Winston-Salem/Forsyth County Utility Commission

# Annual Report

## for Fiscal Year 2009-2010

Winston-Salem • Forsyth County
City/County Utilities
Water • Sewer • Solid Waste Disposal

WINSTON-SALEM
CITY COUNCIL

Mayor: Allen Joines

City Council:

Vivian H. Burke, Mayor Pro Tempore, Northeast Ward

Denise D. Adams, North Ward

Dan Besse, Southwest Ward

Robert C. Clark, West Ward

Molly Leight, South Ward

Wanda Merschel, Northwest Ward

Derwin L. Montgomery, East Ward

James Taylor, Jr., Southeast Ward

City Manager: Lee Garrity

Assistant City Manager: Greg Turner

Utilities Director: David Saunders

FORSYTH COUNTY
COMMISSIONERS

Richard V. Linville, Chairman

Debra Conrad, Vice Chair

Walter Marshall

David R. Plyler

Gloria D. Whisenhunt

Bill Whiteheart

Everette Witherspoon

County Manager: Dudley Watts, Jr.

# Winston-Salem/Forsyth County Utility Commission Annual Report for Fiscal Year 2009-2010

Winston-Salem/Forsyth County
Utilitiy Commission
Suite 357, City Hall
101 N. Main St.
Winston-Salem, NC 27101

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Letter of Transmittal

The Utility Division staff is pleased to submit the *Annual Report of the Winston-Salem/Forsyth County Utility Commission* for Fiscal Year 2010. This year's report introduces a new format intended to not only provide a summary of the previous years operational data and benchmarking metrics, but also provide the reader with a detailed educational focus about the Utility Commission's operational and planning process. This edition provides an in depth look at the Capital Planning process, and the growing problem with maintaining an aging infrastructure. Future editions will focus more on operational issues and challenges like upcoming nutrient removal regulations anticipated for the Yadkin River Basin, and Solid Waste management issues facing our local communities.

Fiscal Year 2009-2010 presented some unique operational challenges as a result of the tough economic conditions facing North Carolina, Forsyth County, and the City of Winston-Salem. The Utility Operations were able to reduce spending to levels dating back to pre 2006 in order to bring expenses in line with the revenue projections for the year. By doing so, the operation was able to meet all debt service obligations and preserve its exceptional financial ratings from the three main rating agencies.

Thank you for taking the time to review this Annual Report and we hope you will find it informative and helpful in understanding your water/sewer and solid waste services provided by the City/County Utility Commission.

Gregory M. Turner, PE
Assistant City Manager

David K. Saunders, PE
Utilities Director

# The Winston-Salem/Forsyth County Utility Commission

The Winston-Salem/Forsyth County Utility Commission is an 11-member appointed body that oversees the publicly operated water treatment, wastewater and solid waste facilities that serve Winston-Salem and Forsyth County. All decisions regarding the management of these facilities are delegated to the Commission by the Winston-Salem City Council and the Forsyth County Commissioners. Ownership and the responsibility for the disposal of these assets is the city's, pursuant to the original 1976 agreement that consolidated the city and county utility systems.

The Commission is responsible for:

- Overseeing the long-range planning, funding, operation and maintenance of water treatment, wastewater and solid waste facilities and their associated collection and distribution systems;
- Fixing rates, charging assessments, and providing improvements and extensions to utilities facilities;
- Reviewing utility extension policies and rate structures;
- Receiving comments and suggestions from the public and holding public hearings concerning matters under the authority of the Commission; and
- Setting policy for all publicly owned water, wastewater, and solid waste disposal facilities.

Five members of the Commission are appointed by City Council upon recommendation of the Mayor; another five members are appointed by Forsyth County Board of Commissioners. The chairperson is appointed jointly by the mayor and the chairperson of the Forsyth County Board of Commissioners.

The Commission chairperson serves a two-year term and is limited to five terms. Commission members serve staggered five-year terms and are limited to two terms.

## GOVERNANCE

The Commission has three standing committees:

- The Operations Committee considers items relating to the long-term operation of both the water/wastewater and solid waste disposal programs. Three Commission members sit on the Operations Committee.
- The Finance Committee considers items related to the finances of both the water/wastewater and solid waste disposal programs. Four Commission members sit on the Finance Committee.
- The Planning and Policy Committee considers changes to policies and procedures for the operation of the water/wastewater and solid waste disposal programs. Three Commission members sit on the Planning and Policy Review Committee.

**Authority for establishing the Utility Commission is N.C.G.S. 160A-460 et.seq. The Utility Commission was created by an interlocal agreement between the City of Winston-Salem and Forsyth County on April 20, 1976.**

The chairperson of the Commission appoints the members of each committee and designates one person as Committee Chairperson and another as Vice-Chairperson.

## COMMISSION FINANCES

Funding to operate, maintain and extend water and sewer services comes from grants, water and sewer user fees, assessments, interest earned on the Commission's reserve funds, and from revenue bonds issued against the Commission's revenue stream. Funds to operate and expand the solid waste disposal programs come from two sources, tipping fees and special obligation bonds approved by the City Council. The Commission receives no financial support from property or sales taxes paid by citizens of Winston-Salem or Forsyth County. The Utility Commission has no authority to issue bonds or incur debts without prior approval from the City Council.

Utility Commission policies provide that capital improvement projects, such as plant expansions, major facility upgrades, transmission mains, outfalls, and pump stations, are funded through user fees charged bi-monthly to customers for water and sewer services. These facilities benefit all customers and therefore, all customers are expected to help fund them. Each year the Utility Commission determines if new projects in these categories should be paid for with generated balances from fund user fee funds or financed with new debt.

These decisions are made based on the cost of financing and financial advisement from the city's Chief Financial Officer. The local collection and distribution systems, known as street mains, are funded by the properties that they serve. When new properties are developed, system lines are required to be installed by the developer and subsequently dedicated to the Utility Commission for ownership and operation. When owners of existing properties request service extensions, the extension requests are provided for under the Utility Commission's petitioned programs.

The Utility Commission's policies for setting assessment rates follow the guidance established in the North Carolina general statutes. Each year the Commission reviews construction costs from the previous year and sets a new assessment rate designed to recover the cost of a typical installation. New customers benefit from this process in that the rates they are assessed are based on the previous years' actual construction costs and are not adjusted upward for annual inflationary factors. In many cases, customers are

### SYSTEM GROWTH: THEN AND NOW

| | 1976 | 2010 |
|---|---|---|
| Water | | |
| Total Water Customers | 54,985 | 113,348 |
| Miles of Water Lines | 1,046 | 2,201 |
| Water Treated Per Day | 29 MGD | 36.7 MGD |
| Number of Employees | 126 | 153 |
| Sewer | | |
| Total Wastewater Customers | 31,385 | 85,541 |
| Miles of Sewer Lines | 690 | 1,689 |
| WW Treated Per Day | 21 MGD | 33.7 MGD |
| Number of Employees | 134 | 176 |
| Budget | | |
| Total Water and Sewer O&M Expenses | $8,554.963 | $69,713,348 |

| City | No. of Customers | Monthly Charge | Median Household Income | *Cost of Service As % of Median Household Income |
|---|---|---|---|---|
| Durham | 81,582 | $45.32 | $66,500 | 0.82% |
| Charlotte | 250,000 | $39.74 | $67,200 | 0.70% |
| Greensboro | 101,000 | $36.75 | $58,000 | 0.76% |
| Raleigh | 184,050 | $39.82 | $77,700 | 0.61% |
| **Winston-Salem** | **113,348** | ***$27.79** | **$59,800** | **0.56%** |

## WATER & SEWER RATES FOR FIVE MAJOR MUNICIPALITIES (BASED ON 600 CF MONTHLY)[1]

[1] According to EPA data, costs of water and sewer are considered affordable if the total cost of service is less than 2.5% of the Median Household Income.

*Calculated using October 1, 2010 rates.

not actually assessed for two to three years after the cost of the extension is established, allowing them a considerable discount against the actual cost of installation.

The Utility Commission's sound financial policies and the superior fiscal management of the utility system is reflected in the high credit ratings assigned to the system's revenue bonds. They carry an AAA rating from Standard and Poor's Rating Agency (one of 53 such ratings nationwide); Aa1 from Moody's Investor Service and AA+ from Fitch. High credit ratings allow the Commission to sell bonds at lower interest rates when financing capital improvements. Given the projections of capital needs for the next five years, a lower cost of capital will enable the Commission to meet those needs with greater savings.

## COMMISSION OPERATIONS

The Utilities Division of the City of Winston-Salem is responsible for all day-to-day operation and maintenance of the water and wastewater treatment facilites and their associated collection and distribution systems, and solid waste facilities in accordance with policies established by the Utility Commission.

The Utilities Division also provides technical and administrative assistance to the Commission and is responsible for capital improvements under the direction of the Commission. Utilities Division management advises the Commission regarding policy changes that will benefit citizens and future growth, maintenance and operation of the system.

The operations of the Utilities Division fall under the oversight of the City manager and an assistant city manager.

The Utilites Division and its staff adhere to the

same general processes and procedures regarding the operation of its systems as all other departments within the City of Winston-Salem.

The Commission's financial assets are managed by the city Finance Department and the City's Budget Office assists with preparation of the Commission's budget. Negotiations for property acquisitions are conducted by the city Real Estate Office; the City-County Purchasing Office manages all other system asset acquisitions.

The city Engineering Division provides the Utilities Division with design and project management services for main line extension projects. Additionally, due to the specialized nature of the work of division operations and facilities, outside consultants may be enlisted to provide assistance in those areas that are outside of staff expertise.

The City Attorney Office provides legal assistance to the Commission and the Utilities Division when necessary. Major maintenance and repairs of the division's buildings are handled through the city Property Management Division.

## CITY/COUNTY UTILITIES DIVISION PERSONNEL

| | |
|---|---|
| Administration: | 8 |
| Water Treatment: | 55 |
| Water Distribution: | 66 |
| Wastewater Collection: | 62 |
| Wastewater Treatment: | 94 |
| Solid Waste Management: | 35 |
| Technical Support: | 31 |
| Customer Service: | 13 |
| Cemeteries: | 7 |
| Total: | 371 |

Contract employees with a sewage vacuum truck in action on Miller Street as part of the Ardmore Priority Sewer Repair Project.

# Asset Management through the Capital Improvement Program

The Water and Wastewater Capital Improvement Program, or CIP for short, is the Utility Commission's six-year roadmap for planning, maintaining, and funding present and future infrastructure requirements. The CIP addresses the acquisition, expansion, and rehabilitation of long-lived facilities and infrastructure to respond to changing service needs and growth of the community. It also allocates funds to preserve or enhance the existing infrastructure. As such, the CIP is a key tool for managing the system's assets and serves as a planning instrument to coordinate the financing and timing of improvements in a way that maximizes the return to the customer.

The CIP consists of multi-year and annual projects that generally require one or more of the following outside services: engineering study, engineering design, regulatory permitting/review, construction, and contract administration. The CIP is updated and adopted annually by the Commission and the City Council. Annual review and adoption ensures that CIP is affordable and finances only necessary capital expenditures.

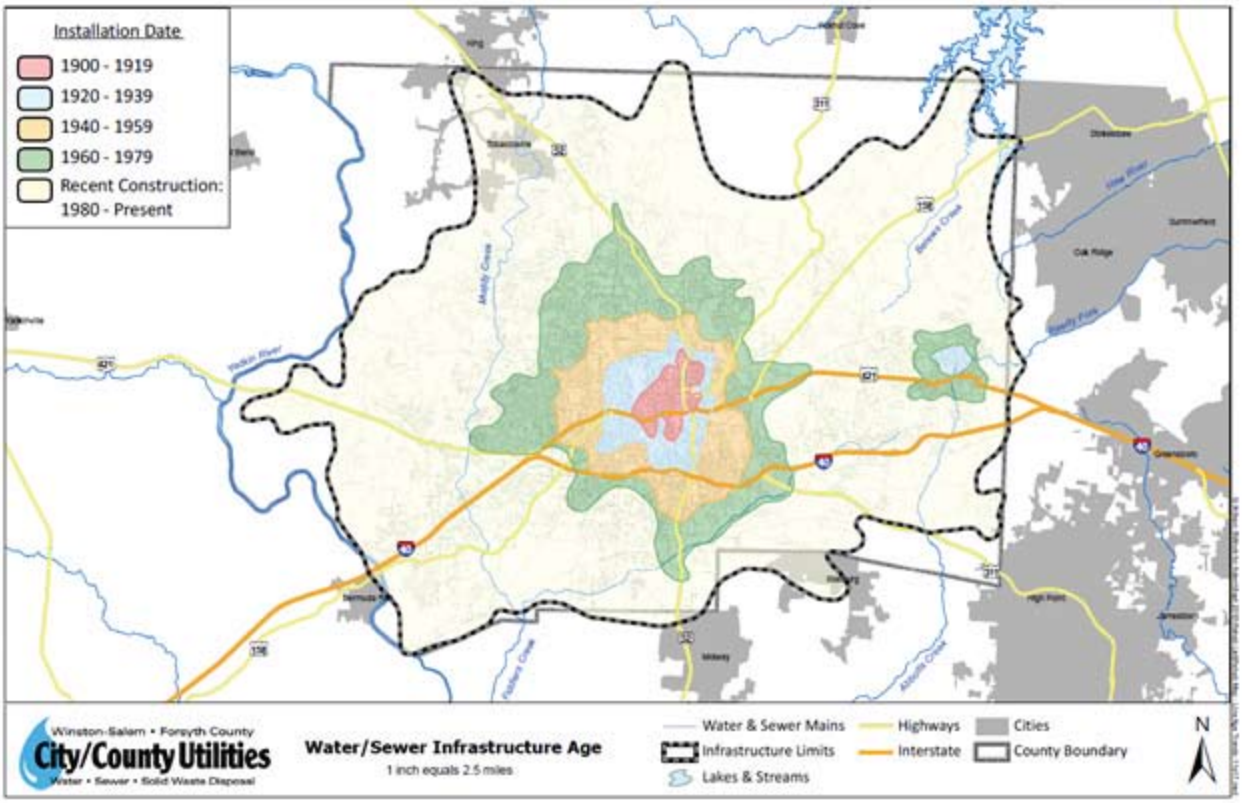
The CIP also serves as a communication tool for the Commission and an educational resource for the community. It includes detailed information about design and construction costs as well as financing options and indicates how the Commission is planning to achieve the program goals for the forthcoming budget year. Likewise, the CIP's multiyear inventory of proposed projects conveys the Commission's master planning goals and the proposed sources of financing.

Although the Utility Division staff drafts the CIP, the Commission reviews and adopts it in open session, which provides public accountability that capital investment decisions are made according to a fair, open, and objective process. The CIP process also offers these advantages:

- Emphasizes the requirement for long-term planning.
- Enhances the link between the capital and operating budgets.
- Helps the Commission avoid the need to impose "crisis" rate increases to finance unexpected infrastructure needs.

In recent years, a predominant CIP priority has been addressing aging infrastructure. Most significant were the contracts awarded in 2008 to demolish and replace facilities at the Elledge Wastewater Treatment Plant that were more than 50 years old and at the Thomas Water Treatment Plant that were more than 80 years old. Rehabilitating aging distribution and collection system assets will carry the aging infrastructure priority forward as an annual goal. Installation dates of the piping for these systems ranges from 1900 to 2010. It is estimated that 41 per-

*The Capital Improvement Program is broken down by water and wastewater utilities. Each of the two utilities has asset classes for which projects are identified, prioritized, planned for, and developed into the CIP. Water assets are divided into two categories: distribution facilities and treatment facilities. Likewise, wastewater assets are grouped under the categories of collection facilities and treatment facilities. The projects associated with water treatment and wastewater treatment are grouped and presented as a subset of the overall CIP. Similarly, water distribution and wastewater collection projects are grouped and presented as another subset of the CIP. Projects are generally associated with asset replacement and rehabilitation needs, regulatory needs, service needs, or a combination of the three.*




WATER AND WASTEWATER INFRASTRUCTURE AGE

cent – approximately 700 miles – of the piping in the wastewater collection system is 50 years in age or older. Typical design life for these facilities at the time they were constructed, was approximately 50 years. Therefore, efforts to upgrade these facilities are significantly behind the planned replacement curve. These assets will only to continue to age, fail, and need replacement and the costs will continue to escalate. Replacing these aging assets will continue as a major CIP priority for the foreseeable future.

The CIP development process continues to move toward a broader based decision-making instrument that examines five core questions associated with asset management as identified and recommended by the Environmental Protection Agency: 1. Knowing the current state of system assets; 2. Establishing the required sustainable level of service; 3. Identifying assets critical to sustained performance; 4. Determining minimum life-cycle costs; and 5. Determining the best long-term funding strategies.

Examination of these core questions provides the foundation for many asset management best practices. For example, preparing an asset inventory and system map confirms what assets are owned and where they are. Likewise, the best practice of developing a condition assessment and rating system will aid in determining the condition of system's assets.

Sustained use of this approach will allow the CIP to evolve into a program that is more efficient and focused. The end result will be a CIP that meets the system's true needs, reduces environmental violations due to failed or poorly performing assets, and improves the safety and security aspects associated with infrastructure assets. Further, a more efficient and focused program will yield rates based on sound operational decisions and facilitate improving overall financial health.

This November 2010 aerial shows the progress of the construction of the new Thomas water plant.

# Water Treatment and Distribution

The Utility Commission operates three water treatment facilities. The R.W. Neilson and P. W. Swann water treatment plants can treat 48 million and 25 million gallons per day, respectively. These plants draw water from separate intakes on the Yadkin River. The new R.A. Thomas Water Plant, under construction during the year, will have a capacity of 18 million gallons per day when it is completed. It will draw water from the Yadkin River and Salem Lake.

During FY 2009-10 the Neilson and Swann plants treated and pumped approximately 13.4 billion gallons of water that met or exceeded all state and federal standards for drinking water quality. This accomplishment reflects the quality and dedication of the employees who work year-round to provide adequate supplies of safe drinking water.

The system serves a population of 312,900 with a water distribution system that includes 2,201 miles of water distribution mains, 14 water tanks and seven pumping stations.

## FACILITY UPGRADES

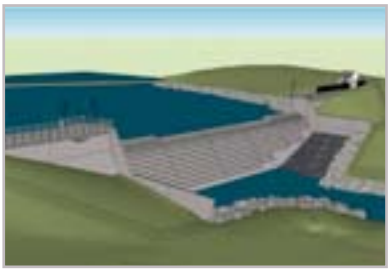
The Utility Commission continues to invest in its raw water pumping stations, water treatment facilities and distribution infrastructure to improve their efficiency and operation. During this fiscal year more than 14 miles of new main lines were added to the system that provides treated water to a large portion of Winston-Salem and Forsyth County. In addition, 6,125 feet of waterline, 74 connections and 30 valves were replaced.

Maintenance and repair of the existing systems assure our customers that all components of the infrastructure are in proper functioning condition.

### Thomas Water Plant Modernization

During FY 2009-10, construction continued on the replacement of the 83-year-old R. A. Thomas Water Treatment Plant, the oldest of the three water treatment plants in Forsyth County. This project includes replacing the treatment facilities, the finished water storage facilities, and the finished water pumping facilities with new construction and modern technology. By end of the fiscal year, the project was slightly ahead of schedule with approximately 75% of the contract time elapsed and 82% of the construction contract funds spent. All major structures have been built; interior work

The 1919 Salem Lake dam (right) will be replaced by a new dam (rendering below).



continues on coatings and electrical and control systems while equipment checkout and operator training occurs. During the year the Commission approved two contract modifications, for additional finished water piping and modifications to the residuals lagoons, that brought the total project budget to $67,093,265. Expenditures as of end of FY 2010 totaled $53,147,609. The project is scheduled for completion in August 2011.

## Idols Pump Station Rehabilitation

This project includes replacement of aging electrical and pumping equipment that has achieved its useful life. Phase I concluded in June 2010 and included the installation of updated, energy-efficient motors for each pump, upgraded motor control centers and soft starters for each pump, and instrumentation and communications equipment to operate the station remotely from the Neilson Water Treatment Plant. The budget for Phase 1 totaled $3,099,320; total project expenditures came to $2,947,548. A second phase of this project is scheduled for FY 2014 to install an emergency electrical generator capable of operating two pumps simultaneously.

## Northwest Raw Water Pump Addition

The Northwest Raw Water Pump station supplies Yadkin River water to the Swann Water Treatment Plant. This project provides for the purchase and installation of a second 25 MGD pump, ancillary piping, valves, and motor controls at the station. The second pump will provide reliable capacity at the station. Construction began during FY 2008-09 and was 97 percent complete by the end of FY 2009-10. The project will conclude in early FY 2010-11 and is expected to be under budget. The total project budget is $1,574,618. As of June 30, 2010 total expenditures were $1,501,825.

## Salem Lake Dam Replacement

The Salem Lake dam was built in 1919 to create a reservoir to supply the Thomas water treatment plant. The dam was raised in 1921, 1931 and 1947 to increase the lake's capacity. Additional construction included a three-story pump house in the central portion of the dam around 1931; in 1996 concrete on the downstream face was replaced with a structural overlay to match the 1947 crest elevation. Recent engineering evaluation and analysis of the dam found no immediate concerns relative to public safety but confirmed that the dam does not meet current standards for spillway capacity, lake draw down, and downstream energy dissipation. An engineering analysis rec-

ommended replacement of the dam as the more cost-effective solution. The project includes the pre-design, design, and construction of a new dam, and relocation of a portion of the Salem Lake Trail to accommodate construction of the dam. Design work was completed in FY 2010. Construction of the dam is scheduled to commence in mid FY 2010-11 and take about a year. During construction, the level of Salem Lake will be lowered 12 feet. This will allow the lake to absorb a 10-year storm without overflowing the construction site. The lake will be closed to fishing and boating while the level is lowered. The project's total budget is $8,101,016. Expenditures at end of the fiscal year totaled $704,144.

## Raw Water Pipeline Evaluation and Repair

This project provides for inspection and evaluation of the raw water lines that connect the Thomas water treatment plant to Salem Lake and the Neilson water treatment plant. The line from the lake to the Thomas plant consists of 9,400 feet of 48-inch steel pipe. The line from the Neilson plant to the Thomas plant consists of 54,000 feet of 36-inch prestressed concrete cylinder pipe. Records indicate that both lines have been in service since at least the 1940s. There are no records of any previous inspections. The budget for the project is $2,041,317 and includes funding for valve and pipeline replacement needs discovered during the evaluation. Expenditures through the end of the fiscal year totaled $687,429. The evaluation concluded in FY 2009-10; construction contracts are scheduled for award in FY 2010-11.

## Neilson Generators

The 2007 Water Facilities Master Plan identified several capital needs at the Neilson plant to replace aging infrastructure, improve treatment to meet current and future regulatory requirements, and ensure the continued reliability of this critical facility. This project fills the need for new standby power generators and distribution switchgear. Two Caterpillar 1,500kW, 480V generators and their associated switchgear are being installed. The generators and switchgear were salvaged from the original Thomas Water Treatment Plant before its demolition. The project involves electric vault construction, new 480V electric service, a new pad-mounted transformer, and removal of the old diesel generators. Construction started toward the end of FY 2009-2010. The total budget is $1,169,365; at the end of the fiscal year expenditures totaled $588,589.

## Winston-Salem State University Distribution System Improvements

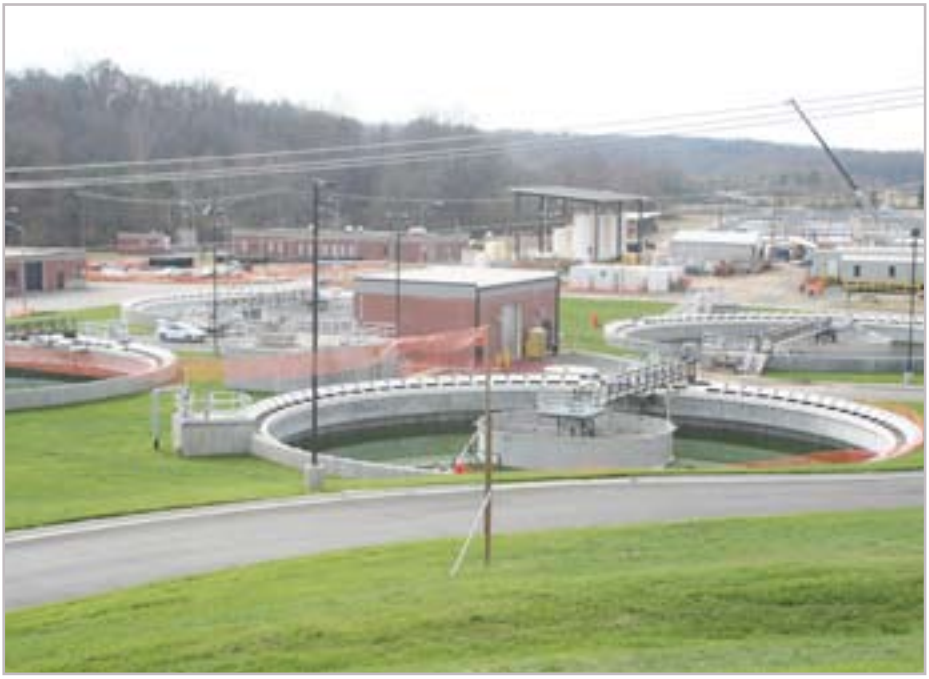
This project will eliminate encroachment of a 24-inch water main easement on the Winston-Salem State University campus and ensure quality of service provided by the Thomas Water Treatment Plant's transmission mains. The project is being completed in two phases, replacing/relocating approximately 10,670 feet of transmission mains that range in size from 12" to 24." Construction of phase one was completed in May 2010 within budget . Phase 2 includes replacement of a 30-inch water line and is on schedule for award of a construction contract in the spring of 2011. Construction is expected to be completed a year after contract award. This project totals $4,780,860; through the end of FY 2009-10 expenditures total $1,501,229.

## Two-inch Water Main Replacement

This project will replace 2-inch water mains at approximately 30 locations within Winston-Salem and multiple locations in Rural Hall and Kernersville. These lines are undersized and no longer provide adequate domestic flow or fire flow to the areas they serve. Two-inch water mains are being replaced with 6- or 8-inch mains. During FY 2009-10, two projects were completed for areas in Winston-Salem and Rural Hall, totaling 6,125 feet of replacement lines. Total budget and expenditures for the two projects came to $552,674.

## Muddy Creek WWTP Water Service Relocation

This project will extend a water main from the intersection of Cooper and Loop roads, near Clemmons, to the Muddy Creek Wastewater Treatment Plant. When the new main is built, an existing service connection will be severed on the 48-inch water main leaving the Neilson Water Treatment Plant: doing so will provide additional chlorine contact time prior to delivery to the customer as required by state regulations. Extending this main will also allow future domestic connections along Cooper Road. The project is in the design phase and expected to bid in Spring 2011. The design budget is $74,874; expenditures through FY 2009-10 totaled $29,244.



The Archie Elledge WWTP operates under NPDES Permit NC0037834 and the Muddy Creek WWTP operates under NPDES permit NC0050342. The land application of biosolids is regulated by the North Carolina Division of Water Quality under Permit WS0000094. The Thermal Biosolids Dryer operates under DRS permit WQ0029804.

# Wastewater Collection and Treatment

The Winston-Salem/Forsyth County Utility Commission operates two wastewater treatment plants with a combined treatment capacity of 51 million gallons per day. The collection and treatment system includes approximately 1,689 miles of sewer lines and 50 pumping stations. The Utility Commission and the Utility Division staff work hard to meet or exceed the requirements mandated by the North Carolina Clean Water Act and the requirements of the National Pollutant Discharge Elimination System (NPDES) permits that regulate the actual operation of the treatment plants and the disposal of biosolids.

## WASTEWATER TREATMENT PLANTS

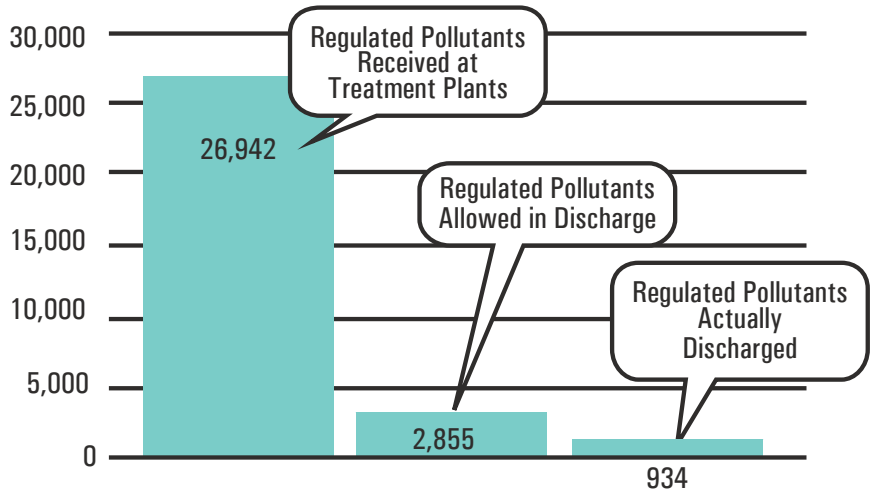
From July 1, 2009, to June 30, 2010, the sewage plants treated 12.29 billion gallons of wastewater. The Muddy Creek Wastewater Treatment Plant operated all year within the parameters established by its state and federal permits. The Archie Elledge Wastewater Treatment Plant reported two mercury violations of its NPDES permit during the reporting period. The source of the mercury is currently being investigated by staff to determine its origin. There were no violations of the Biosolids Disposal Permit.

The system's two wastewater treatment plants met the minimum requirements imposed by the State of North Carolina's Division of Water Quality by a safety factor of 3.05. Approximately 26,008 tons of regulated pollutants were removed by the treatment processes during the period ending June 30, 2010.

The treatment and disposal of residual biosolids produced by the wastewater treatment plants is accomplished by anaerobic digestion followed by further processing at the Biosolids Drying Facility.

Methane, one of the longest-lasting greenhouse gases, is captured in the treatment process before it escapes to the atmosphere. Each year more that 212 million cubic feet of methane is captured from the digesters and used as fuel to reduce the cost of running the plants.

The Biosolids Drying Facility at the Elledge plant uses excess methane from the existing treatment process to dry dewatered biosolids into a pellet much like




**WASTEWATER TREATMENT PLANT EFFICIENCY**

Tons of Pollutants per Year - FY 2009-2010

*The treatment process removed approximately 26,008 tons of regulated pollutants during the year ending June 30, 2010.*

granular fertilizer; known as Winston-Salem Soil Solution. During FY 2009-10 the dryer produced 5,722 dry tons of pelletized biosolids. The biosolids are then beneficially reused in various agricultural settings via a contract marketing/hauling company.

### Elledge Plant Improvement

The Elledge Plant has been in operation since 1959 and many parts of the plant are showing signs of deterioration. An assessment of the oldest portions of the plant was performed and design for these improvements was completed in FY 2007-08; bids on the project were received in August 2008 and the contract was awarded in September 2008 in the amount of $51.9 million. As a result of the assessment, the Elledge plant only required updates to the headworks (the influent screening and pumping facility) and primary treatment areas of the facility and has continued operation during the construction. Construction of four new primary clarifying basins at a higher elevation along Salem Creek is one of the main highlights of this improvement project. In addition, a new control building will be built that will house electrical/IT rooms, a control room, and a small laboratory. A new influent pumping station is under construction, also at a higher elevation, to allow the sewage to flow through the plant by gravity. This project also provides for the replacement of 1,600 feet of the Salem Outfall, the plant's electrical system, and gas compressors. When these improvements are complete, the Elledge Plant will continue to treat 30 million gallons of sewage a day with a more reliable infrastructure, but will have the capacity to treat 100 million gallons a day in flood capacity. The project is scheduled for completion in early 2011.

Total project budget: $62,332,430. Total expenditures through FY 2010: $50,813,521.

## WASTEWATER COLLECTION

The Commission oversees the third-largest collection system in North Carolina and the Utilities Division has more than 62 employees dedicated to operating and maintaining the system. More than 99.985% of the wastewater generated by the system's customers was collected and delivered to the treatment facilities. Despite the staff's best efforts, sanitary sewer overflows will occur. Most overflows occur when sewer lines are obstructed or their capacity is reduced due to inflow or infiltration of ground or surface water.

Since the passage of the North Carolina Clean Water Act in 1999 the total volume of annual SSOs

The Biosolids Drying Facility at Elledge produced 5,722 dry tons of pelletized biosolids during FY 2009-10

has been tracked against the baseline year of FY 1998-99. The FY 2009-10 total volume of SSOs represents a 19.5% increase from the volume reported for the baseline year. The increase in total volume can mainly be contributed to an isolated incident at the Tanglewood lift-station in Clemmons. This one spill contributed 87.7% of the total SSO volume for FY 2009-2010. It is also important to note the state did not pursue civil penalties related to this incident due to the diligent efforts by our maintenance personnel, who were able to reduce the spill by approximately 650,000 gal via a pump & haul operation.

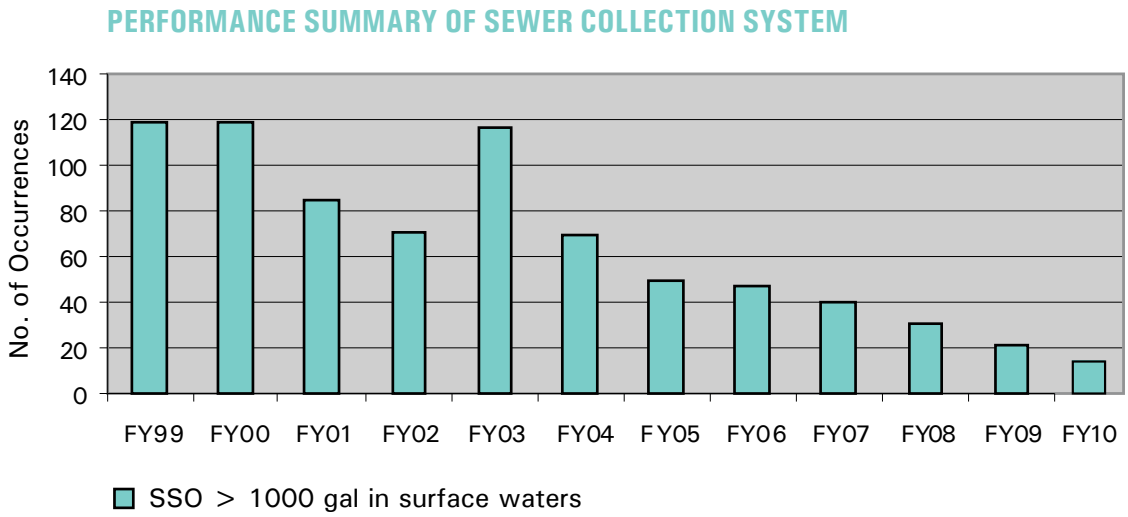
There were 106 sanitary sewer overflows during FY 2009-10, a 10 percent decrease compared to the 117 overflows reported in FY 2008-09. However, the goal is to have zero sanitary sewer overflows from the sewer collection system.

Overflows must be reported whenever more than 1,000 gallons is spilled or any amount of untreated sewer reaches a surface water body. During the fiscal year there were 16 overflows of 1,000 gallons or more in the sanitary sewer collection system, totaling 1.84 million gallons, or 0.015 percent of the 12.29 billion gallons of wastewater the system collected. There were two overflows from treatment plants and pumping stations, totaling 114,904 gallons, or 0.0000056 percent of the wastewater treated.

Accumulation of fats, oils, and grease accounted for 52 of the 106 sanitary sewer overflows in the collection system during FY 2009-10. These 52 overflows account for about half (49.1 percent) of all sewer line blockages and is down from 55 grease-attributed overflows during each of the two previous fiscal years.

The reduction reflects the continued effectiveness of the Commission's Grease Interceptor Ordinance (in place since 2003), public education efforts. For example, staff working with the city's Marketing & Communications department developed a "Can the Grease" brochure and associated educational materials. This information is routinely provided to the public at many functions throughout the year. The reduction also reflects the proactive approach to cleaning sewer main lines and the publicly maintained portion of sewer connections. Sewer-line maintenance also prevents overflows from tree roots and debris, which are the other major contributors to line blockages.

In summary, the wastewater collection system staff continued to operate the system in compliance with the permit. Improving operational performance was key in maintaining a low volume of sewer spilled from the system. Although effort is currently being placed on operational performance and ma-




jor system improvement projects, much more effort will be required to meet the goal of having zero overflows. As a result, more staff, equipment, information technology, and funding must be available and in place to ensure success.

## WASTEWATER COLLECTION SYSTEM MAINTENANCE AND REHABILITATION

During the year, 798,632 linear feet of sewer mains were cleaned by maintenance personnel. The system spent $190,500 on contracted mainline cleaning, which provided for cleaning of approximately 236,860 linear feet of sewer lines in addition to the lines cleaned by in-house personnel. The cleaning contract has been increased by 33 percent for next fiscal year in an attempt to continue to reduce sanitary sewer overflows related to debris and grease. In addition, a chemical root control contract is anticipated to treat approximately 100,000 linear feet of sewer main in FY 2010-11, further reducing the risk of sanitary sewer overflows occurring in the system.

Also, the system funded the inspection of 23,500 feet of sewer mains using closed-circuit TV. Staff and contractors also improved the access to collection system easements through the inspection and mowing/clearing of approximately 38 miles of easements.

During FY 2009-10, more than $3.05 million was invested in sewer main rehabilitation projects. These projects replace older less reliable infrastructure with newer sewer lines, resulting in fewer leaks and service interruptions. These improvements correct problems such as cracked pipes, misaligned joints, sagging lines, and root intrusion.

The majority of the rehabilitation projects included replacing approximately 14,906 feet of gravity sewer mains, 121 manholes, and 123 service laterals. The sewer mains rehabilitated primarily ranged in size from 6- to 8-inches and took place in the West Salem area and on North Cherry Street.

On-going rehabilitation projects include:

Ardmore Area Rehabilitation: This project is being spread over multiple years. During FY 2009-10, priority repairs were initiated at locations across the entire area. Priority repairs will conclude in early FY 2011. Priority repairs total budget: $982,769.

Muddy Creek Find & Fix: The inspection and evaluation portion for two study areas concluded in FY 2009-10. The design phase will commence in FY 2011. Total budget: $920,140.

Miscellaneous Collection System Improvements: Improvements on Main Street, Betty Drive, Goldfloss Street, Plymouth Avenue, and Stonegate Drive.

This crystal clear sample shows the cleanliness of treated water going back into Salem Creek from the Elledge plant.

Construction will begin in August 2010 and is scheduled to be complete February 2011. Total project budget: $992,242.

### Reedy Fork Pump Station

The Reedy Fork Pump Station was built in 1982 and is in poor condition. It is difficult to find replacement parts for its outdated equipment. The station is a confined space and requires additional time, safety measures and costs when inspections and repairs are performed. In addition, a portion of the outfall into the pump station traverses upstream wetlands that are a significant source of infiltration and inflow. The Commission has approved a project to decommission the existing pump station, build a new pump station upstream of the wetlands, and build a new 16-inch force main. The project also includes a downstream hydraulic capacity study of the wastewater interceptors in the South Fork sewer basin. The project is in the pre-design phase and has a budget of $658,449. Expenditures through FY 2009-10 total $368,568.

## FUTURE CHALLENGES

### Wastewater Treatment

In 2004, a wastewater treatment master plan was developed that considered wastewater flow projections and future, more restrictive effluent limits. While flow projections predicted growth in sewer flows, new treatment capacity is not expected to be needed within the next ten years. However, more restrictive effluent limits on our treatment permits are anticipated.

New permits will be issued in 2014, which is within the window of the current capital improvements plan. Staff anticipates that the 2014 permits will contain nutrient limits (for nitrogen and/or phosphorus) which will require a major capital expenditure to construct nutrient removal processes at both wastewater treatment plants. The N.C. Division of Water Quality may allow a compliance period up to five years in order to construct the necessary facilities.

The need for nutrient removal stems from High Rock Lake being listed by the Division of Water Quality as impaired by chlorophyll and turbidity. Chlorophyll is formed by microbiological growth when the proper amounts of nutrients (nitrogen and phosphorus) are present in the water. The sources of these nutrients vary but are mostly due to non-point source runoff and point source discharges. Turbidity, which is a measure of the clarity of the water, and is the result of erosion due to runoff and impairs the waters by preventing sunlight penetration or increasing sediment deposition. Once a water body is listed as impaired, DWQ is re-

Elledge Clarifying Basin

quired by the U.S. Environmental Protection Agency to issue a Total Maximum Daily Load limit. A limit will quantify how much contaminant load the water body can naturally assimilate.

## Wastewater Facilities Master Plan

Per EPA guidelines, the total maximum daily load for High Rock Lake could be issued as early as 2012. The staff expects that the TMDL limits will lead the Division of Water Quality to set specific limits for nitrogen and/or phosphorus in the permits that will be issued in 2014 for both wastewater plants.

To plan for this, the staff has been working with a consulting engineer to update the wastewater facilities master plan, which provides long-term guidance and planning for capital improvement projects at lift stations and the Elledge and Muddy Creek wastewater treatment plants. During a meeting with representatives of the Division of Water Quality, target limits for both nitrogen and phosphorus were established and were used to determine the potential nutrient removal processes that could be implemented at both the Elledge and Muddy Creek plants. Significant plant modifications will be required to construct nutrient removal processes to meet the more restrictive limits. A capital improvement plan has been developed based on the treatment facilities modifications necessary. The final report will provide prioritization and planning level descriptions and cost estimates for the recommended improvement projects for 5-year, 10-year, and 20-year planning periods and will be reflected in future capital plans presented to the Utility Commission.

Evaluation of facility condition, process options, and regulatory compliance concluded in FY 2010. Evaluation of flow projections and the final master plan report activities will conclude in FY 2011. Total project budget: $632,050. Total expenditures through FY 2010: $284,300.

## Wastewater Collection System Permit Compliance

The Utilities Division has been operating under a Wastewater Collection System Permit issued in August 2005. This permit sets requirements on system performance, operations, maintenance, record keeping, monitoring and reporting, and inspection expectations that have immediate impact to the commission's operation. The permit also requires that system owners and operators demonstrate that a proactive and preventative maintenance program is in place to eliminate overflows.

The Utilities Division has spent significant effort refining preven-

Elledge Odor Control

tive maintenance programs. In 2008, three different preventive sewer line maintenance contracts were put in place: chemical root control, hydraulic and mechanical cleaning of sewer lines and right-of-way maintenance. Each maintenance contract can be renewed annually for up to five years. These contracts will supplement our staff resources and help achieve the goals required in the permit.

Also, a new crew dedicated to cleaning large diameter mains was approved in the FY 2008-09 budget. This crew has been hired and trained in the operation of the specialized equipment used to clean sewer mains 18" and above. This specific need will be the mission of this operation because large sewer mains are the arteries of the system. These mains carry large volumes of flow and over time have a tendency to accumulate sediment and other deposits that reduce their carrying capacity. This crew will utilize existing specialized equipment to remove the sedimentation and thus recapture capacity while cleaning the line. This will be another positive step towards proactive preventative maintenance and reducing the potential for Sanitary Sewer Overflows (SSO).

During 2008, the Division of Water Quality began issuing Notices of Violation for reportable sanitary sewer overflows. Civil penalties are levied for any overflow that the division deems to have been preventable. In FY 2009-10, our system received 77 notices of violation; seven overflows were listed as "Intend to Enforce" actions if no additional information about the cause of the overflow was presented. Staff provided follow-up information on all seven incidents and the Division was satisfied with our efforts to prevent sanitary sewer overflows from occurring in our system. As a result, the Commission did not pay any civil penalties for sewer overflows during FY 2009-10. An SSO reduction team of staff continues to identify causes of sanitary sewer overflows and actively plans projects in an effort to reduce overflows, and infiltration and inflow into the sewer system.

Meeting the requirements for our collection system permit is our highest priority. It has required the implementation of new programs and additional personnel to cover the operational requirements like annual inspections, preventive maintenance programs, system monitoring, recordkeeping, and rapid response to overflow events. Also, coordination of various internal and external resources to meet this obligation has been required. Even with current budgetary restrictions in place, staff is meeting state requirements with the use of existing staff, and contracted services.

*The goal of the Solid Waste Management program is to provide, as an enterprise, environmentally and economically acceptable means of solid waste disposal for current and future wastes generated in Winston-Salem and Forsyth County.*

# Operations – Solid Waste

The Solid Waste Management program operates the Hanes Mill Road Landfill, the Old Salisbury Road Construction and Demolition Landfill, the Reynolds Park Road leaf composting facility, and the Forum 52 and Overdale Road Yard Waste facilities. This program is also responsible for scrap tire and white goods management, and household hazardous waste management. All programs are operated to meet or exceed applicable regulatory standards, and appropriate environmental protection criteria. This means strategically planning for future land, facility and equipment needs; managing closed solid waste landfills; and complying with current solid waste management regulations.

The Solid Waste program managed over 317,120 tons of municipal solid waste, construction and demolition debris, and yard waste during FY 2009-10. Recycled goods also included 6,035 tons of scrap tires and 469 tons of appliances. The facilities serviced an average of 462 vehicles per day for a total of over 141,945 vehicles during the year, reduced from the previous year by 13,118 vehicles.

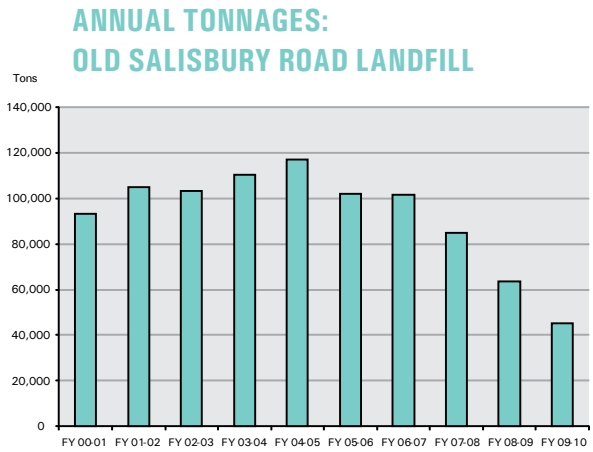
The trend of increased amounts of municipal solid waste being hauled out of Forsyth County (and disposed in privately operated landfills) is continuing. The discounted tip fee for customers who bring larger amounts of waste (implemented in FY2004-05) continues to be offered as a means to help mitigate this trend of declining waste. Waste quantities are also affected by economic factors, as waste generation generally declines during an economic recession. Table 1 illustrates the fluctuations in the municipal solid waste stream in recent years.

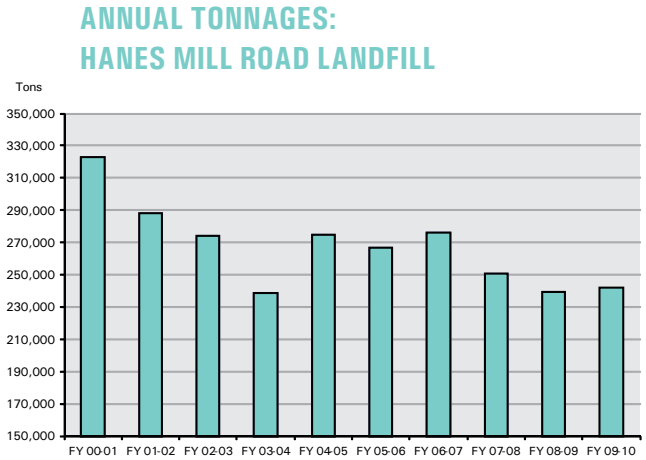
The waste stream at the construction and demolition landfill (Old Salisbury Road Landfill) has also declined significantly in the last few years, primarily due to economic conditions. In FY 2009-10, 47,432 tons were received. This is a decrease of 11,706 tons from the previous year's total of 59,137 tons.

## STATUS OF SOLID WASTE PROJECTS

### Hanes Mill Road Landfill

The first cell of the landfill expansion, located across the railroad tracks to the west of the original landfill, was placed into use in May 2005. The second 14-acre lined cell (located immediately adjacent




to the initial 22 acre cell) was completed in late 2006, and began receiving waste in April 2007. The design for the next phase of the landfill is completed and permitted, with construction of cells 3 and 4 planned to commence in FY 2010-11. Approximately 17 acres of lined landfill cells will be constructed, along with a perimeter access road and an area for recycling concrete and brick into reusable aggregate products.

In 2006, closure of about 40 acres of inactive landfill was completed. This closure involved construction of a final cover system consisting of compacted clay and a synthetic polyethylene cover to keep rainwater from coming in contact with waste. Several seasons of severe winter weather has taken its toll on this cover system, and repairs will be made to the closed landfill in FY 2010-11, in conjunction with the construction of cells 3 and 4 described above.

## Landfill Gas System

Hanes Landfill has a landfill gas extraction system that collects gas generated by the decomposing waste. The gas is then delivered to the existing power generation facility where it is converted into electrical power and sold back to the power grid. The contractor operating the power plant is DTE Biomass. Over 36 million kilowatt-hours of electricity are generated annually, enough electric energy for approximately 2,900 homes. The contractual arrangement provides for DTE to pay the City/County Utility Commission for the gas harvested from the landfill. Over time, these payments will serve to offset the capital cost of installing the system. In 2009 a pipeline was completed that conveys landfill gas from the expansion area to the power plant. Seven landfill gas wells have also been installed in the waste and connected to the system. Revenues to the solid waste fund will increase as gas production increases in the newer areas of the landfill expansion.

## Woodcliff Drive Homes

In 2002, the City Council adopted a resolution directing the City/County Utility Commission to offer to purchase all the homes on Woodcliff Drive as a concession to the Grassy Creek Neighborhood Association. Seventeen of the 18 houses on Woodcliff Drive were purchased by the Commission, and 16 of those have been resold. The remaining home is being maintained and is offered for sale.

## Construction and Demolition Recycling Facility and Landfill

The Old Salisbury Road Landfill is projected to be full around the year 2021, assuming the waste

Left: Overdale Yard Waste Facility

Below: Landfill Gas-to-Energy Plant

stream remains relatively stable. The decline in the amount of construction and demolition debris being generated has extended the life of this facility significantly, which provides additional time to conduct strategic planning with respect to the various options for managing this waste stream. Some of these options include: developing a new landfill and recycling facility; implementing recycling programs on existing sites; partnering with others in the recycling industry; and/or co-disposing this waste stream at Hanes Mill Road Landfill.

## FUTURE CHALLENGES AND OPPORTUNITIES

Because the solid waste funding structure has relied primarily on tipping fees and gate receipts at the Hanes Mill Road Landfill and Old Salisbury Road Landfill to fund its programs, year-to-year fluctuations in the waste stream are problematic and create pressure to keep the waste stream from declining. Challenges primarily come in the form of competition for the waste that has historically gone to the Hanes Mill Road Landfill. Large privately owned waste companies have the ability to offer competitive pricing because they do not provide funding for waste reduction programs through disposal charges, and some are vertically integrated with collection and disposal services. Their competitive pricing has resulted in less waste being disposed at Hanes Landfill over recent years. Economic considerations also have an influence on the waste stream, and have contributed to reduced tonnages at both landfills in FY 2008-09 and FY 2009-10.

Historically, the Solid Waste Enterprise Fund has also provided funding for the city's curbside recycling program, Forsyth County's drop-off recycling program, and the recycling program in the Winston-Salem / Forsyth County public schools. Reduced amounts of waste at the landfill result in reduced revenue, which puts further demands on the solid waste fund balance in order to continue being the primary funding source for these programs. During budget year 2010-11, alternative approaches are being implemented for some of the programs prehistorically funded by the solid waste enterprise fund. The household hazardous waste program will be funded jointly by the water, sewer, and stormwater enterprise funds, and the city's general fund will contribute toward the curbside recycling program.

In recent years, staff has implemented various cost savings and revenue enhancing measures which will carry forward into FY 2010-11. For example, operating hours at the landfills were reduced; flat rates (the rates charged to individuals in small vehicles)

## SOLID WASTE DISPOSAL RATE COMPARISONS

**DISPOSAL RATE COMPARISON**

Hanes Mill Road lowest rate matches the tipping fee of similar publicly owned facilities at $30.00/ton.

| City | Municipal Solid Waste Tipping Fee | Construction & Demolition Disposal Fee |
|---|---|---|
| Durham | $42.00[1] | $42.00 |
| High Point | $38.00 | $38.00 |
| Greensboro | $41.00[1] | $31.00/$41.00[4] |
| Raleigh (Wake County) | $30.00/36.00[2] | NA[5] |
| **Winston-Salem** | **$30.00/$34.00[3]** | **$28.00** |

Data taken from government websites.
(Reflects rates for fiscal year 2009-2010. A state disposal tax of $2 per ton applies.)
Notes:
1 This rate represents the tipping fee for their transfer station.
2 Customers may dispose of waste at the landfill for $30.00 per ton or at the county transfer facility for $36.00 per ton.
3 Hanes Landfill currently offers a rate of $30.00 to any hauler delivering a minimum of 700 tons/month.
4 Customers may dispose of C&D waste at the White Street Landfill at $31.00 per ton.
They may also dispose of this waste at the transfer station at $41.00 per ton.
5 County landfill does not accept C&D waste. Various private C&D landfills accept C&D for rates from $24 to $39.50.

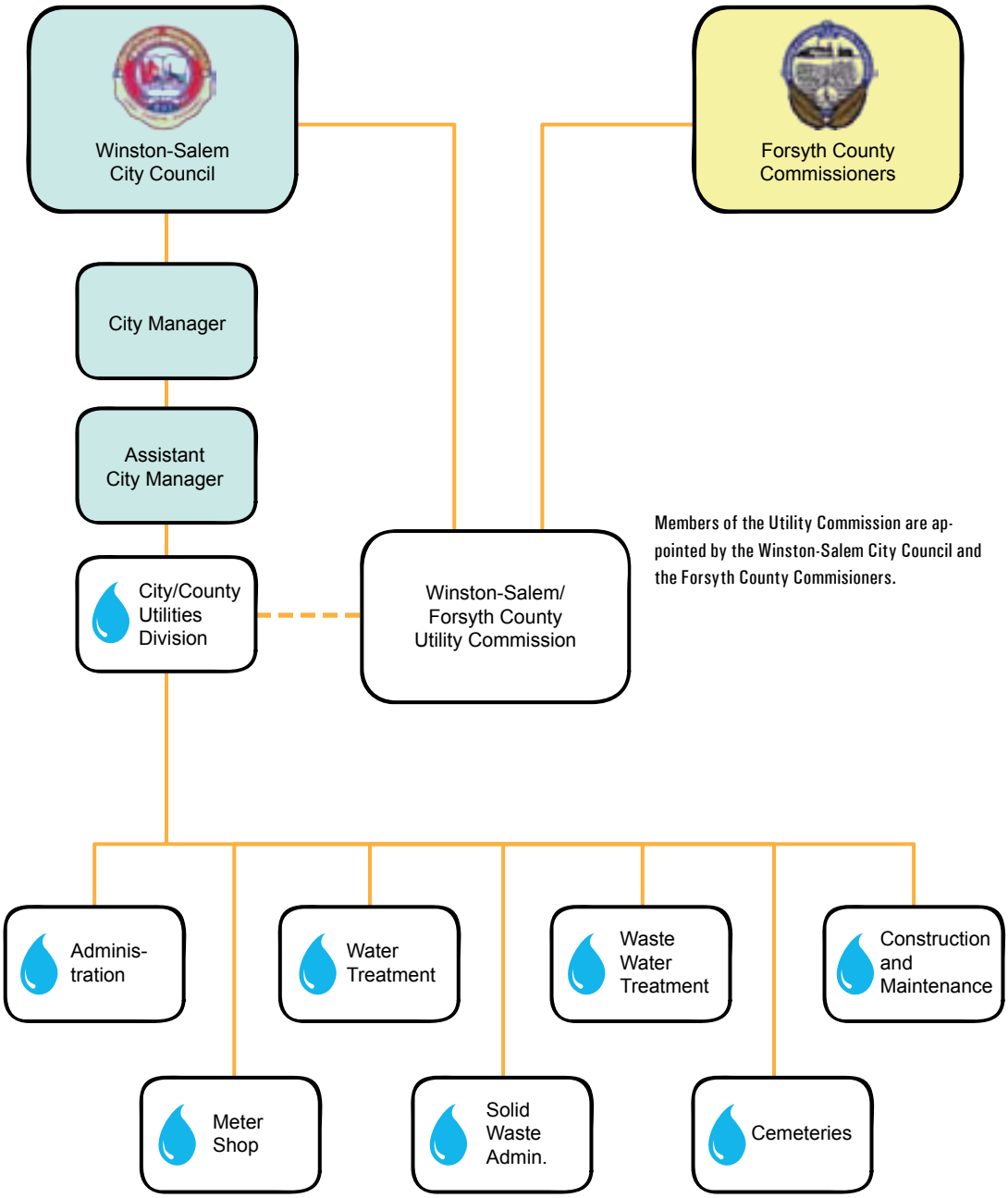
were increased, and various other expenses were reduced. The single largest cost savings effort at solid waste facilities is related to deferred replacement of heavy equipment. Several major purchases have been postponed to ensure that maximum usage is being obtained from existing pieces of equipment. Utilities and budget office staff are continuing to monitor expenses, and the waste stream market conditions in an effort to predict future economic conditions and be prepared to react accordingly.

Other challenges for the solid waste program are driven by state and federal regulatory changes. A statewide disposal tax (begun in 2008) provides some additional revenue, but also adds to administrative and overhead costs for its collection. Distributions from the scrap tire tax fund are noticeably reduced, due to economic conditions and budget stresses in state government. Recent state imposed waste bans from landfill disposal have added to costs for waste screening and training, and additional bans (on electronics) are forthcoming. New EPA regulations on greenhouse gas reporting will also increase costs of compliance with air quality permits. Newly implemented (2008) solid waste permit fees added over $50,000 to last year's expenses. Finally, the costs for ongoing work at the closed landfills related to maintenance, monitoring, and implementing groundwater corrective action will continue to rise.

The Utility Commission is involved in an ongoing evaluation of ways to make the total solid waste disposal system more efficient while continuing to provide high quality solid waste programs in the future. Changes to the way the existing collection and disposal programs are operated and funded are all parts of the solutions being considered.

Alternative funding systems are being explored that would allow the landfill to set rates that are more competitive, yet reflect the true cost of providing the service, resulting in a more sustainable system in the long term. Examples of alternative funding systems include: implementation of a user fee for recycling services; implementing a recycling and/or disposal availability fee; or funding programs through the general fund.

# ORGANIZATION CHART




Members of the Utility Commission are appointed by the Winston-Salem City Council and the Forsyth County Commisioners.

The staff of the City/County Utilities Division are employees of the City of Winston-Salem and provide staff support for the Commission.

# UTILITY COMMISSION MEMBERS

## UTILITY COMMISSION

David Neill, Chairman
James E. Lowe, Vice Chair
Toyoko "Toy" Beaty
Charles D. Jewell, II
Harold R. Holmes
Janeen Lalik
Paul S. McGill
Al H. Seymour
Stephen M. Shelton
J. Hill Stockton
Randall S. Tuttle

## COMMITTEES

FINANCE
Randall S. Tuttle, Chairman
J. Hill Stockton, Vice Chairman
Paul S. McGill
Al H. Seymour

OPERATIONS
Harold R. Holmes, Chairman
Stephen M. Shelton, Vice Chairman
Toyoko "Toy" Beaty

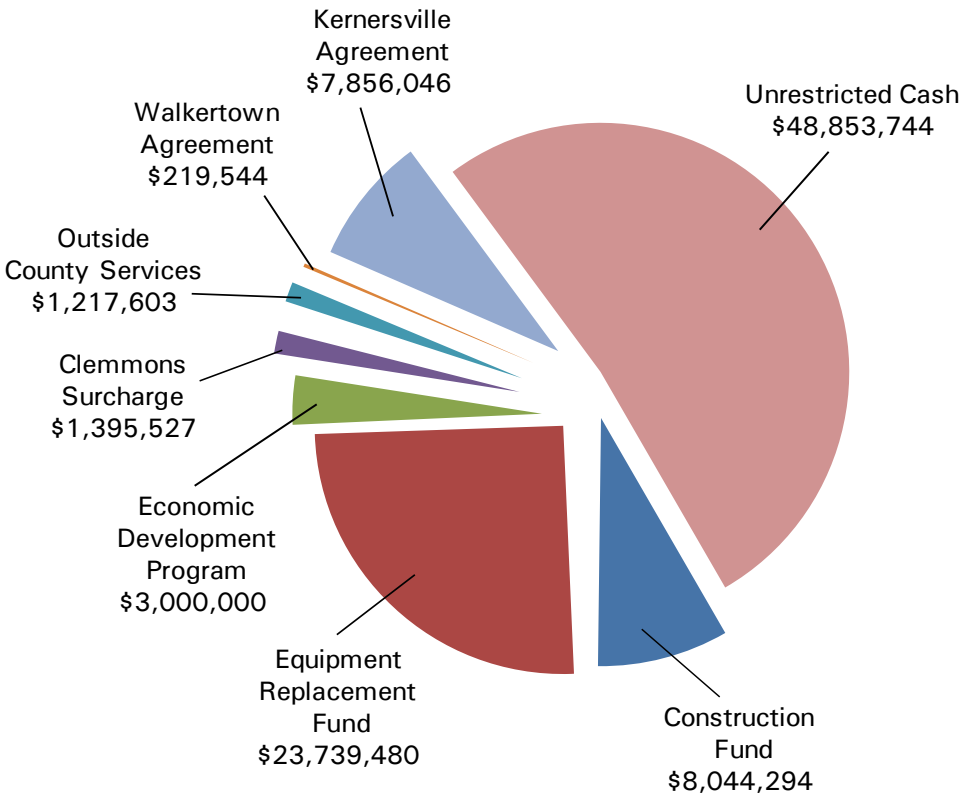
PLANNING & POLICY
Al H. Seymour, Chairman
Janeen Lalik, Vice Chairman
Charles D. Jewell, II

## STAFF

Gregory M. Turner, P.E.
Assistant City Manager

David K. Saunders, P.E.
City/County Utilities Director

## WINSTON-SALEM/FORSYTH COUNTY UTILITY SYSTEM RESTRICTED CASH




**DEFINITIONS FOR FUND BALANCE:**

**Trustee Construction Fund:** This fund holds unspent revenue bond proceeds that can only be used for the purposes for which the bonds were issued.

**Clemmons, Kernersville and Walkertown Reserves:** These fund are generated from the rates charged to customers in Clemmons, Kernersville and Walktertown. The City-County Utility Commission holds these funds in trust for these municipalities to be used for their water and sewer systems.

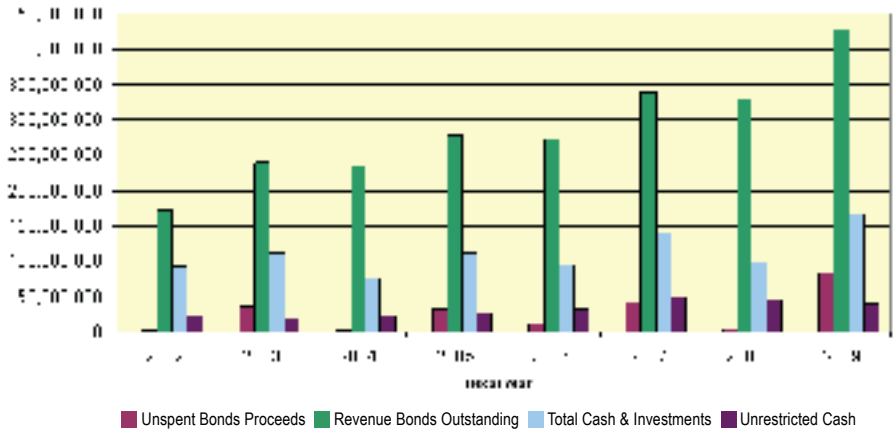
**Equipment and Replacement Fund:** The City-County Utility Commission created this reserve to set aside 5% of the water and sewer utility fund balance for major maintenance and capital expenditures. This fund is currently being used to fund PAYGO annually for CIP.

**Economic Development Reserve:** In April 1987, the City-County Utility Commission set aside $3 million to advance to businesses locating in industrial parks within Forsyth County for the extension of water and sewer infrastructure.

**Outside County Services Reserve:** In 1995 and 1996, the City Council and the Forsyth County Board of Commissioners amended the 1976 agreement establishing the Utility Commission to authorize the Commission to charge customers outside Forsyth County higher rates than those charged to customers within the county. The amendment also authorized the Utility Commission to set aside up to 50% of the revenue generated from these higher rates to be used for economic development projects approve by the City Council and the Forsyth County Commissioners.

**Unrestricted:** Funds used to pay for those portions of the Utility Commission's Capital Improvement Plan not funded with Revenue Bonds.

WATER AND SEWER FUND: COMPARISON OF FINANCIAL DATA




# Summary of Financial Statements

## Water and Sewer Utility Fund

For FY 2009-10, total operating revenues were $66,598,885. This was $4,760,585 less than budgeted, but up $4,971,809 from FY 2008-09 even though water demand remained flat during the fiscal year. The 8.1 percent increase in revenue is directly related to the new increasing block tier structure and rate increase implemented during the fiscal year.

Operating expenditures totaled $34,953,467, which was $7,567,261 less than the budgeted expenses of $42,520,728. The bulk of the operational expense savings were in the areas of reduced contracted services, reduced cost of operational supplies, (such as chemicals, parts, tools, etc.) and in efficiencies found in energy costs like, reduced fuel cost needed for vehicles and equipment as well as natural gas that is used in the biosolids drying facility. There were also significant salary savings achieved through hiring freezes.

Investment income for the fiscal year was $7,032,643, compared with an investment loss of ($5,989,474) the previous year.

The fund ended the fiscal year with $94,326,238 in cash and cash equivalents. This is $72,166,578 less than the $166,492,816 in cash and cash equivalents the fund had at the start of the fiscal year, and reflects the expenditure of bond proceeds from the previous year to finance capital projects, including improvements to the Archie Elledge Wastewater Treatment Plant and replacement of the R.A. Thomas Water Treatment Plant.

Accounting for debt service, investment income, and all other non-operating costs, the Water and Sewer Utility Fund ended the 2009-10 fiscal year with a net increase in assets of $8,657,386 (full accrual basis).

## Solid Waste Fund

The Solid Waste Fund ended the 2009-10 fiscal year with a balance of $42,091,147, reflecting net increase in assets of $1,650,438 (full accrual basis) after adjusting for the non-operating costs and transfers to the general fund to pay for the city's curbside recycling program and the county drop-off recycling programs.

Both revenues and operating expenditures at the solid waste facilities were below the previous year's levels.

Operating revenues for the solid waste fund for FY 2009-10 were $10,560,197. This was $1,496,717 more than the budgeted revenues of $9,063,480, and $52,631 less than the actual revenues for FY 2008-09 at $10,612,828. The decrease in revenue is directly attributed to the decrease in tonnages of waste being disposed of at Utility Commission owned facilities. Operating expenditures totaled $6,915,449, or $2,815,136 less than the budgeted amount of $9,730,585. The savings are primarily due to a reduction in equipment leasing and maintenance costs, and decreased usage of supplies and materials. The transfer out to the general fund to pay for recycling programs was $2,887,450 in FY 2009-10.

The net increase in the solid waste fund is attributed to the investment income earnings of $2,418,489. The unrestricted net assets at the end of 2010 were $10,592,959.

# City of Winston-Salem, North Carolina
## Enterprise Funds

Water and Sewer Utility Fund - Statement of Net Assets
June 30, 2010 and June 30, 2009

| Assets | 2010 | 2009 |
|---|---|---|
| **Current Assets** | | |
| Cash and cash equivalents | $ 48,853,744 | $ 38,561,442 |
| Receivables, net of allowance for uncollectibles | | |
| Accounts | 9,615,491 | 8,261,722 |
| Assessments | 1,063,239 | 1,565,020 |
| Total receivables | 10,678,730 | 9,826,742 |
| Due from other governments | 15,278 | - |
| Inventories | 2,532,735 | 2,548,658 |
| Total current assets | 62,080,487 | 50,936,842 |
| **Noncurrent Assets** | | |
| Restricted Assets | | |
| Cash and cash equivalents | | |
| Equipment and replacement fund | | |
| Reserved | 37,428,200 | 45,397,354 |
| Unreserved | - | - |
| Construction | | |
| Trustee construction fund | 8,044,294 | 82,534,020 |
| Capital fund | - | - |
| Total restricted assets | 45,472,494 | 127,931,374 |
| Property and Equipment | | |
| Land | 14,446,651 | 14,155,018 |
| Buildings | 167,325,961 | 166,545,629 |
| Improvements other than buildings | 635,151,741 | 607,258,468 |
| Machinery and equipment | 17,049,141 | 17,096,024 |
| Construction in progress | 133,502,859 | 74,761,423 |
| Total property and equipment | 967,476,353 | 879,816,562 |
| Less accumulated depreciation | 291,495,015 | 271,235,725 |
| Property and equipment, net | 675,981,338 | 608,580,837 |
| Other | | |
| Unamortized financing costs | 3,155,997 | 3,356,390 |
| Deferred outflow of resources | 19,644,828 | |
| Total noncurrent assets | 744,254,657 | 739,868,601 |
| Total assets | 806,335,144 | 790,805,443 |

Statement E-4

| Liabilities | 2010 | 2009 |
|---|---|---|
| **Current liabilities** | | |
| Accounts payable | $ 8,667,453 | $ 7,400,809 |
| Accrued payroll | 338,410 | 575,459 |
| Accrued interest payable | 649,810 | 690,696 |
| Prepaid assessments | 82,757 | 164,459 |
| Current maturities | | |
| Contracts payable | 290,883 | 615,176 |
| Bonds payable | 12,440,000 | 11,885,000 |
| Total current liabilities | 22,469,313 | 21,331,599 |
| **Noncurrent liabilities** | | |
| Contracts payable from restricted assets | 9,526,760 | 11,131,757 |
| Accrued vacation | 658,783 | 677,958 |
| Contracts payable | 399,678 | 630,486 |
| Bonds payable | 405,381,328 | 417,436,575 |
| Derivative instrument liability | 19,644,828 | |
| Total long-term liabilities | 435,611,377 | 429,876,776 |
| Total liabilities | 458,080,690 | 451,208,375 |
| **Net Assets** | | |
| Invested in capital assets, net of related debt | 265,513,743 | 260,547,620 |
| Unrestricted | 82,740,711 | 79,049,448 |
| Total net assets | **$ 348,254,454** | **$ 339,597,068** |

# City of Winston-Salem, North Carolina
## Enterprise Funds

Statement E-5

Water and Sewer Utility Fund - Statement of Revenues, Expenses, and Changes in Net Assets
For the Fiscal Years Ended June 30, 2010 and 2009

| | 2010 | 2009 |
|---|---|---|
| **Operating Revenues** | | |
| Sales | | |
| Water | $ 34,525,328 | $ 31,399,333 |
| Sewer | 26,327,287 | 23,831,330 |
| Industrial waste surcharge | 2,056,651 | 1,885,684 |
| Total sales | 62,909,266 | 57,116,347 |
| Charges for services | | |
| New connections | 276,137 | 345,431 |
| Special area and privilege charges | 573,230 | 1,728,474 |
| Main line capital cost revenue | 91,745 | 103,700 |
| Total charges for services | 941,112 | 2,177,605 |
| Other | 2,748,507 | 2,333,124 |
| Total operating revenues | 66,598,885 | 61,627,076 |
| **Operating Expenses** | | |
| Personal services | 15,319,782 | 16,466,384 |
| Maintenance and operations | 19,731,483 | 20,634,430 |
| Total operating expenses before depreciation | 35,051,265 | 37,100,814 |
| Depreciation | 20,634,666 | 19,752,602 |
| Total operating expenses | 55,685,931 | 56,853,416 |
| Operating income | 10,912,954 | 4,773,660 |
| **Nonoperating Revenues (Expenses)** | | |
| Investment income (loss) | 7,032,643 | (5,989,474) |
| Gain (loss) on disposal of assets | 11,732 | (1,856,915) |
| Damage settlements | 14,409 | 87,050 |
| Interest and fiscal expense | (13,388,768) | (12,368,819) |
| Amortization of financing costs | (585,145) | (625,981) |
| Total nonoperating expenses, net | (6,915,129) | (20,754,139) |
| Loss before capital contributions and operating transfers | 3,997,825 | (15,980,479) |
| **Capital Contributions** | | |
| Conveyances | 3,858,275 | 5,525,609 |
| Intergovernmental revenue | 309,794 | - |
| Other | 564,778 | 226,279 |
| Total capital contributions | 4,732,847 | 5,751,888 |
| **Operating Transfers Out** | | |
| General fund | (73,286) | (5,660) |
| Change in net assets | 8,657,386 | (10,234,251) |
| **Total net assets - beginning** | 339,597,068 | 349,831,319 |
| **Total net assets - ending** | **$ 348,254,454** | **$ 339,597,068** |

# City of Winston-Salem, North Carolina
## Enterprise Funds

Statement E-6

Water and Sewer Utility Fund - Statement of Cash Flows
For the Fiscal Years Ended June 30, 2010 and 2009

| | 2010 | 2009 |
|---|---|---|
| **Cash Flows from Operating Activities** | | |
| Cash received from sales | $ 65,665,195 | $ 61,414,748 |
| Cash payments to suppliers for goods and services | (18,448,916) | (19,179,011) |
| Cash payments to employees for services | (15,576,006) | (16,096,618) |
| Net cash provided by operating activitie | 31,640,273 | 26,139,119 |
| **Cash Flows from Noncapital Financing Activities** | | |
| Operating transfers ou | (73,286) | (5,660) |
| Net cash used by noncapital financing activities | (73,286) | (5,660) |
| **Cash Flows from Capital Financing Activities** | | |
| Proceeds from issuance of bonds | - | 111,801,589 |
| Intergovernmental revenue | 294,516 | 192,000 |
| Capital contributions | 564,778 | 226,279 |
| Acquisition of property and equipment | (80,201,917) | (36,038,395) |
| Retirement of bonds | (11,885,000) | (10,735,000) |
| Retirement of contracts payable | (630,194) | (658,050) |
| Interest and fiscal expense paid on bonds | (18,865,745) | (16,470,285) |
| Interest paid on contracts payable | (68,838) | (100,927) |
| Debt issuance costs | - | (933,985) |
| Proceeds from sale of assets | 11,732 | 3,050 |
| Damage settlements | 14,409 | 87,050 |
| Net cash provided (used) by capital financing activities | (110,766,259) | 47,373,326 |
| **Cash Flows from Investing Activities** | | |
| Investment income (loss) | 7,032,694 | (5,984,218) |
| Net increase (decrease) in cash | (72,166,578) | 67,522,567 |
| **Cash and Cash Equivalents July 1** | 166,492,816 | 98,970,249 |
| **Cash and Cash Equivalents June 30** | **$ 94,326,238** | **$ 166,492,816** |
| **Reconciliation of Cash and Cash Equivalents** | | |
| Cash and cash equivalents - current | $ 48,853,744 | $ 38,561,442 |
| Cash and cash equivalents - restricted | 45,472,494 | 127,931,374 |
| **Cash and Cash Equivalents June 30** | $ 94,326,238 | $ 166,492,816 |
| **Reconciliation of Operating Income to Net Cash Provided by Operating Activities** | | |
| Operating income | $ 10,912,954 | $ 4,773,660 |
| Adjustments to reconcile operating income to net cash provided by operating activities | | |
| Depreciation expense | 20,634,666 | 19,752,602 |
| Change in assets and liabilities | | |
| Increase in receivables | (851,988) | (121,090) |
| (Increase) decrease in inventories | 15,923 | (39,643) |
| Increase in accounts payable | 1,266,644 | 1,495,062 |
| Increase (decrease) in accrued payroll | (237,049) | 356,334 |
| Decrease in prepaid assessments | (81,702) | (91,238) |
| Increase (decrease) in accrued vacation | (19,175) | 13,432 |
| Total adjustments | 20,727,319 | 21,365,459 |
| Net cash provided by operating activities | **$ 31,640,273** | **$ 26,139,119** |

# City of Winston-Salem, North Carolina
## Enterprise Funds

Schedule E-7

Water and Sewer Utility Fund - Schedule of Revenues, Expenditures, and Transfers - Budget (Non-GAAP Basis) and Actual
For the Fiscal Year Ended June 30, 2010

| | Budget | Actual | Variance Favorable (Unfavorable) |
|---|---|---|---|
| **Operating Revenues** | | | |
| Sales | | | |
| Water | $ 38,458,020 | $ 34,525,328 | $ (3,932,692) |
| Sewer | 26,600,810 | 26,327,287 | (273,523) |
| Industrial waste surcharge | 2,195,640 | 2,056,651 | (138,989) |
| Total sales | 67,254,470 | 62,909,266 | (4,345,204) |
| Charges for services | | | |
| New connections | 500,000 | 276,137 | (223,863) |
| Special area and privilege charges | 1,300,000 | 573,230 | (726,770) |
| Main line capital cost revenue | 400,000 | 91,745 | (308,255) |
| Total charges for services | 2,200,000 | 941,112 | (1,258,888) |
| Other | 1,905,000 | 2,748,507 | 843,507 |
| Total operating revenues | 71,359,470 | 66,598,885 | (4,760,585) |
| **Operating Expenditures** | | | |
| Personal services | 17,238,990 | 15,319,782 | 1,919,208 |
| Maintenance and operations | 25,216,038 | 19,592,306 | 5,623,732 |
| Capital outlay | 65,700 | 41,379 | 24,321 |
| Total operating expenditures | 42,520,728 | 34,953,467 | 7,567,261 |
| Operating income | 28,838,742 | 31,645,418 | 2,806,676 |
| **Nonoperating Revenues (Expenditures)** | | | |
| Investment income | - | 7,032,694 | 7,032,694 |
| Proceeds from sale of assets | - | 11,732 | 11,732 |
| Damage settlements | - | 14,409 | 14,409 |
| Interest and fiscal charges | (14,571,000) | (14,049,898) | 521,102 |
| Principal retirement | (12,542,420) | (12,515,194) | 27,226 |
| Total nonoperating expenditures, net | (27,113,420) | (19,506,257) | 7,607,163 |
| Loss before capital contributions and transfers | 1,725,322 | 12,139,161 | 10,413,839 |
| **Capital Contributions** | | 4,732,847 | 4,732,847 |
| **Transfers Out** | | | |
| General fund | (79,200) | (73,286) | 5,914 |
| Change in net assets - modified accrual basi | **$ 1,646,122** | **$ 16,798,722** | **$ 15,152,600** |

**Reconciliation of Modified Accrual Basis to Full Accrual Basis**

| | |
|---|---|
| Change in Net Assets - Modified Accrual Basis | $ 16,798,722 |
| Depreciation | (20,634,666) |
| Unamortized financing costs | (585,145) |
| Capital outlay | 41,379 |
| Principal retirement | 12,515,194 |
| Book value of disposed assets | (139,177) |
| Interest expense, net of investment income, capitalized on construction projects | 661,079 |
| Change in Net Assets - Full Accrual Basis | **$ 8,657,386** |

# City of Winston-Salem, North Carolina
## Enterprise Funds

Statement E-8

Solid Waste Disposal Fund - Statement of Net Assets
June 30, 2010 and June 30, 2009

| Assets | 2010 | 2009 |
|---|---|---|
| **Current Assets** | | |
| Cash and cash equivalents | $ 10,630,754 | $ 10,761,953 |
| Accounts receivables, net of allowance for uncollectibles | 412,965 | 381,714 |
| Total current assets | 11,043,719 | 11,143,667 |
| **Noncurrent Assets** | | |
| Restricted Assets | | |
| Cash and cash equivalents | | |
| Landfill closure and postclosure costs | 12,859,376 | 11,879,117 |
| Total cash and cash equivalents | 12,859,376 | 11,879,117 |
| Property and Equipment | | |
| Land | 10,878,472 | 11,033,472 |
| Buildings | 3,562,156 | 3,562,156 |
| Improvements other than buildings | 34,468,146 | 32,371,184 |
| Machinery and equipment | 5,198,131 | 4,797,469 |
| Construction in progress | 9,521,199 | 10,290,059 |
| Total property and equipment | 63,628,104 | 62,054,340 |
| Less accumulated depreciation | 19,992,411 | 18,480,796 |
| Property and equipment, net | 43,635,693 | 43,573,544 |
| Other | | |
| Unamortized financing costs | 156,302 | 178,177 |
| Total noncurrent assets | 56,651,371 | 55,630,838 |
| Total assets | 67,695,090 | 66,774,505 |
| **Liabilities and Fund Equity** | | |
| **Liabilities** | | |
| Current liabilities | | |
| Accounts payable | 400,198 | 616,465 |
| Accrued payroll | 38,203 | 31,669 |
| Accrued interest payable | 101,376 | 111,535 |
| Current maturities | | |
| Contracts payable | 378,577 | 531,334 |
| Bonds payable | 1,325,000 | 1,295,000 |
| Total current liabilities | 2,243,354 | 2,586,003 |
| Noncurrent liabilities | | |
| Accrued vacation | 67,285 | 66,816 |
| Landfill closure and postclosure costs | 12,859,376 | 11,879,117 |
| Contracts payable | 584,265 | 642,311 |
| Bonds payable | 9,849,663 | 11,159,549 |
| Total noncurrent liabilities | 23,360,589 | 23,747,793 |
| Total liabilities | 25,603,943 | 26,333,796 |
| **Net Assets** | | |
| Investment in capital assets, net of related debt | 31,498,188 | 29,945,350 |
| Unrestricted | 10,592,959 | 10,495,359 |
| Total net assets | $ 42,091,147 | $ 40,440,709 |

# City of Winston-Salem, North Carolina
## Enterprise Funds

Statement E-9

Solid Waste Disposal Fund - Statement of Revenues, Expenses, and Changes in Net Assets
For the Fiscal Years Ended June 30, 2010 and 2009

| | 2010 | 2009 |
|---|---|---|
| **Operating Revenues** | | |
| Charges for services | $ 10,560,197 | $ 10,612,828 |
| **Operating Expenses** | | |
| Personal services | 1,658,439 | 1,795,834 |
| Maintenance and operations | 5,257,010 | 5,724,683 |
| Total operating expenses before depreciation | 6,915,449 | 7,520,517 |
| Depreciation | 1,511,615 | 1,382,451 |
| Total operating expenses | 8,427,064 | 8,902,968 |
| Operating income | 2,133,133 | 1,709,860 |
| **Nonoperating Revenues (Expenses)** | | |
| Intergovernmental revenue | 657,420 | 536,726 |
| Investment income (loss) | 2,418,489 | (1,492,378) |
| Gain (loss) on disposal of assets | (32,800) | 600 |
| Interest and fiscal expense | (601,365) | (623,965) |
| Amortization of financing costs | (36,989) | (36,989) |
| Total nonoperating expenses, net | 2,404,755 | (1,616,006) |
| Income before transfers | 4,537,888 | 93,854 |
| **Transfers Out** | | |
| General fund | (2,887,450) | (2,847,285) |
| Change in net assets | 1,650,438 | (2,753,431) |
| **Total net assets - beginning** | 40,440,709 | 43,194,140 |
| **Total net assets - ending** | **$ 42,091,147** | **$ 40,440,709** |

# City of Winston-Salem, North Carolina
## Enterprise Funds

Statement E-10

Solid Waste Disposal Fund - Statement of Cash Flows
For the Fiscal Years Ended June 30, 2010 and 2009

| | 2010 | 2009 |
|---|---|---|
| **Cash Flows from Operating Activities** | | |
| Cash received from sales | $ 10,528,946 | $ 10,661,992 |
| Cash payments to suppliers for goods and services | (4,404,090) | (4,193,024) |
| Cash payments to employees for services | (1,651,436) | (1,777,671) |
| Net cash provided by operating activities | 4,473,420 | 4,691,297 |
| **Cash Flows from Noncapital Financing Activities** | | |
| Intergovernmental revenue | 657,420 | 536,726 |
| Transfers out | (2,887,450) | (2,847,285) |
| Net cash used by noncapital financing activities | (2,230,030) | (2,310,559) |
| **Cash Flows from Capital Financing Activities** | | |
| Acquisition of property and equipment | (1,417,029) | (498,822) |
| Retirement of bonds | (1,295,000) | (1,245,000) |
| Retirement of contracts payable | (611,466) | (540,162) |
| Interest and fiscal expense paid on bonds | (529,394) | (570,197) |
| Interest and fiscal expense paid on contracts payable | (82,130) | (91,823) |
| Proceeds from sale of assets | 122,200 | 600 |
| Net cash used by capital financing activities | (3,812,819) | (2,945,404) |
| **Cash Flows from Investing Activities** | | |
| Investment Income (loss) | 2,418,489 | (1,492,378) |
| Net increase (decrease) in cash | 849,060 | (2,057,044) |
| **Cash and Cash Equivalents July 1** | 22,641,070 | 24,698,114 |
| **Cash and Cash Equivalents June 30** | **$ 23,490,130** | **$ 22,641,070** |
| **Reconciliation of Cash and Cash Equivalents** | | |
| Cash and cash equivalents - current | $ 10,630,754 | $ 10,761,953 |
| Cash and cash equivalents - restricted | 12,859,376 | 11,879,117 |
| **Cash and Cash Equivalents June 30** | $ 23,490,130 | $ 22,641,070 |
| **Reconciliation of Operating Income to Net Cash Provided by Operating Activities** | | |
| Operating income | $ 2,133,133 | $ 1,709,860 |
| Adjustments to reconcile operating income to net cash provided by operating activities | | |
| Depreciation expense | 1,511,615 | 1,382,451 |
| Change in assets and liabilities | | |
| (Increase) decrease in receivables | (31,251) | 49,164 |
| Increase (decrease) in accounts payable | (127,339) | 298,445 |
| Increase in accrued payroll | 6,534 | 15,795 |
| Increase in accrued vacation | 469 | 2,368 |
| Increase in landfill closure and postclosure costs | 980,259 | 1,233,214 |
| Total adjustments | 2,340,287 | 2,981,437 |
| Net cash provided by operating activities | **$ 4,473,420** | **$ 4,691,297** |

# City of Winston-Salem, North Carolina
## Enterprise Funds

Schedule E-11

Solid Waste Disposal Fund - Schedule of Revenues, Expenditures, and Transfers - Budget (Non-GAAP Basis) and Actual
For the Fiscal Year Ended June 30, 2010

| | Budget | Actual | Variance Favorable (Unfavorable) |
|---|---|---|---|
| **Operating Revenues** | | | |
| Charges for services | $ 9,063,480 | $ 10,560,197 | $ 1,496,717 |
| **Operating Expenditures** | | | |
| Personal services | 1,800,190 | 1,658,439 | 141,751 |
| Maintenance and operations | 7,930,395 | 5,257,010 | 2,673,385 |
| Total operating expenditures | 9,730,585 | 6,915,449 | 2,815,136 |
| Operating income | (667,105) | 3,644,748 | 4,311,853 |
| **Nonoperating Revenues (Expenditures)** | | | |
| Intergovernmental revenue | 627,660 | 657,420 | 29,760 |
| Investment income | - | 2,418,489 | 2,418,489 |
| Proceeds from sale of assets | - | 122,200 | 122,200 |
| Interest and fiscal charges | (601,390) | (601,365) | 25 |
| Principal retirement | (1,906,500) | (1,906,466) | 34 |
| Total nonoperating expenditures, net | (1,880,230) | 690,278 | 2,570,508 |
| Income before transfers | (2,547,335) | 4,335,026 | 6,882,361 |
| **Transfers Out** | | | |
| General fund | (2,898,250) | (2,887,450) | 10,800 |
| Change in net assets - modified accrual basis | **$ (5,445,585)** | **$ 1,447,576** | **$ 6,893,161** |

**Reconciliation of Modified Accrual Basis to Full Accrual Basis**

| | |
|---|---|
| Change in Net Assets - Modified Accrual Basis | $ 1,447,576 |
| Depreciation | (1,511,615) |
| Amortization of financing costs | (36,989) |
| Principal retirement | 1,906,466 |
| Book value of disposed assets | (155,000) |
| Interest expense, net of investment income, capitalized on construction projects | - |
| Change in Net Assets - Full Accrual Basis | **$ 1,650,438** |

## History of the Utility Commission

The Utility Commission was created on April 20, 1976, through a joint consolidation agreement between Winston-Salem and Forsyth County. Under the terms of the agreement, the Utility Commission would operate all water and sewer facilities throughout the city and the county under policies established by the Commission and subject to the provisions and guidelines of the agreement.

At the beginning of fiscal year 1976-77, when the agreement went into effect, Forsyth County conveyed all real property, equipment, supplies and materials constituting a part of the county's water and sewerage facilities, including existing water and sewer lines, to the City of Winston-Salem. The City of Winston-Salem agreed to pay to the county, from utility revenues, the amount needed by the county to meet its water and sewer debt service obligations. These debts were all satisfied in FY 1999-2000.

On Feb. 19, 1990, the city and the county approved an amendment to the original consolidation agreement authorizing the Commission to provide solid waste disposal services as well as create a source reduction and recycling program. The responsibilities given to the Commission under this amendment includes composting, land filling and all other measures necessary to comply with North Carolina General Statute 130A, as amended, and all other applicable state and federal laws and regulations.

In October 1996, the consolidation agreement was amended again. The second amendment authorized the Commission to charge customers outside of Forsyth County a premium rate for water and sewer treatment services and to set aside one half of the rate in excess of the Forsyth County rate in an economic development fund. Additionally, the second amendment allowed customers that were members of the Region I Council of Government who were outside of Forsyth County to have separate contracts with the Commission.

A third amendment to the consolidation agreement was approved on Jan. 6, 2003, to allow the Commission to use money in the Water and Sewer Utility Fund for the purchase of land. The amendment stipulated that any such purchase made by the Commission must be consistent with the Legacy planning guide.