

Mission

To safely collect and treat wastewater in compliance with all regulatory requirements using state-of-theart 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.

This program operates and maintains nearly 3,242 miles of sewer, 63 pump stations and 57 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



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

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.

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 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.

In FY 2019, the financial functions in Fund 69010, Sewer Operations and Maintenance, and Fund 40100, Stormwater Services, will be combined. More specifically, the following functional areas will be consolidated – financial management, financial reporting and audits, rates setting, budgets, accounting, purchasing, billing, and warehouse needs. The goals of this initiative are to provide savings due to efficiencies and to deliver consistent service for all customers. The positions affected by this change are noted in the positions table under the Budget and Staff Resources section.

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 Virginia Pollutant Discharge Elimination System (VPDES) 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 was used to renovate and upgrade current plant facilities to accommodate these more stringent nutrient discharge requirements. These renovations and upgrades were completed in FY 2015. Other regional plants serving the County are at various stages of upgrade for compliance with the new requirements.

<u>Capacity, Management, Operation, and Maintenance (CMOM)</u> - The United States Environmental Protection Agency (USEPA) has proposed 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 - https://www3.epa.gov/npdes/pubs/sso casestudy fairfax.pdf.

<u>Capital Improvements</u> - Reinvestment in the sewer system infrastructure ensures optimum operation of all wastewater facilities. This initiative, closely related to CMOM endeavors for a quality sewer system, emphasizes capital improvements to wastewater collection and treatment facilities to meet the

requirements of the sanitary sewer overflow regulations. The program continues to take a proactive stance toward infrastructure rehabilitation.

Integration of Information Technology - The Geographic Information System (GIS), the Supervisory

Control Data Acquisition (SCADA) system and the Infrastructure Computerized Maintenance Management System (ICMMS) require integration optimal use. Computing information technology are integral part of every aspect of the Wastewater Management Program Today's high customer operations. 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 the 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.

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 2019, the condition assessment continues on the large diameter pipes, 15-inches and larger, sewer lines that were sliplined in the 1990s and sewer lines with sags.

<u>Wastewater Collection Division (WCD)</u> - operates and maintains approximately 3,242 miles of collection system, 63 pumping stations, and 57 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.

<u>Wastewater Treatment Division (WTD)</u> - 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 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 and high bond rating, and achieve 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 2019 and FY 2020. 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 2019	FY 2020
Net Revenue Margin	37.0% to 50.0%	Yes	52.7%	54.1%
Days Working Capital ¹	150 to 200 days	Yes	153	153
Debt Coverage Senior	Min. 3.00x	Yes	4.09x	3.83x
Debt Coverage All-in	1.80x to 2.20x	Yes	2.11x	2.12x
Affordability (% of median income spent on sewer bill)	Less than 1.2%	Yes	0.5%	0.6%
	Below 40.0%			
Debt to Net Plant in Service	Never above 50.0%	Yes	32.2%	32.8%
Outstanding Debt per Connection	Max \$3,000	Yes	\$1,600	\$1,645
Anticipated Sewer Bond Sales Through FY 2019				

(1) The Days Working Capital financial indicator is exclusive of Availability Charges in Fund 69000, Sewer Revenue, and Fund 69300, Sewer Construction Improvement. It is calculated based on Operating Expenses and 360 days.

The billing rates for both Sewer Service Charges and Base Charges are revised in FY 2019. The Base Charge increases from \$27.62 per quarter to \$30.38 per quarter. The Sewer Service Charge increases from \$6.75 to \$7.00 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 \$29.04 or 4.9 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 Aaa by Moody's Investors Service, Inc.) from the 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

	FY 2017	FY 2018	FY 2018	FY 2019
Category	Actual	Adopted	Revised	Advertised
FUNDING				
Expenditures:				
Personnel Services	\$28,233,326	\$29,739,658	\$29,739,658	\$31,784,745
Operating Expenses	63,112,927	68,773,063	68,537,505	68,773,063
Capital Equipment	824,018	901,042	1,445,613	1,778,001
Subtotal	\$92,170,271	\$99,413,763	\$99,722,776	\$102,335,809
Less:				
Recovered Costs	(\$458,076)	(\$737,576)	(\$737,576)	(\$598,010)
Total Expenditures	\$91,712,195	\$98,676,187	\$98,985,200	\$101,737,799
AUTHORIZED POSITIONS/FULL-TIME EQUIVALENT (FTE)				
Regular	315 / 315	317 / 317	317 / 317	324 / 324

FY 2019 Funding Adjustments

The following funding adjustments from the <u>FY 2018 Adopted Budget Plan</u> are necessary to support the FY 2019 program.

♦ Employee Compensation

\$1,299,173

An increase of \$1,299,173 in Personnel Services includes \$624,839 for a 2.25 percent market rate adjustment (MRA) for all employees and \$474,113 for performance-based and longevity increases for non-uniformed merit employees, both effective July 2018, as well as an increase of \$200,221 for employee pay increases for specific job classes identified in the County's benchmark class survey of comparator jurisdictions.

♦ Other Post-Employment Benefits

\$140,201

An increase of \$140,201 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, in Volume 2 of the FY 2019 Advertised Budget Plan.

♦ New Positions \$605,713

An increase of \$605,713 in Personnel Services is necessary to fund salary and Fringe Benefits requirements associated with 7/7.0 FTE positions in FY 2019, including two Senior Maintenance Workers, one Heavy Equipment Operator, one Motor Equipment Operator, one Emergency Management Specialist II, one Engineering Technician III, and one Code Specialist I. The Senior Maintenance Workers, the Heavy Equipment Operator, and the Motor Equipment Operator positions will be part of the evening flushing and response crew in the Gravity Sewers Branch. This crew will respond to after-hours trouble calls; take inventory of materials and equipment in the branch; assist with Stormwater Pollution Prevention inspections; and help with emergency even preparations as necessary. In addition, these positions will support on-the-spot inspections and preventative maintenance, and they will address the increased workload from Closed-Circuit Television (CCTV) pipe cleaning requests and work orders associated with the Asset Management Program. The Emergency Management Specialist II position will provide support towards emergency management

and safety requirements at the Noman M. Cole, Jr. Pollution Control Plant. The Engineering Technician III position will provide engineering support that is essential for the construction projects in the Wastewater Capital Improvement Program (CIP). The requirements of the Wastewater CIP are increasing annually, and more support is required in order to keep the current level of service. The Code Specialist I position will support the development and implementation of the Fats, Oil, and Grease Control Program; the responses to increased requests for non-domestic discharges to the County's sanitary sewer system; the goal of attaining a better monitoring and regulatory oversight for pretreatment compliance and enforcement; and the alignment of a more hierarchical organizational structure for the Industrial Waste Section.

♦ Recovered Costs \$139,566

A decrease of \$139,566 in Recovered Costs is based on actual experience.

♦ Capital Equipment

\$1,778,001

Capital Equipment funding of \$1,778,001 includes \$1,716,001 for replacement vehicles and equipment that have outlived their useful life and are not cost effective to repair, and \$62,000 for a new electrical lift and a new compressor. The replacement vehicles and equipment include: \$519,661 for one dump truck, three trailers, one stake body, six pickup trucks, and one van to provide transportation for crews and their equipment; \$750,000 for two small flusher trucks that have a cold weather recirculation system, a liquid debris pump-off system, hydraulic booms, aluminum water tanks, hose reels, a positive displacement technology, a multi-stage blower filtration system, and safety warning equipment, all extremely critical to the proper maintenance of sewers and the prevention of back-ups and overflows; \$122,340 for the replacement of critical laboratory equipment including a mercury analyzer, an automatic sampler, a biochemical oxygen demand analysis system with a sampler, a laboratory water purification system, and an oil and grease extraction system that is more efficient, reliable, and environmentally friendly; and \$324,000 for other replacement technical support equipment used for maintenance requirements. The new Capital Equipment includes \$37,000 for a compressor that will provide the capability of using pneumatic tools to break loose and large bolts or nuts throughout the treatment plant campus, and \$25,000 for an electrical lift that is utilized when performing tasks requiring accessibility in high and tight areas that are not safely accessible by ladders.

Changes to <u>FY 2018 Adopted Budget Plan</u>

The following funding adjustments reflect all approved changes in the FY 2018 Revised Budget Plan since passage of the FY 2018 Adopted Budget Plan. Included are all adjustments made as part of the FY 2017 Carryover Review, and all other approved changes through December 31, 2017.

♦ Carryover Adjustments

\$309,013

As part of the FY 2017 Carryover Review, the Board of Supervisors approved funding of \$309,013 due to encumbrances 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.

Cate	gory		FY 2017 Actual	FY 2018 Adopted	FY 2018 Revised	FY 2019 Advertised
EXPE	NDITURES					
Total	Expenditures		\$14,600,408	\$16,128,967	\$16,128,967	\$17,659,276
AUTH	ORIZED POSITIONS/FULL-TIME EQUIVA	LENT (FTE)				
Re	gular		132 / 132	133 / 133	134 / 134	138 / 138
	Collection Program		Gravity Sewers		Pumping Station	
1	Director	1	Public Works Env. Svcs. M	•	Public Works Env	
1	Human Resources Generalist III	7	Senior Maintenance Sups.	1	Industrial Electric	
1	Safety Analyst	12	Heavy Equipment Operator	• •	Instrumentation S	
3	Administrative Assistants IV	2	Maintenance Crew Chiefs	1 . (1)	Plant Maintenand	
1	Administrative Assistant III	13 3	Motor Equipment Operators	s (1) 2	Industrial Electric	
ı	Administrative Assistant II	3 10	Truck Drivers	-	Industrial Electric Plant Mechanics	
	Projects and Assets	6	Senior Maintenance Worker Maintenance Workers	8 (2)	Plant Mechanics	
2	Public Works Env. Tech. Specs.	3	Environmental Services Su	_	Instrumentation T	
1	Engineer V	J 1	Engineer III	ips. 3	Instrumentation T	
1	Engineer IV	1	Engineering Technician II	3	Instrumentation T	
1	Senior Engineer III	1	Engineering Technician I	3	monumentation i	CCITICIATIS I
2	Engineers III	1	Industrial Electrician III			
1	Engineering Technician III	1	Map Drafter			
4	Engineering Technicians II					
10	Engineering Technicians I					
2	Environmental Services Sups.					
7	Instrumentation Technicians II					
5	Instrumentation Technicians I					
	AL POSITIONS				·	
138	Positions (4) / 138.0 FTE (4.0)			()	Denotes New Posi	tion(s)

Wastewater Treatment

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.

Cate	gory		FY 2017 Actual	FY 2018 Adopted	FY 2018 Revised	FY 2019 Advertised
EXPE	NDITURES					
Total	Expenditures		\$21,669,655	\$24,098,453	\$24,643,024	\$25,114,709
AUTH	IORIZED POSITIONS/FULL-TIME EQUIVA	LENT (FTE				
Re	gular		131 / 131	132 / 132	131 / 131	133 / 133
1 2 1 1 1 3 1 1 1 4 2 1 1	Noman M. Cole, Jr. Pollution Control Plant Director Senior Engineers III Safety Analyst Emergency Mgmt. Specialist II (1) Heavy Equipment Supervisor Heavy Equipment Operators Administrative Assistant IV IT Services Info. Tech. Prog. Manager I Network/Telecomm. Analyst III Network/Telecomm. Analysts II Network/Telecomm. Analysts I Programmer Analyst III Data Analyst I	1 1 6 8 19 17 1 1 1 1 2 1	Operations Public Works Env. Svcs. Mg Plant Operations Superinten Plant Operations Supervisor Plant Operators III Plant Operators I Instrumentation Technician I Engineering Support Engineer V Engineer IV Engineering Technicians III Engineering Technician II Assistant Project Manager	ndent 1 2 1 5 1 1 5 11 2 3 5 5 5	Maintenance Public Works Env. Industrial Electricia Instrumentation Su Plant Maintenance Chief Building Mair Industrial Electricia Industrial Electricia Industrial Electricia Welders II Instrumentation Te Instrumentation Te Senior Maintenanc Plant Mechanics II Painter II Painter II Painters I HVACs II General Building M Plant Operator II Senior Environmer Engineering Techn	n Supervisor pervisor Supervisors atenance ns III ns II chnicians III chnicians III e Workers
	AL POSITIONS Positions (2) / 133.0 FTE (2.0)			() [enotes New Positio	n(s)

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 2017 Actual	FY 2018 Adopted	FY 2018 Revised	FY 2019 Advertised
EXPENDITURES					
Total Expenditures		\$55,442,132	\$58,448,767	\$58,213,209	\$58,963,814
AUTHORIZED POSITIONS/FULL-TIME EQUIVALENT (F	TF)				
Regular	,	52 / 52	52 / 52	52 / 52	53 / 53
Financial Management and Planning		Engineering Planning	and Analysis		
 Deputy Director, Wastewater/Stormwater 	1	Engineer V	•		
 Director, Planning/Monitoring Division 	1	Engineer IV			
1 Finance Manager, Wastewater/Stormwater **	3	Engineers III			
1 Management Analyst IV					
1 Management Analyst I		Environmental Monito			
1 Financial Specialist IV **	1	Chief, Environmental Monitoring			
1 Financial Specialist III **	1	Pretreatment Manager			
1 Financial Specialist II **	1	Env. Laboratory Manag	er		
1 Administrative Assistant V **	1	Code Specialist III			
1 Administrative Assistant IV	3	Code Specialists II			
4 Administrative Assistants III **	1	Code Specialist I (1)			
2 Inventory Managers **	2	Environmental Technological			
1 Material Mgmt. Specialist III **	2	Environmental Technolo			
4 Material Mgmt. Specialists II **	7	Environmental Technological			
1 Material Mgmt. Assistant **	2	Management Analysts I	l		
1 Engineering Technician III	1	Management Analyst I			
2 Engineering Technicians II	1	Administrative Assistant	[111		
TOTAL POSITIONS		** Denotes Positions E		I with Stormwater	
53 Positions (1) / 53.0 FTE (1.0)		() Denotes New Positi	on(s)		

Key Performance Measures

	Prior Year Actuals			Current	Future
Indicator	FY 2015 Actual	FY 2016 Actual	FY 2017 Estimate/Actual	Estimate FY 2018	Estimate FY 2019
Wastewater Management Pro	gram				
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)	16	14	15/19	15	15
Average household sewer bill compared to other providers in the area	2 nd lowest out of 7	2 nd lowest out of 7	Below regional average/Below regional average	Below regional average	Below regional average
Debt Coverage Ratio: (Revenue - Operating Cost/Debt)	2.05	2.10	2.00/2.38	2.00	2.00

A complete list of performance measures can be viewed at https://www.fairfaxcounty.gov/budget/fy-2019-advertised-performance-measures-pm

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 below regional average annual sewer service billing at \$597. Other regional jurisdictions range from \$465 to \$935 (as of January 1, 2018). 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 STATEMENT

Fund 69010, Sewer Operation and Maintenance

	FY 2017 Actual	FY 2018 Adopted Budget Plan	FY 2018 Revised Budget Plan	FY 2019 Advertised Budget Plan
Beginning Balance	\$6,082,776	\$88,405	\$4,520,581	\$4,125,381
Transfer In:				
Sewer Revenue (69000)	\$93,000,000	\$101,440,000	\$101,440,000	\$100,470,000
Total Transfer In	\$93,000,000	\$101,440,000	\$101,440,000	\$100,470,000
Total Available	\$99,082,776	\$101,528,405	\$105,960,581	\$104,595,381
Expenditures:				
Personnel Services	\$28,233,326	\$29,739,658	\$29,739,658	\$31,784,745
Operating Expenses	63,112,927	68,773,063	68,537,505	68,773,063
Recovered Costs	(458,076)	(737,576)	(737,576)	(598,010)
Capital Equipment	824,018	901,042	1,445,613	1,778,001
Total Expenditures	\$91,712,195	\$98,676,187	\$98,985,200	\$101,737,799
Transfer Out:				
General Fund (10001) ¹	\$2,850,000	\$2,850,000	\$2,850,000	\$2,850,000
Total Transfer Out	\$2,850,000	\$2,850,000	\$2,850,000	\$2,850,000
Total Disbursements	\$94,562,195	\$101,526,187	\$101,835,200	\$104,587,799
Ending Balance ²	\$4,520,581	\$2,218	\$4,125,381	\$7,582
1				

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.

²The 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.