Fund 69010
Sewer Operation and Maintenance

Mission

To safely collect and treat wastewater in compliance with all regulatory requirements using state-of-the-art technology in the most cost-effective manner in order to improve the environment and enhance the quality of life in Fairfax County.

Focus

The Wastewater Management Program includes wastewater collection and conveyance, wastewater treatment, and planning and monitoring program areas. The primary functions are to strategically plan, and efficiently operate and maintain the wastewater system in the best interest of the County and its customers. Funding for Fund 69010, Sewer Operation and Maintenance, is financed by a transfer from Fund 69000, Sewer Revenue, which is used to credit all system revenues collected, including availability fees and sewer service charges associated with the program.

Photo of the Noman M. Cole, Jr. Pollution Control Plant

This program operates and maintains nearly 3,422 miles of sewer, 59 pump stations and 54 flow-metering stations. Treatment of wastewater generated is provided primarily through six regional wastewater collection and treatment plants. The regional treatment approach takes advantage of economies of scale in wastewater treatment and ensures the economical and efficient operation and management of the program.

One of the six regional plants is the County owned and operated Noman M. Cole, Jr. Pollution Control Plant (NCPCP), which is currently permitted to treat 67 million gallons per day (mgd) of flow. Other regional facilities where the County has purchased treatment capacity include the District of Columbia Water's Blue Plains Treatment Plant with 31 mgd capacity; Alexandria Renew Enterprises Treatment Plant with 32.4 mgd capacity; Upper Occoquan Service Authority's Treatment Plant with 22.6 mgd capacity; Arlington County's Treatment Plant with 3 mgd capacity; and Loudoun Water's Broad Run Plant with 1 mgd capacity. Fairfax County utilizes all of these facilities to accommodate a total capacity of 157 mgd.

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The Wastewater Management Program is funded by revenues generated by the customers of the sanitary sewer system and recorded in Fund 69000, Sewer Revenue. Sewer Service Charges support system operation and maintenance costs, debt service payments, and capital projects attributable to supporting and improving wastewater treatment services for existing customers. Availability Charges support a proportional share of system costs and capital projects attributable to growth of the system required to support new customers. Existing customers are defined as those who have paid an Availability Charge for access to the system and receive wastewater treatment services. New customers are those who have not paid the Availability Charge. Upon payment of the Availability Charge and connection to the system, a new customer becomes an existing customer. The County allocates expenses, interest income, bond proceeds, debt service payments, capital improvement project costs and funding, and operating costs between existing and new users of the system. In accordance with the County's "Growth Pays for Growth Policy," both existing and new customers must pay for their share of the system's total annual revenue requirements.

A number of trends that may influence the operation and maintenance of the sanitary sewer system over the next two to five years include the following:

Chesapeake Bay Water Quality Program Requirements - The Chesapeake Bay water quality program requires reductions in the amount of nutrient pollutants discharged from wastewater treatment facilities. In December 2004, the state notified the County that the renewal of the County's National Pollutant Discharge Elimination System (NPDES) permit includes a requirement that nutrient removal be performed using "State of the Art" technology and meet a waste load allocation (cap) for the nitrogen and phosphorous nutrients. A phased approach has been under way to renovate and upgrade current plant facilities to accommodate these more stringent nutrient discharge requirements. In FY 2014, the operation of the new Moving Bed Biological Reactor facility for nutrient removal began at the County's Noman M. Cole plant to ensure compliance with the new regulations. Other regional plants serving the County are at various stages of upgrade for compliance with the new requirements.

Capacity, Management, Operation, and Maintenance (CMOM) - The United States Environmental Protection Agency (USEPA) has implemented sanitary sewer overflow (SSO) regulations, which require municipalities to develop and implement a Capacity, Management, Operation and Maintenance (CMOM) program to eliminate any sewer overflows and back-ups from the wastewater collection systems. The County has implemented the CMOM program that is featured on the USEPA's website at the following link at http://www.epa.gov/npdespub/pubs/sso_casestudy_fairfax.pdf.

Capital Improvements - Reinvestment in the sewer system infrastructure ensures optimum operation of all wastewater facilities. This initiative, closely related to CMOM endeavors, emphasizes capital improvements to wastewater collection and treatment facilities to meet requirements of the future sanitary sewer overflow regulations by the USEPA. The program continues to take a proactive stance toward infrastructure rehabilitation; however, CMOM regulations could greatly affect operations.

Integration of Information Technology - The Geographic Information System (GIS), the Supervisory Control and Data Acquisition (SCADA) system and the Infrastructure Computerized Maintenance Management System (ICMMS) require integration for optimal use. Computing and information technology are an integral part of every aspect of the Wastewater Management Program operations. Today's high customer expectations and increasing reliance on consistent 24-hour services lead to an increasing dependence on stable and reliable integrated information technologies that infuse the business process. Presently, the Enterprise Asset Management system (EAM) has successfully integrated with GIS

and ICMMS to provide reports for the SCADA system. The EAM system and SCADA system are not yet integrated. Future customer service needs will require a full enterprise integration of the critical information technology systems to reduce total cost of ownership, increase availability of critical business data in the right format, and improve the quality and delivery of services to sewer customers.

Sewer Operation and Maintenance supports the following County Vision Elements:

Creating a Culture of Engagement

Practicing Environmental Stewardship

Exercising Corporate Stewardship

Asset Management Program - As a result of evaluating the program's financial management strategies, an Asset Management Program was developed. The first phase aligned the program's capital asset policies and procedures with the County's fixed asset policies and developed a process in which to evaluate the program's infrastructure. The second phase developed criteria to identify the program's critical assets. After the criteria were tested and accepted, they were applied to all program assets. Phase three will be the condition assessment of all assets beginning with the most critical assets. In FY 2015, the condition assessment began on the large diameter pipes, 15-inches and larger, sewer lines that were sliplined in the 1990s and sewer lines with sags.

Wastewater Collection Division (WCD) - operates and maintains approximately 3,422 miles of collection system, 59 pumping stations, and 54 flow meter stations throughout the service area. The agency continues to take a very proactive approach toward maintenance and strives for continuous improvement in its daily functions. WCD maintains facilities at a high competence level.

Wastewater Treatment Division (WTD) - operates and maintains the Noman M. Cole Jr., Pollution Control Plant. The agency has an exemplary record of producing high-quality clean water which surpasses regulatory requirements at a low unit cost relative to other advanced wastewater treatment plants in the region. Construction of facilities for the Enhanced Nutrient Removal upgrades at the plant is almost complete.

Wastewater Planning and Monitoring Division (WPMD) - establishes and manages the future requirements for the Wastewater Management Program in regards to expansion needs of facilities by reviewing and monitoring new and potential developments in the County. WPMD also analyzes the financial position of the Program in order to maintain competitive rates, high bond rating, and achieving financial targets. WPMD and Fairfax County Department of Finance work together annually to create award winning Comprehensive Annual Financial Reports (CAFR) for the Integrated Sewer System. In addition, WPMD documents the high quality of the County's treated wastewater by analyzing an extensive number of water samples. While actively promoting outreach throughout the County, WPMD passes audits, confirms discharge quality, and runs a successful Industrial Pretreatment program to prevent damage to the collection system and the treatment processes, and to protect the health and safety of the employees and the public.

The table below reflects the Wastewater Management Program's projected fiscal health in FY 2016 and FY 2017. The financial planning process incorporates the following indicators that are interrelated and structured to identify the adequacy of rates from a cash flow, business, and compliance standpoint. These indicators are used by the bond rating agencies to determine the Program's credit rating.

Calculated Financial Indicators

Financial Indicator	Target	Achieved	FY 2016	FY 2017
Net Revenue Margin	45.0% to 52.0%	Yes	51.9%	51.0%
Days Working Capital[1]	150 to 200 days	Yes	157	157
Debt Coverage Senior	Min. 3.00x	Yes	3.37x	3.51x
Debt Coverage All-in	1.80x to 2.20x	Yes	2.09x	1.98x
Affordability (% of median income spent on sewer bill)	Less than 1.2%	Yes	0.5%	0.5%
Debt to Net Plant in Service	40.0% to 50.0%	Yes	48.5%	49.5%
Outstanding Debt per Connection	Max $3,000	Yes	$1,556	$1,610
Anticipated Sewer Bond Sales Through FY 2018				$100.0 M

(1) Exclusive of Availability Charges in Fund 69000, Sewer Revenue, and Fund 69300, Sewer Construction Improvement. Calculated based on Operating Expenses and 360 days.

The billing rates for both Sewer Service Charges and Base Charges are revised in FY 2016, which results in an increase of 3.6 percent to a typical household. The Base Charge increases from $15.86 per quarter to $20.15 per quarter. The Sewer Service Charge increases from $6.62 to $6.65 per 1,000 gallons of water consumed. Based on Fairfax County's winter quarter average consumption of 18,000 gallons, the average customer will see an annual cost increase of $19.32 or 3.6 percent. It is anticipated that these billing charges will support the County's ability to maintain high bond ratings (AAA by Fitch Investor Service and Standard and Poor's Corporation and Aa1 with Positive outlook by Moody's Investors Service, Inc.) from rating agencies. These high credit ratings have enabled the County to sell bonds on behalf of the Program at interest rates lower than those obtained by most sewer authorities, thereby achieving savings throughout the life of the bonds.

Budget and Staff Resources

Category	FY 2014 Actual	FY 2015 Adopted	FY 2015 Revised	FY 2016 Advertised	FY 2016 Adopted
FUNDING					
Expenditures:					
Personnel Services	$25,928,322	$28,680,120	$28,680,120	$29,103,333	$29,169,379
Operating Expenses	63,977,846	67,136,022	66,899,259	66,291,592	66,225,546
Capital Equipment	775,148	2,452,460	2,859,356	1,233,615	1,233,615
Subtotal	$90,681,316	$98,268,602	$98,438,735	$96,628,540	$96,628,540
Less:					
Recovered Costs	($597,579)	($345,468)	($345,468)	($345,468)	($345,468)
Total Expenditures	$90,083,737	$97,923,134	$98,093,267	$96,283,072	$96,283,072
AUTHORIZED POSITIONS/FULL-TIME EQUIVALENT (FTE)					
Regular	315 / 315	315 / 315	315 / 315	315 / 315	315 / 315

FY 2016 Funding Adjustments

The following funding adjustments from the FY 2015 Adopted Budget Plan are necessary to support the FY 2016 program. Included are all adjustments recommended by the County Executive that were approved by the Board of Supervisors, as well as any additional Board of Supervisors' actions, as approved in the adoption of the budget on April 28, 2015.

- **Employee Compensation** **$810,849**
  An increase of $810,849 in Personnel Services includes $279,419 for a 1.10 percent market rate adjustment (MRA) for all employees and $531,430 for performance-based and longevity increases for non-uniformed merit employees, both effective July 2015.

- **Personnel Services** **($326,049)**
  A decrease of $326,049 in Personnel Services is based on savings in regular salaries and fringe benefits based on actual experience.

- **Other Post-Employment Benefits** **$4,459**
  An increase of $4,459 in Personnel Services reflects required adjustments associated with providing Other Post-Employment Benefits (OPEBs) to retirees, including the Retiree Health Benefits Subsidy. For more information on Other Post-Employment Benefits, please refer to Fund 73030, OPEB Trust Fund, in Volume 2 of the FY 2016 Adopted Budget Plan.

- **Operational Requirements** **($910,476)**
  A decrease of $910,476 in Operating Expenses is primarily associated with lower than anticipated operating costs associated with the new Moving Bed Biofilm Reactors (MBBRs). The new MBRRs were installed during FY 2015 and have achieved savings at the plant by reducing the chemical and electrical costs.

- **Capital Equipment** **$1,233,615**
  Capital Equipment funding of $1,233,615 includes $1,206,357 for replacement vehicles and equipment that have outlived their useful life and are not cost effective to repair, and $27,258 for new equipment. The replacement vehicles and equipment include: $1,057,721 for several trucks and trailers to provide transportation for crews and their equipment, clean the sanitary sewer system, and transport sewage from the pump and haul facilities; $22,636 for the replacement of critical laboratory equipment including one Biochemical Oxygen Demand incubator, one chemical mixer, and several filters for wastewater analysis; and $126,000 for other replacement technical support equipment used for maintenance requirements. The new equipment includes $27,258 for a Total Organic Carbon analyzer that quickly measures the strength of wastewater as it enters and/or leaves the treatment plant to ensure compliance with the state Department of Environmental Quality permit requirements and for two uninterruptable power supply units that help safely shutdown already processed samples in the event of a power interruption.

Changes to FY 2015 Adopted Budget Plan

The following funding adjustments reflect all approved changes in the FY 2015 Revised Budget Plan since passage of the FY 2015 Adopted Budget Plan. Included are all adjustments made as part of the FY 2014 Carryover Review, FY 2015 Third Quarter Review, and all other approved changes through April 30, 2015.

- **Carryover Adjustments** **$170,133**
  As part of the *FY 2014 Carryover Review*, the Board of Supervisors approved encumbered funding of $170,133 in Capital Equipment.

Cost Centers

Wastewater Collection

The Wastewater Collection Division is responsible for the operation and maintenance of the collection system which includes the physical inspection of sewer lines, the rehabilitation of aging and deteriorated sewer lines, and pumping stations; raising manholes, sewer line location and marking for the Miss Utility Program. The division also responds to emergency repair of sewer lines and provides 24-hour hotline and service response to homeowners in the County.

Category	FY 2014 Actual	FY 2015 Adopted	FY 2015 Revised	FY 2016 Advertised	FY 2016 Adopted
EXPENDITURES					
Total Expenditures	$13,838,877	$17,048,651	$17,356,613	$16,089,302	$16,115,714
AUTHORIZED POSITIONS/FULL-TIME EQUIVALENT (FTE)					
Regular	132 / 132	132 / 132	132 / 132	132 / 132	132 / 132

	Collection Program		Gravity Sewers		Pumping Stations
1	Director	1	Public Works Env. Svcs. Mgr.	1	Public Works Env. Svcs. Mgr.
1	Human Resources Generalist III	6	Senior Maintenance Sups.	1	Industrial Electrician Supervisor
1	Safety Analyst	12	Heavy Equipment Operators	1	Instrumentation Supervisor
1	Emergency Mgmt. Specialist III	2	Maintenance Crew Chiefs	1	Plant Maintenance Supervisor
2	Administrative Assistants IV	11	Motor Equipment Operators	1	Industrial Electrician III
1	Administrative Assistant III	2	Truck Drivers	4	Industrial Electricians II
1	Administrative Assistant II	7	Senior Maintenance Workers	6	Plant Mechanics III
		10	Maintenance Workers	8	Plant Mechanics II
	Projects and Assets	3	Environmental Services Sups.	3	Instrumentation Technicians III
2	Public Works Env. Svcs. Specs.	1	Map Drafter	2	Instrumentation Technicians II
1	Engineer V	1	Engineer III	1	Instrumentation Technician I
1	Senior Engineer III	1	Engineering Technician II		
1	Engineer III	1	Engineering Technician I		
1	Engineering Technician III	1	Industrial Electrician III		
3	Engineering Technicians II				
10	Engineering Technicians I				
2	Environmental Services Sups.				
7	Instrumentation Technicians II				
3	Instrumentation Technicians I				
5	Maintenance Workers				

TOTAL POSITIONS
132 Positions / 132.0 FTE

Wastewater Treatment

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The Wastewater Treatment Division includes a variety of activities to support the advanced treatment of wastewater which includes regulatory requirements associated with the Chesapeake Bay, Clean Water Act and other environmental standards. The plant also provides enhanced odor control services, water and energy management, and water reuse.

Category	FY 2014 Actual	FY 2015 Adopted	FY 2015 Revised	FY 2016 Advertised	FY 2016 Adopted
EXPENDITURES					
Total Expenditures	$20,104,844	$23,908,001	$24,006,935	$23,378,031	$23,404,777
AUTHORIZED POSITIONS/FULL-TIME EQUIVALENT (FTE)					
Regular	129 / 129	129 / 129	129 / 129	129 / 129	130 / 130

Noman M. Cole, Jr. Pollution Control Plant

1 Director
2 Senior Engineers III
1 Safety Analyst
1 Heavy Equipment Supervisor
2 Heavy Equipment Operators
1 Administrative Assistant IV

IT Services

1 Info. Tech. Prog. Manager I
1 Network/Telecomm. Analyst III
4 Network/Telecomm. Analysts II
2 Network/Telecomm. Analysts I
1 Programmer Analyst III (1T)
1 Data Analyst I

Operations

1 Public Works Env. Svcs. Mgr.
1 Plant Operations Superintendent
6 Plant Operations Supervisors
8 Plant Operators III
29 Plant Operators II
10 Plant Operators I
1 Instrumentation Technician II

Engineering Support

1 Engineer V
2 Engineers III
1 Engineering Technician III
1 Engineering Technician II

Maintenance

1 Public Works Env. Svcs. Mgr.
1 Industrial Electrician Supervisor
1 Instrumentation Supervisor
2 Plant Maintenance Supervisors
1 Chief Building Maintenance
3 Industrial Electricians III
4 Industrial Electricians II
2 Industrial Electricians I
2 Welders II
3 Instrumentation Technicians III
5 Instrumentation Technicians II
1 Senior Maintenance Supervisor
1 Senior Maintenance Worker
6 Plant Mechanics III
8 Plant Mechanics II
1 Painter II
2 Painters I
4 Maintenance Workers
1 HVAC II
1 General Building Maint. Worker I
1 Plant Operator II

TOTAL POSITIONS
130 Positions (1T) / 130.0 FTE (1.0T)

T Denotes Transferred Position

Wastewater Planning and Monitoring

The Wastewater Planning and Monitoring Division assesses and monitors long-term planning needs for the Wastewater Management Program and conducts environmental monitoring for regulatory compliance and for protection of the wastewater system and the environment. The staff also determines and plans for infrastructure expansion requirements and financial demands for the entire wastewater system.

Category	FY 2014 Actual	FY 2015 Adopted	FY 2015 Revised	FY 2016 Advertised	FY 2016 Adopted
EXPENDITURES					
Total Expenditures	$56,140,016	$56,966,482	$56,729,719	$56,815,739	$56,762,581
AUTHORIZED POSITIONS/FULL-TIME EQUIVALENT (FTE)					
Regular	54 / 54	54 / 54	54 / 54	54 / 54	53 / 53

	Financial Management and Planning		Engineering Planning and Analysis		Environmental Monitoring
1	Deputy Director, Wastewater/Stormwater	1	Engineer V	1	Chief, Environmental Monitoring
1	Director, Planning/Monitoring Division	1	Engineer IV	1	Pretreatment Manager
1	Management Analyst IV	3	Engineers III	1	Env. Laboratory Manager
1	Management Analyst I	1	Geog. Info. Spatial Analyst III	3	Code Specialists II
1	Financial Specialist IV	1	Geog. Info. Spatial Analyst II	2	Environmental Technologists III
1	Financial Specialist III	1	Geog. Info. Spatial Analyst I	9	Environmental Technologists I
1	Financial Specialist II	1	Engineering Technician III	2	Management Analysts II
2	Administrative Assistants IV			1	Administrative Assistant III
4	Administrative Assistants III				
2	Inventory Managers				
1	Material Mgmt. Specialist III				
4	Material Mgmt. Specialists I				
1	Material Mgmt. Assistant				
1	Engineering Technician III				
2	Engineering Technicians II				
0	Programmer Analysts III (-1T)				

TOTAL POSITIONS
53 Positions (-1T) / 53.0 FTE (-1.0T)

T Denotes Transferred Position

Key Performance Measures

Indicator	Prior Year Actuals FY 2012 Actual	FY 2013 Actual	FY 2014 Estimate/Actual	Current Estimate FY 2015	Future Estimate FY 2016
Wastewater Management Program					
Compliance with Title V air permit and State water quality permit	100%	100%	100%/100%	100%	100%
Blockages causing sewer back-ups per year (FY 2014, 5-yr. avg. = 15)	10	16	15/15	15	15
Average household sewer bill compared to other providers in the area	One of the lowest	2nd lowest out of 7	One of the lowest/2nd lowest out of 7	2nd lowest out of 7	2nd lowest out of 7
Debt Coverage Ratio: (Revenue - Operating Cost/Debt)	1.51	2.00	1.25/2.03	2.02	2.09

A complete list of performance measures can be viewed at www.fairfaxcounty.gov/dmb/fy2016/adopted/pm/69010.pdf

Performance Measurement Results

The Wastewater Management Program continues to maintain 100 percent compliance with Title V air permit and State water quality permit requirements.

When comparing average annual sewer service billings for the regional jurisdictions, Fairfax County has a lower than average annual sewer service billing at $540. Other regional jurisdictions range from $438 to $669 (as of January 1, 2015). The average sewer service billings for the other regional jurisdictions have been developed by applying each jurisdiction's sewer service rate to appropriate Single Family Residence Equivalent's (SFRE) water usage determined from an analysis of Fairfax Water's historical average water usage records for SFREs. Based on the latest rate comparison, Fairfax County has the second lowest annual sewer service charge out of the seven jurisdictions. The program is able to maintain its competitive rates while providing quality service to its customers, protecting the environment, and maintaining sufficient financial resources to fully fund the program's initiatives.

Fund 69010
Sewer Operation and Maintenance

FUND STATEMENT

Fund 69010, Sewer Operation and Maintenance

	FY 2014 Actual	FY 2015 Adopted Budget Plan	FY 2015 Revised Budget Plan	FY 2016 Advertised Budget Plan	FY 2016 Adopted Budget Plan
Beginning Balance	$10,801,106	$8,287,463	$14,917,369	$7,024,102	$7,024,102
Transfer In:					
Sewer Revenue (69000)	$96,000,000	$92,000,000	$92,000,000	$92,150,000	$92,150,000
Total Transfer In	$96,000,000	$92,000,000	$92,000,000	$92,150,000	$92,150,000
Total Available	$106,801,106	$100,287,463	$106,917,369	$99,174,102	$99,174,102
Expenditures:					
Personnel Services	$25,928,322	$28,680,120	$28,680,120	$29,103,333	$29,169,379
Operating Expenses	63,977,846	67,136,022	66,899,259	66,291,592	66,225,546
Recovered Costs	(597,579)	(345,468)	(345,468)	(345,468)	(345,468)
Capital Equipment	775,148	2,452,460	2,859,356	1,233,615	1,233,615
Total Expenditures	$90,083,737	$97,923,134	$98,093,267	$96,283,072	$96,283,072
Transfer Out:					
General Fund (10001)[1]	$1,800,000	$1,800,000	$1,800,000	$2,850,000	$2,850,000
Total Transfer Out	$1,800,000	$1,800,000	$1,800,000	$2,850,000	$2,850,000
Total Disbursements	$91,883,737	$99,723,134	$99,893,267	$99,133,072	$99,133,072
Ending Balance[2]	$14,917,369	$564,329	$7,024,102	$41,030	$41,030

[1] Funding in the amount of $2,850,000 is transferred to the General Fund to partially offset central support services supported by the General Fund which benefit Fund 69010, Sewer Operation and Maintenance. These indirect costs include support services such as Human Resources, Purchasing, Budget and other administrative services.

[2] The Wastewater Management Program maintains fund balances at adequate levels relative to projected operation and maintenance expenses. These costs change annually; therefore, funding for sewer operations and maintenance is carried forward each fiscal year, and ending balances fluctuate, reflecting the carryover of these funds.