

Connectivity in Wake County: A Strategic Analysis
of the Wake County Consolidated Open Space Plan – Greenways

By

Catherine Bukowy

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Approved by Committee:
Dr. Fred Cubbage, Chair
Dr. Elizabethann O'Sullivan, Co-Chair
Dr. James Swiss, Member

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Abstract

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Wake County has identified the preservation and management of open space as a high priority for the county. One component of the open space plan is greenways, which are to help provide connectivity between natural areas, people and nature, and further aide in the protection of water and air quality. While these goals have been marked, and progress has been made, it has been done without detailed strategic planning and reflection and with only modest operational input. The purpose of this project is to assess the progress of greenways planning in the county based on the Consolidated Open Space Plan of 2006.

The assessment relied on stakeholder input, as well as literature review of greenway planning in other areas and GIS analysis to determine if the county is on track to meeting its stated objectives. Review of the COSP reveals the use of multiple definitions of greenways, a non-specific plan for greenway creation, and a detailed plan for greenway building. It is recommended that Wake County create a single definition on which to base its future greenway planning. Further data on the natural resources available within the county, as well as the true location of current greenways should be attained and placed in a geographic information systems database. GIS can assist in locating priority areas for natural resource conservation that may otherwise be indiscernible.

Additional discussion with stakeholders concludes that there is great interest in the county in building greenways; however, Wake County would like to act more as a silent partner, assisting in land acquisition and possibly funding construction. Although there is great support from leaders in various governments, non-profit, and private groups the citizen voice through public involvement is little used. Land acquisitions have been previously funded through citizen approved bonds. Bonds have proven an unstable mechanism amidst the current economic crisis and another funding mechanism should be sought.

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Introduction

Wake County has identified, expanded and improved greenways as a priority goal in its county planning and development plans. These desires reflect pervasive support from the public in the form of approval of bonds for open space purchase, and voter support of county commissioners who advocate for open space protection. Many nongovernment interest groups, such as the Triangle Land Conservancy, have promoted greenway purchase and protection, as have local government officials and land-use plans throughout the county. This specifically includes the Triangle J Council of Governments, which has developed the Triangle GreenPrint as one means to identify priorities and coordinate greenspace development in the region.

Furthermore, the citizens of the county enjoy the greenways, and they contribute substantially to the high quality of life in the county and its perception as a desirable location to live and work. The open space and greenways in the county help protect its natural ecosystem functions in the face of continuous development, including water quality, green space for aesthetics and recreation, habitat for wildlife, and better micro-climate in neighborhoods and macro-climate in the county. These many benefits have continued to be recognized and provide the basis for a high level of community support for the Wake County Open Space program.

The merits of greenways are apparent, and Wake County has had an active program to continue to expand its greenways. However, the program growth has occurred without detailed strategic planning and reflection and with modest operational input from citizens and interest groups who support the premise of the greenways. Wake County and other local government officials recognize the need to improve the strategic

planning for greenways, as well as extend the efforts for establishing priorities in purchase and protection. Furthermore, more effort now is needed to establish management plans and actions for the greenways to ensure that they meet the goals and objectives established. This paper provides a preliminary analysis of the status of Wake County greenway planning, suggests opportunities for public input, and provides some background planning analysis using Geographic Information Systems (GIS), that aid in data development and display the results in visual form, facilitating planning and public participation in enhancing the county's greenways and their management.

Project Overview

The focus of this project was to analyze the strengths and weaknesses of the greenways component of the Wake County Consolidated Open Space Plan (COSP), as well as assess any associated opportunities and issues. This involved a multi-focused look at the plan, first using a literature review as a background and comparison tool. This was followed by geographic information systems (GIS) analysis using biological and jurisdictional data layers to determine if Wake County Open Space (Open Space) – a “branch” of Wake County Parks, Recreation and Open Space and the focus of this document – is on target to meeting its stated objectives.

Integral to this entire process were discussions with stakeholder groups, including the recently formed Wake County Greenways and Trails Consortium and Open Space leaders. To some extent, this paper reflects an individual analysis of the strengths, weaknesses, opportunities, and threats (a “SWOT” analysis) of the state of greenway development in the County, with the intent to suggest actions that the County could take to enhance the administration and implementation of this popular program.

Literature: Greenway Functions, Development, and Administration

Greenways have become an important concept in urban and regional planning over the last several decades. Greenways provide many functions for urban environments, but raise various administrative and management issues as well.

Functions

As indicated for Wake County, greenways provide biological, recreational, aesthetic, social, and economic benefits. Biological benefits include better filtering for water quality, better storage of runoff from rainfall, connectivity and protection for wildlife, biological diversity, and better microclimates, helping ameliorate urban heat islands, and filtering of air pollutants to improve air quality (Bryant, 2006; Ahern, 1995; Luymes, et al, 1995; Miller, et al, 1998).

Studied urban wildlife benefits of greenways are few. However, in a study conducted by Schiller and Horn (1997), they noted that greenways cannot be held in isolation and that it is the overall habitat of the area that attracts various species. The primary species studied were red fox (*Vulpes vulpes*), grey fox (*Urocyon cinereoargenteus*) and white-tailed deer (*Odocoileus virginianus*), all habitat generalists needing a large amount of habitat. For these species, they found that greenways must be wide, have connectivity to other forested areas, and have vegetation maintained in a natural state.

When placed in floodplains and along waterways, greenways and the associated landscape may contribute to slowing stormwater and agricultural runoff, reducing sedimentation, allowing nutrient uptake by plants along the streamside and preventing other polluting substances from entering the waterway (Conine, et al, 2004).

Social benefits include recreation and nature education, and possibly an escape from the urban environment as seen by Olmsted and later contemporaries. Additional

potential value is found from the intangible nature of greenways and their "quality of life" benefits (Dawe, 1996). As a case study, Dawe cites the Hudson River Valley Greenway of New York. In its case, it was believed that "economic development would not occur in areas that tolerate a deteriorated environment." This belief furthered regional alliances, allowing smaller communities to depend on each other and achieve greater regional growth. Dawe further notes the details and general impacts of greenways from an economic standpoint, in this case along the Lake Ontario Greenway:

- 1) Greenway construction, management and maintenance provide direct job opportunities. Indirect job opportunities will also be created, but are too numerable and diverse to suggest.
- 2) Commercial potential may or may not be recognized depending upon the style of the greenway. A river walk may be able to employ street vendors, whereas greenways are generally a walk in the woods.
- 3) Residents of the area tend to spend more time and money locally.
- 4) Those who purchase property within walking distance of a greenway can expect a higher appraisal value of the home. This results in increased spending power for the owner.
- 5) Tourism value.
- 6) Community support and partnerships.
- 7) Business relocations for quality of life benefits.
- 8) Health benefits associated with walking, riding, etc along greenways.

Although frequently seen as a recreation benefit, the connection with nature is noted by C.S. Shafer, et al. (2000) as a reciprocal benefit to the 'human ecosystem'. The human ecosystem implies that humans shape and recreate their environment to receive a benefit from it. If a community is to be sustainable in this effort, it must achieve equilibrium among the built environment, the natural environment and social structure. In the case study of three different greenway trails in Texas, those using the greenway for commuting found it contributed to reducing pollution, providing alternatives to vehicles, reducing the cost of transportation and time required to get to shops and

work. On the two trails that were more recreational, people perceived a direct relationship in social interaction and access to nature. Use of each trail was tied directly to easy access from home and work, as well as connections among trails, particularly those that crossed various roadways.

In a case study by Lindsey, et al. (2004) in Indianapolis, Indiana, they were able to corroborate the generally held belief that living near or having access to a greenway increases property value. Using hedonic price modeling of residents near the Monon Trail, the largest greenway system in Indianapolis, they found homes within one half mile of the trail sold at an average of 11.4 percent (11.4 %) above the mean. Those homes located near a conservation corridor with no recreation possibilities sold at 25.9 percent (25.9 %) above the mean.

Greenway Development

While greenways themselves have been around for more than a century in the United States, the term itself was first coined in 1959, by William H. Whyte in his article, Securing Open Space for Urban America. Whyte went on to further the use of the term and concept in many articles and books including The Last Landscape (Little, 1990). The term was further endorsed by the President's Commission Report of 1987, in its recommendation advocating for citizens' access to open space close to where they live. However, most greenway scholars identify Frederick Law Olmsted as the founder of the greenway movement in America. In 1867, Olmsted created the Boston Park System, also known as the Emerald Necklace. The park system was 25 kilometers (km) (15.5 miles (mi)) and linked Boston, Brookline, and Cambridge, Massachusetts, as well as connecting to the Charles River. Olmsted's pupil, Charles Eliot expanded Olmsted's work, creating a park system of 600 km² (232 mi²) and introducing coastal greenways.

Other contemporaries of Olmsted and Eliot include H.W.S. Cleveland who, with assistance from Theodore Wirth, planned a greenway system for the Minneapolis Metropolitan Region in 1895; and George E. Kessler, who planned parks and park systems throughout the Midwest region (Fábos, 2004). There are other notables through 1906, when Gilmore D. Clarke planned the Bronx River Parkway. The parkway was built between 1906 and 1913. This parkway, like others should be considered a "park way" as vehicles were not in prominence or were considered a leisure activity, not a method of getting from one place to the other or hauling goods or services (Little, 1990).

In the post World War I era, Benton MacKaye felt that "metropolitanism" now more commonly, "urban sprawl" was capable of taking over the rural country side and needed to be contained. To hold back this "tide" of people, MacKaye proposed a system of publicly owned linear parks along the natural features of the terrain. This concept is now being put into place in the San Francisco Bay area and Boston; however, its most notable application became the Appalachian Trail (Little, 1990). The original idea was to create a series of "dams and levees" that would contain an endless series of walking paths, surrounded by undeveloped areas not accessible in any other way.

Ian McHarg may be the most well-known for modern ecological planning. His book, Design with Nature (1969, 1992), is still considered the bible for many regional planners. His method was to create map overlays of areas and determine priorities based on natural processes (Fábos, 2004; Little, 1990). His contemporary and possibly equally well-known is Philip Lewis. Lewis' method of analysis involves using 220 factors represented by different symbols. Typically when placed on a map they tend to fall in a linear pattern (Fábos, 2004; Little, 1990). Lewis' focus is now on sustainability and areas where human activity can have a negative effect on the quality of the environment (Fábos, 2004).

In his book, *Last Child in the Woods*, Richard Louv discusses what he calls “nature-deficit” disorder. To him, this is the product of children spending too much time indoors using electronics and other “baby-sitter type” objects and less time outside exploring nature or even just being outside. His book has spawned attempts at legislation, including the “No Child Left Indoors” Act by the National Association of Environmental Educators. Increases in childhood ADD or ADHD, as well as increases in childhood obesity rates, have helped encourage recreational outdoor activity by such groups as the American Pediatrics Association, American Diabetes Association, and many others.

Administrative Issues

A primary concern among administrators is how to manage greenways, including the safety of users, overall management, and budget. Planning for public safety is probably one of the most difficult. Luymes and Tamminga used the Toronto, Ontario Waterfront as a case study in greenway safety. The study found that those groups who are generally defined as most vulnerable – women, children, elderly, and the disabled – tended to use the greenway less, whereas men made up the majority of users. Men also tended to be the majority of solo users in isolated areas and at low-use times. Luymes and Tamminga point out that the perceptions of a space to a user are critical in their feeling of safety and therefore use and enjoyment of the space. Those spaces with graffiti, drug paraphernalia, trash, etc are considered by the majority to be unclean and used less often.

To create a safe or perceived safe public place the following principles are noted: (1) visibility of others; (2) visibility by others; (3) choice and control; (4) environmental awareness and legibility; and (5) solitude without isolation. To achieve these principles, the following must be considered:

1. There must be both official governmental involvement, either at the municipal, county, or state level, and private citizen involvement promoting “user ownership”
2. Setting the goals of each section of greenway and clearly defining those goals and pointing them out to users
3. Considering the design and layout of the greenway with safety in mind.
4. Where possible using lighting and where not possible, clearly identifying entry into a space that is not lit
5. Using signs and maps to clearly communicate the route.
6. Managing vegetation to keep it in its most natural state, yet provide visibility
7. Creating a variety of movement options for accessing or escaping the trail
8. Organizing groups of users for trails to “self-police” them
9. Encourage increased use wherever people already use the area, a “safety in numbers” plan

Overall management of a greenway can be difficult as it is a linear park, which may or may not be looped. Management of greenways can involve many other issues, such as trail maintenance, control of litter and pet waste, problems with invasive plants, cooperation between government bodies and adjacent private owners. Wake County and its cooperating governments could include issue identification and suggested responses as part of their greenway development and management plans in the future.

One of the best examples of a greenway is the Appalachian Trail (AT), which spans 3,500 km (2,175 mi) from Georgia to Maine. The AT is part of the National Park Service (NPS) and was listed as the first National Scenic Trail in 1968. However, although it is under the auspices of the NPS, it is generally maintained by the Appalachian Trail Conservancy (ATC). The ATC was first established in 1937, as a single organization to aid the over 30 smaller organizations that work to maintain the AT in individual states, work with

federal and state agencies, and lobby for legislation to protect and maintain the AT. The ATC is one example of stakeholder involvement leading to the maintenance and management of a greenway trail.

Without involved stakeholders, from government to users, there is no one to manage and maintain a greenway for the benefits listed previously. Thus responsibilities for acquiring, maintaining, managing, and cooperating in greenways must be developed and adequate funding and government assistance provided.

Wake County Greenway Development

With the establishment of the Wake County Parks and Recreation Department in 1976, preserving outdoor spaces for citizen enjoyment is not a new concept in Wake County. Over the course of 30 years, coordination with various municipalities, non-profit, and private entities has resulted in land acquisition, recreation services, amenities at schools, and the assisted establishment of some municipal parks. In addition to its many ventures over the 30 years, the department underwent a name change reflective of an increasing goal of the County. The Parks, Recreation, and Open Space Department now additionally focuses on the task of acquiring and preserving open space for the future of the County.

The Wake County Consolidated Open Space Plan (COSP), adopted in March 2003 and revised in September 2006, culminates the effort of the county to protect land for reasons "beyond recreation and leisure." Wake County defines open space as:

Protected lands and waters that are owned and managed by the County, its public sector partners, the municipal governments of Wake County, State of North Carolina, the United States government, and the County's private sector partners, including non-profit land trusts. Open space consists of any parcel or area of land and water that is devoted to

1. preservation of natural resources;
2. managed production of resources (farmland);
3. outdoor recreation;
4. preservation of historic and cultural property;
5. protection of scenic landscapes; and
6. protection of public health, safety and welfare.

The county's goal is to preserve at least 165,000 acres or 30 percent of its total acreage. Identified priority areas are in identified stream corridors that exist within the Federal Emergency Management Agency (FEMA) 100-year floodplain.

Another key concept to the COSP is connectivity. The plan is designed around the "hub and spoke" concept. This idea suggests that there are areas of common interest among people, for example shopping centers, subdivisions, schools, or town centers (hubs) that would be connected to each other via paths or greenways (spokes).

The idea of connectivity is not new. Typically, connecting a person to a place involves transportation. Current modes of transportation have the average U.S. citizen thinking of automobiles, airplanes, buses and trains. Unless one lives in a highly urbanized environment, rarely does one think of his or her own two feet or a bicycle. Wake County faces a problem that is occurring across the country – urban sprawl. The county loses land to development at a rate of approximately 31 acres per day (12.5 hectares/day).

In the last 20 years, all municipalities within the county have had major growth expansions (Figure 1), with the exception of Morrisville. In the last century a common trend has occurred whether one lives in Wake County or in Anywhere, U.S.A, as land use intensifies, there is (1) a decrease in the variations of the landscape and (2) fragmentation of the same landscape increases (Ahern, 1995). In some wilderness

areas, it may be possible to apply a hub and spoke plan intended for the sole purpose of protecting natural resources.

Unfortunately, with limited space and limited resources we must find ways to combine compatible uses, and separating incompatible uses in greenways. However, compatible use is subject to the vision for the greenway. A compatible use in one area may be incompatible elsewhere. For instance, a loop greenway may not be ideal for both walking and cycling, if there is a high number of walkers who may collide with cyclists. However a linear greenway may be compatible for both purposes, due to a possible lower demand by walkers. Overall, this demands planning to be “multidisciplinary, inclusionary, and have a high level of public involvement” (Ahern, 1995).

Greenway Definition

Literature on greenways yields discussions from the landscape architecture perspective in their design. A detailed literature search may yield dialog on the use of greenways in parks and recreation for traditional leisure activities, connectivity use in habitat community ecology, or as alternative transportation routes. Common features or themes of greenway definitions include:

- 1) protected linear corridors;
- 2) improved biological function of an area; and
- 3) providing ecological, recreational, and cultural benefits to a community.

Ahern (1995) notes that a key function of greenways planning is creatively combining compatible uses for the same area, while separating incompatible uses.

The COSP definition of greenways is found in Appendix I: Definitions, as [1]:

Linear open space that is established along a corridor that can be used for connectivity (trails) or water quality protection.

A secondary 'definition' can also be found beginning on page 3-1 of the COSP [2].

...corridors of multi-purpose greenways. Where appropriate, build pathways that people can travel by foot, bicycle, rollerblade or on horseback. And make the corridors wide enough so that they will help to protect water courses, conserve habitat for wildlife, preserve historic landscapes, and beautify area roadways.

Finally, in a more recent document, the Wake County Open Space Preservation Program Policy dated February 18, 2008, greenways are included as [3] an "Allowable modification to [Wake County] open space properties" as a type of passive recreation, which is a "type of low-impact recreation causing minimal disturbance to natural resources."

These definitions are all useful, but some consolidation would help clarify the unique Wake County goals. The definition of greenways affects every aspect of the policy process, from determining vision, purpose, goals, objectives, marketing, funding techniques and partnerships. Comparing these definitions to our basic themes found in the literature, we can derive from the second [2] definition that greenways should be protected as part of the greater COSP. However, because it is not explicitly stated, taken out of context, it may leave a stakeholder to wonder if a greenway could be used for another purpose in the future. In the second [2] and third [3] definitions, emphasis appears to be on the value of greenways first for providing leisure and transportation. However, the third [3] definition, passive recreation is defined to include such activities as hiking, picnicking, or wildlife viewing. This definition is somewhat juxtaposed with the general themes of many definitions of greenways, as well as the stated definition of

open space in the COSP, because of its passive use nature, but does not explicitly imply natural resource preservation.

Finally, the width of the greenway seems to be an unusual way to express the biological function and conservation theme of an area. While wider corridors are generally preferred over narrow ones, Ahren (1995), Ndubisi et al (1995), and Lindsey et al (1997) suggest that species will use the greenways similarly to people, as corridors to travel from patch to patch. Like humans, species tend to travel the simplest path to get where they are going. In addition, some species may settle within the greenway corridor. This is dependent on species size and habitat needs (Register, pers. comm. 2008); for example white-tail deer (*Odocoileus virginianus*) have become so accustomed to living in an urban environment that they are able to live in greenway corridors.

The first definition, "linear open space that is established along a corridor that can be used for connectivity (trails) or water quality protection," appears to be closest to the basic themes in the literature, containing mention of linear corridors, waterway protection, and "connectivity".

For comparison, the Maryland Department of Natural Resources defines greenways emphasizing the protection of natural resources:

Greenways are natural corridors set aside to connect larger areas of open space and to provide for the conservation of natural resources, protection of habitat, movement of plants and animals and to offer opportunities for linear recreation, alternative transportation, and natural study. (Bryant, 2006)

Based on the three general themes of greenways definitions, this definition explicitly states the protection of the greenways ('set aside'), the emphasis first on natural resources preservation ('conservation of natural resources, protection of habitat,

movement of plants and animals'), and finally on the recreation and leisure of its citizens ('offer opportunities for linear recreation, alternative transportation, and natural study'). This definition seems to be in line with the goals of Wake County.

The clearly stated goals of Wake County Open Space are to protect natural resources. Open Space is in favor of partnering with like-minded government, non-profit, and private entities to accomplish this goal. To encourage progress in Open Space and greenway acquisitions a cohesive definition that is used throughout Open Space and Wake County government must be used to avoid confusion about objectives and the means to achieve the county's goals.

Other Administrative Issues

In order to help planning, Wake County needs good data and maps of greenways and their extent, functions, management status, and other aspects. There currently is not a single accurate source for planning and mapping/geographic information systems (GIS) data concerning greenways throughout Wake County. Attempts have been made, including the Triangle GreenPrint made by the Triangle J Council of Governments (TJCOG). Data is needed on the state, type, and quality of natural resources.

In 2000, 2004, and 2007 the citizens of Wake County approved bonds for \$91 million for open space and greenways. There is clearly support for open space within the county. The Wake County Greenways and Trails Consortium (the Consortium) recently formed under two staff members, one from the Wake County Parks, Recreation and Open Space Department (PROS) and one (formerly) with the Town of Morrisville Parks and Recreation. The Consortium is attempting to pull key stakeholders together in an effort to encourage communication concerning the development of greenways. To date, direct public involvement has not been developed. While included as part of the Open

Space and Parks Advisory Committee (OSAPAC), the public could be used to a much greater capacity than they are at the present time.

In order to not prejudice the success or the price of greenway and open space purchases, potential real estate purchases are kept confidential. In addition, the County has a fairly complicated system for joint ventures in purchasing open space with municipalities and other entities. More transparency may help ensure the eventual purchases to better meet the more explicit goals that will be developed as suggested above. Leadership in the County, its municipalities, non-profit organizations, and private ventures is very strong and driven to the success of providing open space for county citizens, and engaging them more in the process can help encourage more support from them.

Other general issues were discussed above in the literature review. One major issue important to Wake County includes cooperation among governments, since Wake purchases greenways or development rights, but local governments must develop them. Eventual management objectives and responsibilities for the greenways – developed or not – also are important. It is important to recognize that this is a complex problem with many possible approaches. But clearer goals, more community involvement and increased transparency should help meet the broad objectives of better implementation and maintenance of greenways.

GIS Analysis

GIS analysis has greatly enhanced our ability to assess and identify landscapes that may otherwise be extremely difficult and time consuming. By “layering” different data sets on top of one other, we are now more able to draw relationships between elements that once appeared unrelated, were in different data sets, departments, or levels of government. It should be continually emphasized however, that data sets and

conclusions drawn from them are only as good as the field verification to support them. GIS is only a tool to support planning and various other functions.

In February 2002, TJCOP, in collaboration with the Triangle Land Conservancy (TLC) and the N.C. Division of Parks and Recreation (DPR) developed the Triangle GreenPrint covering Chatham, Durham, Johnston, Lee, Orange and Wake counties. The GreenPrint is the culmination of a process to develop a database that included a series of maps showing where open space is located and how it is connected. The GreenPrint was used by the NC Department of Natural Resources (DENR) as a model in facilitating open space planning efforts in North Carolina as part of the Million Acre Initiative. As part of the Million Acre Initiative, DENR's One NC Naturally has formed a statewide database known collectively as the Conservation Planning Toolkit (CPT) that includes a compilation of information on open space from regional councils of governments and various North Carolina state departments and agencies.

Again, Figures 2A and 2B promote the need for field verification of data layers as they are a conglomeration from many different groups; however, from these figures we can see the connectivity of greenways and open space. Those areas that can receive funding to continue or finish established greenways should receive priority.

One of the largest undertakings of the Conservation Planning Tool (CPT) is the data layer that gives a rank to all biodiversity wildlife habitat areas (BWHA) with a "Relative Conservation Value" and was developed with a focus on areas of significant aquatic and terrestrial habitat, landscape function and connectivity. Wake County has a large amount of impervious surface. Using the BWHA layer to identify areas of important natural resource value in relation to areas of open space and existing corridors can increase connectivity. This information may assist current projects between Open Space and Wake County Environmental Services to assess or further field verify similar information. Figures 3A and Figure 3B demonstrate the BWHA's value for each panel

area of Wake County. Figures 4A and 4B then show the current layer of open space and greenways for the county and municipalities indicating the possible locations of interest for connectivity and high quality BWHA preservation.

All of these layers are dependent on outside sources for data. While the data layer for open space is maintained by Wake County and therefore accurate to the date of its metadata, it would behoove Open Space and local municipalities to conduct a full natural resource inventory of its greenway system. For Open Space, a short list of necessary information would include the location of trails within the county, notable flora and fauna, particular stream information, and access information.

Using the information garnered from the Conservation Planning Toolkit, provided by DENR, as well as other layers maintained by the County, it may be possible to use a method similar to that of the Town of Concord, NC in identifying spaces for greenway systems or connectivity among greenway systems (Conine, et al, 2004). The methodology required, included the following: (1) Identification of goals and objectives – some areas were considered more for their recreational value and others their conservation value; (2) Assessment of demand areas – areas in close proximity to residential, commercial, industrial centers were all identified to be most in need of connectivity; (3) Assessment of potential connectivity supplies – these include linear features that already exist that may link identified “demand areas”; (4) Assessment of site suitability – this included location within the floodplain, soil analysis, proximity to sewer line easements, parcel size, land ownership, future land use, and existing development (5) Assessment of accessibility; and (6) Delineation of corridors. In doing this, Concord was able to identify three locations that were suitable for greenways that met needs of both recreation and conservation, particularly along stream corridors, even though it has a very diverse landscape and population.

Public Involvement

Although the literature suggests that greenways can be built solely as natural corridors for wildlife traffic, clearly, as Ahern (1995) suggests, this is not a practical solution for most governments who must balance natural function with citizen needs, wants and expectations.

In creating the Greenways portion of the COSP, the consultant used many forms to gather public input. These included direct interviews with people using the greenways, surveys that were posted along the trail, small group meetings and other public involvement methods. Since the adoption of the COSP, two groups, Open Space and Parks Advisory Committee (OSAPAC) and the Wake County Greenways and Trails Consortium, organizations formed in an attempt to address the open space needs of the citizens. OSAPAC is appointed by the Wake County Board of Commissioners and their primary function is to formally approve land acquisition proposals, once they have been reviewed and approved by the Land Acquisition Review Committee (LARC). While these lands may include greenways at some point, currently only large tracts of open space, within designated watersheds, have been considered. These proposals are then brought before the board for formal approval and funding.

OSAPAC is made up of citizens who are tasked with the additional functions of reviewing Partnership Grant Program applications and developing strategies for the pursuit of permanent funding sources. Open space acquisition approval appears to dominate the function of this group. In researching this project, I discussed the greenways with an OSAPAC member who felt that greenways did not involve them at all. OSAPAC and the Consortium are of primary interest as they only function within the County, however, other groups with similar goals, such as TJCOP, Capital Area Metropolitan Planning Organization (CAMPO) and the NC Department of Transportation – Bike and Pedestrian Group are involved in greenways planning at a more regional level.

The Consortium has dedicated itself to “connectivity,” whether it is a greenway, trail, sidewalk, roadside right-of-way, or similar. Its goal revolves more around the idea of increasing communication among traditional departments like transportation, planning and zoning, and parks and recreation, as well as the possible private corporate and non-profit interests. Of the approximately 65 members: eight (12%) are from Wake County, 22 (33%) are from a municipality, one (1.5%) is from the City of Durham – a municipality outside Wake County, one (1.5%) is from the Research Triangle Park, an unincorporated area outside Wake County, eleven (17%) representatives are from different federal and state agencies, twelve (18%) representatives are from different non-profit groups, eleven (17%) representatives from various corporate or private entities, and no private citizens are involved.

Due to the format of the Consortium, which has its quarterly meetings during the day with attention focused on government actions, private citizen attendance may not be feasible or practical. However, in an ‘Affinity Exercise’ from December 2007 conducted by Mr. Suggs and Mr. D’Amico with those at the meeting (municipal parks leaders, county leaders, non-profit interests etc), it is clear that public involvement can be improved. The outcome of the affinity exercise indicates that the perception of greenways is that there is “a lack of will” among political leaders, “public perception of greenways” is potentially negative, or that “greenways are a western United States concept”.

Due to the lack of current public involvement using surveys, small group meetings, open house forums, etc, citizen needs for greenways in the area may differ from current planning assumptions. Wake County might find that if a needs assessment fully involving the public were conducted, the needs of those using or affected by greenways may be surprising in some areas. Gobster and Westphal (2004) evaluated the human dimension of greenway planning along the Chicago River to help determine citizens’ perceptions of current and future greenway development. The study revealed that

across all stakeholders the core set of values includes cleanliness, naturalness, aesthetics, safety, access and appropriateness of development. Necessary stakeholders for greenway planning should include residents who live near the respective greenway, those who visit the greenway, and those who would affect development in a professional capacity (including public land managers, non-profit recreation and environmental interest groups, private commercial recreation providers, and commercial and industrial land and water interests) (2004).

In specific areas of the county each of the groups may have more or less interest than in others. The Consortium has tried to pull many of these groups together; however, not all stakeholders have participated in this process, particularly members of the general public. Of the 65 member group, which addresses a number of those who affect development in a professional capacity, approximately 20 may appear at the quarterly meetings. In addition, the key group and one that is generally left out are citizens, including those who visit area greenways and those who may live adjacent to a proposed greenway.

OSAPAC, an eleven member committee of citizens appointed by the Wake County Board, is additionally tasked with proposing funding mechanisms for acquiring appropriate public interest in open space resources and building support with community organizations for an open space preservation program. Meetings are typically held on the fourth Monday of every month, from 11am to 1pm. While private citizens do not show up, there are usually representatives from county partners such as the Trust for Public Lands, Triangle Land Conservancy, local government staff and staff from other County departments in attendance (Ramsey, pers. comm. 2009). The Committee is open to any public input (Hutchinson, pers. comm. 2009) it may receive and does consider it carefully when making decisions.

Both the Consortium and OSAPAC need to expand their existing structures and processes to ensure that greenway planning in the area has broad-based support and delivers solutions that meet the needs of greenway customers. As the appointed body for Wake County, OSAPAC may need to be more active in pushing for citizen advocate participation in building support within their communities. Public education on the importance of open space and greenway connectivity could be implemented via the web, connecting the county, municipalities, and other non-profit organizations. Other steps may include increasing awareness by holding forums in various regions of the county to encourage citizen input and education. This would be a more dynamic and involved way to create dialogue on the process of acquiring open space and creating greenway. Finally, web-survey tools could be used encouraging citizens to describe where they live and if they see the potential for greenways in their area, or where they might want one.

By integrating citizens more fully into the greenway planning process through the Consortium, OSAPAC and other mechanisms, the county can ensure that the greenway system protects and enhances its natural resources and meets the compatible recreational needs of citizens while making most efficient use of County resources in terms of time, funding and use of land.

Financing

The affinity exercise done by the Consortium indicates that there is a perception among those in the parks and planning of greenways that the quantity of funds for greenways is low, competition for available funds is high, and long-term funding for operations and maintenance is not considered. As noted, in 2000, 2004, and 2007, Wake County issued open space bonds for \$91 million, which were approved by Wake County citizens. This money has primarily gone to the acquisition of land for open space along the primary watersheds identified by Open Space. Other money is spent in the Partnership Grant

Program, which is where funding for greenways mostly comes from. According to Tim Lisk, Open Space Program Coordinator, the County is not in the business of building greenways themselves. Another municipality, non-profit organization, or private entity would need to provide the labor for building the greenway, whereas the county would provide funds for land acquisition. For instance, Wake County and others have entered into a financial agreement with the City of Raleigh to build a greenway along the eastern side of the Neuse River.

As open space becomes more scarce and the competition to buy more fierce, in a county whose population is projected to be approximately 1.2 million people by 2025 (State Demographics, North Carolina, website accessed 21 Nov 08), land prices continue to rise. Most citizens may find the raising of taxes or requests for more bond money, displeasing – particularly from municipalities – because open space is somewhat intangible. Education on the need for financing, as well as increasing the transparency on how that money is spent may increase the chance for future funding from citizens in a mechanism different and more long lasting than bonds.

Conclusion and Recommendations

In the year of this project, 2008, the United States suffered a housing market crash, leading to multiple bank failures and overall market instability nationally, as well as globally. The downfall of the market has precipitated what economists are now formally calling a recession, one of the worst since the Great Depression. Banks, even with bailout money from the federal government, have not been lending to one another let alone outside entities, like governments, corporations, non-profits, etc. As with any recession, jobs are being lost, companies are going under and there are residual effects on government including a lowering of the tax base. Clearly, the recession has far reaching effects to even include greenways.

Wake County has done well in preserving open space. Although it has a stated goal within the Wake County Consolidated Open Space Plan to create and maintain greenways, it may be that this is no longer the case. Instead, the County may want to modify the three definitions of greenways into one that is simpler, such as: protection of natural resources along linear corridors that may provide recreational benefits to its citizens.

Additional assistance may need to be provided to smaller municipalities that may suffer the encroachment of larger ones, but do not have the staff or resources to find the connections and appropriate locations for greenways. Furthermore, departments in both the County and its municipalities must agree on areas in which to focus on open space and areas designated for other land use.

The County should encourage all stakeholders to work together to identify areas where greenways may be located. This could be done in forum and small group fashion, using new techniques in GIS and discovering where the linkages may need to be in a shifting human environment. Wake County should encourage greater participation in the planning and maintenance process by greenway users, property owners near greenways, and others. It should combine with local businesses, as well as non-profit partners, to continue to maintain greenways for the benefit of all.

When considering municipal and non-profit candidates for grant proposals consider greenways separately if they meet the similar conditions of the Partnership Grant Proposal. This would be similar to the changes in the conditions made under the NC Parks and Recreation Trust Fund grants for greenways, where it now accepts single site linear "parks" (Halubka, 2008). Other funding sources may be sought in "outside-the-box" areas, including funds from health agencies for exercise promotion, environmental and transportation funds for increasing access and use of alternative modes of transportation. Although unpopular, a use tax or surcharge may also be considered.

Overall, these combinations of enhanced planning and administration, better resource inventory and mapping, better consultation with the public and interest groups, and better management coordination among Wake County and other government officials can help development of the Wake County greenway system, and ensure that it provides the benefits the County and its citizens desire.

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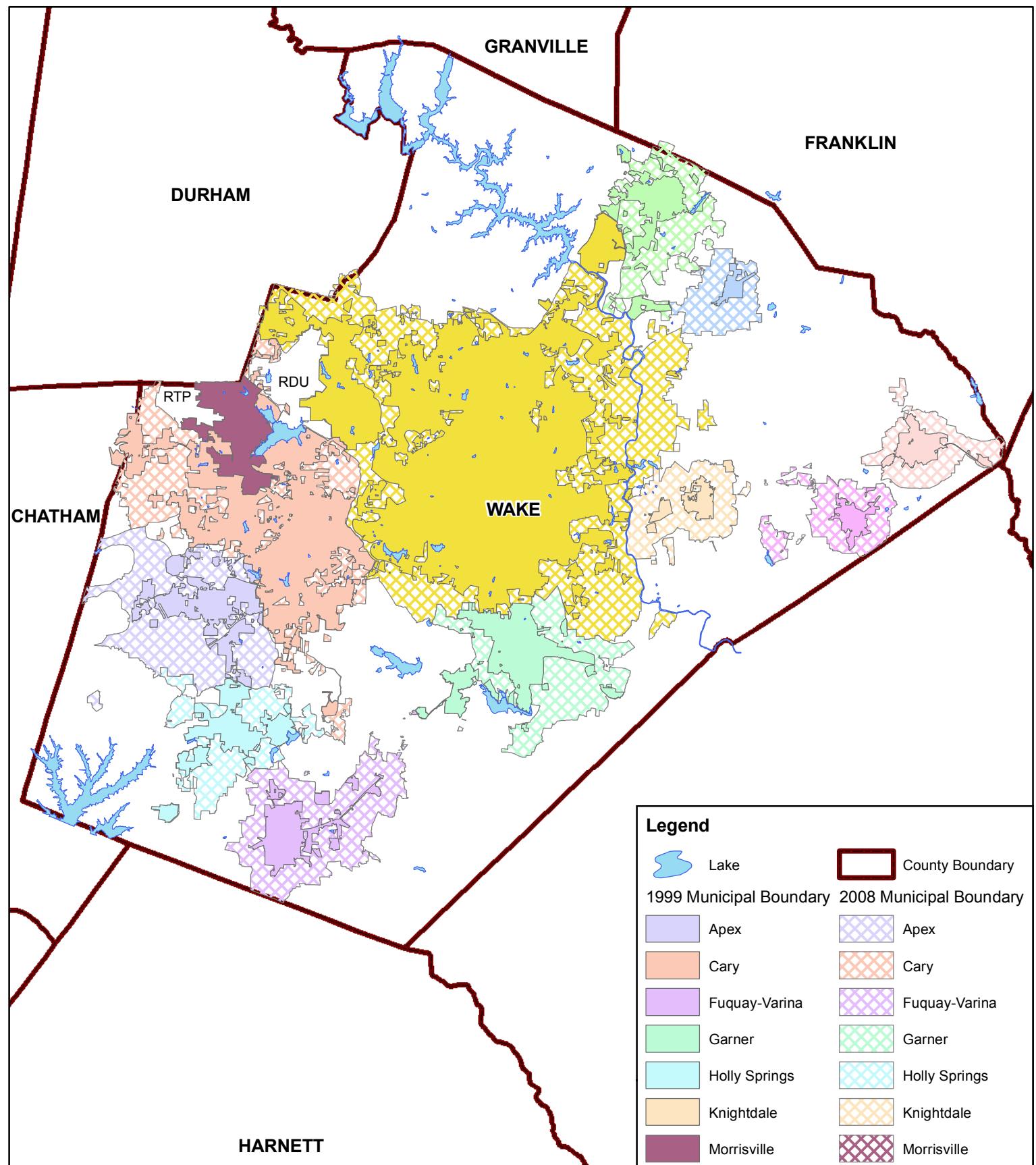
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Figures – attached



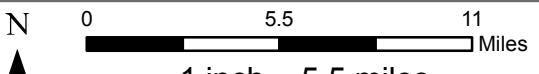
Figure

1

Wake County Municipal Boundaries 1999 and 2008

Sources: NC CGIA, Wake County

N



Created By: C. Bukowy
Date: November 2008



