

Welcome to the City's ninth annual summary of the performance of Durham's sewer system. This report is developed to inform our customers about the sewer system while meeting requirements of House Bill 1160 passed by the North Carolina General Assembly in 1999. The bill requires owners and/or operators of wastewater collection and treatment systems to provide an annual report to users or customers. Each year's report must summarize the treatment works' and collection system's performance over a twelve-month period. In addition to making the report available to all customers, the City also submits the summary to the North Carolina Department of Environment and Natural Resources.

About the Department

All water and sewer operational units are a part of the Department of Water Management. The Water and Sewer Maintenance Division is responsible for the operations and maintenance of the collection system. Sometimes referred to as the sanitary sewer system, this is the series of pipes that transport wastewater to the treatment facilities operated by the Wastewater Divisions. Wastewater includes all *used* domestic and process water from any drain leaving a residence, business, industry or other facility and entering the collection system.

Wastewater travels through underground sewer pipes to the treatment plant. At the plant, wastewater is treated by physical, biological and chemical processes before it is returned to the environment via receiving streams. The City is committed to protecting the environment and the health of downstream users by ensuring that Durham's wastewater discharge meets all applicable standards. Because of this high level of treatment, water downstream of a water reclamation facility may be cleaner than the water upstream of the facility.

This report describes the collection system operation, the wastewater treatment process and the City's grease reduction initiative. As with any large municipal system, occasional blockages cause backups and overflows. Included in this report is a table listing the spills and overflows that occurred this year and the steps taken to mitigate the impact and prevent recurrences. ALL incidents were reported to the state within 24 hours of their occurrence. By policy, news releases to inform the public are distributed by the end of the next business day after the occurrence.

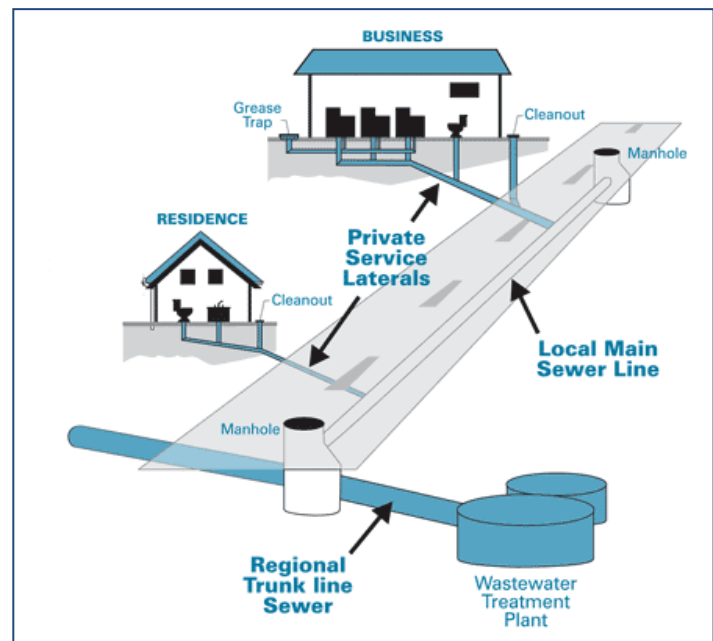


Figure 1: Simplified diagram of sewer system

The Annual Sanitary Sewer System Report is available at City Hall, Water Management and Public Works facilities and on the City’s website: www.durhamnc.gov. Additional copies of the report may be requested by calling Water Management at (919) 560-4381.

Durham’s Sewer System Facilities			
	Collection System	Water Reclamation Facilities	
Name of Facility	Operations Center	North Durham Water Reclamation Facility	South Durham Water Reclamation Facility
Permit number	WQCS00005	NCOO23841	NCOO47597
Address	1110 Martin Luther King Jr. Pky	1900 East Club Blvd.	6605 Farrington Rd.
Operator in Responsible Charge (ORC)	Tom Lucas	John Dodson	Robert Dodson
Phone number	919-560-4344	919-560-4384	919-560-4386

Down the Drain! Where does it go?

When wastes exit a home, business or industry via piping, the wastewater enters the collection system. These pipes carry wastewater away from homes, businesses, schools, hospitals and industries. The waste flows by gravity or may flow to lift stations located in strategic areas throughout the service area. Pumps in the lift stations do just that – they “lift” the wastewater to a higher elevation where it again flows by gravity, ultimately to one of the City’s two water reclamation facilities. Sixty-one pump stations for the collection system are monitored and maintained by Plant Maintenance division staff.

Durham sits on a ridgeline that generally runs along Pettigrew Street and the railroad tracks. Wastewater on the north side of the ridgeline flows to the North Durham Water Reclamation Facility and after treatment is ultimately discharged into the Neuse River Basin. The South Durham Water Reclamation Facility receives wastewater that flows south of the ridgeline. After processing, the discharge flows into the Cape Fear basin. Durham County owns and operates a third wastewater treatment plant that serves most of Research Triangle Park, Parkwood and a few other southern Durham neighborhoods. The Durham County sewer system report is posted at www.co.durham.nc.us.

Collection System Performance

City departments continue to use the Geographical Information System (GIS) mapping of the collection system which provides an accurate method of tracking both operations and maintenance activities. Now, approximately 1100 miles of the collection system are represented by GIS mapping. During this reporting period, Water and Sewer Maintenance crews and City

Maintenance Activities	
Activity	Linear Ft.
Lateral Service	38,811
Flushing	717,910
Inspections (TV’d)	377,549
Mains replaced	26,145
Easements mowed	954,517

contractors conducted numerous maintenance activities to clean and rehabilitate the collection system.

In addition to the activities in the table (left), crews repaired/replaced 51 sewer services and responded to 695 blockages.

Improper disposal of grease continues to be the number one cause of blockages in the sewer system.

In fact, **grease buildup in the lines contributed to 56% of all blockages.** This represents an 11% decrease in grease-related spills when compared to last

year. Overall, there was a decrease in the total number of spills by 28%. City staff will continue to focus resources on repeat blockages and promote a maintenance campaign to alleviate the environmental and financial impacts of this problem. One major element of the program has been an extensive cleaning of problem areas of the system. The second major element of the program is the education, prevention and enforcement effort coordinated by the Department's Industrial Pretreatment Program (see page 4). Funding of infrastructure rehabilitation is a high priority of the department's Capitol Improvement Projects (CIP).

Water Reclamation Facility Plant Performance

The City's two wastewater treatment facilities – North Durham and South Durham Water Reclamation Facilities (WRFs) - have the combined capacity to treat (or reclaim) 40 million gallons per day (MGD) of wastewater. During this reporting period, the average daily flow treated by the two plants was 19.97MGD, with **no violations** of any applicable state and federal regulations at either of the City's two facilities.

Both North Durham and South Durham WRFs implemented automated computer system upgrades (known as SCADA). These systems control plant processes and the upgrades allow for better data handling and management. In addition, a new lab data management system was implemented (OPS) to improve efficiency. These upgrades were completed in FY 2009.

Reclaimed Water

The City of Durham was began offering reclaimed water to customers after receiving our bulk reclaimed water permit in December 2007. Reclaimed water is available at no charge to customers who take at least 250 gallons directly from the North Durham WRF. Only customers that have completed the required training may become certified to obtain and distribute bulk reclaimed water from the North Durham WRF.

The bulk reclaimed water project helps to reduce the amount of drinking water used for non-domestic purposes. While clean and safe for many uses, state laws require certain precautions for human contact. Reclaimed water can be used for irrigation, dust control, street sweeping and in decorative fountains, among other things. The City began using reclaimed water instead of potable drinking for sewer line flushing as well for irrigation in certain areas. To date, 382 individuals have been certified to haul and use reclaimed water.

Analytical Support

Most laboratory analyses are performed at the City's state-certified laboratory located at the South Durham Water Reclamation Facility site. In addition to providing lab support for the reclamation facilities, the laboratory provides analytical support for the Water Supply and Treatment Division, the City's Storm Water Program and the City's Industrial Pretreatment Program. While the Storm Water Division of the Public Works Department is charged with eliminating illegal discharges into the storm sewers, the Industrial Pretreatment Program manages industrial and non-residential discharges into the City's sanitary sewer system. Each year, lab staff members conduct approximately **53,005 analyses on 50 different test parameters** to ensure compliance with permits and for process control.

Industrial Pretreatment Program/Grease Reduction Initiative

Industrial Pretreatment Program staff survey facilities discharging into the sewer system and issue permits to facilities in certain categories, determined either by the type of business activity they conduct or the type(s) of waste discharged from their facility. Permit limits are established based on the ability of the receiving treatment plant – either the North Durham Water Reclamation Facility or the South Durham Water Reclamation Facility – to assimilate, treat and remove substances from the waste. Currently, staff monitors twelve significant industrial users and hundreds of commercial establishments with high-strength discharges.

To help in the effort to reduce grease blockages in the sewer system, the Industrial Pretreatment Program staff coordinates the education and inspection portion of the grease reduction initiative. Grease enters the sewer system from both household drains as well as poorly maintained grease traps in restaurants and other food service establishments. To meet the 250 mg/L limit for FOG (fats, oil and grease), food preparation and/or processing facilities must clean their removal systems (grease traps) on a monthly basis. More frequent cleaning will be required



Figure 2: Grease can be poured directly into a Fat Trapper with a sealable liner.

if a facility discharges more than 250 mg/L of FOG. Less frequent cleaning may be permitted if the facility can demonstrate that the 250 mg/L limit can be met with an alternate cleaning schedule. Cleaning and removal records must be maintained for three years and available for inspection on request.

While restaurants and other food service establishments typically use commercial processors to collect and remove grease from their grease traps, it is not practical for homeowners and residential customers to contract such services. For this reason, the City has provided – at no extra cost to citizens – a collection container for used cooking oil at the Waste Disposal and Recycling Center at 2115 East Club Boulevard.

Residents are strongly encouraged to implement measures designed to insure that FOG is not introduced to the sanitary sewer. To further assist customers with

this effort, the Industrial Pretreatment Program distributes small residential grease collection units called Fat Trappers. Customers can call 560-4386 and ask for Pretreatment staff for more information on how to obtain a Fat Trapper.

Notice Under the Americans with Disabilities Act

The City of Durham will not discriminate against qualified individuals with disabilities on the basis of disability. Anyone who requires an auxiliary aid or service for effective communications, or assistance to participate in a City program, service, or activity, should contact the office of Stacey Poston, Acting ADA Coordinator, Voice: 919-560-4197 x21254, TTY: 919-560-4809; Stacey.Poston@durhamnc.gov, as soon as possible but **no later than 48 hours** before the scheduled event.