

Chapter 13: Public Utilities

Chapter Overview

The City of Lynchburg through the Department of Water Resources has made large capital investments to create a safe and reliable water supply, treatment, and distribution system, wastewater collection and treatment system, and stormwater management services that meet the goals of providing safe reliable drinking water and protecting the environmental systems. While the City's sewer rate is significantly higher than the state average as a result of the CSO program, for the last several years the combined water and sewer rates have been below the state average. The combination of a highly dependable water supply and competitive rates serve as an attraction to economic development. Through the stormwater utility the City is working on developing and implementing a comprehensive stormwater management program.

For the most part the City's systems are capable of handling current and projected water, and sewer needs, however, isolated areas, the City must continue to maintain and upgrade its facilities. The goals, objectives, and strategies of this element are intended to enhance the City's ability to provide its citizens with safe, reliable, and cost-effective public utilities.

Water Treatment and Distribution

The City of Lynchburg has one of the oldest municipal water systems in the nation and the quality of its water has long been a source of community pride. With two sources of raw water and two water filtration plants, there is adequate supply and treatment capacity to serve the entire City. The primary raw water source for the City is the Pedlar Reservoir, with additional supplies coming from the James River during periods of greater demand. Possessing rights that can be traced back to colonial times, the City has rights to one-fifth of the flow from the James River at Lynchburg for current and future use. The City has a complex water distribution system, due to its hilly terrain. The water system includes seven primary pressure zones with several additional small zones, two water treatment plants, nine water storage tanks, and several pump stations. Water is currently treated at the College Hill Water Treatment Plant (WTP), located in the City, and at the Abert WTP, located in Bedford County. The College Hill WTP was completed in 1958, upgraded to a high rate facility in the 1980s, and now has a rated capacity of 14 million gallons per day (mgd). The Abert WTP was constructed in 1974 and has a rated capacity of 12 mgd. Both plants have recently been upgraded. Despite the growing population in Lynchburg, overall water consumption is declining significantly. Over the past 5 years overall consumption has decreased by nearly 10% with average household consumption dropping by a staggering 17%. This decline in consumption is due to several factors including: installation of low flow fixtures and appliances and customers being more conservation minded.



By far the largest portion of the cost to operate a water system is fixed. In Lynchburg, 91% of the operational costs are fixed while only 25% of the corresponding revenue is fixed. Going forward the City should focus more on shifting more of the revenue to the fixed monthly charge instead of the volumetric charge. This will help stabilize future revenues and adequately fund the water system infrastructure needs.

Lynchburg's water sources are both excellent and as noted in the Region 2000 Local Government Council Regional Water Supply Plan should serve Lynchburg's needs well into the future. A recent evaluation of the raw water transmission line from the Pedlar Reservoir, which was installed in the mid 1930s, indicated that the pipe condition was overall very good, however, we expect to continue to have periodic leaks at the pipe joints which will be repair as they occur.. Additionally, the Pedlar Dam has been upgraded to meet all new dam safety regulations. It was recently received the award for the Best Maintained Publicly Owned Dam from the Virginia Lakes and Watersheds Association. As mentioned above, Lynchburg possesses a Crown Grant for water rights of 20% of the flow in the James River. A right the Lynchburg should diligently work to protect.

The primary concern for the water system is the aging infrastructure. Over 135 miles of water lines are over 80 years old and have essentially reached the end of their reliable service life. A plan to address the water system in the Central Business District has been developed and should be implemented over the next decade in order to ensure the reliability and safety of the water infrastructure in this area. Other areas of the City need to continue to be addressed as well; over 46 miles of projects have been identified as needing to be replaced immediately. Another concern that needs to be considered is providing adequate redundancy o the southwestern portion of the City, specifically the 1061 pressure zone. Water rates should be set to fully fund the cost to operate the water system.

Additionally, the City should continue to adequately invest in the water system because not only is water an essential service, the availability and quality of City water is a significant economic development tool— a major benefit to attract new businesses and industries. Several industries have located in Lynchburg because of the water it offers.

In addition to serving the City, the system supplies water to portions of Amherst, Bedford, and Campbell counties. One significant unknown at this time is whether Bedford County will proceed to develop its own source to supply the Forest area. If this occurs, it will result in a significant loss of revenue to the Water Fund. If it appears that this will occur, water rates should be incrementally increased in order to avoid a future significant rate increase. In the meantime, the City should continue to pursue an agreement with Bedford to keep them as a customer. A regional approach to water services is the most economical way to deliver services.

Wastewater Collection and Treatment

Lynchburg constructed its wastewater treatment plant in 1955. The Lynchburg Regional Wastewater Treatment Plant (LRWWTP), located on the Concord Turnpike, provides secondary treatment, has a capacity of 22 million gallons per day (mgd), and treats an average of 13-13.5 mgd. A recent \$9 million upgrade has improved the plants performance including nutrient removal while increasing the wet weather capacity to at least 44 mgd. This is important in the long term plans for the CSO program. The LRWWTP currently participates in the Virginia Nutrient Credit Exchange Association and at present is selling both nitrogen and phosphorous credits due to the combination of a high level of plant performance and available capacity. The outcome of the James River Chlorophyll-A study and associated regulations could have a significant impact to the LRWWTP, possibly resulting in a major upgrade to further reduce the nutrient discharges. The results should be known around the year 2016 or 2017.

The collection system consists of approximately 430 miles of sewer lines ranging in size from 4 inches to 84 inches in diameter. Approximately 2.1 square mile of the City is still served by combined sewers that transport both sanitary and stormwater flows to the LRWWTP.

The City provides wastewater service to portions of Amherst, Bedford, and Campbell counties. These counties collectively own a total of 4.5 million gallons per day (mgd) capacity in the LRWWTP, and costs for plant improvements are shared proportionally based on capacity ownership. Bedford and Campbell counties also pay for capacity in the sewer lines that connect them to the WWTP, while Amherst County pumps directly to the plant. This is based on a perpetual agreement.

The sewer collection system is aging and as such adequate resources need to be devoted to its maintenance and renewal. Particular attention needs to be paid to eliminating sanitary sewer overflows (not CSOs) and areas where capacity may be an issue by way of increased resources for maintenance and capital projects. Inadequate sewer capacity could essentially halt development in the areas upstream. Programs such as the Fats, Oil, and Grease Program should be fully implemented and enforced to help avoid sewer blockages caused by grease.

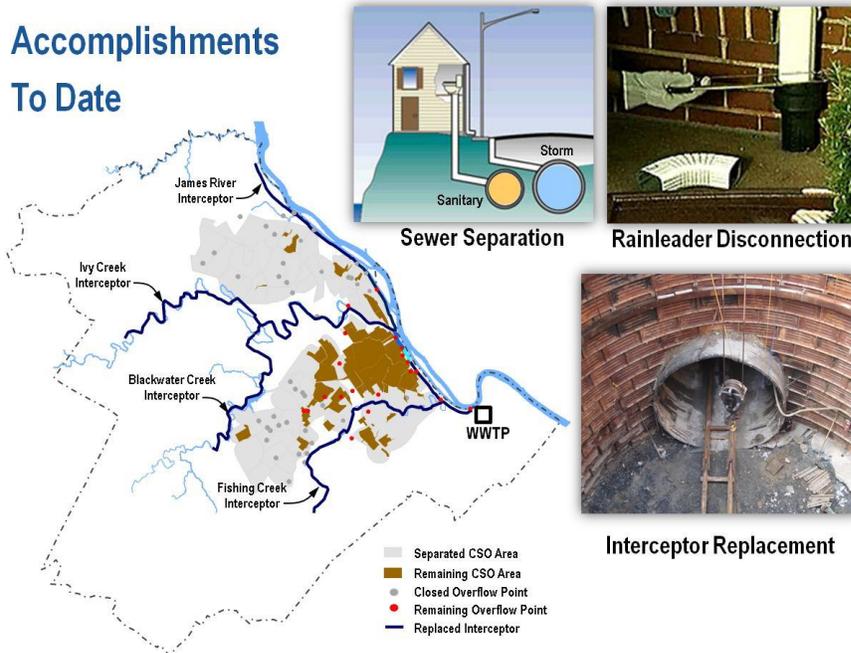
Many areas of the City are not currently served by sewer. At risk is the long term sustainability of these neighborhoods as well as impacts to water quality. Policies need to be developed that address this issue in the most economical and equitable way possible.

As with its water system, the City has used the availability of wastewater treatment as an economic development tool—a major benefit to attract new businesses and industries. Several industries have located in Lynchburg because of the combination of available water and wastewater treatment.

The Combined Sewer Overflow (CSO) Project

Over the last 20 years, we have made significant progress in eliminating combined sewer overflows (CSOs). As of 2013, we have spent \$234.5 million, closed 112 of 132 overflow points, separated 67% of the CSO Area, replaced 30.6 miles of interceptors, disconnected 70% of rooftops connected to sanitary sewers, and reduced 80% of the annual average overflow volume. However, many of the remaining combined sewers were in Lynchburg’s central business district, where separation construction would be particularly disruptive and expensive. The City could spend another \$280 million over the next 30+ years to complete remaining work in its existing CSO Long-Term-Control Plan (LTCP). Implementation of the proposed plan will potentially enable Lynchburg to complete its CSO program within the next decade contingent upon anticipated state funding and save over \$200 million. If approved, the new plan will focus on primarily capturing and treating at the LRWWTP the remaining combined area. Some overflow points will remain, however, overall water quality goals will still be achieved and for the most part the new plan will result in overall better water quality than the existing plan.

Accomplishments To Date



Stormwater Management

The City is beginning its third Municipal Separate Storm Sewer System (MS4), Phase II, stormwater permit cycle. Each subsequent permit cycle becomes more aggressive towards meeting water quality requirements. The current permit includes requirements to meet various TMDL load reduction goals, more public outreach and education, enhanced mapping requirements, and other specific measurable goals. Additionally, over the next three (including the current permit) permit cycles; there are specific pollutant reduction goals associated with meeting the Chesapeake Bay TMDL WIP requirements. As a result of the increasing regulatory and stormwater infrastructure

needs, the City implemented a stormwater utility and associated fee in July, 2012 in order to have a dedicated funding source to meet the stormwater program goals and requirements. The City is taking a comprehensive approach to managing its stormwater program and has selected a consultant to assist with the development of a stormwater master plan. Additionally, the City has received a number of grants that help towards the progress of meeting water quality goals. Additional grants will be pursued in order to help reduce the burden of compliance on the citizens of Lynchburg.

Solid Waste

Region 2000 is operating a regional landfill that serves Lynchburg and surrounding counties. The City provides residential trash collection and recycling collection sites for its residents. The City plans to update the Tyreeanna Neighborhood Plan including planning for the Concord Turnpike landfill site after it closes.

City of Lynchburg Landfill



To serve its residents and to reduce the potential for “midnight dumping” of unwanted and possibly toxic items, the City has several programs for disposal of waste in addition to regular household waste. The City provides a collection program for brush and bulk items. In addition the City is disposing of leaves and yard waste at private composting sites. White goods are collected separately and recycled at the Region 2000 Solid Waste Facility.

Three times per year, the City schedules household hazardous waste collection days, when residents can bring to the landfill those items that are too toxic to be poured down a drain or disposed of in the landfill. A few examples of these materials are oven cleaners, furniture strippers, pesticides, photo chemicals, and used motor oil.

At the present time, the City is landfilling sludge from the wastewater treatment plant. As a result of the Concord Turnpike landfill closing, sludge must be hauled a much greater distance to the Campbell County facility increasing the cost of disposal. The City has explored options including land application and has developed a long term master plan for sludge disposal which should be implemented as resources allow.

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