Appendix B: Wake County Mitigation for Secondary and Cumulative Impacts

Wake County lies within Central North Carolina and includes 12 municipalities. Wake County is consistently ranked as one of the best places in the United States in which to live, work, and raise a family. This area offers business and industry, higher education, historic attractions, arts and culture, and recreation and leisure services that provide a quality lifestyle for many Wake County residents, whether they prefer rural or urban settings. The size of the County is 860 square miles. From east to west, it measures 46 miles; from north to south, it measures 39 miles. The County is considered to be in a transitional zone between the Piedmont uplands and the coastal plain and, therefore, within the fall zone. The Neuse River and its tributaries drain about 80 percent of the County, and the southwestern part is drained by tributaries of the Cape Fear River.

To ensure the quality of life for its citizens and continue to make it an attractive place to live and raise a family, Wake County is managing its growth using innovative planning approaches and techniques. The County recently completed a series of planning documents to ensure that growth occurs in a manner that will protect environmental resources and meet the needs of its citizens. These Wake County documents include the Unified Development Ordinance, Comprehensive Watershed Management Plan, Land Use Plan, Stormwater Management Task Force Report, Consolidated Open Space Plan, Growth Management Strategy, Transportation Plan, Comprehensive Groundwater Investigation, and Air Quality Task Force Report.

The County is developing and improving programs to implement these management plan recommendations. For example, the County has implemented programs to preserve open space, protect floodplain and riparian buffers, and maintain water quality through aggressive erosion and sediment control and stormwater programs.

This appendix identifies and discusses these County programs. Since Federal and State programs were described in Section 6 of the Secondary and Cumulative Impacts (SCI) Management Plan, these descriptions have been omitted here. While Wake County does not develop infrastructure, it has jurisdiction over land outside Wake County municipal limits but within municipal planning areas or urban service areas. Thus, the County's programs are important components of a program to protect against SCI related to growth until these areas are annexed. The programs described below mitigate the potential SCI discussed in Section 5.

Local Regulations and Programs

Environmental protection is a cornerstone value in Wake County. The County has developed several programs to meet its internal goals to provide a quality life for its citizens. To meet those goals, Wake County established a Consolidated Open Space Plan that includes protection of important habitat areas, growth management strategy to protect water quality, and land use plans that encourage growth in certain areas and discourage growth in other areas. The County also reviewed its ordinances to allow cluster development to encourage higher density in parts

of a given development and greater preserved open space in other areas. In addition, the County developed a riparian protection program, floodplain program, erosion and sediment control program, and stormwater program to protect water quality and instream habitat. Table 1 summarizes the programs that impact development procedures, and Table 2 illustrates the environmental resources that various programs protect.

The following summary addresses relevant regulations and programs from an environmental management and land use policy analysis perspective. These local initiatives to prevent impacts to natural resources will offset future impacts resulting from growth.

TABLE 1
Summary of Existing Local Programs

Program	Summary
Riparian Buffers	In Water Supply Watersheds: (UDO Article 11-2) – (Neuse River in Study Area) • Buffer requirements: – 100 feet from the flood pool elevation of the water supply impoundment (measured perpendicular to the shoreline). – 50 feet from the normal pool elevation of any non-water supply impoundment with a drainage area of 25 acres or more – 100 feet along perennial streams on the most recent edition of U.S. Geological Survey (USGS) topographic maps. Inner 50 feet (Zone 1) is undisturbed vegetated. Outer 50 feet (Zone 2) is stable vegetated. – 50 feet along non-perennial watercourse, channel, ditch, or similar physiographic feature with a drainage area of 25 acres or more – 30 feet from the normal pool elevation of a non-water supply impoundment with a drainage area of at least 5 acres but less than 25 acres – 30 feet along each side of a watercourse, channel, ditch, or similar physiographic feature with a drainage area of at least 5 acres but less than 25 acres • Minimum building setback from all buffers is 20 feet except the 100-foot perennial stream buffer, which has no required setback. • The inner 50 feet (Zone 1) of the 100-foot buffer required along perennial streams must either be platted as part of a development lot and included within a conservation easement, or set aside as a reserved conservation parcel (UDO 11-24). In Resource Conservation Overlay District 1: (UDO, Article 3-72) • Buffer requirements: – 100 feet required around special water impoundment (Special watershed: a watershed area in Wake County zoning jurisdiction that contains a special water impoundment(s) that provide(s) significant wildlife habitat, characteristics unique to Wake County, public recreation, or potential for future recreation) – 50 feet along each side of a stream or impoundment draining 25 or more acres of land – 25 feet along each side of a stream or impoundment which drains between 5 and acres • Vegetation within buffers will be undisturbed except for specific uses (i.e., boat docks, greenways, and drainage facilities or utilities, among others). • Minimum building setback from buffer is 20 feet.

TABLE 1
Summary of Existing Local Programs

Program	Summary
	In Resource Conservation Overlay District 2 (UDO 3-73) • 100 feet along perennial streams as shown on Wake Co Surface Water Mapping Project Neuse River buffers apply throughout County
Floodplain Protection (UDO Article 14)	In floodways and the 100-year floodplain: • No new structures shall be constructed (14-20-2). • No fill shall be placed in floodway unless a no-rise certification is approved. • Encroachments in floodway are limited to roads, bridges, culverts, or water-dependent structures, etc., and no-rise certification is required. • In special flood hazard areas (non-Federal Emergency Management Agency [FEMA] potential flood areas based on the location of flood hazard soils), areas that drain 5 acres or more usually require a flood study if there is an encroachment into the flood hazard soils.
Erosion and Sediment Control Program (UDO, Article 10)	Wake County's sediment and erosion control practices support an overall stream protection plan by limiting in-stream suspended sediment and sediment deposition. The erosion and sediment control strategy is discussed at a pre-construction conference through the permit and plan review process, which also allows for the review of stormwater controls. Permit is required for land-disturbing activity over 1 acre. Wake County does not allow any land-disturbing activity in proximity to a lake or natural watercourse unless erosion and sedimentation control measures are present. An undisturbed 50-foot buffer shall be used provided the undisturbed zone is of sufficient width to confine visible siltation within 20 feet of the undisturbed zone nearest the land-disturbing activity. Silt fences and construction entrances are required on all development sites which fall under the one-acre threshold for requiring an erosion and sediment control plan. Wake County requires the sediment and erosion control plans to use a custom basin that is sized according to drainage area related to erosion and sediment control practices, and limits the time of exposure (Protective cover required within 15 working days). Wake County requires that plans identify areas subject to severe erosion, limit time of exposure, and limit exposed area. Development on individual lots less than one acre must take all reasonable measures to protect public and private property from damage. Development in HQW zones must limit uncovered areas to 20 acres at any given time. If local government has been issued an MS4 permit, they must ensure riparian areas that are to be protected through Neuse rules are recorded on the plat. Wake County also encourages contractor training related to erosion and sediment control.
Stormwater Management (UDO Article 9)	Developers must manage residential runoff so that after development the site will not exceed the curve numbers proscribed in Article 9, Part 2 of the UDO. Calculations must be based on a precipitation depth of 3 inches over a 24-hour period. Stored water must be drained over a period of not less than 2 days or more than 5 days. A stormwater credit system has been established to provide incentives to implement better site design and locate new development in a manner that causes less impact to aquatic resources. Approved methods include disconnected impervious surfaces, reforestation, and cluster and open space subdivisions.

TABLE 1
Summary of Existing Local Programs

Program	Summary
	State stormwater-management requirements implementing the Neuse River Basin Nutrient-Sensitive Waters Management Strategy apply. In March 2003, the Phase II Federal National Pollutant Discharge Elimination System (NPDES) Stormwater Compliance Application was submitted, and a draft permit has been received. The Phase II program will regulate discharges of stormwater to surface waters and will require control of suspended solids, fecal coliform and nutrients countywide if and when imperviousness exceeds 24 percent. The North Carolina Division of Water Quality (DWQ) current Phase II regulations require that the post-development runoff volume be equivalent to pre-development runoff volume. Impervious surface limitations in its water supply watersheds range from 6 percent to 36 percent for non-residential areas, and up to 30 percent for residential areas. Under Phase II, any development that exceeds 24 percent imperviousness will be required to implement stormwater BMPs. Wake County has an active stormwater education program. The County participated with other communities in the Neuse River Basin to air television ads regarding the proper use of lawn chemicals and the importance of proper automobile maintenance.

TABLE 2
Summary of Existing Local Programs and the Environmental Resources They Protect

Program	Terrestrial Habitat Protection	Aquatic Habitat Protection	Water Quality and/or Quantity Protection	Air Quality Protection
Growth Management Strategy	X	X	X	X
Land Use Planning	X	X	X	X
Unified Development Ordinance and Zoning Process	X	X	X	X
Consolidated Open Space Plan	X	X	X	X
Riparian Buffers and Floodplain Protection	X	X	X	X
Water Supply Watershed Protection	X	X	X	
Erosion and Sediment Control Program	X	X	X	
Stormwater Program and Impervious Surface Limitations	X	X	X	
Air Pollution Prevention				X

Wake County Growth Management Strategy

Wake County has a strategic location in the Research Triangle, an excellent quality of life that consistently ranks high in national surveys, and an exciting mix of urban, small town, and rural lifestyles. The Research Triangle Park (RTP) and the Raleigh-Durham International Airport act as major growth engines not only for Wake County, but also for the entire surrounding region. The County has grown by almost 100,000 people since 2000, adding an average of 67 persons per day and bringing the July 2004 population to 725,902. The 2015 population is close to one million.

By early 2000, the County and the 12 municipalities were facing significant challenges resulting from rapid growth, including traffic jams, overcrowded schools, and loss of open space and natural areas. Communities grew closer to their neighbors as sprawling development extended across the County. Increasingly, county and municipal officials saw the need for a more comprehensive effort to address growth concerns in Wake County. The Wake County Growth Management Task Force was created at the initiative of the Wake County Board of Commissioners to develop a countywide consensus for growth management. Building on existing collaborative approaches, they sought to develop a new, comprehensive growth management strategy that recognized both the interdependence and the uniqueness of each of the communities. Local officials realized that effective regional solutions would only occur through the cooperation of all the governments working together in an open and participatory process.

Wake County's Growth Management Strategy, which was drafted in 2002, lays the foundation for achieving many of the County's goals and objectives. The Growth Management Strategy provides a framework for incorporating continuing projects and new initiatives within a larger management strategy, and serves as a guide for long-range planning, revision of municipal development regulations and review processes, and infrastructure investment.

The Wake County Growth Management Strategy report identifies and prioritizes specific strategies. These strategies are ranked as high priority:

- Community Character
  - Preserve and enhance Wake County's tree canopy
  - Evaluate regulations to protect and enhance community aesthetics

- Schools
  - Evaluate regulations and incentives to create more diverse communities
  - Obtain better technical information from stakeholders

- Transportation
  - Ensure planning and regulations include land use/transportation goals and reduce vehicle miles traveled
  - Work cooperatively to coordinate local transportation programs

- Open Space
  - Establish a permanent, dedicated funding source to acquire open space
  - Review a model conservation subdivision ordinance

- Water/Sewer
  - Continue to work cooperatively to merge water and sewer utilities
  - Examine uniform natural resource protection standards and incentives
  - Implement demand management strategies
- Cost of growth
  - Work cooperatively to develop a joint funding strategy to pay for growth
  - Prepare a State legislative agenda to enable a range of cost-recovery tools

The County periodically reconvenes the Growth Management Task Force to evaluate progress on the Strategy's goals.

Open Space Preservation

Open space helps minimize the overall level of imperviousness within a watershed. Open space that preserves wetlands and riparian areas also serves to filter pollutants from upland (upstream and draining to the open space) developed areas within a watershed. Open space can serve other ecological and human functions, such as providing high quality habitat to allow for greater species diversity, and passive and active recreation opportunities for the area's citizens. In Wake County, open space protection can provide additional land around the municipalities that serves as wildlife corridors between important habitat areas within the municipal boundaries.

Wake County has several programs to preserve open space. These include open space plans and initiatives, land use plans, and a unified development ordinance (UDO). In addition, programs such as the Voluntary Agricultural Districts help preserve the County's rural character. Each of these initiatives is described in greater detail below.

Wake County Consolidated Open Space Plan

The purpose of Wake County Consolidated Open Space Plan accepted by the Board of Commissioners on March 17, 2003 and updated in September of 2006, is to protect and conserve County land and water for current residents and future generations. Open space is defined 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:

- Preservation of natural resources
- Managed production of resources (forest and farm land)
- Outdoor recreation
- Preservation of historic and cultural property
- Protection of scenic landscapes

The Wake County Consolidated Open Space Plan sets forth a plan of action to identify and protect the County's natural resources, historic areas, and other special environmental and cultural features. The purpose of the Plan is to identify, evaluate, and prioritize resources, establish preservation goals, and guide the implementation of an open space program. One goal of the Plan is to eventually protect a minimum of 30 percent of the county's land area, or roughly 165,000 acres. The County has partnered with each of its 12 municipalities to support

open space planning. The County has awarded monetary grants and asked that each municipal government devise and adopt a local open space plan.

One of the main goals that was established for the Open Space Plan prior to its development was the protection of water quality and important ecological features. The open space planning process was integrated with the watershed planning process at the inception of both plans. The Watershed Management Plan used a geographic information system (GIS) model to identify and prioritize watershed areas for protection within the county based on important human use and ecological use perspectives. For example, stakeholders identified drinking water supplies as the most important watershed use. Other important uses included rare species habitats. This feedback from the stakeholders was used to prioritize small watershed areas that warranted additional protection. In the study area, the Swift Creek and Little River watersheds were prioritized for open space preservation.

Wake County has received North Carolina Clean Water Management Trust Fund (CWMTF) money to acquire and protect riparian buffer and floodplain areas within Marks Creek, Swift Creek, and Cedar Fork Creek. The Clean Water Management Trust Fund and Natural Heritage Trust Fund were used to expand Umstead State Park and Clemmons Educational State Forest.

The Wake County Open Space System currently contains an estimated 55,719 acres of protected open space as of May 30, 2006, or roughly 10 percent of the total county land mass. Twenty-seven thousand acres of land have been identified for targeted acquisition made on the basis of lands that protect water supply, limit exposure to flooding, support water contact recreation, improve access to outdoor resources, and protect wetlands and unique plant and animal species native to the County through GIS methodology. Prohibiting future development and building in flood-prone areas can preserve an estimated 60,000 acres of land. Innovative methods for subdividing and developing land could conserve as much as 22,000 acres of land in future years.

Final cost estimates to acquire the land to implement the Open Space Plan were developed as part of the plan. It was estimated that Open Space Program costs would vary as a function of the methods of preservation (outright purchase, conservation easements, stream buffers, etc.) Outright acquisition of all parcels identified by the Open Space Plan will cost $300 million dollars according to the findings of a Blue Ribbon Committee convened by Wake County in 2005. Voters in Wake County passed bond referendums in 2000, 2004, and 2007 totaling $91 million to provide funds for parks and open space. The County continues to use these funds to purchase and preserve significant tracts of open space. The funds are often used to provide the "matching" funds portion of grants.

Open space will be acquired through various means. Some examples of acquisition methods include:

- Outright purchase by Wake County
- Negotiation of a conservation easement or other agreement between Wake County and the property owner
- Land dedication requirements, such as the County's stream buffer rules
- Donation or bargain sale by property owners for Federal and State tax incentives

- Cooperative arrangements with other governmental agencies

Fee simple acquisition is the most common method for open space preservation.

Voluntary Agricultural Districts

The Wake Soil and Water Conservation District Board of Supervisors has created a Voluntary Agricultural District Program in Wake County. This creates additional open space within the County. The purpose of this program is to:

- Increase the visibility of farm communities in the county
- Focus more attention on the importance of these communities to the county
- Work with the county to make it easier for those who wish to stay in farming to continue doing so
- Advise the county on issues affecting agriculture
- Give farm owners a greater voice in local government decisions affecting their communities
- Reduce conflicts between farm and non-farm land uses

The guidelines for this program are covered by State Statute (NCGS 106-735 through 106-743, *Farmland Preservation Enabling Act*). Key components of the Wake County Voluntary Agricultural program are:

- A seven-member Agricultural Advisory Board will be appointed by the County Board of Commissioners to manage the program: five farm owners, one agribusiness representative, and one Soil and Water Conservation District Supervisor.
- The Advisory Board will consider applications from landowners to form agricultural districts, conduct hearings on public projects (roads, schools, etc.) that might negatively effect agriculture in a district, and advise the county on other issues affecting local agriculture.
- Farmers wishing to participate in the program will sign a simple application indicating that they plan to remain in farming for the next 10 years. They may withdraw from the program at any time**.**
- Signs will be erected along the roads in Agricultural Districts identifying them as such.
- Participants in the program are exempt from paying assessments for water/sewer lines extended past their property.
- All purchasers of land near agricultural districts are notified that they should expect dust, machinery noise, animal waste/chemical odors, and other similar elements associated with living in a farming area.

Agricultural Tax Relief Program

The Wake Soil and Water Conservation District Board of Supervisors works cooperatively with landowners to encourage farmland preservation and protection. This voluntary program, which was established in 1998, includes efforts to offer proper estate planning to farmers, and to

protect farms through the purchase of development rights. The latter program has received limited funding but has been successful where funding was available. In addition, the County provides tax relief to qualifying farm owners to help offset tax burdens as property values rise in the county. Typically, as an area develops, property values rise and agricultural use of the land becomes economically unfeasible. The tax relief program helps address this issue.

Working Lands Task Force Recommendations

The Working Lands Task Force evaluated the value of incorporating working lands (farms and forest) into the County's open space program. The Task Force developed four recommendations:

- Acquisition – Wake County should purchase development rights in priority open space corridors on a voluntary basis
- Investigative – Wake County should evaluate ordinances, policies, and laws which hinder the operation of working lands
- Informational/Educational – Wake County should assist owners of working lands in evaluating tax laws and other strategies that desire to protect their working lands
- Regulatory – Wake County should promote preservation of land through ordinances. For example, density bonuses could be given if high amounts of open space are preserved which would allow land owners to develop a portion of their property while maintaining the majority of it as a working land.

Wake County Land Use Plan

Land use plans contain the County's official policy on the form and pattern of future development within its jurisdiction. These plans are used to direct growth by guiding County staff and official boards in the development of new standards and ordinances and in the evaluation of rezoning, subdivisions, and site plans.

Wake County's Land Use Plan was updated in 2003. Several other area land use plans exist, including: East Raleigh/Knightdale, Fuquay/Garner, Northeast, Southeast, Southwest, and a land management plan for Swift Creek. Specific land use planning goals established by Wake County relate to managing growth to prevent urban sprawl, protect natural resources, and prevent environmental degradation. These goals include:

- Guide quality growth throughout the County in conjunction with affected local governments
- Encourage growth close to municipalities, to take advantage of existing and planned infrastructure, such as transportation, water, and sewer facilities
- Encourage the development of communities that provide adequate land for anticipated demands, in a pattern that allows a mixture of uses
- Encourage maintenance of: open space, scenic aspects of rural areas, entranceways to urban areas, and transition areas between urban areas

- Encourage the conservation of environmentally significant areas and important natural and cultural resources
- Allow owners of significant farmlands and forest lands the opportunity to maintain the productivity of their land
- Ensure that the land use plan and transportation plan mutually support each other
- Ensure that the County always protects the property rights of landowners
- Maintain the quality and develop the capacity of surface water resources, using them for recreation sites, when appropriate
- Prevent the contamination and maintain the capacity of groundwater resources
- Ensure that local governments provide adequate, properly located land for recreational and leisure opportunities

To achieve these goals, Wake County developed its land use plan to direct growth to growth corridors. Lower-density development is planned in water supply watersheds to protect the drinking water supply and important habitat areas. For example, the Little River watershed and Falls Lake watershed will lie largely under the County's jurisdiction; the urban service areas for local governments largely do not extend into these watersheds. The policies help protect the drinking water supply and habitat, and also reduce air quality impacts by concentrating the population in areas near employment and commercial centers.

Generally, the land use plan is implemented in the rezoning process to ensure that an area is rezoned in keeping with the land use plan. The Zoning Ordinance sets forth two criteria for approving either a text amendment or a rezoning:

- *Is it consistent with the Wake County Land Use Plan?*
- *Would it otherwise advance the public health, safety, and general welfare?*

Zoning Ordinance

Wake County finalized their UDO, which consolidates development regulations into a single document that allows jurisdictions to respond uniformly and consistently to development proposals while promoting the health, safety, and general welfare of its residents in 2006. This uniform application of policies and regulations can occur because a UDO combines ordinances for subdivision development, zoning, groundwater protection, sediment and erosion control, and stormwater management into one document. Wake County plans to implement the UDO in two modules, Zoning and Subdivision, to provide an in-depth review and approval of substantive regulatory changes to each segment.

Comprehensive Watershed Management Plan

In May 2001, the Wake County Board of Commissioners appointed a Watershed Management Task Force to recommend immediate strategies to protect its sensitive watershed areas to ensure clean drinking water for the future; reduce flooding and erosion; preserve wildlife habitats; and improve and expand swimming, hiking, fishing and other recreational opportunities for the community. That task force, chaired by Commissioner Kenn Gardner, included developers, environmental groups, elected officials and other stakeholders. The group met monthly for 18

months to study protection strategies and recommend a plan that could be implemented countywide to protect and preserve sensitive stream and watershed areas.

The Board of Commissioners accepted the Watershed Management Plan on January 21, 2003. Wake County Watershed Management Plan implementation actions are presented in Table 3.

TABLE 3
Wake County Watershed Management Plan Implementation Actions and Status

Area	Implementation Action	Status/Notes
Riparian Buffers	Increase stream buffers to 100 feet on perennial streams in WSWs as a first step, then in other priority watersheds as part of the UDO rewrite	Implemented
Floodplain Protection	Prohibit development and filling in the 100-year floodplain	Implemented
Stormwater Runoff	Limit imperviousness or control overall stormwater runoff volume in priority and healthy watersheds. Review all existing development ordinances to remove impediments to reducing impervious surfaces.	Impervious surface limits exist in water supply watersheds
	Encourage use of low-impact development site planning principles	UDO includes credit system to provide incentives for better site design
	Use offset fees if development exceeds impervious surface limits	
Conservation Subdivisions	Review regulations to allow conservation subdivisions. Where there is municipal water and sewer, a minimum of 30 percent of open space should be preserved to qualify as a conservation subdivision	UDO (Section 6-23) grants a 20 percent density bonus to subdivisions that preserve 65 percent or more as open space
Open Space Preservation	Pursue the methods to preserve open space outlined in the Consolidated Open Space Plan.	The County is pursuing these recommendations by expanding its riparian buffer and floodplain protection rules, and developing a Conservation Subdivision ordinance. Voters passed bond referendums in 2000, 2004, and 2007 totaling $91 million to provide funds to purchase additional open space

TABLE 3
Wake County Watershed Management Plan Implementation Actions and Status

Implementation Action	Status/Notes	
Erosion and Sediment Control	Cross-train inspectors from other divisions to identify erosion problems	
	Update the erosion and sediment control manual to incorporate new technologies	
	Provide education programs for contractors and residents	Information on silt fences and entrance way requirements developed
Septic Systems	Improve the data monitoring system for septic systems, creating a database for trend analysis	
	Inform homeowners of locations of well and septic systems, and provide compact disks (CDs) or videos regarding well and septic system maintenance to people buying houses with septic system	Implemented
	Require certification for septic system installers	The County's legislative delegation have endorsed efforts for bill passage to support this requirement
	Conduct a pilot study to obtain better information on the causes of septic system failure and failure rates. If the study indicates that a management entity would be appropriate to assist homeowners on maintenance and operation practices for their septic systems, formulate recommendations relative to such a management entity	The field evaluation of septic systems has been completed
Stream Restoration	Actively pursue stream restoration, enhancement, and preservation for healthy, impacted, and degraded streams and wetlands through collaboration and partnerships	Have partnered with other groups to obtain CWMTF funds to purchase stream corridors
	Develop a high-level funding program to implement the watershed management plan	The County has a evaluated a stormwater utility fee
	Develop an in-stream monitoring program to continue to characterize the quality and quantity of the County's water resources	The County is currently reviewing this recommendation
	Work with Environmental Education and Environmental Information Providers to develop effective programs and services for a variety of audiences on watershed science, data, and trends; pollution sources and their environmental, economic, and societal impacts; and BMPs and stewardship actions that protect and sustain surface water resources	

Riparian Buffers and Floodplain Protection

Riparian buffers help protect water quality by filtering pollutants, stabilizing streambanks, and moderating stream temperature through shading provided by mature vegetation. Thus, they

are effective in helping to control sediment loading as well as stormwater runoff volume. In addition, buffers can provide ecological functions by protecting wetlands, providing food and habitat for aquatic and streamside organisms, and providing wildlife corridors. Finally, riparian buffers can help protect floodplains and downstream property.

The width of a buffer should be based on the buffer's designed function. For example, narrower buffers provide adequate tree canopy to shade a stream and moderate instream temperatures, while wider buffers are needed for wildlife corridors. In addition, characteristics of a given site impact buffer function. For example, steeper slopes along a stream require wider buffers to obtain the same level of pollutant removal as a site with gentler slopes.

Buffer zones that include forested and grassed areas are considered desirable, because the grassed area helps maintain the buffer integrity by encouraging sheet flow and preventing rill/gully erosion and bypass of the buffer. DWQ has convened two workgroups that included representatives of the scientific community to review riparian buffer widths. These groups recommended a two-zone buffer with a total width of 50 feet to help reduce nutrient and sediment loading. Nutrients and sediment are the two most important pollutants to address within the County's jurisdiction.

Floodplains were designed to carry water during storm events. Limiting development in the floodplain minimizes the amount of property damage that occurs during storms and can save lives. In addition, protecting the floodplain helps protect the riparian corridor and provides the same functions as riparian buffers. The following sections provide more information on the County's riparian buffer and floodplain protection programs.

Wake County Riparian Buffers

Wake County's Riparian Buffer Protection Program meets or exceeds the Neuse River Nutrient Sensitive Waters (NSW) rules (15A North Carolina Administrative Code [NCAC] 2B.0233), which require that existing riparian buffer areas be protected and maintained on both sides of intermittent and perennial surface waters. A 50-foot buffer consisting of 30 feet of undisturbed forest and 20 feet of grassed and/or vegetated area must be maintained. The rule does not require restoration of buffers that no longer exist. Perennial and intermittent stream determinations are to be based on soil survey maps prepared by the Natural Resources Conservation Service or the most recent version of USGS topographic maps (7.5 minute quadrangle). The rule provides a number of exemptions. Wake County implements the Neuse River rules throughout the County, including the Cape Fear River Basin.

According to Article 11-2 of the UDO, the following buffer requirements apply in WSWs:

- 100 feet from the flood pool elevation of a water supply impoundment (measured perpendicular to the shoreline) with a drainage area of 25 acres or more
- 50 feet from the normal pool elevation of a non-water supply impoundment with a drainage area of 25 acres or more
- 100 feet along perennial streams on the most recent edition of USGS topographic maps. Inner 50 feet (Zone 1) is undisturbed vegetated. Outer 50 feet (Zone 2) is stable vegetated.
- 50 feet along non-perennial watercourse, channel, ditch, or similar physiographic feature with a drainage area of 25 acres or more

- Minimum building setback from all buffers is 20 feet, except the 100-foot perennial stream buffer, which has no required setback.
- The inner 50 feet (Zone 1) of the 100-foot buffer required along perennial streams must either be platted as part of a development lot and included within a conservation easement, or set aside as a reserved conservation parcel.

According to the UDO, Article 3-72, in a Resource Conservation Overlay district, the following buffers apply:

- 100 feet required around special water impoundment (Special watershed: a watershed area in Wake County zoning jurisdiction that contains a special water impoundment[s] that provide[s] significant wildlife habitat, characteristics unique to Wake County, public recreation, or potential for future recreation).
- 50 feet along each side of a stream or impoundment draining 25 or more acres of land
- 25 feet along each side of a stream or impoundment that drains between 5 and 25 acres
- Vegetation within buffers will be undisturbed except for specific uses (i.e., boat docks, greenways, drainage facilities, or utilities, among others).
- Minimum building setback from buffer is 20 feet.

Floodplain Development Regulations

Regulating development in floodplains serves two main purposes:

- Limiting damage from storms
- Preventing water quality degradation

The County's ordinances that limit development within the floodplain exceed FEMA requirements. In recognition that flood hazard areas are subject to periodic inundation (flooding), which may result in the loss of life or damage to property as well as other adverse effects, these areas are subject to regulations designed to:

- Restrict or prohibit uses dangerous to public health, safety, and property when flooded
- Require that uses vulnerable to floods be protected against flood damages at the time of initial construction
- Preserve the flood-carrying capacity of floodplains
- Control filling, grading, dredging and other obstructions that may increase flood damages
- Prevent or regulate the construction of flood barriers that will divert floodwaters and/or increase flood hazards elsewhere
- Protect individuals from purchasing lands that are unsuitable for their intended purposes because of flood hazards
- In floodways and the floodway fringe, which are the two elements that compose the 100-year floodplain:

- No new structures shall be constructed or placed in the 100-year floodplain, with few exceptions (i.e., water-dependent structures)
- No fill shall be placed in the 100-year floodplain with few exceptions (i.e., onsite cut and fill balance), and no-rise certification is required
- Encroachments in floodway shall be limited (roads, bridges, culverts or water dependent structures, etc.), must be flood-proofed, and cannot raise the base flood elevation above the elevation with floodway as established by the Floodway Data Tables

Wake County regulates additional areas outside the 100-year floodplain that still have potential for flooding. Special Flood Hazard Areas identified on Flood Insurance Rate Maps (FIRMs) provided by the National Flood Insurance Program arm of FEMA, as well as Flood Hazard Soils Areas identified in *The Soil Survey, Wake County, North Carolina*, are regulated by Wake County. Encroachments (fill material, roads, buildings, etc.) in these areas are discouraged, and when allowed, must meet rigorous design standards. In addition it must be proven (usually through a flood study) that the encroachment does not adversely affect existing or proposed onsite structures or offsite properties.

In FEMA-identified Special Flood Hazard Areas where a detailed flood study has already been performed, 100-year flood limits and elevations as well as the floodway have been delineated; therefore, an additional flood study is not needed. Where FEMA has not performed a detailed flood study, the entire floodplain area is considered to be a floodway until a flood study is performed at the applicant's expense.

Water Supply Watershed Protection Regulations

A large portion of Wake County is within WSWs. Wake County has developed watershed protection overlays and limitations on impervious surface areas and density associated with these areas which are presented in Article 3-74 of the Wake County Zoning Ordinance.

In WS-II non-critical areas and WS-III critical areas, impervious surface limitations of 12 percent are applied, but these impervious surface limits are not applied to cluster and open space subdivisions if overall density does not exceed one lot per acre. This ensures that low-impact development and conservation subdivisions, which help maintain the predevelopment hydrograph, are not discouraged. For non-residential development and higher-density residential development, the impervious surface coverage shall not exceed 12 percent.

In WS-III non-critical areas and WS-IV protected areas, impervious surface limitations of 24 percent are applied, but these impervious surface limits are not applied to cluster and open space subdivisions if the development is served by curb and gutter, residential lots of at least 20,000 square feet in area, and cluster subdivisions with an overall lot density of no more than 2 lots per acre. This policy ensures that low-impact development and conservation subdivisions, which help maintain the predevelopment hydrograph, are not discouraged. For non-residential and higher-density residential developments, the impervious surface coverage shall not exceed 24 percent.

In WS-IV protected areas, impervious surfaces cannot exceed 30 percent. In all R-40W and R-80W zoning, non-residential development is limited to 12 percent and 6 percent imperviousness respectively.

Erosion and Sediment Control

Sedimentation is the leading cause of stream degradation in North Carolina. Prevention of soil loss protects aquatic life habitat and maintains stream water quality. Erosion and sedimentation control requirements are presented in the Wake County Erosion and Sedimentation Control Ordinance. Erosion and sediment control plans must be submitted for all activities that disturb 1 acre or more. The Erosion and Sediment Control Program has eliminated a substantial amount of sediment transport to local streams.

Wake County has six basic control objectives for the Erosion and Sediment Control Program:

- Identify especially vulnerable areas that are subject to severe erosion and ensure they receive special attention (i.e., avoidance of steep slopes)
- Limit time of exposure (maximum exposure time is 15 working days)
- Limit exposed area (plan and conduct activities to minimize the size of the area to be exposed at any one time)
- Control surface water (control surface water originating upgrade of exposed areas to reduce erosion and sediment loss during the exposure period)
- Control sedimentation (prevent offsite damage from sedimentation)
- Manage stormwater runoff (control the velocity at the point of discharge to minimize accelerated erosion of the site and increased sedimentation to the stream)

Wake County's sediment and erosion control practices support an overall stream protection plan by limiting in-stream suspended sediment and sediment deposition. The erosion and sediment control strategy is discussed at a pre-construction conference through the permit and plan approval process. This process also allows for the review of stormwater controls. The pre-construction conference provides the County with an opportunity to educate developers about the requirements for effective erosion and sediment control.

Wake County requires adequate erosion control measures, which can include silt fencing, along with perimeter ditches or perimeter swales, if practical. The County requires the sediment and erosion control plans to use the proven latest technology related to erosion and sediment control practices. The sediment and erosion control plans must use a custom basin, which is sized according to drainage area related to erosion and sediment control practices. Silt fences and construction entrances are required on all sites which fall under the one-acre threshold for requiring an erosion and sediment control plan.

As part of its erosion and sediment control program, Wake County does not allow any land-disturbing activity near a lake or natural watercourse unless erosion and sedimentation control measures are present. An undisturbed 50-foot buffer shall be used provided the undisturbed zone is of sufficient width to confine visible siltation within the first 20 feet of the undisturbed zone nearest the land disturbing activity. Wake County has established maximum permitted velocities for stormwater discharges.

The possibilities for phased construction are reviewed in the sediment and erosion control plan submittal process on a site-specific basis. Site conditions, topography, soils, and type of construction determine the size of the phases. Wake County requires all land-disturbing

activities to be planned and conducted to limit exposure to a maximum of 15 days after finished grading. Soils are stabilized as rapidly as possible by establishing a grass cover and mulching and tacking.

Wake County requires the identification of especially vulnerable areas in the development plan, and these areas receive special attention in the permit and plan approval process. Steep slope areas are discussed in a pre-construction conference and avoided to the maximum extent possible. The County allows steep slopes to be used as conservation areas or to meet buffer requirements.

The County requires silt fences and construction entrances on all construction which fall under the acre threshold for requiring an erosion and sediment control plan.

The County encourages contractor education and training related to erosion and sediment control. The purpose of this educational program is to ensure that contractors understand the erosion and sediment control requirements and work to minimize the potential for sedimentation.

Wake County is currently developing tools to be able to perform an evaluation of its erosion and sediment control program to optimize its deployment of resources.

Stormwater Programs and Impervious Surface Limitations

Streams are significantly impacted by changed hydrology as a result of increasing imperviousness from urban development. Without proper stormwater management, studies have shown that stream degradation occurs when impervious values approach 10 percent. However, requiring impervious values of 10 percent in all watersheds encourages sprawl and creates other environmental problems. Thus, Wake County has developed stormwater management programs that control the rate of stormwater runoff. In addition, its ordinances require that nitrogen and TSS be removed by stormwater control devices.

Wake County created a Stormwater Management Section within its Environmental Services Department, whose goal is to minimize the impacts of stormwater runoff. The staff is charged with upholding the local, State, and Federal regulations related to stormwater. These legal requirements include:

- Floodplain Management
- Sediment and Erosion Control
- WSW Protection
- Neuse River Stormwater Rules
- NPDES Phase II Stormwater Regulations

The Neuse River NSW Rules provide for the development of a model stormwater management program designed by the State and stakeholders to:

- Hold nitrogen loading from new development at 70 percent of that contributed by 1995 land uses in the non-urban areas of the Neuse River Basin (using an export coefficient of 3.6 lb/ac/yr)

- Hold the increase in peak flow leaving the site during the 1-year, 24-hour storm to predevelopment levels.

Wake County is required to implement the Neuse River stormwater rules. In 2001, the County adopted its Stormwater Management Program for Nitrogen Control to meet the requirements of the Neuse River rules. The County applies the program throughout its jurisdiction. As part of this Program, developers must determine the nitrogen loading attributed to the new development. New development must meet a nitrogen loading target of 3.6 pounds per acre per year (lb/ac/yr) through site design and BMPs. Residential development may achieve 6 lb/ac/yr and buy down the difference. Commercial development may buy down after achieving 10 lb/ac/yr.

Wake County also requires that the pre-development peak runoff rate be maintained. If the difference between pre- and post- runoff exceeds 10 percent for the one-year storm or there is more than 15 percent impervious coverage, the developer must capture the entire difference onsite.

In March 2003, Wake County submitted its Phase II Federal NPDES Stormwater Compliance Application and a draft permit has been issued by DWQ. The Phase II program regulates discharges of stormwater to surface waters and requires control of suspended solids, fecal coliform, and nutrients county-wide. DWQ's current Phase II regulations require that the overall runoff volume be controlled.

Wake County has impervious surface limitations in its WSWs. The impervious surface limitations range from 6 percent to 36 percent for non-residential areas and up to 30 percent for residential areas. Under Phase II, any development that exceeds 24 percent is required to implement stormwater BMPs.

Wake County is a partner in the North Carolina Clean Water Education Partnership (CWEP), a cooperative effort between local governments, state agencies, and nonprofit organizations to protect water quality in the Tar-Pamlico, Neuse, and Cape Fear River Basins. CWEP partners provide funding and support for CWEP. CWEP coordinators help CWEP by providing radio and television spots to educate the public about nutrient loading reductions. Other elements of the County's education program include property tax inserts and other mailings, newspaper advertisements, workshops, and the Internet.

Stormwater Management Task Force

In 2004, Wake County established a stormwater management task force as part of an interlocal agreement with a three-part initiative to evaluate, develop and possibly implement a countywide collaborative stormwater management program. In Part I, the *Wake County Collective Stormwater Management Evaluation* was completed in August 2005 and focused on defining the need for a new, more coordinated approach to county-wide stormwater management. It included a facilitated focus group comprised of staff-level representatives from Wake County and each of the 12 municipalities.

Individual needs assessments were performed for each jurisdiction for existing and future stormwater management programs. The assessments identified the existing levels of service provided in the three major stormwater program areas: operations and maintenance, program management and capital improvements. The evaluation focused on water quality protection and flood prevention through stormwater management, compliance with

regulatory mandates and identified how these programs should respond to future growth. Deficiencies identified in the current levels of service include:

- Lack of adequate staffing and program funding to enforce existing policies
- Operation and maintenance of drainage systems is mostly reactive
- Planning for stormwater impacts resulting from future growth has yet to be considered in many cases
- Unfunded federal mandates, such as NPDES II stormwater regulations, will further strain local organizational resources used to manage stormwater
- Rapid and inevitable growth should be considered when projecting future expenditures for stormwater management as the same service must be provided over a larger and more developed area.

The final report *Wake County Collective Stormwater Management Evaluation* was presented in August 2005, and recommended the creation of a representative citizens' Task Force. The County and 12 municipalities appointed a 20-member Task Force which met from February 2006 through August 2007 and was charged with the following activities:

1. Review and assess current and future required stormwater levels of service
2. Identify citizen expectations for stormwater levels of service
3. Develop recommendations for a countywide collaborative stormwater program
4. Develop program funding recommendations, where appropriate
5. Develop an implementation plan.

The Task Force gauged public support for improvements in stormwater management and determined whether a collaborative approach and/or program was a logical and cost-effective way to provide these improvements. The final report was produced in November 2007 and contains an implementation plan that clearly defines nine recommendations. Using the plan developed by the Task Force, Wake County and the participating municipalities, if desired, will implement the selected collaborative stormwater management programs. Part III of the initiative is currently underway; several of the recommendations for implementation have been selected and initial actions include:

- Creating a model of the stormwater system that focuses on the most critical watersheds, allowing Wake County to better understand flooding conditions, predict floodplain changes and protect citizens and their homes
- Identifying construction sites where erosion is most likely to occur due to slopes, soil types and other factors; identifying these sites would allow the County to impose better controls on these types of sites
- Meeting with potential partners to establish interlocal agreements for a common stormwater ordinance that would allow Wake County to minimize future erosion and address flooding to maintain healthy watersheds as the county grows.

The Task Force also recommended an extensive stormwater education program targeting citizens, businesses and government partners.

Wastewater System and Well Programs

To help ensure water quality in rural areas, the County administers programs for septic systems, discharging and non-discharging wastewater systems permitted by DWQ, and private and semi-public wells. The County conducts evaluations, inspects, and issues permits for septic systems. The County also conducts periodic operation and maintenance inspections on wastewater systems utilizing more complex technologies. Additionally, the County provides a technical resource to residents on wastewater disposal technologies. Finally, the County enforces a local mobile home park ordinance and investigates all sanitation complaints related to mobile home parks. The County's regulations are more stringent than those of the State.

Wake County recognized that many homeowners do not understand proper maintenance procedures for septic systems, and have even had calls from homeowners who did not understand that they were served by a septic system. Thus, the County teamed with the Raleigh Regional Realtors Association to develop an educational program. The County developed educational materials and CDs that realtors provide to buyers purchasing homes on septic systems. County staff indicated that the number of calls received regarding septic systems has increased dramatically since this program was initiated.

The County also issues well permits, performs site inspections on wells, and collects water samples for analysis, even though this is not required by the State. The County investigates complaints related to private water supplies and works cooperatively with the State Public Water Supply Section to mediate problems with community well supplies. The County also regulates irrigation wells and geothermal wells.

Wake County completed a comprehensive groundwater investigation to assess the quality and quantity of groundwater in the county. This study assessed future conditions and recommended development of a monitoring well network as well as groundwater management strategies. In July 2003, the Groundwater Study Advisory Committee completed its recommendations, which include the following:

- Lead planning and development of an Environmental Monitoring Program involving local, State, and Federal governments, departments, and agencies
- Implement a long-term monitoring well network, including monitoring wells and stream gauging stations, throughout Wake County
- Implement a community-based process to develop principles and policies for groundwater resource sustainability
- Conduct a study to assess the water quality and quantity impacts to both surface and groundwater from development activities
- Develop and implement a public education program to provide basic information about groundwater, wells, and the risk and responsibilities of well ownership
- Conduct an additional investigation of radionuclides in groundwater throughout Wake County

- Sample and analyze groundwater for constituents likely to be associated with agricultural practices (i.e., pesticides and herbicides) in Wake County
- Sample and analyze groundwater for constituents likely to be associated with industrial or land disposal practices (i.e., underground fuel storage, wood treating operations, and landfills) in Wake County
- Collect data on new wells that contain constituents that threaten public health or that do not yield sufficient water
- Work with Environmental Education and Environmental Information Providers to develop effective programs and services for a variety of County audiences on groundwater science, data, and trends; pollution sources and their environmental, economic, and societal impacts; and BMPs and stewardship actions that protect and sustain groundwater resources.

Non-Municipal Wastewater Treatment Plants

In June 1989, with the creation of a Memorandum of Agreement (MOA) with North Carolina Department of Environment and Natural Resources (DENR), the Water Quality Section of Wake County began inspecting NPDES non-municipal treatment systems. The plan initiated an ambient water sampling and monitoring program, citizens' complaint investigation program, and emergency response team. This MOA increases the annual inspection rate to one to three times per year depending on the size and its status as a WSW, versus inspection by DWQ once every 5 years.

Air Quality Protection

Wake County appointed an Air Quality Task Force whose goal is to eliminate ozone action days by 2010 and to comply with the National Ambient Air Quality Standards. The Task Force established 13 strategies, as presented in Table 4 on the following page.

The Triangle Transit Authority is expanding bus and shuttle services that link Chapel Hill, Durham, and Raleigh with RTP and the airport, and the Authority is working to establish a regional rail transit system. The Triangle Transit Authority also coordinates a ride-sharing program for regional commuters and is exploring the possibility of running some of its van-pool vehicles on certified natural gas.

In 1999, the Greater Raleigh Chamber of Commerce organized the Regional Transportation Alliance, a group of government and business leaders, to consider ways to deal with the region's traffic problems.

Every two years, the Capital Area Metropolitan Planning Organization (CAMPO) produces a document detailing the transportation needs of the organization's service area, which includes all of Wake County and all 12 government jurisdictions therein. The document is submitted to the NCDOT and includes a prioritized, financially constrained list of local transportation needs. The CAMPO plan prepared in 2005 addressed needs from 2007 through 2013. Among other recommendations, the plan identified the need for an analysis and vision plan for a regional transit system that would serve Wendell, Zebulon, Knightdale and Cary.

Trees and vegetation are integral to the improvement of air quality, Wake County is making significant efforts to preserve open space and vegetation. Voters in Wake County passed bond

referendums in 2000, 2004, and 2007 totaling $91 million to provide funds for parks and open space. The County uses these funds to purchase and preserve significant tracts of open space. In addition, the County has developed an ordinance (UDO Section 16-12) that requires that trees and vegetation along the perimeter of a site not be removed or disturbed prior to consideration of an actual plan for development of the site.

TABLE 4
Wake County Task Force Air Quality Protection Strategies

Strategy	Example/Explanation
Develop regional partnerships	Collaborate regionally; support North Carolina's Air Awareness Program; support Triangle Clean Cities Coalition
Promote commuter choice and e-business	Implement Best Workplaces for Commuters Programs and online services
Improve transportation	Include air quality and energy conservation in the transportation planning process; and expand public transportation alternatives, traffic signal and intersection improvements, high occupancy vehicle lanes, and toll lanes
Promote cleaner fuels and alternative fuel vehicles	Promote early introduction of ultra-low-sulfur fuels; fleet participation in Triangle Clean Cities Coalition; state incentives for alternate fuel vehicles and refueling infrastructure
Reduce emissions from existing vehicles	Replace leaking gas caps: enforce "smoking vehicle" legislation
Promote land use planning that promotes cleaner air	Include air quality and energy conservation in the land use planning process; implement incentives for development to occur in areas with public infrastructure
Promote energy conservation	Require an energy conservation plan for construction projects; implement urban heat island initiatives
Reduce emissions from diesel engines	Require contractors to achieve emission reductions; accelerate replacement of on-road and non-road diesel fleets
Reduce emissions from non-road gasoline engines	Accelerate replacement of gas equipment with electric
Establish Airport Clean Air Program	
Expand Ozone Action Day Programs	
Expand Outreach/Education Program	
Promote efficient freight and delivery transport	

Historic Preservation

Wake County has a Historic Preservation Commission which has jurisdiction in Apex, Cary, Fuquay-Varina, Garner, Holly Springs, Knightdale, Morrisville, Raleigh's extraterritorial jurisdiction (the Raleigh Historic Districts Commission presides over properties within the Raleigh corporate limits), Rolesville, Wendell, Zebulon and the unincorporated areas of the county. The Wake County Historic Preservation Commission is staffed by the Capital Area Preservation (CAP) non-profit organization, which focuses on the security of historic resources.

The goals of the Wake County Historic Preservation Commission are:

- Safeguard the heritage of the county by preserving districts and landmarks that embody important elements of its culture, history, architectural history or prehistory.
- Promote the use and conservation of such districts and landmarks for the education, pleasure, and enrichment of the residents of the county and state.
- Promote preservation concepts in the county's and the participating municipal planning programs.

The commission's primary responsibilities are to:

- Initiate and recommend properties for designation as historic landmarks;
- Review Certificates of Appropriateness;
- Keep the historic architecture survey up-to-date and maintain the historic resources database;
- Initiate National Register listing and comment on National Register nominations;
- Develop a historic preservation plan and ensure that historic resources are recognized in county and municipal plans; and
- Provide information to the public about the county's preservation program and historic resources.

Little River Reservoir Water Supply Watershed Interlocal Agreement (ILA)

The Little River is an important resource to protect because it is designated as a future water supply for Eastern Wake County, and it provides habitat for protected mussels. The North Carolina Department of Environmental and Natural Resources has designated the watershed as a WS-II, one of the most restrictive and pristine classifications for public drinking water. Protecting the watershed is a shared priority among Eastern Wake County municipalities.

The Wake County Planning Department and its partners will host four open house community meetings to receive feedback on the implementation strategies of the Little River Reservoir Water Supply Watershed Interlocal Agreement (ILA). The ILA was adopted by Raleigh City Council on October 2, 2007. The Little River watershed is located east of Rolesville and Buffalo Creek and is bordered on the north by the Franklin County and on the south by NC 97.

The purposes of the sessions are to share information regarding the proposed implementation of the ILA and discuss various aspects of the proposal with residents, property owners and others in the communities. Recommendations address future development, utilities, watershed conservation measures and municipal growth limitations.

If approved as currently proposed, implementing the ILA would require:

1. Future development is limited to residential development excluding non-urban activity centers in accordance with the Wake County Land Use Plan and the approving jurisdiction's development regulations.

2. Rezone critical area properties from R80W (maximum of 1 dwelling unit per 2 acres) to R120W (maximum of 1 dwelling unit per 3 acres). The critical area is defined as the area within one-half mile plus 300 feet from the water edge of the proposed reservoir's full pool elevation.

3. Create a Little River Reservoir Water Supply Watershed Overlay District to address special situations and accomplish specific goals. The overlay district's development standards would apply to properties in the critical and non-critical areas, blanketing the parcels zoned R40W and proposed for R120W.

    1. Impervious surface limits are 6 percent maximum in the critical area and 12 percent maximum in the non-critical area for all uses.

    2. No development in the floodplain.

    3. 100-foot wide undisturbed stream buffers.

    4. Addition of all tributaries in the reservoir to the County's Open Space Acquisition corridor priority list.

    5. Extension of water and/or sewer lines in both the critical and non-critical areas of the watershed is prohibited, except as necessary to protect the public health, safety, and for existing developed properties only.

    6. Annexation in both the critical and non-critical areas of the watershed is prohibited after the Urban Service Area boundaries are established.

    7. Acquire access easements for stream restoration and wetland mitigation.

It should be noted that only a small portion of the Little River Watershed is included in the study area for this SCI project. Wake County's urban services area described in Section 1 largely do not extend into the watershed.