

*WATER AND SEWER*



## WATER AND SEWER

### FY2004-2010

#### **1. BACKGROUND ISSUES**

Projects eligible for County funding from this element are generally in one of the following three categories: 1) Wake County Water and Sewer Plan Implementation, 2) infrastructure development in Research Triangle Park (RTP), 3) water quality and watershed management initiatives. In addition to these categories, the County has previously participated in funding the connection of failed and hurricane damaged private community sewer systems to public utility systems. The County participated in these projects because of the serious public health risk associated with failed sewer systems.

#### **Water Sewer Plan Implementation**

This aspect of the water/sewer element allows the County to facilitate the consolidation of water and sewer utility systems in accordance with the Wake County Water and Sewer Plan. An implementation team was appointed to monitor the progress of the proposed merger of Raleigh and Garner utility systems, a proposed Harnett County regional water line (with connections to Holly Springs and Fuquay-Varina) and to begin discussions about future regional wastewater treatment facilities needed in the Cape Fear River Basin. The County initiated the Raleigh/Garner merger by funding a feasibility study and the development of a model water/sewer merger agreement. These efforts resulted in the consolidation of the Raleigh and Garner utility systems in 2001. Shortly thereafter, County staff assumed all responsibility for implementing the County Water and Sewer Plan.

Agreements were executed in 2000 with Holly Springs and Fuquay-Varina for the County's participation in the Harnett County regional water line project. These agreements included distribution of \$4 million in County funds as interest earning loans to Holly Springs and Fuquay-Varina. Construction of the water line project, including connecting the

two towns to the Harnett County water distribution system, was completed in 2001.

The primary focus for the past two years has been pursuing other utility system mergers. In addition to the Raleigh/Garner merger, the County has provided funding for merger studies of the Raleigh utility system with Morrisville, Wake Forest, Knightdale, Wendell and Zebulon. An engineering study of the feasibility of merging Morrisville utilities with Cary has also been completed. Elected officials in Wake Forest and Knightdale have recently indicated their willingness to pursue merger agreements with Raleigh. Other towns are still evaluating their options.

Collaboration with all towns in the western part of Wake County on planning and preliminary engineering studies for regional wastewater treatment solutions has also been a high priority. In 2002, the County entered into an interlocal agreement with Apex, Cary, Fuquay-Varina, Holly Springs and Morrisville to jointly work with engineering consultants to evaluate numerous alternatives for meeting their collective long-term wastewater treatment needs. The results of these studies, along with specific recommendations, will be finalized and presented to the various governing boards for consideration in Fall 2003.

A preliminary engineering study was also completed, in collaboration with the City of Raleigh, Town of Cary and Johnston County, to investigate the feasibility of developing a future water supply reservoir in the Middle Creek Basin. The proposed location of the reservoir would place the impoundment in Wake and Johnston Counties. Due to high costs associated with property acquisition, further engineering studies have been postponed.

**RTP Infrastructure Development**

This project in the water/sewer element allows the County to fund the service connections to support the economic development of the Wake section of RTP, thus providing jobs for our citizens and enhancing Wake County's tax base. In 1989, Wake County, the Town of Cary, and Research Triangle Foundation entered into an agreement for the provision of water and sewer to the Wake County portion of the Research Triangle Park (2,000 acres). Phase I of the project was completed in 1992. The first phase involved construction of primary water transmission and wastewater collection systems to provide service to property in the Kit Creek drainage basin and RTP. These utility extensions consisted of the development of collector and transportation systems for water and wastewater from RTP to the existing Town of Cary public utility system.

Phase II of the project involved the construction of smaller gravity sewer lines within drainage sub-basins to provide service to sites as development occurred in RTP. Water lines to these sites were also installed as the internal road system was constructed. Facilities owned by the following firms are served by these infrastructure improvements; Cisco, Ericsson, Biogen, Diosynth RTP, Delta, and Magnequench. Phase II was completed in 2001, and involved the construction of approximately 9,000 feet of sewer and 15,000 feet of water lines.

The third phase of the project will complete the construction of water and sewer facilities to serve the remaining sites in the original Wake County section of RTP and will be implemented over the next three years.

Wake County, Town of Cary and Research Triangle Foundation are currently negotiating a new agreement for the provision of water and sewer service to the Wake section of Research Triangle Park. Through negotiations associated with this new agreement, the Town of Cary has agreed to immediately reduce rates for water and sewer customers in RTP by 50 percent. This action aligns rates with those paid by "in-town" customers of Cary. In addition the County has conveyed ownership of the Kit Creek pumping station and force main sewer to Cary in exchange for major upgrading and capacity increases to be funded by Cary. Cary's expendi-

ture of approximately \$4 million will assure sufficient sewer capacity to RTP for the long term. This agreement will replace the original 1989 agreement and will clarify a number of long standing issues related to providing water and sewer to RTP.

The County will continue to be responsible for completion of the third phase of water and sewer construction. In addition, the new agreement provides that the County will abide by the Town's policy, adopted in 2001, addressing the use of reclaimed water. This will require the installation of a reclaimed water distribution system to deliver reclaimed water to key locations in the Wake section of RTP.

**Water Quality / Watershed Management**

In an effort to address long-term water quality and watershed management issues, the County funded the Wake County Watershed Management project in 2001. This project involved a comprehensive assessment of water quality conditions throughout the County, and the development of watershed management strategies to preserve the quality of water resources over the long-term. A Watershed Management Task Force was formed in 2000 to help guide the study and develop implementation actions for long-term watershed management. This Task Force completed its work and published a Comprehensive Watershed Management Plan in January 2003.

**2. PROGRAM & FACILITY GOALS**

The primary goals of the water and sewer element of the CIP are:

- Facilitate the development of a consolidated water and sewer system that is adequate, reliable, and economical for all Wake County residents.
- Encourage job creation and economic development of the Wake County portion of RTP through extensions of water and sewer infrastructure, as needed.
- Provide better management, use, and preservation of water resources for current and future Wake County residents.

### **3. COMPREHENSIVE PLAN**

#### **Water Sewer Plan Implementation**

The 1998 Wake County Water/Sewer plan provides the framework for long-term water and sewer infrastructure development in the county. More specifically, the plan recommends the development of a single water and sewer utility system by 2015. Priority is given to facility merger feasibility studies and preliminary engineering work to evaluate alternatives for consolidating existing water and sewer facilities.

#### **RTP Infrastructure Development**

In 1987, the County completed a comprehensive study of the Water and Wastewater Facilities needs for the Wake County portion of Research Triangle Park. The 1987 engineering study and environmental impact statement determined that direct connection to public utilities would be the most feasible and practical of the alternatives evaluated to meet water and sewer facilities needs of the Kit Creek Basin and the Wake County portion of RTP. A master utility plan was prepared for RTP and continues to guide the County in planning and funding capital improvement projects in RTP.

#### **Water Quality / Watershed Management**

The watershed management study began in 2001 and culminated with the publication of a Comprehensive Watershed Management Plan in January 2003. The Watershed Management Task Force developed a list of recommended strategies for maintaining water quality and identified ongoing monitoring activities necessary for measuring the success of adopted strategies and practices.

### **4. SEVEN-YEAR CIP PROGRAM SUMMARY**

A total of \$11.7 million in new appropriations is planned for Water and Sewer capital initiatives over the next seven years. \$3.5 million of this appropriation supports utility merger feasibility studies, while the remaining amount is for regional wastewater treatment facility engineering analyses, planning for future water supply sources, and other investments that implement the recommendations of the 1998 Water/Sewer plan. New appropriations of \$1.17 million are needed over the seven-year period to

complete the remaining offsite water and sewer utility improvements in the Wake County portion of Research Triangle Park. Onsite utility extensions in RTP for new facilities and installation of a reclaimed water distribution system in RTP will require the expenditure of an estimated \$7 million over the seven year planning period. A more accurate estimate of funds needed for reclaimed water facilities will be obtained through an upcoming facility study to be completed in FY2004. The projected balance at the end of FY2003 of \$1.9 million for water and sewer improvements is included to fund the initiatives and projects planned over the next few years.

#### **Water Sewer Plan Implementation**

The County continues to support the merger of municipal utility systems and has demonstrated a willingness to provide funding for merger feasibility studies. Raleigh, Garner, and Rolesville water and sewer systems have been consolidated and merger agreements executed. Wake County, Cary, Apex, Holly Springs, Morrisville and Fuquay-Varina have entered into an interlocal agreement to fund a collaborative study of alternatives for a regional wastewater treatment plant to serve the western part of the County. Round III of the Jordan Lake Water Supply allocation has been approved by the Environmental Management Commission with Wake County/RTP receiving an allocation of 3.5 mgd. Future allocation requests will continue to be supported through this element of the CIP.

#### **RTP Infrastructure Development**

The third phase of the project will complete the construction of water and sewer facilities to serve the remaining sites in RTP and will be implemented over the next three years. In general, the remaining sites are more remotely located and therefore will require more extensive sewer projects to provide for future development. As in Phase I and II, water lines will be installed to these sites as roadway construction occurs. It is estimated that the remainder of Phase III will involve the construction of 22,500 feet of sewer lines and 7,000 feet of water lines at an estimated cost \$2.35 million. Installation of a reclaimed water distribution system is expected to require an additional expenditure of at least \$3.5 million.

**Water Quality / Watershed Management**

The watershed management study that began in 2001 was completed in January 2003. The Watershed Management Task Force recommended strategies for maintaining water quality as well as identifying ongoing monitoring activities necessary for measuring the success of adopted strategies and practices. Various watershed monitoring and management strategies were designated for implementation over the next few years. It is currently projected that these strategies will be implemented through operational fund initiatives, partnerships with local, state or federal agencies and successful pursuit of grants.

**5. PROJECT ACCOMPLISHMENTS IN FY2003****Water Sewer Plan Implementation**

During FY2003, studies were completed to assess the potential for merging water/sewer utilities of Morrisville/Cary, Morrisville/Raleigh, Raleigh/Wake Forest and Knightdale/Raleigh, Raleigh/Wendell and Raleigh/Zebulon. The key findings and recommendations resulting from these evaluations are under consideration by officials of each town.

As contemplated in the six-party interlocal agreement executed in Fall 2002, 23 conceptual plans were evaluated for meeting the projected wastewater treatment needs of western Wake County. This evaluation narrowed the list to the six best options. These options have been fully evaluated by engineering consultants and staff of the local government partners involved in the project. The best long-term alternative(s) will be identified early in FY2004.

**RTP Infrastructure Development**

During FY2003, 6,000 feet of sewer line to provide service to three sites was completed. Ownership of the Kit Creek pump station and force main was conveyed to the Town of Cary. Cary will make an investment of approximately \$4 million to upgrade the pump station and force main and has agreed to assure adequate treatment capacity to serve RTP to at least 2011.

**Water Quality / Watershed Management**

The Watershed Management Task Force completed the assessment of the overall condition of the Wake County watersheds at a subwatershed level. The Task Force also evaluated different strategies for improved watershed management and a countywide strategy for better watershed monitoring, practices, policies, and planning. A report entitled "Comprehensive Watershed Management Plan" was produced and distributed in January 2003.

**6. FY2004 PROJECT ACTIVITY SUMMARY****Water Sewer Plan Implementation**

Work continued in accordance with the 2002 interlocal agreement for collaborative engineering studies of alternatives for the development of regional wastewater treatment facilities in the western area of the county. The participating jurisdictions included Apex, Cary, Fuquay-Varina, Holly Springs, Morrisville, and Wake County. The interlocal agreement stipulates that each of the jurisdictions will share in the cost and actively participate in evaluating the alternatives for meeting long-term regional wastewater treatment needs for western areas of the county. The study will be completed in FY2004 and will provide recommendations on facility size, location, construction costs, institutional/management alternatives and suggested timeline for implementing the recommended solution(s). In addition, the County will continue to encourage municipal discussions and studies regarding the feasibility for more utility mergers with the Raleigh and Cary water/sewer systems.

**RTP Infrastructure Development**

During FY2004, 11,900 feet of water line will be constructed to serve nine sites and 15,600 feet of sewer line will be extended to serve four sites. The construction of I-540 will require the relocation of approximately 1,000 feet of water line and 500 feet of sewer and the expansion of Biogen, Inc. will necessitate the construction of an additional 4,000 feet of sewer. Total cost of these projects is projected to be \$2.6 million. Only \$666,390 in new funding is included in FY2004. The remainder is available from prior years' balance. In addition, new appropriations are

included to support onsite utility extensions in the Wake County portion of RTP.

### **Water Quality / Watershed Management**

The Watershed Management Task Force completed its work assessing the condition of various watersheds and identifying future management strategies. The future strategies and jurisdictional responsibilities for the watershed management efforts are generally outlined in the published watershed management plan and are being further refined by County Environmental Services staff. The impact of regulatory issues is being given additional consideration. Grants will be pursued from the Corps of Engineers and State agencies to fund capital projects. Redevelopment or remediation of degraded streams are the types of capital projects for which grants and partnerships will be pursued. No County capital funding is projected for the next several years.

## **7. SUMMARY OF FUTURE PHASES (FY2005-2010)**

### **Water Sewer Plan Implementation**

The County will continue to support studies and facilitate activities that lead toward the consolidation of water and sewer utilities as expressed in the 1998 Wake County Water and Sewer Plan. The timeframe outlined in the plan calls for the establishing two utility systems by 2010, and the consolidation into one system by the year 2015.

### **RTP Infrastructure Development**

The following water, sewer and reclaimed water extensions are expected:

FY2005 - 4,000 feet of sewer line extended to one building site.

FY2006 - 2,500 feet of sewer line extended to five building sites.  
24,000 feet of reclaimed water lines along Kit Creek Road and Davis Drive.

FY2007 - 40,000 feet of reclaimed water along Louis Stephens Drive, Development Drive and South Loop Drive.

It is projected that reclaimed water will be available beginning in year FY2006 for use in RTP. This reclaimed water will be transported from the Durham County Triangle WWTP or the North Cary Water Reclamation Facility to RTP by the Town of Cary. In accordance with the proposed 2003 Memorandum of Agreement between the Town of Cary, Wake County and Research Triangle Foundation, it will be the County's responsibility to construct the infrastructure necessary to convey reclaimed water to the RTP consumers in Wake County.

### **Water Quality / Watershed Management**

The future implementation strategies and jurisdictional responsibilities for the watershed management efforts are not currently anticipated to require County capital funds.

## **8. OPERATING IMPACT**

### **Water Sewer Plan Implementation**

Operating costs resulting from utility mergers are not the responsibility of the County. Municipalities operating the distribution, collection, and treatment facilities assume the operating impact of the actual mergers. Costs for the mergers and interconnection of utility systems will be covered by the water/sewer rates charged by municipalities.

### **RTP Infrastructure Development**

The operating costs that occur after the extension of utilities are assumed by property owners or municipalities operating the treatment facilities.

### **Water Quality / Watershed Management**

Increased emphasis on water quality and watershed management initiatives by County Environmental Services staff is expected to have little impact on the operating budget.

## **9. RELATIONSHIP TO OTHER PLANS**

### **Water Sewer Plan Implementation**

Provides a source of limited funding for implementation of Wake County's Water and Sewer Plan and Economic Development Policy.

**RTP Infrastructure Development**

The infrastructure development projects are critical to continued development of the remainder of the Wake County section of Research Triangle Park.

**Water Quality / Watershed Management**

Due to a shared interest in long-term water quality issues, the Watershed Management Plan was completed simultaneously with the development of the Wake County Open Space Plan. Coordination of the implementation strategies of both plans is critically important to achieving long-term goals for water quality.

**10. ILLUSTRATIONS**



Cisco Systems in Wake County portion of RTP



Water Sewer Line



Ericsson Property in Wake County portion of RTP



Water Sewer Infrastructure

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**11. FINANCIALS**

PART I. EXPENDITURES	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	TOTAL
W/S PLAN IMPLEMENTATION	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$3,500,000
RTP ONSITE INFRASTRUCTURE	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$3,500,000
RTP OFFSITE INFRASTRUCTURE	\$666,390	\$312,500	\$187,500	\$0	\$0	\$0	\$0	\$1,166,390
WATER RECLAMATION PROJECT	\$0	\$0	\$1,300,000	\$2,200,000	\$0	\$0	\$0	\$3,500,000
WATERSHED MANAGEMENT	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>TOTAL APPROPRIATIONS</b>	<b>\$1,666,390</b>	<b>\$1,312,500</b>	<b>\$2,487,500</b>	<b>\$3,200,000</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>\$11,666,390</b>
PART II. FUNDING SOURCES	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	TOTAL
Pay As You Go	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Water Sewer Fund Balance	\$940,390	\$618,000	\$1,824,500	\$2,569,000	\$1,000,000	\$1,000,000	\$1,000,000	\$8,951,890
Water Sewer Loan Payments	\$726,000	\$694,500	\$663,000	\$631,000	\$0	\$0	\$0	\$2,714,500
<b>TOTAL</b>	<b>\$1,666,390</b>	<b>\$1,312,500</b>	<b>\$2,487,500</b>	<b>\$3,200,000</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>\$1,000,000</b>	<b>\$11,666,390</b>
PART III. OPERATING IMPACT	FY2004	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	TOTAL
Total Operating Cost								