




County of Fairfax, Virginia

MEMORANDUM

DATE: February 8, 2022

TO: Board of Supervisors

FROM: Bryan J. Hill, County Executive 

SUBJECT: Sewer Capacity Information Request

On October 5, 2021, the Board of Supervisors (Board) requested that staff provide information on sewer line capacity in Fairfax County (County). This is due to recent challenges that have emerged in the development process regarding capacity constraints and requirements. These are associated with the County's [existing Sewer Service Policy](#) (SSP), the [Sanitary Sewer Design Criteria](#) of the Public Facilities Manual (PFM), and [Public Facilities Element](#) of the County Comprehensive Plan, which may need to be reevaluated.

There is adequate capacity in the existing wastewater collection system to serve existing customers. In 2021, the Department of Public Works and Environmental Services (DPWES) performed a planning-level capacity analysis of the County's over 3,100 miles of wastewater lines. This revealed that while there is adequate capacity to serve existing customers, approximately 1% of existing wastewater lines (~30 miles) may not meet the design "peaking factor"¹ applied to new development. These potentially inadequate wastewater lines are dispersed throughout the County and not concentrated in one area.

As the County trends away from greenfield development and into denser infill development, there is a greater reliance on the County's existing wastewater collection system. Greenfield development typically has no existing wastewater collection system. Therefore, a new system must be built by the developer. On the other hand, infill development connects to an existing wastewater collection system. However, that system may require increased capacity for new infill development. In addition, it is often more expensive to install infrastructure in an existing built environment, where other utilities may complicate construction.

State regulations mandate that the County apply peaking factors to new wastewater line designs to ensure adequate capacity exists. When the capacity of a wastewater line is exceeded, sanitary sewer overflows (SSOs) result. Although County peaking factors are at the higher end of surrounding jurisdictions, the benefit is that the County's SSO rate is 3 times lower than the national median, and the County is recognized by the US Environmental Protection Agency as a model system.

¹ The peaking factor is a multiplier used to estimate wastewater flow for peak flow periods.

The peaking factors in the PFM currently applied to new wastewater lines are deemed appropriate. In wastewater system design, engineers estimate flow demands by multiplying the base flow times a peaking factor to account for periods of high flow. The County has updated the PFM over time to apply current industry standards and adjusted wastewater flow estimates based on published studies to account for increased use of water-saving devices as well as the current state of County wastewater infrastructure. An independent review in 2018 used flow meter data to evaluate the PFM guidelines and concluded that the County's existing peaking factors are appropriate and consistent with industry standards. A reduction in the PFM peaking factors applied to new development would reduce the margin of safety within the wastewater collection system and increase the probability of SSOs.

The current County "growth-pays-for-growth" policy requires developers to provide adequate wastewater capacity for their proposed developments. If there is adequate capacity in the existing wastewater collection system to accommodate the wastewater from a proposed development, no upsizing of the existing system is required. When the additional wastewater for a proposed development exceeds the existing wastewater line capacity, the new development must upsize the wastewater system to accommodate the adopted Comprehensive Plan density, as required by the Board-approved PFM and SSP.

From 2016 to 2021, DPWES estimates that more than 90% of developer-led projects were not required to upsize existing sewers because the existing system had adequate capacity. Development projects that are required to upsize existing sewers are typically located within high-density Activity Centers. DPWES estimates that from 2016 to 2021, the average annual total cost for all developer-led wastewater system upsizing was approximately \$3,150,000 per year. This is in addition to the \$86,000,000 annual Capital Improvement Program of County-funded projects to increase the capacity of major sewer conveyance and treatment facilities to plan for future growth.

Developers have not opted to use the existing reimbursement program. The wastewater line upsizing required to accommodate the density in the Comprehensive Plan may exceed the capacity needs of the proposed individual development. The existing SSP provides for partial reimbursement of the cost of wastewater system capacity increase over a 20-year period. In this scenario, the County reimburses the developer for the additional capacity beyond their requirements by collecting a pro rata surcharge from future developers who will use this increased capacity. The reimbursement agreement sunsets in 20 years, or when the developer is paid in full, whichever comes first. The development community has not elected to enter into such agreements in the last 20 years, suggesting that the existing reimbursement policy does not fit current developer business models.

Staff recommends the Board reconsider the existing reimbursement policy to allow the County to pay developers at the time of construction for the pro rata cost of the increased capacity beyond the developer's need. Some adjacent jurisdictions, including Loudoun Water and Prince William County Service Authority, will reimburse developers for the cost of the additional upsized pipe material beyond the needs of the individual development, although the reimbursement generally

does not cover the associated construction costs. Fairfax Water pays the developer at the time of construction for the pro rata cost of the increased capacity beyond the developer's needs.

A change in the County reimbursement policy will require a minimal increase in the Availability Charge to all new customers and a likely minimal increase in the Sewer Service Charge for all customers. Thus, the reimbursement of those development projects which upsize wastewater lines would be funded by contributions from all new development and existing customers.

Should the Board decide to revisit the existing policy, DPWES will work with the County's sewer rate financial consultant and prepare options for consideration based on the Board's guidance.

Attachments

1. Joint Board Matter, Sewer Capacity Information Request, October 5, 2021
2. Responses to Specific Questions in the Board Matter
3. Overview of Projects Specific to This Board Matter
4. Planning-Level Hydraulic Modeling Results
5. County Sanitary Sewer System Management Program Overview

Cc: Rachel Flynn, Deputy County Executive
Christina Jackson, Chief Financial Officer
Elizabeth Teare, County Attorney
Christopher Herrington, Director, Department of Public Works and Environmental Services (DPWES)
Eleanor Ku Coddling, Deputy Director, DPWES, Stormwater and Wastewater Divisions
Shahram Mohsenin, Director, DPWES, Wastewater Planning and Monitoring Division
Barbara Byron, Director, Department of Planning and Development
William D. Hicks, Director, Land Development Services