

Wastewater Management Program

Lines of Business

LOB #385:

WASTEWATER TREATMENT

Purpose

In order to comply with Federal and State water quality regulations, 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 NMCPCP also provides enhanced odor control services, water and energy management, and water reuse.

Description

The Wastewater Treatment Division (WTD) operates and maintains the NMCPCP. The agency has an exemplary record of producing a high-quality effluent, 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 continues to be a main focus for WTD. The capacity of this facility is 67 mgd, with an average flow of 40 mgd. For 16 years in a row, the NMCPCP earned a Platinum Peak Performance Award, and this year's award makes it 17 years of consecutive 100 percent permit compliance with the National Pollutant Discharge Elimination System. This is a prestigious honor from the National Association of Clean Water Agencies (NACWA).

Benefits

The Wastewater Treatment line of business protects public health, aquatic life and the environment within Fairfax County. The Wastewater Treatment line of business implements several vision elements in the 2015 Strategic Plan to Facilitate the Economic Success of Fairfax County, as noted below. The primary correlation to County Vision Elements to include:

- **Maintaining Safe and Caring Communities** - One key element to maintaining a safe community is providing the infrastructure for a growing and diverse community to be able to travel, whether it's through roads, pedestrian walkways, or public transportation. The wastewater treatment line of business provides wastewater treatment to the homes and commercial buildings people are traveling to and from.
- **Building Livable Spaces** - Wastewater treatment allows for building livable spaces by ensuring the wastewater capacity is available.
- **Maintaining Healthy Economies** - Wastewater treatment is a key element in providing community infrastructure through County funded public projects to support a diverse and thriving economy.
- **Practicing Environmental Stewardship** – Wastewater treatment by providing the highest quality of treatment available ensures the County's natural environment and open spaces are protected from pollution.

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Mandates

Laws that govern wastewater treatment facilities include:

- Clean Water Act PL 92-500
- Clean Air Act
- 33USC 1251
- Code of Virginia §62.1-44.19.32.1
- State Water Control Board VR680-14-01
- State Water Control Board VR680-14-02
- State Water Control Board VR680-14-03

Trends and Challenges

There are a number of challenges/trends in wastewater treatment. The most immediate is the aging infrastructure. The NMCPCP was brought on line in 1971 and has been expanded and upgraded numerous times since then. The value of the NMCPCP is approximately \$700 million. Wastewater Treatment Facilities have a useful life of 25 years due to corrosion, obsolescence, wear and tear. At present, the dollar weighted average age of the Plant's facilities is 22 years. As the facilities reach their useful age, it is more difficult to maintain the needed level of service (permit compliance) without significant emergency repair work. At the same time, the staff required to make the emergency repairs is less experienced. In the past two years, the experience level of Wastewater Treatment staff has been reduced by 25 percent (1,400 years of total experience to 1,042 years of total experience for the 110 plant workers).

Trends include difficulties in recruiting qualified personnel; continuation of improving water quality; focus on environmental stewardship; and more use of "green" technologies.

Challenges include aging infrastructure, staff turnover, tighter air pollution regulations, possible bio-solids application litigation, slower capital project delivery, climate change risk (flooding, power outages) and more safety regulations.

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Resources

Category	FY 2014 Actual	FY 2015 Actual	FY 2016 Adopted
LOB #385: Wastewater Treatment			
FUNDING			
<u>Expenditures:</u>			
Compensation	\$7,398,212	\$7,337,017	\$8,322,557
Benefits	2,965,776	3,107,194	3,021,968
Operating Expenses	9,571,470	9,312,718	11,712,337
Capital Equipment	169,385	275,672	246,000
Total Expenditures	\$20,104,843	\$20,032,601	\$23,302,862
Total Revenue	\$20,104,843	\$20,032,601	\$23,302,862
POSITIONS			
<i>Authorized Positions/Full-Time Equivalents (FTEs)</i>			
<u>Positions:</u>			
Regular	129 / 129	129 / 129	130 / 130
Total Positions	129 / 129	129 / 129	130 / 130

Metrics

Metric Indicator	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Total Average Daily Wastewater Flow Treated (million gallons)	98.1	104.2	97.7	103.6	104.4
Percent of Treatment Capacity available for growth and redevelopment	37%	34%	38%	35%	34%
Compliance with Title V air permit and State water quality permit	100%	100%	100%	100%	100%
Odor Complaints per year	17	6	13.2	15	15

Wastewater Treatment uses metrics to improve performance and ensure regulatory compliance. The four metrics used for this line of business (LOB) demonstrates the commitment to maintaining the highest quality of work, regulatory compliance, and award winning operation.

- **Total Average Daily Wastewater Flow** - Flows can fluctuate from year to year base on the number of wet weather events. Flows for FY 2015 were down to 97.7 mgd from 104.2 mgd in FY 2014.
- **Percent of Treatment Capacity available for growth and redevelopment** - Once the wastewater program has 25 percent capacity left, planning the expansion of NMCPCP will begin. Currently available capacity is 38 percent or 59.6 mgd.
- **Compliance with Title V air permit and State water quality permit** - Beginning in March 2016 new stricter air quality regulations will go into effect. The new equipment being installed currently and the scheduled improvements will allow the plant to maintain its 100 percent compliance.
- **Odor Complaints per year** - Due to the amount of construction activity at the plant, there was a noticeable rise in odor complaints in FY 2015.