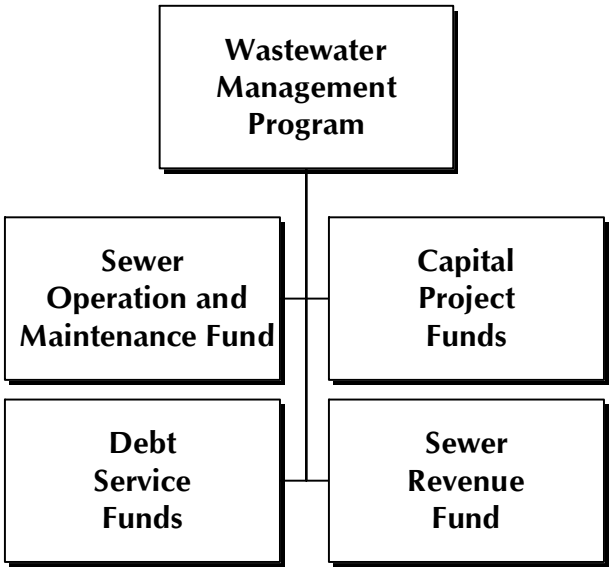
Wastewater Management Program Overview



Focus

The Wastewater Management Program (WWM) is operated, maintained and managed within the Department of Public Works and Environmental Services (DPWES). The program currently includes the County-owned Noman M. Cole, Jr. Pollution Control Plant (67 million gallons per day (mgd) capacity), nearly 3,330 miles of sewer lines, 65 pump stations, 54 flow-metering stations, and covers approximately 234 square miles of the County's 407 square-mile area. Capacity entitlement at the other regional facilities totals 91 mgd. A total of 321/320.5 SYE positions will perform wastewater maintenance and operations in FY 2009. The WWM anticipates a total of 355,208 households and businesses (new and existing) connections in Fairfax County will be connected to public sewer in FY 2009.

In addition to providing County residents and businesses with sewer service, Fairfax County provides sewer service to other nearby entities through "Sales of Service" agreements with Arlington County, the cities of Falls Church and Fairfax, the towns of Herndon and Vienna, Fort Belvoir, the Covanta Fairfax, Inc. Waste-to-Energy facility and Fairfax Water. These entities share the capital and operating costs of the WWM based on actual wastewater flow and reserved treatment capacity.

The strategic planning and overall business monitoring is the responsibility of the Wastewater Management Leadership Team, whose responsibilities focus on long range planning, strategic thinking, continuous improvement processing, wastewater capacity, and financial management. This team is comprised of employees from three divisions within WWM, Collections, Treatment, and Planning and Monitoring.

The Wastewater Collection Division (WCD) is responsible for the County's wastewater collection and conveyance system consisting of sewers, force mains, pumping stations and metering stations. The WCD has a proactive sewer system maintenance program that facilitates a safe and effective wastewater collection system. Each year, over 800 miles of sewer lines are inspected and about 400 miles of sewer lines are cleaned to ensure maximum flow carrying capacity and reduce sewer backups and overflows. Over the last five years, WCD has rehabilitated 120 miles of sewer lines to protect the environment and residents of Fairfax County.

The Wastewater Treatment Division (WTD) is responsible for operating and maintaining the County's wastewater treatment facility, the Noman M. Cole, Jr. Pollution Control Plant (NCPCP). The WTD continues to produce a quality effluent to meet regulatory and permit requirements, despite major construction occurring throughout the plant site. The NCPCP continues to make significant efforts to be a "good neighbor" by constructing an odor control system, which improves the air quality around the plant.

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The Wastewater Planning and Monitoring Division (WPMD) is responsible for the agency's fiscal planning, engineering planning and wastewater monitoring. The WPMD continues to effectively monitor the long-term planning needs for the Wastewater Management Program in terms of infrastructure upgrades, maintenance and expansions. The WPMD ensures that all financial requirements are fulfilled by maintaining a rate structure to adequately recover all operating and maintenance costs, capital improvements and debt service obligations. The WPMD also plans for system capacity, both in the conveyance system and treatment facilities, by initiating expansion and improvement projects to keep pace with increased wastewater flows. The WPMD safeguards the environment by ensuring compliance with water quality standards and prevention of toxic discharges into the collection system.

WPMD is currently monitoring the new Chesapeake Bay water quality program requirements which require reductions in the amount of nutrient pollutants discharged from wastewater treatment facilities. In December 2004, the state notified the County that the renewal of County's National Pollutant Discharge Elimination System (NPDES) permit will include a requirement that nutrient removal be performed at the "Limits of Technology." Current technology allows for discharge limits of less than 3.0 milligrams per liter for nitrogen and 0.1 milligrams per liter for phosphorus. The County currently has the capability to meet the voluntary nitrogen standard of 8.0 milligrams per liter. A phased approach has been recommended to renovate and upgrade current plant facilities to accommodate these more stringent nutrient discharge requirements. The Sewer Service Charge rate will increase from $3.74 to $4.10 per 1,000 gallons of water consumption in FY 2009. This equates to an approximately 9.75 percent increase in rates and will result in an anticipated increase in the annual cost to the typical household of $27.36. The Sewer Service Charge is adjusted based on Chesapeake Bay federally mandated requirements which will result in the renovation and rehabilitation of existing treatment facilities. Due to the significant level of requirements, it is anticipated that projects will be financed on an as-needed basis with shorter-term financing during FY 2008 and FY 2009.

The system supplements the capacity of its own collections and treatment facilities through "Treatment by Contract" agreements with the District of Columbia Water and Sewer Authority (DCWASA), the Alexandria Sanitation Authority (ASA), the Upper Occoquan Sewage Authority (UOSA) and Arlington County. As stated in the individual agreements, the County pays its share of operating, capital and/or debt costs of each entity's system based on actual wastewater flows and allocated capacity, respectively.

The Wastewater Management Program has issued debt to fund major expansion and upgrade projects for both its own plant and its portion at the "Treatment by Contract" facilities. The following table is showing the remaining debt service as of July 1, 2007.

Wastewater Management Debt Service			
Years	**Principal**	**Interest**	**Total**
2008	$11,340,648	$17,042,264	$28,382,912
2009	11,778,400	16,611,843	28,390,243
2010	12,286,811	16,116,153	28,402,964
2011	13,416,594	15,611,454	29,028,048
2012	14,000,122	15,041,023	29,041,145
2013	14,606,911	14,449,149	29,056,060
2014	15,207,701	13,830,090	29,037,791
2015-2029	283,371,074	107,072,621	390,443,695
TOTAL	**$376,008,261**	**$215,774,597**	**$591,782,858**

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In FY 2009, the County is projected to provide for the treatment of 112.01 million gallons of wastewater per day. Approximately 40 percent of this flow is treated at the NCPCP. The flow is distributed between the NCPCP and the interjurisdictional facilities as detailed in the table below. The table also includes the capacity utilization percentage and the available (unused) capacity for each plant.

Treatment Plant	Capacity (MGD)	FY 2009 Projected Daily Average (MGD)	Capacity Utilization (%)	Available Capacity (MGD)
DCWASA Blue Plains	31.0	29.17	94%	1.83
Noman M. Cole, Jr.	67.0	44.76	66.8%	22.24
Alexandria Sanitation Authority	32.4	22.90	70.6%	9.50
Arlington County	3.0	2.30	76.7%	.70
Upper Occoquan Sewage Authority	24.6	12.88	52.3%	11.72
Total	**158.0**	**112.01**	**70.9%**	**45.99**

To ensure that WWM remains competitive and provides a high performance operation including improvements to the technical and managerial capacities that will continue to enhance service quality, customer service and financial planning, WWM closely monitors the following areas:

	FY 2007 (Actual)	FY 2008 (Estimate)	FY 2009 (Projection)
Sewer Service Charge, $/1,000 gallons	$3.50	$3.74	$4.10
Treatment Costs, $/MGD	$1,400	$1,450	$1,500
Number of Sewer System Overflows	14	20	20
Odor Complaints per year	16	40	40

The WWM is comprised of seven separate funds under a self-supporting fund structure (Enterprise Funds) consistent with the Sewer Bond Resolution adopted by the Board of Supervisors in July 1985. For more detailed information of the operational aspects of the various programs, refer to the narrative of Fund 401, Sewer Operation and Maintenance, which immediately follows this Overview. The following is a brief description of the seven active funds:

- **Fund 400** - Sewer Revenue is used to credit all operating revenues of the system, as well as most of the interest on invested fund balances. Revenues recorded in this fund are transferred to the various funds to meet their operational requirements. The remaining fund balances are used to set aside funds for various reserves and future system requirements.

- **Fund 401** - Sewer Operation and Maintenance provides funding for the three divisions responsible for the management and operation of the program, supported by a transfer from Fund 400.

- **Fund 402** - Sewer Construction Improvements provides funding for the repair, rehabilitation and improvement requirements of the entire program's infrastructure, supported by a transfer from Fund 400.

- **Fund 403** - Sewer Bond Parity Debt Service is used to record principal, interest and fiscal agent fees for the Series 2004 Sewer Revenue Refunding Bonds in accordance with the current Sewer Bond Resolution, supported by a transfer from Fund 400. In addition, short term variable rate debt will be issued beginning in FY 2008.

- **Fund 406** - Sewer Bond Debt Reserve provides debt reserve funds for the 2004 Series of Sewer Revenue Bonds in accordance with the current Sewer Bond Resolution, which are funded from the issuance of sewer revenue bonds and/or program revenues.

- **Fund 407** - Sewer Bond Subordinate Debt Service records all debt service payments on the UOSA revenue bonds, VRA Loans, and Manassas Debt payments. All future issues or refinancing of debt arising from interjurisdictional capacity rights may be treated as subordinate obligations of the system as provided by the General Bond Resolution for Sewer Revenue Bonds. Funding is supported by a transfer from Fund 400.

- **Fund 408** - Sewer Bond Construction provides for major program construction projects, which are funded from the issuance of sewer revenue bonds and/or program revenues.