

CASE STUDY

Capital Region Water



Optimizing Asset Performance to Achieve CSO Mitigation and Community Resilience

The Challenge

The city of Harrisburg, like many older cities, has ongoing CSO issues due to its aging combined sewer system. Approximately 60% of Harrisburg is served by this system which, during heavy rains, overflows into Paxton Creek and the Susquehanna River, contributing to pollution and flood risks downstream. Capital Region Water needed to retrofit existing stormwater pond infrastructure to address these issues while maintaining community aesthetics and value.

The Solution

Opti, in partnership with Jacobs, implemented its Continuous Monitoring and Adaptive Control (CMAC) system at the Bellevue Park ponds. This system allows for forecast-based pre-event drawdown, real-time control of water levels, and modulated wet-weather releases. Capital Region Water used the system to achieve multiple goals: optimize stormwater capture, reduce CSO volume, and balance the aesthetics requirements of the community.

“Optimizing our existing systems with Opti’s CMAC technology is exponentially more cost-effective than the alternative of complete redesign and redevelopment.”

Claire Maulhardt, PLA
City Beautiful H2O Program Manager



Jacobs



ECONOMICAL

Cost Savings

Cost-effective retrofit solution



RESILIENT

Wet Weather Mitigation

Reductions in CSO and flood volumes



PEACE OF MIND

Real-Time Monitoring

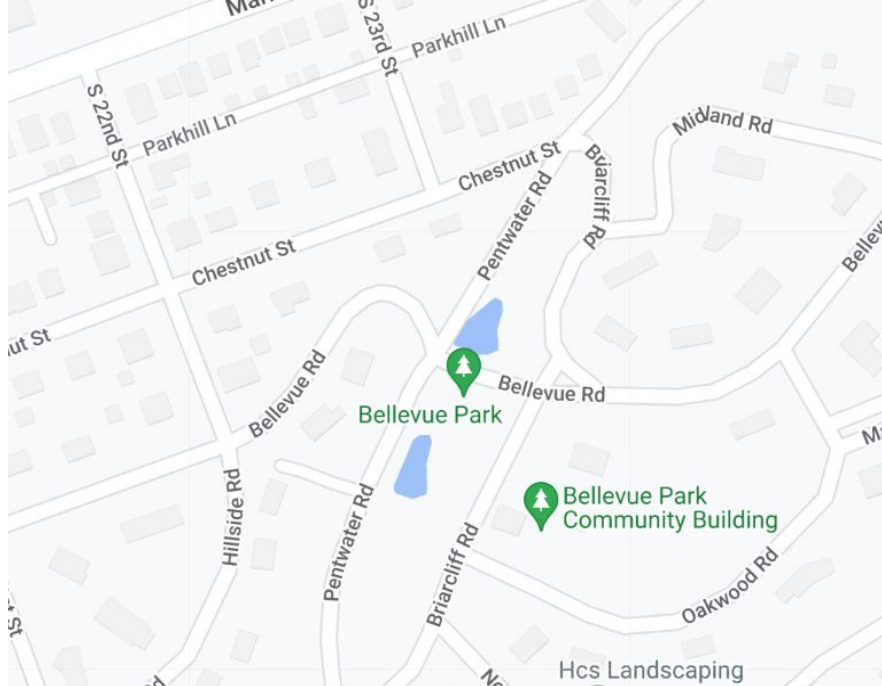
Data-driven operations & maintenance

Results

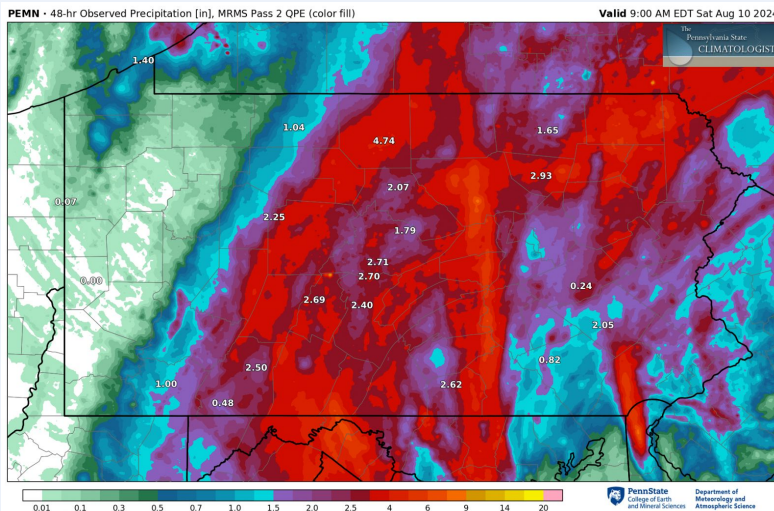
CSO and Flood Mitigation: The adaptive system reduced stormwater entering the combined sewer, alleviating CSOs into Paxton Creek and the Susquehanna River.

Community Benefits: The project maintained aesthetic water levels while creating storage, preserving the ponds' community value.

Real-Time Insights: Continuous monitoring provided data for performance adjustments and optimizations.



Bellevue Park Stormwater Ponds Retrofit (Willow & Spruce Ponds), an initiative of Capital Water Region's City Beautiful H2O program.



Opti's data recorded Tropical Storm Debby as a 55 hour wet weather event delivering 2.5" of precipitation. The weather station at Harrisburg Int'l Airport recorded a total of 2.78" of falling from August 7-10.

Performance Highlights

During Tropical Storm Debby in August 2024, both ponds performed well under extreme conditions, showcasing the resilience and adaptability of the CMAC system:

- **Willow Pond:** Pre-event drawdown was activated, reducing overflow and managing stormwater effectively.
- **Spruce Pond:** Overflow remained minimal despite the high precipitation volume. CMAC maintained control for 90% of the storm duration.



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About OptiRTC

Opti, an **Aliaxis** company, is the leading provider of digital adaptive stormwater control solutions. With over 300 deployments to date, Opti empowers customers and partners to address the impacts of climate change, aging infrastructure, urbanization, and water pollution, enabling them to secure the sustainability of our communities and natural resources. Opti's cloud-based platform optimizes stormwater asset performance through instant actionable insights to provide economic savings, resilient solutions, and peace of mind. With our commitment to innovation, we are driving a resilient and brighter future for all.