
UTILITIES

MISSION

The mission of the Durham County Engineering Department is to protect regional water quality through the administration of the sewer use, stormwater and erosion control ordinances, to improve County facilities through the management of capital projects, and to preserve natural and scenic lands, farms and forests.

PROGRAM DESCRIPTION

The Utility Division is responsible for the operation and maintenance of the County's Triangle Wastewater Treatment Plant, the County's Wastewater Collection System, the coordination of new connections (customers), and the County's Sewer System revenue collections.

The Triangle Wastewater Treatment Plant and collection system were operated and maintained under a contract with United Water, effective July 1, 2005 through February 17, 2009. Beginning February 18, 2009, the Triangle Wastewater Treatment Plant and collection system are operated and maintained directly by Durham County staff.

In addition to ongoing operations, one of the major initiatives of this division has been the upgrades and expansions of the treatment plant to meet regulatory requirements and to provide adequate capacity for growth in the County's service area. The third phase of these improvements will provide new sludge handling facilities to produce a dewatered residual which can be transported to an off-site facility for Class A stabilization. The design for the dewatering facility is currently being finalized, with construction scheduled to begin in early Fiscal Year 2009-2010.

The Reuse Wastewater Capital Project scope is being re-assessed with the two project partners (Wake County and the Town of Cary). Upon agreement on the supply capacity of the Reuse System, the final design will be completed.

The County's treatment of wastewater from the Town of Cary is being extended until at least December 31, 2013 under an Agreement between the County and the Town. Cary is currently sending approximately 1,400,000 gallons per day to the County's plant for treatment. The proposed agreement between Durham County and Cary provides treatment of up to 6 million gallons per day.

The Utility Division Office is located at 5926 NC Hwy 55 East, Durham, North Carolina, 27713. Office hours are Monday – Friday, 8:30 AM – 5:00 PM, Telephone: 919-544-8280; Fax: 919-544-8590.

2008-09 ACCOMPLISHMENTS

- Began operating the facility with Durham County staff. This required position development and recruitment (14 positions), server (local server and central SQL server) and desktop hardware installation, process software installation, vehicle purchases and tool purchases.
- Instituted multiple phosphorus process improvements in the second quarter of the Fiscal year to ensure the annual plant effluent limit for phosphorus was met. With very close process control, the plant reduced a total phosphorus concentration below 0.1 milligrams per liter as a monthly average.
- Obtained for Bulk Reuse Water permit to allow reclaim water distribution by tanker.
- Achieved additional nitrogen reduction that exceeded permit requirements.
- Completed line cleaning required by State permit (10% of system).
- Will complete the design of residuals dewatering project and selected a off-site option which will result in less on-site odor.
- Completed sludge removal for 2009 fiscal year, and prepared to start the 2010 sludge removal in first quarter of 2010 fiscal year.
- Participated in Upper Cape Fear River Basin organization
- Participated in stakeholder program related to nutrient management in Jordan Lake
- Participated in the Neighborhood College program

Sewer Utility Fund

Fund: Enterprise 6006600000

Summary	2007-2008 Actual Exp/Rev	2008-2009 Original Budget	2008-2009 12 Month Estimate	2009-2010 Department Requested	2009-2010 Manager Recommended
▽ Expenditures					
Personnel	\$459,767	\$561,425	\$811,295	\$1,282,808	\$1,282,808
Operating	\$3,652,839	\$4,352,754	\$3,116,794	\$2,766,911	\$2,766,911
Capital	\$0	\$52,000	\$165,341	\$66,000	\$66,000
Transfers	\$404,238	\$1,160,000	\$1,320,000	\$794,084	\$794,084
Other	\$1,310,847	\$3,705,000	\$3,174,375	\$4,035,000	\$4,035,000
Total Expenditures	\$5,827,690	\$9,831,179	\$8,587,805	\$8,944,803	\$8,944,803
▽ Revenues					
Licenses & Permits	\$920	\$2,500	\$3,200	\$3,000	\$3,000
Investment Income	\$646,634	\$0	\$108,845	\$100,000	\$100,000
Enterprise Charges	\$7,964,468	\$9,257,679	\$7,825,610	\$8,475,543	\$8,475,543
Sewer Connect. Fees	\$368,223	\$496,000	\$555,943	\$366,260	\$366,260
Other Fin. Sources	\$93,834	\$75,000	\$0	\$0	\$0
Total Revenues	\$9,074,080	\$9,831,179	\$8,493,598	\$8,944,803	\$8,944,803
Net Expenditures	(\$3,246,389)	\$0	\$94,207	\$0	\$0
FTEs	6.00	7.00	21.00	21.00	21.00

2009-10 HIGHLIGHTS

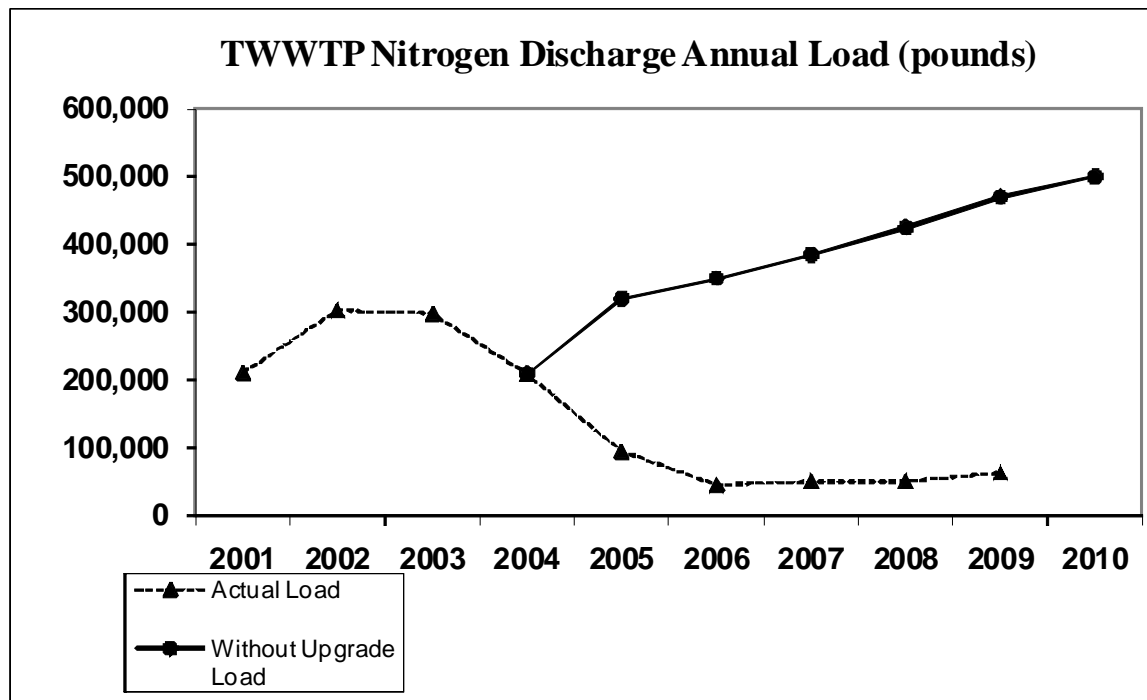
- The operations expenditure request for the Utility Division is a continuation request, with a decrease of \$1,350,460 (24.7%) from the budget approved for FY 2009. Part of this decrease is the removal of a reservation for future purchases of \$500,000 for future TWWTP improvements.
- Much of the remainder of the decrease is related to the change of operation from a private to a public operations and maintenance staff.
- The debt service request increases by \$330,000 due to the proposed issuance of debt for the Sludge Dewatering Project.
- Additionally, sewer use by Durham County customers has been lower than expected. With the economic downturn, sewer use may be further reduced due to layoffs and business closings in the Research Triangle Park and adjacent areas.
- On a positive note, the Town of Cary wastewater flowrate is expected to increase in FY 2010 and the capital payments will increase due to the increase maximum allocated service at six (6) million gallons per day instead of the previous maximum allocated service at five (5) million gallons per day.
- To ensure debt service coverage requirements are met, this budget request includes a 7% increase in rates for Fiscal Year 2009-10 from \$3.02/CCF to \$3.23/CCF. An increase in the surcharge for Total Phosphorus from \$3.31/pound to \$6.87/pound is necessary for cost recovery in removing phosphorus from high strength industrial wastewaters.

The following shows bond payments for Enterprise Fund debt service:

	2008-2009 Commissioner Approved	2009-2010 Department Requested	2009-2010 Manager Recommended
BOND PRINCIPAL	\$2,000,000	\$2560,000	\$2560,000
BOND INTEREST	\$1,700,000	\$1,440,000	\$1,440,000
OTHER	\$5,000	\$35,000	\$35,000
TOTAL	\$3,705,000	\$4,035,000	\$4,035,000

2009-10 PERFORMANCE MEASURES

Performance Measure: Triangle Wastewater Treatment Plant (TWWTP) Nitrogen Reduction



Story Behind the Last 2 Years of Performance

- Existing data has been used for baseline development and is shown on the graph. The “Without Upgrade” indicates a no action approach and is not appropriate because the NPDES permit limits would not be met and the County would be subject to enforcement actions including civil penalties. The TWWTP has met the permit requirements since the start-up in 2005 and reduced the discharge nitrogen load by more than eighty percent as compared to the levels prior to the upgrade.

Strategies: What do you propose to do to improve program performance? (Include no-cost and low-cost ideas)

- The operation of the Triangle Wastewater Treatment Plant with permanent Durham County staff will result in greater operator skill levels and greater job ownership as compared to the previous operation with temporary contract operators and supervisors.
- The new Triangle Wastewater Treatment Plant Superintendent and Operations Manager both are highly experienced in process control. Analyzing process data in programs such as OPS will result in improved process optimization for efficient wastewater treatment.
- Process improvements were instituted to re-route the sandfilter backwash directly to the influent which reduced the plant loading from the sludge lagoon decant operations and also reduced the power requirements for lagoon pumping. This improvement will continue.
- The optimization of TWWTP processes will continue including methanol feed reliability improvement and consideration of Oxidation Reduction Potential (ORP) control for the Biological Nutrient Removal process. On-line analyzers for nitrogen and phosphorus control may also be tested.
- The majority of the new Durham County staff have limited wastewater training and certifications. As a condition of employment, staff will be obtaining higher level wastewater operator and collection system operator training and certification to ensure the current operations are being completed properly.

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