in 1994 because of the lack of safe nonmotorized transportation options. These "champions" developed a grassroots organization in support of trail development which became "Bike the Neck," and approached the County Administrator with initial plans; the idea was well-received but the county expressed its inability to support such a system financially. The county was, however,

willing to partner with Bike the Neck by assuming liability for the trail, providing trail maintenance, and serving as the fiduciary agent so that the latter could apply for grants and financing as a county entity. Bike the Neck amassed the support, technical assistance, and funding to implement the 27-mile Waccamaw Neck Bikeway Master Plan. The trail study site in Georgetown County extends for 15 miles and currently links the towns of Murrells Inlet, North Litchfield, Litchfield Beach, and Pawleys Island.

While the 2 communities were demographically dissimilar, they were paired for comparison due to similar policy strategies regarding easement acquisition. In addition, we sought to compare 2 successful trail initiatives, and the trails in Durham and Georgetown County were deemed such because they had been constructed, accepted by their communities, and continued to expand in accordance with community-approved master plans. Other similarities that enabled comparison included public-private collaboration, presence of a continuous, off-road trail with some connections provided by alternate facilities (eg, sidewalks, bicycle lanes, share-the-road), and accommodations for both transportation and recreational trail users. Moreover, the difference between government- and grassroots-led approaches led to an interesting case comparison between the 2 communities.

Interviews and Analysis

The primary data source comes from in-depth interviews conducted in 2006–07 with multidisciplinary stakeholders who played or continue to play key roles in the development and ongoing use of the multiuse trails at each study site (Table 3). The same interview guide was used to conduct 14 structured interviews (7 at each study site), which typically lasted about 1 hour (guide available at http://www.hpdp.unc.edu/projects/ncpaprc). Interviews were conducted until saturation was reached, as determined by the 2 interviewers. Trained in qualitative methods, they conducted all interviews and held extensive discussions regarding the interview guide before the second set of interviews took place to develop consistency. Interviewees included individuals such as government staff in planning and parks and recreation departments, partnership group members, and pedestrian/bicycle advocates.

Interviews were audio recorded, transcribed, and coded through use of a codebook developed *a priori*, based upon the interview guide and expanded as interviews took place. The same investigator read and reviewed coding for all transcripts, and the 2 researchers who conducted interviews also conducted and discussed coding to build interrater reliability and dependability of findings.[19]

Atlas TI software was used to conduct qualitative data analysis of all coded interviews. Data reduction was performed by searching for repetitive themes among the interview data associated with each code and then creating a matrix of key themes for further examination. Interpretation of the reduced data set was conducted by examining the themes in the context of the ALBD 5P Community Action Model.[19] Additional reference materials (local planning documents) and observations of both trails were used to triangulate interview data during the data interpretation process and further ensure the dependability of the findings. The investigators involved in participant interviews conducted observations of both trails jointly to become knowledgeable about the key physical characteristics of each trail. Open-ended observations were recorded and discussed together after riding the length of each trail twice

by bicycle. This study was conducted under the approval of the Institutional Review Board at the University of North Carolina at Chapel Hill, North Carolina and The Citadel.

Results

The results section is organized by the 5P strategies and provides a comparative description of the ways in which Durham and Georgetown County's trail initiatives used each strategy. A summary of findings by the 5Ps with example quotes is provided in Table 4, with logic models for each trail presented in Figures 3 and 4 (available online at http://tinyurl.com/45adl5z).

Preparation

A trail initiative involves the coordination of complex long-term activities, including greenway master planning, route identification, land acquisition, trail design, and planning for maintenance. To accomplish these steps, the communities had to leverage funding, time, and expertise from a variety of partners—all critical preparatory steps. Through its Parks and Recreation Department, the City of Durham committed significant funding to the trail through annual budget allocations, voter-approved bond issues (3 separate multimillion dollar bonds were issued in 1992, 1996, and 2005), development impact fees, and dedicated staff time. Despite these financial commitments, some stakeholders indicated that funding was not always sufficient to meet trail development and maintenance needs.

Even though Georgetown County government contributed a small portion of the total cost of the trail, lack of funding was not expressed as a barrier to progress. Bike the Neck focused on donations and events that generated enough to fund the first several trail segments. They also successfully requested easement donations directly from property owners since land purchase would have been too costly. No one agency or department seemed to be overly burdened by the trail initiative, since responsibilities for trail development and implementation were spread more broadly across a variety of partners. Unlike Durham's heavily–tasked Parks and Recreation Department, the Georgetown County department covered only routine trail maintenance. Other groups took on a vast range of trail development tasks, including Bike the Neck, the local US Department of Agriculture Natural Resources Conservation Service, and the local Council of Governments.

Promotions

Both communities had similar communications designed to raise general awareness about the trails. General trail promotion strategies included websites, trail events, community festival display booths, and distribution of route maps. In Durham, DOST published a monthly newsletter to community members on its mailing list, and periodically mailed information via utility bill inserts. In Georgetown County, the local tourism industry also produced materials to promote the trail as an amenity.

The communities lacked strategies to promote trail-use among targeted groups or neighborhoods, although awareness of such strategies' usefulness differed. The Durham Parks and Recreation Department expressed a desire but an insufficient budget to promote trails directly, for example, to specific neighborhoods or the Spanish-speaking community.

Conversely, in Georgetown County, key stakeholders felt that trail-use promotion was not necessary; one even mentioned that increased promotions might overburden the trail facility. Instead, Bike the Neck focused on advocacy efforts to garner support for the trail itself.

Programs

Neither community demonstrated a strong focus on programs to provide routine opportunities to engage in physical activity via trail use. While interviewees seemed aware that outside groups used local trails to organize regular groups (eg, walking or running clubs), no key stakeholders had coordinated significant programming for the trails. Despite Georgetown County's trail moniker—the Waccamaw Neck Bikeway—no organized recreational bicycling clubs exist. Similarly, DOST and other community groups associated with Durham's trail system emphasized environmental protection and trail management rather than physical activity promotion.

Policy

Several important policy dimensions emerged during key participant interviews, including master plans, and the institutionalization and enforcement of trail policies. Participants discussed the critical role that policies played in creating a connected network of trail segments, especially regional greenway master plans to coordinate the community's long-term vision with a desired spatial layout, and institutionalized policies related to land acquisition, funding, and trail use. As one key stakeholder stated, "If we had done that … (had a master plan and supportive regulatory structure) 50 years ago, we'd have a whole lot more trails."

Harnessing the Power of Plans—In both communities, master plans prioritized connections between key community locations; these master plans were also part of regional trail plans, which helped them gain priority status among local decision makers for local, state, and federal funding allocations. Both trails are designated as components in the East Coast Greenway, a national greenway system that aims to link trails from Maine to Florida (http://www.greenway.org/). Additionally, part of the North-South/ATT Corridor is designated in North Carolina's Mountains-to-Sea trail route. The North-South Corridor emerged as the highest priority of the greenway master plan because it was envisioned as the "spine" that provided accessibility to important destinations and connections to other planned trails; hence, regional designations and available funding went toward completion of those sections. In Georgetown County, Bike the Neck's vocal efforts to obtain East Coast Greenway designation status prompted the Waccamaw Council of Governments to put 80% of its federal transportation enhancement funding toward East Coast Greenway projects (ie, the Waccamaw Neck Bikeway) to support a major regional project instead of a variety of smaller trails with less of a regional impact.

Greenway master plans also enabled both communities to gain cooperation from outside agencies, like the Department of Transportation, to provide no- or low-cost greenway easements. Durham leases the ATT easement from the North Carolina DOT for a nominal fee, and many sections of the Waccamaw Neck Bikeway were constructed inside South Carolina DOT right-of-way. For other trail segments in both communities, power companies

donated utility easements, and in some cases provided in-kind assistance with trail construction.

Institutionalization and Enforcement—Both communities implemented policies to facilitate land acquisition and safe trail use, but the communities differed in the extent to which approaches were institutionalized and enforced. Starting in 1988, Durham city ordinances required residential developers to donate trail easements along developments that overlapped with the greenway master plan. Required easement donations facilitated acquisition of several critical urban infill parcels on the North-South Corridor. In addition, the planning staff had successfully and consistently used an internal policy to request easements from nonresidential developers even though it was not required. By contrast, there was no formal ordinance in Georgetown County to require a trail easement donation from developers. County planning staff usually requested trail easements. Developers generally accommodated the requests, and such donations provided a large portion of trail segments. The practice, however, is vulnerable to inconsistent implementation, especially when staff turnover occurs. In one case, a new development application arrived at a time when a key planning staff member was missing from the development approval process. The presiding staff member neglected to request an easement and missed a key opportunity connect to 2 segments of the greenway system. Policies were also important to promote the trails' safety and usability, but the communities differed in the extent to which they institutionalized and enforced trail use policies. Participants noted that the City of Durham enacted and enforced helpful trail-use policies. In response to the fear of crime on the trail, the city increased its bicycle patrol law enforcement officers and mowed tall grass. The city also passed a policy to keep the ATT section open after dark in response to bicycle commuters' requests.

In Georgetown County, stakeholders reported that trail-use policies were enacted, but not enforced, in response to conflicts between different types of trail users. For instance, although trail policy prohibits motorized vehicles, golf cart users from resort communities frequently use the trail to make utilitarian trips to commercial locations. The carts occupy the entire width of the trail, causing conflicts. Another trail section in Pawley's Island is directly adjacent to a restaurant parking lot. Automobiles frequently park on the trail, forcing trail users onto the highway to circumvent parked cars. Although the County Council passed a policy officially prohibiting parking on the trail, local law enforcement and the restaurant owner neglected the policy and failed to penalize violators. Finally, some cyclists used the trail at unsafe speeds for other recreational users. Several key stakeholders expressed frustration with the lack of actions taken by the county to actively enforce greenway rules.

Conversely, participants discussed several ways in which Georgetown County excelled in institutionalizing a system of physical trail maintenance. Together, the Parks and Recreation and Public Works departments implemented a set of maintenance procedures, including frequent, routine trail sweeping and minor repaving as needed. The County's award-winning system tracked maintenance needs and allowed staff or community members to enter requests on the county's website.

In Durham, Parks and Recreation receives city funding for maintenance, including mowing and litter removal from the trails. The Parks and Recreation Department responds to requests

as they arise from neighborhood association members and local bicycling advocates, while the Triangle Rails-to-Trails Conservancy provides regular volunteer maintenance. No formal system exists to track or coordinate maintenance, however, and funding for maintenance projects is not consistent or adequate. Said one participant, “some years we have money for maintenance, some years we don’t. What we really need is a designated amount every year.” Durham citizens expressed dissatisfaction with the level of maintenance in the parks and greenway system in recent years, and voted in 2005 for a bond issue to support trail maintenance.

Physical Projects

Durham and Georgetown County aimed to provide a connected trail network that supported recreational and utilitarian use. The communities therefore combined various types of facilities, such as shared sidewalks, bicycle lanes, and share-the-road areas, to link off-road trail segments into a continuous path.

Georgetown County often did not use consistent trail signage features, which could impact convenience or safety of trail use. Wayfinding markers distinctly lacked recognizable brand identity (ie, Bike the Neck’s logo was absent from signage), directional prompts and/or painted crosswalks at street crossings, visual aids/symbols along the 2 “share the road” path segments, and on-site trail maps. By contrast, signage on Durham’s North-South Corridor and ATT provided directional clarity for users, maps along the trail and more consistent use of share-the-road markers.

Key stakeholders in Durham and Georgetown County indicated that automobile conflicts (ie, street crossings and driveways) represented the most persistent concerns about safety, even in Durham where fear of crime also influences trail use and consistent trail design standards have been used. On Durham’s North-South Corridor/ATT, trail stop signs are placed before intersections, alerting trail users to automobile right-of-way. Striped or painted crosswalks at most street-trail intersections alert trail users and drivers of each other’s presence. An advocacy leader in Durham noted that cyclists and neighborhood groups use listservs to communicate dangerous areas among themselves and directly to city staff, who are generally responsive. In addition, the route’s location along rail trails and stream corridors results in physical separation from the roads and few residential or commercial driveway conflicts. By contrast, safety design features are less consistent along the Waccamaw Neck Bikeway. Despite multiple road and commercial driveway crossings, stop signs on the trail do not generally precede intersections, including those sections that cross the 4-lane state highway. Street crossings also lack crosswalks or painted zebra stripes to alert trail users and automobiles of the potential conflict.

Discussion

This study examined 2 community trail initiatives to understand factors that led to successful trail implementation. It further explored the ways in which trail development processes may impact physical activity outcomes. Durham and Georgetown County both succeeded in trail implementation, but under different leadership circumstances. The influence of local government versus grassroots impetus at each site, as well as differences in the use of the 5P

strategies, provided insights into the determinants of successful trail development and could inform practitioners and researchers involved in future trail initiatives. Differences in the core strengths of each community's approach uncovered 4 lessons that could inform future community trail initiatives.

Lesson 1: Secure Focused Leadership

Focused leadership refers to the ability of leaders to work toward trail implementation with a lack of other distractions or priorities. Both sites benefitted from leaders who ensured the coordination and success of trail development activities, but differences in leadership loci led to an interesting strength in Georgetown County. Bike the Neck organized as a grassroots advocacy group because of a desire to build the Waccamaw Neck Bikeway, and the trail comprised its sole reason for being. They obtained in-kind technical assistance from various agencies, engaged in creative fundraising, and mobilized government staff to adopt master plans and provide maintenance. In Durham, despite the local government's commitment to trail building, key stakeholders often found trail system funding insufficient to meet all implementation needs. For this reason, focused leadership emerged as a key factor in the ability to overcome trail development delays and challenges that inevitably arose.

An avid grassroots "champion" in Georgetown County played a critical role in the intense focus on trail development; without such leadership in mobilizing grassroots support and coordinating technical assistance among numerous agencies, the initiative would not likely have succeeded. Others[20] discuss the importance of champions in implementing policies to support physical activity, but they identified champions as either elected officials who initiate policy agendas or professional staff who implement policies as part of their job.

Lesson 2: Seek Shared Commitments

Shared commitment refers to the ability of leaders to engage diverse groups and organizations in assuming responsibility for trail development tasks. One study of local government staff and policy makers indicated strong interest in cross-disciplinary collaboration, yet a lack of awareness for specific opportunities to support each other in the implementation of active community environments.[21] Although Durham and Georgetown County's trail initiatives demonstrated involvement from a variety of partners, grassroots organizers in the latter community successfully sought commitments from a relatively large number of partners to undertake the technical tasks of trail system implementation, including master planning, trail design, obtaining project bids, and environmental permitting, which reduced the burden on any one agency, and helped the initiative to succeed. Durham, however, leveraged minimal outside technical assistance to share responsibilities for trail implementation activities, and stakeholders reported the lack of time and funding as barriers that hindered the trail initiative. Moreover, lack of involvement from health promotion partners at both sites may explain a gap common to each initiative: the inability to integrate substantial trail-use encouragement (ie, promotions and programs) strategies with the overall trail initiative. Coordinated involvement from multiple stakeholders, including public health professionals, could reduce the time and cost burdens placed on any one entity, ensure that communities make steady progress in long-term trail development goals, and ensure integration of strategies to support trail-use and physical activity.

Lesson 3: Institutionalize Key Policies and Practices

Trail initiatives in Durham and Georgetown County demonstrated the incremental nature of greenway development, highlighting the need to ensure consistency and high standards in the implementation process. The strongest aspects of each initiative arose when the communities institutionalized key policies and practices. Durham had formal policy mechanisms and standards to require certain trail easement donations, enforce trail-use policies, and use consistent signage and safety design features, which facilitated the system's success regardless of elected official and professional staff turnover. Georgetown County addressed similar issues less formally, leaving the initiative vulnerable to a lack of awareness or engagement from government leaders and staff, and in some cases preventing consistent policy implementation; for instance, when county government failed to enforce policies it had adopted to prevent trail-use conflicts or when staff missed opportunities to obtain trail easements from developers. Conversely, Georgetown County excelled in trail maintenance by providing consistent implementation and dedicated funding through formal policy agreements. These findings mirror a case study in Montgomery County, Maryland, where institutionalized systems to ensure intergovernmental coordination helped staff and policy makers adopt policies to promote physical activity.[20] Such experiences demonstrate that communities should seek to promote shared agreements among partners and institutionalized understanding of the policies and practices involved in trail development tasks, perhaps through routine training or educational opportunities.

Lesson 4: Don't Overlook Trail Use Encouragement

The comparison of 2 trail initiatives provided an opportunity to examine the 5P model as a mechanism to increase physical activity via policy and environmental change. Although the communities themselves did not intentionally use the 5P Model to guide trail implementation, strengths and weaknesses among the strategies uncovered reasons for potential success, and could provide a comprehensive approach toward increasing physical activity through trail initiatives. The communities in this study lacked overt efforts to increase physical activity as a desired outcome of trail construction; particularly weak were promotions and programmatic strategies to increase trail use. Such gaps may hold across other communities; one study of community-based programming to increase physical activity among senior citizens in London found that programs suffered from short-term funding, lack of organizational stability among coordinating agencies, and lack of cross-agency awareness of the range of available programs for the target audience.[22]

Implementation of the full 5 PModel, including promotions and programs, requires a commitment and capacity to coordinate a range of strategies that address the multiple determinants of physical activity. In this study, practitioners who implemented trail projects viewed physical activity as a beneficial side effect of trail development, or another reason to justify trail construction, not a core objective to integrate into the initiative. Yet, emerging research suggests that successful trail approaches focus on a comprehensive set of strategies rather than individual, uncoordinated measures.[23] By intentionally integrating trail use encouragement strategies, the 5 PModel may provide a useful implementation framework to help communities weave physical activity and health-oriented goals into trail initiatives.

Trail initiatives that include such strategies may in turn enable future studies to determine whether a robust 5P implementation results in increased physical activity.

Health advocates and professionals may have a role to play, not only in providing skills and expertise to trail-related programming and promotional needs, but also in encouraging and assisting other disciplines and agencies to elevate the importance of health outcomes by approaching trail or other land use planning initiatives in a comprehensive manner. Master trail plans proved critical to the success of trail initiatives in this study, yet land use plans rarely incorporate health and physical activity.[24] The pursuit of health outcomes can be incorporated into professional and organizational roles of planners, parks and recreation officials, trail advocates, and others. For example, increasing physical activity could be included as a goal in various plans that communities might use, such as land use, transportation, pedestrian, greenways, and other types of plans. State agencies and other funders can also influence priorities by structuring funding to require promotion and programming, and encouraging a health-oriented approach to such initiatives. Without cross-disciplinary efforts to prioritize physical activity outcomes in the design of trail initiatives, it could be reasonable to hypothesize that trails may continue to show inconsistent results in the extent to which they result in population level increases in physical activity. Barriers such as miscommunication or lack of cooperation among community partners, staff turnover, turf disagreements, differences across funding cycles, or lack of commitment to support promotions and programs can all hinder efforts to work across disciplines to promote active community environments.[25]

Study Limitations

Findings from this study should be interpreted in light of several limitations. First, case comparison limits the ability to generalize widely. Had different communities or interviewees participated in the study, it is possible that different findings and themes may have emerged. In addition, the 2 study communities were different in character, especially in terms of size, population demographics and geography. It is possible that some of the variations in the communities' 5P strategies stemmed from such differences. Future comparative studies of trail systems might consider choosing communities that provide more sociodemographic and geographic similarities.

Conclusion

Communities with different levels of local government support contributed unique lessons to inform best practices for future trail development initiatives. Funding for trail systems is a barrier for communities regardless of the level of overt local government support. The grassroots partnership offered a creative and resourceful approach to overcoming funding and staffing challenges that would benefit communities even with local government support in place. Still, communities must institutionalize key policies and practices associated with trail development, which requires a great deal of support and cooperative partnership from local government. In addition, trail development and trail use encouragement strategies are not equally implemented, indicating the need to better engage health advocates in community trail initiatives from the planning stages, to implementation, programming, and

promotion. Communities can seek strategies, such as training or education, to integrate best practices and emerging lessons into trail development initiatives.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Trail Characteristics in Durham, NC (as of May 2006) and Georgetown County, SC (as of March 2008)

Characteristic	City of Durham	Georgetown County
Location description	Urban, metropolitan	Suburban, coastal, tourism
First segment constructed	1985	1994
Most recent segment constructed	2006	2008
Trail length (miles)	13	15
Multiuse path (rails-to-trails)	6.4	0
Multiuse path (in park)	3.2	2.9
Multiuse path (in road r/w)	0	3.4
Multiuse path (in development)	0.4	4.6
Sidewalk	1.4	0
Sidewalk w/shared lane	1.6	0
Bike lanes	0	3.3
Share the road	0	0.8
Primary funding source(s) for trail construction	Capital Improvement Program, bonds, grants, impact fees, annual budget	Grassroots fundraising, grants, developer construction,

Table 2

Sociodemographic Characteristics of Census Block Groups Within 1 Mile of Trails in Durham, NC and Georgetown County, SC

Characteristics	City of Durham	Georgetown County
Total population	88,783	13,900
Population density per square mile	949	125
% Race/ethnicity		
White	38	86
Black	53	13
Asian	3	>1
Hispanic	8	1
Other	7	1
% Sex		
Male	47	48
Female	53	52
% Age group (years)		
0–17	23	17
18–29	25	9
30–49	31	27
50+	21	47
Median age	29	35
% Education level		
> High school	15	12
High school or some college	36	51
College degree (2 or 4 yr)	30	27
Advanced degree	19	10
Median household income	38,080	50,193

Source: American Fact Finder (US Census, 2000).

Table 3

Description of Key Stakeholders Interviewed for Community Trail Initiatives in Durham, NC and Georgetown County, SC

Characteristic	City of Durham	Georgetown County
Trail advocacy leaders	2	1
Parks and recreation staff	2	1
City or county planners	2	2
Public works staff *	0	2
State or federal technical assistance providers	1	1

* Public works staff was interviewed in Georgetown County because they played a significant role in overseeing and conducting trail maintenance. In Durham, this role was fulfilled by Parks and Recreation. Therefore, public works staff was not interviewed in Durham.

Table 4

Summary of 5P Strategies in Durham, NC and Georgetown County, SC; Trail Initiatives With Example Quotes

5P Strategies	City of Durham, NC	Example quote	Georgetown County, SC	Example quote
Preparation	A government-led process led to few shared responsibilities for trail implementation and funding sources outside of local government staff and budget; Insufficient funding and staff time emerged as a barrier to trail progress. Public health partners not involved.	"… there have been so many other priorities within the community… . And often, you know, [trails are] one of the first things cut because it's not considered essential."	Grassroots-led process, coordinated by a trail advocate, led to multiple shared responsibilities for trail implementation tasks and funding sources. Insufficient funding and staff time did not emerge as a barrier to trail progress. Public health partners not involved.	"So it's a very cooperative effort. Everybody works well together. I can't say that we've ever had any problems getting anything done that needed to be done. And that's what it takes to make it happen."
Promotions	Limited trail use promotion included general flyers, maps (paper and on-line versions). Lacked sufficient funding to implement trail use promotions among specific target audiences or neighborhoods.	"We'd like to do more trail promotions … we were thinking, 'Gee, it would be really neat to have some neighborhood walks up to the ballpark.' … It would be fun, but, again, we don't have anybody to promote that." "We don't have any [materials accessible to non-English speakers] to date, but we do have a woman on staff who's very interested in outreach to the Hispanic community and that's something I think we should pursue."	Limited trail use promotion included general flyers, maps (paper and on-line versions). Promotion centered on advocacy to bring the trail into existence; trail use promotion not recognized as a need and therefore not conducted.	"… my feeling has been once we saw how long all this was going to take that it was really better not flooding the community with too much [greenway] traffic."
Programs	Not conducted or coordinated by key stakeholders		Not conducted or coordinated by key stakeholders	
Policy	Trail is part of city and regional greenway master plans, helping it to gain funding priority status among city decision-makers; ordinance exists and is enforced to facilitate greenway easement acquisition from new residential developments, but multiple easements must still be purchased from existing residential owners, creating cost barriers; Trail use policies adopted and enforced to alleviate fear of crime issues;	"Those policies that we have for residential projects in particular help to ensure that what gets proposed in our master plan actually gets constructed." "… we requested from the police department that they … patrol it more, [and] … we cleared out the vegetation and put up a fence so at least it would be more difficult for [criminals to hide]. We haven't had any problems since increased patrol and the fencing and some vegetation management." "[Maintenance	Trail is part of county and regional greenway master plans, resulting in a policy decision by COG to use significant federal enhancement funding for trail; Informal policies facilitate easement acquisition from new development , but implementation inconsistent; informal relationships with citizens and outside agencies result in few easement parcels that must be purchased, reducing cost barriers; Trail use policies adopted but not enforced to alleviate conflicts among different use types; trail maintenance coordinated by Parks and Recreation who uses formal system to track requests and needs. Funding	"one of the reasons it makes [allocation of 80% of regional federal enhancement dollars] possible, is of the 2 counties and 10 jurisdictions that we have, all but one is touched by the Greenway alignment." "And over probably 6 or 7 years ago, we got a law on the county books passed that it is a finable offense to drive a motorized vehicle on the bike path, to park on the bike path, to use even a golf cart on the bike path. These 3 offenses are chronically, if one police officer would sit for

5P Strategies	City of Durham, NC	Example quote	Georgetown County, SC	Example quote
	Physical trail maintenance coordinated by Parks and Recreation but no formal system to track requests. Maintenance funding not always sufficient to keep trails in good condition.	] depends on funding and most of that would be coming through the capital improvement program. Some years we have money for maintenance, some years we don't. Unfortunately what we really need is like a, we need a designated amount every year is what would be ideal."	sufficient to keep trails in good condition.	one week, it would pay for the next stretch of the path because the fine is a $70.00 fine to park on the bike path. … I mean, it's been illegal since we started this thing, and it's never been enforced." "We also have an automated, on-line system, that we call At Your Request and anybody that has Internet connectivity can … request [trail maintenance] … in fact, the system won national recognition this year from Public Works Association."
Physical projects	Consistent high standards for wayfinding signage (eg, signs with logos and low literacy requirements, painted street crossings) and safety features in trail design (eg, stop signs on trail and few driveway access conflicts), but few maps along the trail.		Inconsistent and insufficient use of wayfinding signage (eg, signs lack logos and some require high literacy, no painted street crossings) and safety features in trail design (eg, no stop signs on trail or painted stripes on street crossings, several areas characterized by driveway access conflicts), and no maps along trail.	