

Capital Projects

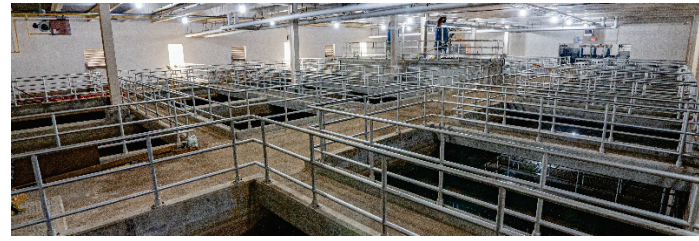
In 2019, TWW launched a \$405-million, six-year capital plan.

This level of investment is necessary to remove lead service lines from our entire system, upgrade our Water-Filtration Plant and 683-mile water distribution system, comply with federal and state regulatory mandates, establish decentralized water storage to protect the water supply and increase operational efficiency. Here is a summary of projects:

- TWW is advancing Phases 1 and 2 of a \$90-million project to construct two eight-million-gallon storage tanks at **942 Prospect Street** in Trenton. Phase 3 will see the decommissioning of the **Pennington Avenue Reservoir**, taking it out of service. TWW plans to build additional multi-million gallon tanks in Ewing Township and Hamilton Township in the years ahead.
- TWW will spend \$20 million to replace thousands of 25-year-old water meters with **smart meters** that transmit data remotely, improving billing data collection and meter-reading efficiency.
- TWW completed rehabilitating the **Mercerville Elevated Tank No. 2** in Hamilton Township, a \$1.4-million project. The water utility has six elevated storage tanks in its water distribution system.
- TWW will replace nearly two miles of 16-inch water main along **Olden Avenue in Ewing Township**, a \$4-million project. The water mains in the high-traffic area are prone to repeated breaks.
- TWW will **clean and line miles of tuberculated water mains** in Trenton, Hamilton Township, Ewing Township, and Lawrence Townships to improve water quality and system hydraulics. TWW estimates its cost to clean and line water mains at \$100 million.
- To help maintain **targeted chlorine levels**, TWW will install approximately **170 flushing devices** in its 683-mile water distribution system, a \$1.7-million project commencing in December 2023.

- TWW will spend \$6 million to install a 42-inch water main connecting the **Pennington Avenue Reservoir** to the eight-million-gallon tanks constructed at 942 Prospect Street.

- Repairs to **Superpulsator No. 3** at the **Water-Filtration Plant** are complete. Superpulsators remove turbidity and organic material from raw water in the water-treatment process before reaching the plant's 24 sand and anthracite-based filters.



Superpulsators

- To reduce **disinfection by-products (DBPs)**, TWW will upgrade the Water-Filtration Plant's **powdered activated carbon system**, a \$250,000 project. DBPs, or trihalomethanes, are formed when chlorine and bromine interact with natural organic materials in water, such as chlorinated drinking water. A component of TWW's water-treatment process is chlorination. TWW plans to conduct a tracer study at the water filtration plant to help optimize chemical treatment to reduce DBPs.

- TWW will spend \$1.2 million into 2026 to rebuild **four belt presses** at the Water-Filtration Plant's Mechanical Dewatering Facility (MDF). The presses have exceeded their useful life and are essential in removing organic matter from raw water in the water-treatment process.

- Utilizing a grant from the **EPA**, TWW will remove up to 750 lead services in specific Trenton neighborhoods, commencing in 2024 under the **Lead Service Line Replacement Program (LSLRP)**. The program's goal is to remove all lead infrastructure from the TWW system by 2031, Gov. Philip D. Murphy's mandate for all water systems in New Jersey.

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HOPEN
Let's Talk About Water

Overview

This pamphlet summarizes what **Trenton Water Works** (TWW) is doing to improve water quality, strengthen operations, advance capital projects, and comply with ever-changing state and federal regulatory requirements. In October 2022, Mayor W. Reed Gusciora signed a Unilateral Administrative Order (UAO) with the New Jersey Department of Environmental Protection (NJDEP) that provides additional oversight and support of the water utility.

Purchased by the **City of Trenton** in 1859, the TWW system grew by constructing the open **Pennington Avenue Reservoir** in 1899 and the original **Water-Filtration Plant** in 1914. Over the last 50 years, TWW infrastructure has undergone numerous capital improvements into a sprawling system consisting of a Water-Filtration Plant, an open reservoir, three pump stations, over 8,000 valves, 3,578 fire hydrants, and six interconnections between TWW and other water suppliers.

TWW by the Numbers



28-33 million

Gallons of drinking water produced each day



100 million

Gallon Pennington Avenue Reservoir



217,000

Service-area consumers



63,034

Metered customers



9,601

Lead service lines replaced with safer copper



8,817

Valves maintained



3,578

Fire hydrants maintained and inspected annually



683

Miles of water mains

Water Quality

Producing drinking water that meets or exceeds federal and state regulatory standards is a paramount goal. TWW maintains high water quality by undertaking capital projects and routine maintenance, rigorous sampling and testing, low and high-velocity water main flushing, cleaning, lining, and replacing water mains, among other standard water-industry tasks. **TWW's water-treatment process is coagulation, flocculation, sedimentation, and disinfection, followed by filtration.** TWW's raw water source is the Delaware River.

On April 1, 2023, in partnership with the NJDEP and the U.S. Environmental Protection Agency (EPA), TWW commenced executing a months-long **Low-Velocity Water Main Flushing Program** (LVWMFP). By opening fire hydrants flowing at a low velocity for extended periods, the LVWMFP seeks to increase chlorine levels in specific areas of the water distribution system to mitigate conditions contributing to the growth of pathogens, including **Legionella**. Additionally, TWW has undertaken the following work to improve water quality:

- **Developed a Robust Capital Plan.** In 2019, TWW unveiled a six-year, \$405-million capital plan, a blueprint for modernizing the TWW system, undertaking projects at the Water-Filtration Plant, Central Pumping Station, elevated tanks, and water distribution system.
- **Lead Service Line Replacement Program (LSLRP).** TWW has replaced **9,601** lead service lines—28 percent of the water utility's inventory—from its water distribution system and at private homes since February 2021, a \$50-million capital project. The average cost to remove a lead service is \$6,700 to \$10,000. TWW must replace all lead services by 2031. TWW's **Lead and Copper Sampling Program** tests for lead and copper at a minimum of 100 approved locations throughout its water distribution system biannually, monitors treated water for lead and copper, and recruits customers who meet the NJDEP-approved lead and copper sampling criteria to participate in the program.
- **Water-Main Flushing.** TWW annually flushes water mains using conventional and unidirectional methods throughout its water distribution system to maintain targeted chlorine levels and remove stagnant water, **tuberculation**, and sediment.

- **PFAS.** TWW tests for "forever chemicals" annually, with detects **below** the current federal standard **MCL of 4.0 parts per trillion.**

- **Elevated Storage Tank Maintenance.** TWW routinely drains, cleans, and disinfects its six elevated storage tanks, systems that help maintain overall system pressure. The TWW system has six tanks: Jones Farm Area Standpipe and Ewing Elevated Tank in Ewing Township, Brandon Farms Elevated Tank in Hopewell Township, Lawrenceville Elevated Tank in Lawrence Township, and White Horse Area Elevated Tank No. 1 and Mercerville Area Elevated Tank No. 2 in Hamilton Township.

- **Pennington Avenue Reservoir.** TWW plans to take the reservoir out of service during Phase 3 of a project to decentralize TWW's water storage, which will involve the construction of multi-million-gallon tanks in Trenton, Ewing Township and Hamilton Township. In addition to TWW's regular sampling and testing regimen, the Water-Filtration Plant has strengthened its day-to-day operation of the reservoir, which holds a three-day supply of treated water. TWW hired engineering firm Princeton Hydro to conduct a bathymetric assessment, conduct enhanced monitoring and testing, and develop a plan to manage the 124-year-old asset.

- **Midges.** TWW personnel take weekly samples from fire hydrants near the **Pennington Avenue Reservoir** using specialized equipment to check for midges. These tiny flies in the larval stage nest at the open reservoir intermittently under certain conditions. Finished water is rechlorinated at the reservoir before entering the distribution system, so the presence of midges has no adverse health effects.



Pennington Avenue Reservoir