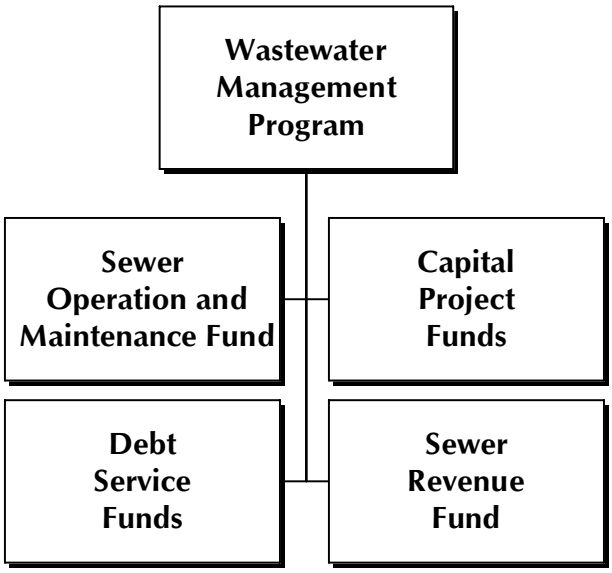
Wastewater Management Program Overview



Focus

The Wastewater Management Program (WWM) is operated, maintained and managed within the Department of Public Works and Environmental Services. The program currently includes the County-owned Noman M. Cole, Jr. Pollution Control Plant (67 million gallons per day (mgd) capacity), nearly 3,300 miles of sewer lines, 64 pump stations, 53 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 94 mgd. A total of 331/330.5 SYE positions will perform wastewater maintenance and operations in FY 2007. The WWM anticipates a total of 325,000 households (new and existing) in Fairfax County will be connected to public sewer in FY 2007.

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.

Wastewater Management Program Overview

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 has improved performance with no significant increase in costs. In addition, 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.

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 of nitrogen and 0.1 milligrams per liter for phosphorus. The County has the capability to meet the current nitrogen removal standard of 8.0 milligrams per liter. A phased approach has been recommended to renovate and upgrade current plant facilities to accommodate new more stringent nutrient discharge requirements. The Sewer Service Charge rate will increase from $3.28 to $3.50 per 1,000 gallons of water consumption in FY 2007. This equates to a 6.75 percent increase in rates and will result in an anticipated increase in the annual cost to the typical household of $16.72. The higher increase in Sewer Service Charges is a direct result of the Chesapeake Bay federally mandated requirements which will result in the renovation and rehabilitation of existing treatment facilities. In addition, funding of $150 million is recommended through the sale of bonds in FY 2007 to provide maximum flexibility to meet new state regulatory requirements at Wastewater Management facilities.

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. On the following page is a table showing the remaining debt service as of July 1, 2005.

Wastewater Management Debt Service			
Years	**Principal**	**Interest**	**Total**
2006	$9,910,028	$18,219,950	$28,129,978
2007	10,858,629	17,725,972	28,584,601
2008	11,340,648	17,279,629	28,620,277
2009	11,778,398	16,849,208	28,627,606
2010	12,286,810	16,353,518	28,640,328
2011	13,416,593	15,848,820	29,265,413
2012	14,000,121	15,278,388	29,278,509
2013-2029	315,011,408	138,632,423	453,643,831
TOTAL	**$398,602,635**	**$256,187,908**	**$654,790,543**

In FY 2007, the County is projected to provide for the treatment of 110.05 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 2007 Projected Daily Average (MGD)	Capacity Utilization (%)	Available Capacity (MGD)
DCWASA Blue Plains	31.0	28.69	92%	2.31
Noman M. Cole, Jr.	67.0	43.74	65%	23.26
Alexandria Sanitation Authority	32.4	22.69	70%	9.71
Arlington County	3.0	2.30	77%	.70
Upper Occoquan Sewage Authority	27.6	12.63	46%	14.97
Total	**161.0**	**110.05**	**68%**	**50.95**

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 2005	FY 2006	FY 2007
Sewer Service Charge, $/1,000 gallons	$3.20	$3.28	$3.50
Treatment Plant Costs, $/MGD	$1,198	$1,137	$1,200
Sewer System Overflows, Number/1,000 Miles of Sewer	17	20	20
Odor Complaints per year	33	40	40

Wastewater Management Program Overview

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.

- **Fund 403** - Sewer Bond Parity Debt Service is used to record principal, interest and fiscal agent fees for the 1996, 2004, and planned 2007 Sewer Revenue Bonds Series in accordance with the current Sewer Bond Resolution.

- **Fund 406** - Sewer Bond Debt Reserve provides debt reserve funds for the 2004 and planned 2007 Series of Sewer Revenue Bonds in accordance with the current Sewer Bond Resolution.

- **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.

- **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.