



CITY OF DURHAM, NORTH CAROLINA ANNUAL SANITARY SEWER SYSTEM REPORT FY 2014-2015

Welcome to the City's annual summary of the performance of Durham's sewer system. In addition to informing our customers about the sewer system, this report also meets the 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 summarizes the treatment works' and collection system's performance over a 12-month period. This report is available to all customers and is submitted 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 where it 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 discharges 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



Plant Operator, Mike Wagner, collects a clarifier sample at the Water Reclamation Facility.

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 are distributed to the public by the end of the next business day after an occurrence.

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.

Down the Drain! Where does it go?

When waste exits 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-five pump stations for the collection system are monitored and maintained by Plant Engineering and 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's Sewer System Facilities			
	Collection System	Water Reclamation Facility	
Name of Facility	Water and Sewer Operations Center	North Durham Water Reclamation Facility	South Durham Water Reclamation Facility
Permit Number	WQCS00005	NCOO23841	NCOO47597
Address	1110 Martin Luther King Jr. Pkwy.	1900 East Club Blvd.	6605 Farrington Rd.
Operator in Responsible Charge (ORC)	Andy Brogden	John Dodson	Charles Cocker
Phone Number	919-560-4344	919-560-4384	919-560-4386

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.dconc.gov.

Collection System Performance

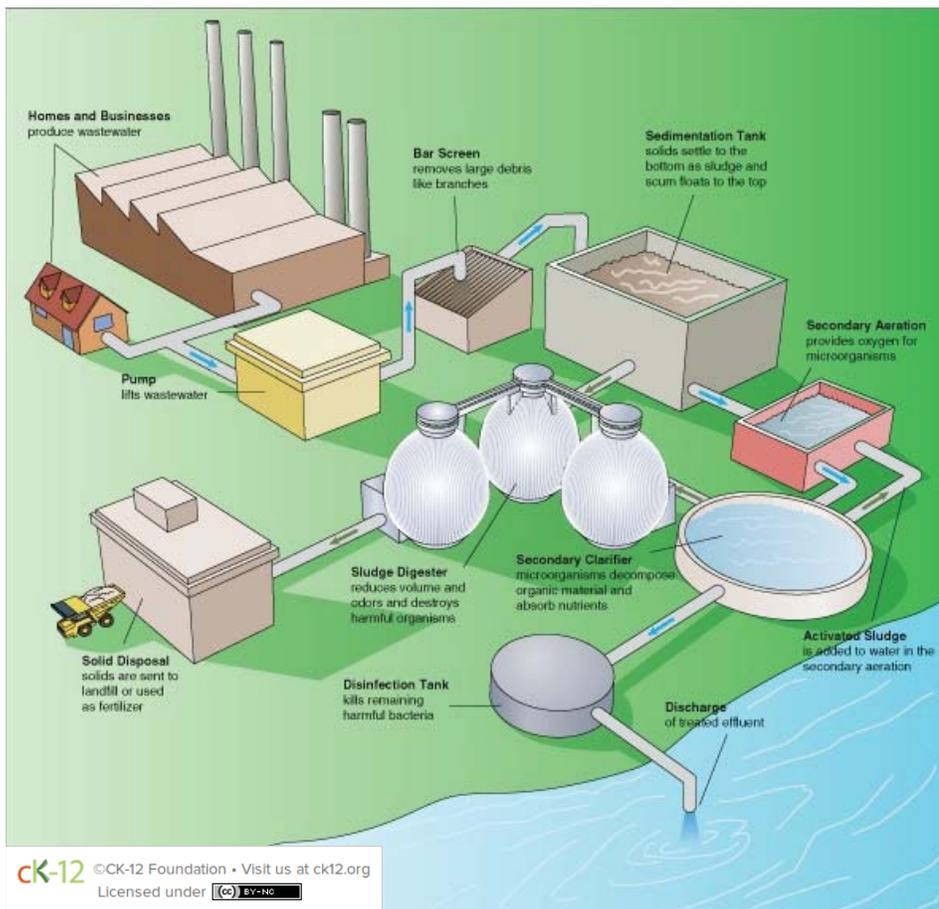
City departments use Geographical Information System (GIS) mapping of the collection system which provides an accurate method of tracking both operations and maintenance activities. Approximately

1,076 miles of the collection system are represented by GIS mapping.

During this reporting period, Water and Sewer Maintenance crews and City contractors conducted numerous maintenance activities to clean and rehabilitate the collection system. These maintenance activities include lateral service, flushing, inspection (CCTV), mains replaced, and easements mowed. Maintenance crews repaired/replaced 36 sewer services and responded to 436 blockages. Improper disposal of

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

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/FOG Program. Funding of infrastructure rehabilitation is a high priority of the department's Capital Improvement Projects (CIP).



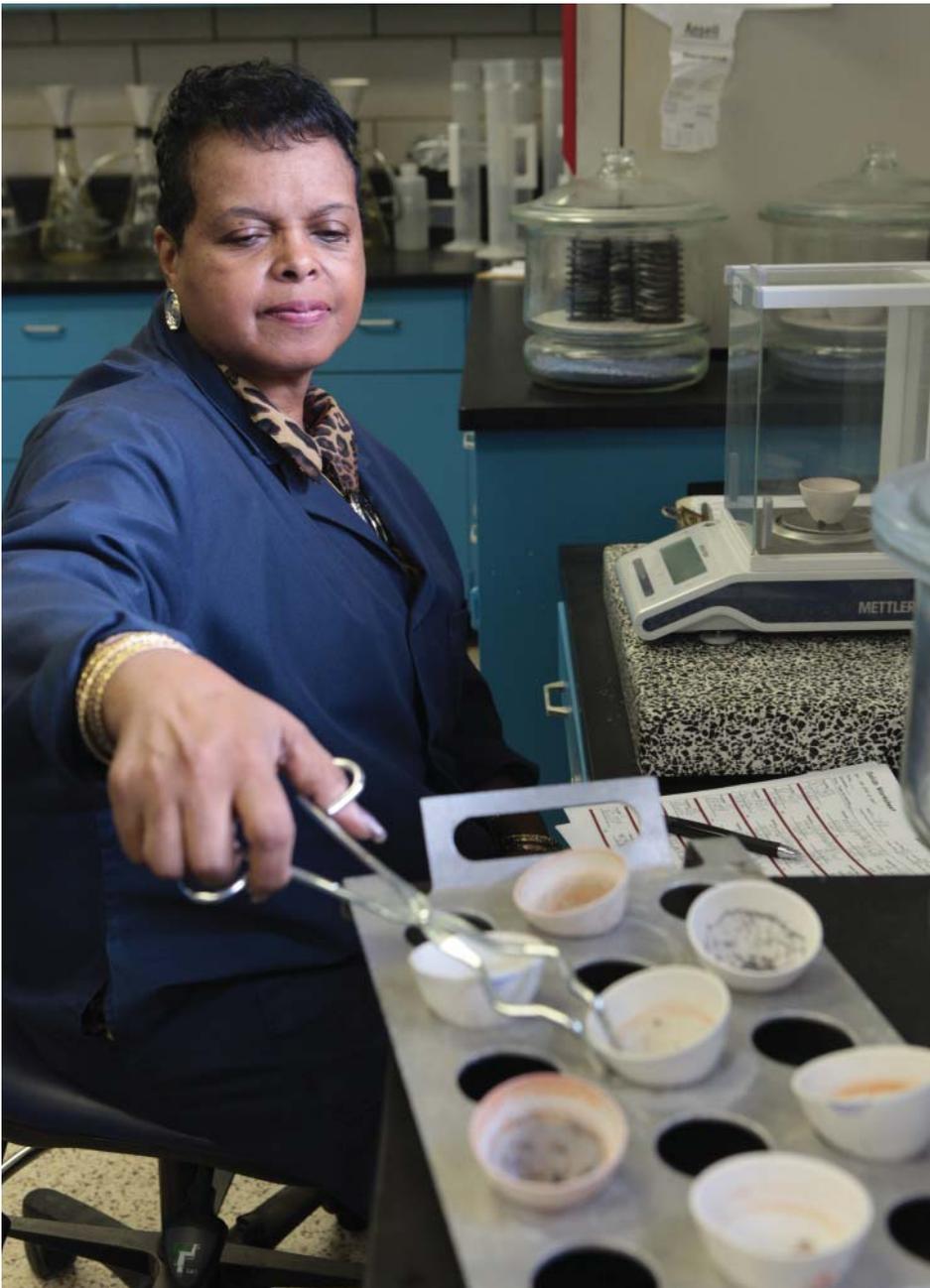
Maintenance Activities	
Activity	Linear Feet
Lateral Service	29,353
Flushing	925,048
Inspections (CCTV)	582,159
Mains Replaced	821
Easements Mowed	649,810
Cured in Place Pipe	54,500

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 17.65 MGD.

North Durham WRF had no permit violations during the reporting

The illustration shows the typical wastewater treatment process. The City's treatment facilities at North and South Durham have similar layouts.



Laboratory Analyst, Pat Quinichett performs a solids analysis at the South Durham WRF Laboratory.

period. The supplemental carbon and alum feed building is online. The addition of this chemical feed facility will assure compliance with Stage 1 of the Falls Lake Rules for nutrient reduction starting January 1, 2016. Current construction projects at North Durham include the addition of full standby power and upgrades of obsolete equipment control panels. To ensure long-range compliance with the nutrient reduction requirements of the Falls Lake and Jordan Lake rules, the City will begin phased implementation of the recently completed Water Reclamation Facility Master Plans. The planning effort covers the next

20 years and addresses a number of improvements to meet anticipated regulations.

South Durham WRF exceeded the fecal coliform limit in April 2015. The plant average was 213.3, with a 200 MPN/100ml limit. No regulatory action has occurred to date.

A two-year construction project at South Durham started May 2014. Supplemental carbon feed, side stream treatment and improvements to the aeration basins that are major components of the project is ahead of schedule and will be completed by the end of 2015. Four modified and improved Aeration Basins were

put into service in April and May 2015. New to North Carolina and the second in the country for Kruger, is a side stream treatment facility that will treat the filtrate from the sludge dewatering process. A bulk water reuse station and a carbon feed facility are also being added. The additions and improvements will enhance the quality of the plant effluent for compliance with Jordan Lake nutrient reduction goals.

Industrial Pretreatment/FOG Program

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 wastewater discharged from their facility. Permit limits are established based on the ability of the receiving treatment plant — either North Durham WRF or South Durham WRF — to assimilate, treat and remove substances from the waste. Currently, staff monitors 13 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/FOG (fats, oils and grease) Program staff coordinates the education and inspection portion of the grease reduction initiative.

Grease may enter the sewer system from either household drains or through poorly maintained grease traps in restaurants and other food



The Department of Water Management treats approximately 18 million gallons of wastewater every day at our plants in South Durham and North Durham.



Safely dispose of grease by pouring it directly into a Fat Trapper and taking it to the Waste Disposal and Recycling Center on 2115 E. Club Blvd. Fat Trappers are available to residents at no cost.

service establishments. To meet the 250 mg/L limit for FOG, food preparation and/or processing facilities must clean their removal systems (grease traps) on a monthly basis. More frequent cleaning will be required 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 residents — a collection container for used cooking oil at the Waste Disposal and Recycling Center at 2115 East Club Boulevard.

Residents are encouraged to implement measures designed to ensure that FOG is not introduced

DO	DON'T
<ul style="list-style-type: none"> • Collect cooking oil and grease in containers and dispose of it properly. • Remove oil and grease from kitchen utensils, equipment, and food preparation areas with scraper/towels/broom • Keep grease out of wash water • Place food scraps in a waste container for solid wastes 	<ul style="list-style-type: none"> • Pour oil or grease down the drain. • Wash fryers/griddles, pots/pans, and plates with water until oil and grease are removed. • Use hot water to rinse grease off surfaces. • Use the drain as a means to dispose of food scraps. <p style="text-align: center;">Remember: The drain is not a trash can!</p>

into the sanitary sewer. To 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 obtaining a complementary Fat Trapper.

The toilet is not a trash can! Sanitary sewers are designed to handle human waste, toilet tissue and approved industrial commercial wastes. In addition to oil and grease, nonwoven materials such as disinfectant wipes and diapers can

cause problems. Although products may be labeled flushable, that does not mean they will easily biodegrade within the sewer system. These items can not only cause sewer overflows but can also damage the pumps and other infrastructure.

Flushing inappropriate items down the toilet invites clogs and blockages. *Do your part: throw trash items in the garbage, not down the toilet.*

Visit www.DurhamSavesWater.org for more information.

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.

Spills and Overflows from July 2014 to June 2015

Location	Date	Volume Discharged (gallons)	Cause	Remedy
Bacon St and NC 147 Overpass	7/1/2014	2,880	Grease / Debris in Line	Cleaned, jetted, TVed line
1215 Fern Street	7/15/2014	50	Debris in Line	Cleaned, jetted, TVed lateral line
Ridgeway Ave and Truman Street	7/16/2014	630	Grease	Cleaned, TVed line
3014 Sparger Road	8/12/2014	6,750	Inflow and Infiltration	Inspected for Inflow and infiltration issues
1816 Hillendale Road	9/10/2014	64,800	Roots / Debris in Line/ Grease	Cleaned, TVed line
705 Asburn Ln / Triangle Greenways Council / Open Space	9/15/2014	67,800	Grease	Cleaned, TVed line / Installed additional pump
Hwy 98 and Hocutt	9/26/2014	540	Manhole Damage	Cleaned, jetted line / Repaired manhole casing
1500 Anderson St	10/6/2014	1,500	Roots	Cleaned, jetted, TVed line
510 Dupont	10/9/2014	200	Vandalism	Cleared debris, TVed line
544 Liberty St	10/19/2014	2,880	Grease	Cleaned, TVed line
3817 Guess Rd	12/11/2014	90	Grease / Roots	Cleaned, TVed line / Roots cut
3712 Darwin Rd	12/14/2014	270	Roots	Cleaned, TVed line / Roots cut
1101 Landon St	12/16/2014	4,320	Grease	Cleaned, TVed line
4801 Danube Lane	1/6/2015	4,500	Grease	Cleaned, TVed line
Bently Drive and Regent Road Intersection	1/8/2015	550	Debris in Line	Cleaned, TVed line
608 Yancy Street	1/20/2015	14,400	Grease / Debris in Line	Cleaned, jetted, TVed line / Casing replaced
River Forest Park	2/3/2015	361,544	Grease/ Roots	Cleaned, jetted, TVed line / Roots cut
Stadium Dr @ Birmingham Dr	2/9/2015	28,800	Roots	Cleaned, TVed line / Roots cut
Case Street @ Hull Street	2/13/2015	1,800	Debris in Line	Cleaned, TVed line
Location	Date	Volume Discharged	Cause	Remedy

Spills and Overflows from July 2014 to June 2015

		(gallons)		
2920 Wade Road	2/16/2015	135	Roots	Cleaned, TVed line / Roots cut
9 Pilton Place	3/5/2015	18,000	Vandalism	Cleaned, jetted, TVed line / Secured manhole cover
Forge Rd & Wheeling Circle	3/16/2015	600	Debris in Line	Cleaned, jetted, TVed line
2527 Holloway Street	3/16/2015	300	Debris in Line / Pipe failure	Cleaned, TVed line / Repaired line
24 Phauff Court	3/31/2015	600	Grease	Cleaned, jetted, TVed line
400 Sparella St	5/18/2015	360	Roots	Cleaned, jetted, TVed line / Roots cut
Juniper St (Sherwood Park)	5/26/2015	216,000	Vandalism	Cleared debris / Secured manhole cover
South and Fargo Streets	5/28/2015	3,000	Grease	Cleaned, jetted, TVed line
Checker Berry Lane	6/15/2015	2,880	Roots	Cleaned, jetted, TVed line / Roots cut
Total Number of Spills = 28				
Total Volume = 806,179 gallons				

