

**Enhancing WSSC Water's Efficiency: Refining Affordability Programs and Infrastructure
Management**

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The Washington Suburban Sanitary Commission (WSSC Water) is among the largest water and wastewater utilities in the United States, serving over 1.9 million residents in Maryland's Montgomery and Prince George's counties. Established in 1918, WSSC Water manages the treatment and distribution of water resources, adhering to federal and state environmental regulations. The utility sources its water primarily from the Potomac River, as well as Triadelphia Reservoir, T. Howard Duckett Reservoir, and Little Seneca Lake, which are integral to its supply network. To maintain high water quality and reliability, WSSC Water employs advanced treatment facilities, filtration technologies, and comprehensive infrastructure maintenance strategies.

Despite these efforts, WSSC Water faces growing challenges in maintaining both sustainability and economic efficiency. The increasing costs of infrastructure maintenance, compliance with evolving regulatory standards, and fluctuations in water availability place pressure on its financial resources. Additionally, the complexities of funding affordability programs further complicate its fiscal stability. As demand for water services continues to grow, ensuring long-term sustainability while maintaining affordability for all customers remains a persistent challenge for WSSC Water.

WSSC's financial stability is compromised by multiple factors that increase costs while limiting revenue recovery. One major issue is aging infrastructure, which requires frequent repairs and replacements, contributing to increased operational expenses. With over 5,600 miles of water mains, many of which are decades old, WSSC must continuously invest in upgrades to prevent

water loss and system failures (WSSC Water, 2024c). The cost of these improvements often surpasses available funding, leading to delays and inefficiencies.

Another significant financial burden is revenue loss from unbilled or wasted water. While WSSC has implemented leak detection programs, expanding its Advanced Fiber Optic (AFO) monitoring system can further reduce water loss and improve early detection of pipeline vulnerabilities.

Additionally, affordability programs, while necessary, require modifications to ensure resources are directed to the most vulnerable residents. The Customer Assistance Program (CAP) and the WSSC Water Fund offer relief to low-income residents, but their broad eligibility criteria may dilute the impact for those with the most critical needs, including persons with disabilities, elderly individuals on fixed incomes, and households in extreme poverty. The CAP program waives the Account Maintenance Fee and the Infrastructure Investment Fee for eligible customers, reducing the fixed charges collected by WSSC, while the Water Fund relies on voluntary contributions, which may fluctuate and impact available assistance (WSSC Water, 2024). Without precise targeting mechanisms, these programs risk financial strain while still leaving some vulnerable residents underserved.

Refining WSSC's affordability programs would ensure that financial assistance reaches those most in need while maintaining fiscal sustainability. Rather than applying broad affordability measures, WSSC should refine its eligibility criteria using targeted, data-driven assessments. By leveraging census data, billing trends, and real-time income verification tools, WSSC can better identify and prioritize households that face systemic barriers to water access, including persons with disabilities who may require additional support due to medical conditions or mobility

limitations. This approach would enhance the precision of assistance allocation, preventing over-subsidization while ensuring that resources are directed to those in critical need.

Modifying affordability programs would also enable WSSC to sustain these initiatives without excessively burdening other ratepayers. While direct funding from the Low Income Household Water Assistance Program (LIHWAP) is no longer available, WSSC can still benefit from the program's framework by adopting its data-driven eligibility criteria and outreach strategies. Utilities that previously integrated LIHWAP support successfully identified and assisted low-income households while maintaining stable revenue streams (Administration for Children and Families [ACF], 2021). In Nevada, water utilities reported that LIHWAP helped many customers stay current on their bills while also improving overall collection rates. Although the program has ended, WSSC can apply similar strategies by enhancing outreach efforts, collaborating with local and state assistance programs, and advocating for new funding opportunities to support vulnerable customers. By leveraging the lessons learned from LIHWAP, WSSC can strengthen its affordability initiatives while ensuring long-term financial sustainability.

Expanding the Advanced Fiber Optic (AFO) monitoring system is crucial for improving economic efficiency while enhancing WSSC's already impressive infrastructure management. While WSSC's AFO technology has prevented major pipeline failures, saving over \$100 million (WSSC Water, 2024b), incorporating additional sensors could further optimize leak detection and pressure monitoring. For example, New York City's Department of Environmental Protection successfully implemented sensor-based monitoring, leading to a 25% reduction in water main breaks (New York City Department of Environmental Protection, 2020). By following NYC's lead, WSSC can refine its AFO system, leveraging real-time pressure

monitoring and predictive analytics to proactively address vulnerabilities and reduce emergency repair costs.

WSSC Water has made commendable strides in providing reliable and affordable water services while navigating financial and operational challenges. Rather than introducing entirely new programs or adopting untested technologies, WSSC should focus on refining and optimizing its already innovative initiatives. Enhancing eligibility verification, securing additional external funding, and improving subsidy distribution will strengthen affordability efforts without straining resources. Additionally, integrating advanced sensors into the AFO system, improving predictive analytics, and expanding workforce training will further enhance infrastructure efficiency. By fine-tuning existing strategies, WSSC can reinforce its commitment to delivering high-quality, cost-effective water services while maintaining long-term economic sustainability.

References

Administration for Children and Families, Office of Community Services, U.S. Department of

Health and Human Services. (2021). *In partnership with utilities - LIHWAP*

implementation and impact report. Administration for Children and Families.

<https://acf.hhs.gov/olc/olc-portal/lihwap/impact-report/in-partnership-with-utilities>.

New York City Department of Environmental Protection. (2020, September 13). *New York City*

registers fewest water main breaks since record-keeping began. NYC.gov.

<https://www.nyc.gov/site/dep/news/20-032/new-york-city-registers-fewest-water-main-breaks-since-record-keeping-began>.

WSSC Water. (2024). *Customer assistance program (CAP) | WSSC Water*. Wsscwater.com.

<https://www.wsscwater.com/cap>.

WSSC Water. (2024b, September 24). *Acoustic fiber optic monitoring system | WSSC Water*.

Wsscwater.com. <https://www.wsscwater.com/afo>.

WSSC Water. (2024c, March 1). *Aging infrastructure | WSSC water*. Wsscwater.com.

<https://www.wsscwater.com/what-we-do/major-projects/pipes-and-infrastructure-improvements-and-maintenance/aging>.