

Xylem Wastewater Network Optimization

A SMART, END-TO-END WASTEWATER PLATFORM THAT HELPS UTILITIES OPTIMIZE WASTEWATER NETWORKS AND OPERATIONS AT SIGNIFICANTLY LOWER COST

Benefits of Xylem Wastewater Network Optimization

- Reduce the need for costly gray infrastructure
 - Minimize combined and separated sewer overflow volumes and activations by balancing and optimizing wastewater networks
 - Eliminate dry weather events and decrease E. coli concentrations in watersheds
 - Clients often see between a 3X and 10X return on investment (and, in many cases, substantially more)
-

What if utilities could combine data acquisition and analytics to effectively and affordably manage sewer and stormwater overflows?

Sewer overflows are a growing problem for cities around the world. With more severe rain events expected due to climate change, solving this critical water challenge is more important than ever. Doing so affordably is even harder. [Xylem Wastewater Network Optimization](#) is a real-time decision support system (RT-DSS) technology utilizing smart sewer technology to give utilities a better view into the performance and capacity utilization of their existing sewer system assets, allowing utility leaders to optimize levels of service while saving money, reducing risk, and protecting the environment.

Using a combination of sensors and weather data, digital twin technology, and optimization algorithms, Xylem Wastewater Network Optimization helps utilities drastically reduce sewer overflow (CSO/SSO), detect sewer blockages, minimize flooding events, and identify sources of infiltration and inflow (I&I) to ensure regulatory compliance by leveraging existing infrastructure.

What You Can Expect

Xylem Wastewater Network Optimization utilizes an innovative **Sense-Predict-Act** model that merges a combination of sensors and weather data, along with artificial intelligence, to create a real-time decision support system (RT-DSS). This provides utilities with enhanced control over their wastewater network to better manage flow and reduce discharge. By combining cutting edge digital solutions with existing operational expertise, your utility can achieve sewer overflow objectives and meet environmental goals, while saving substantially on operation and maintenance costs.



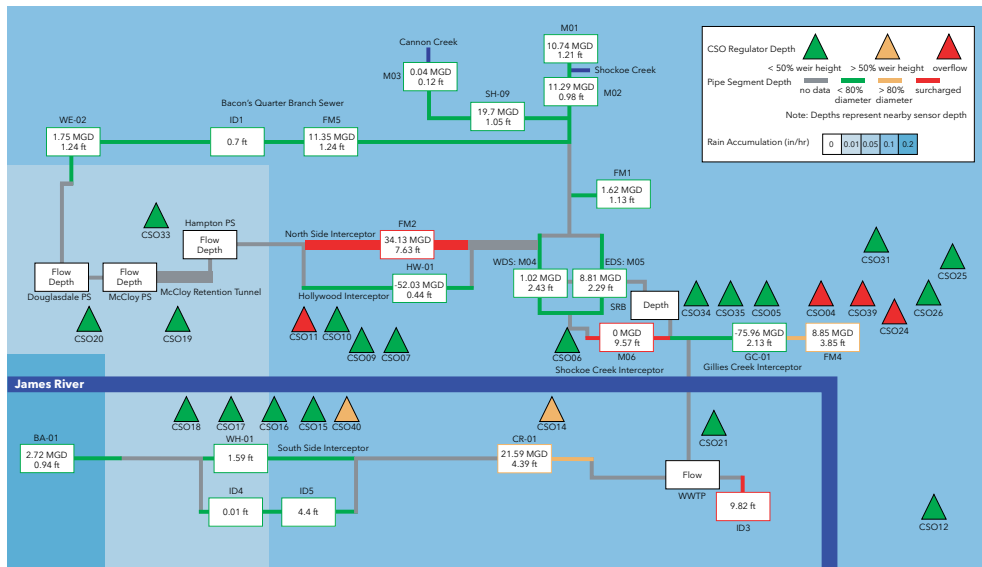
SENSE: Historically, it has been challenging at best to observe actual sewer system hydraulics, particularly during wet weather events. Xylem Wastewater Network Optimization changes that by giving utilities a complete, real-time view into their wastewater network. This insight begins with the integration of real-time data from a network of rain gauges, level sensors, flow meters, conductivity sensors, and other existing sources into one centralized system. This **“turns on the lights”** and provides utilities a simple, transparent and continuously updated view of their sewer system.

PREDICT: Once the data is integrated together and the lights are on, a **digital twin** of the sewer system is created to forecast operating conditions by running thousands of iterations of the hydraulic and hydrological models in real time. With advanced control algorithms combined with operator input, Xylem Wastewater Network Optimization recommends which strategies will create optimal operating conditions for the sewer system, during both dry and wet weather events, which can either be managed by the operator or set to run automatically.

ACT: These powerful analysis tools, combined with the option of globally coordinated, automated controls, give operators one system with all the information and tools they need to make real-time operational decisions to **more effectively manage the system and meet the unique demands of each moment of a wet weather event.**



Xylem Wastewater Network Optimization regularly achieves between 20% and 30% of overflow and flooding reduction during a typical year.



This schematic represents real-time conditions throughout a collection system and is used for both real-time monitoring and the replay historical storm events for analytical purposes.

Get More From Xylem Wastewater Network Optimization

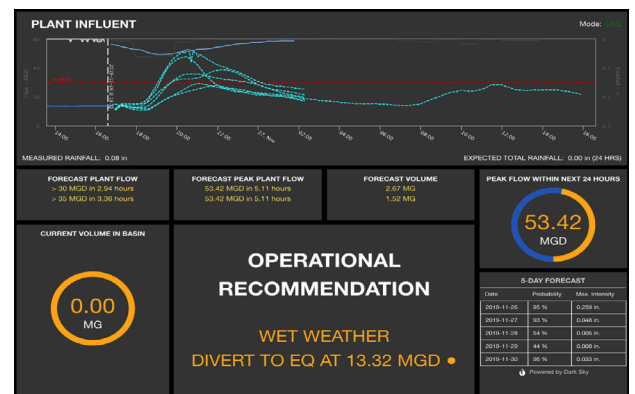
A system built for continuous learning – The ability to develop a digital twin for a utility that will autonomously learn and adapt is the cornerstone of Xylem Wastewater Network Optimization technology.

A glass box, not a black box – Digital solutions often operate as “black boxes”, offering little transparency into their processes. Xylem gives utilities direct insight into the functionality of its data collection and integration process.

Combined data acquisition and analytics – The power of Xylem Wastewater Network Optimization does not come from simply integrating and collecting data, but from the ability to provide utilities with insights derived from that data that drive outcomes.

Harness the Power of Decision Intelligence to Optimize Your Wastewater Network

- Rebalance and optimize sewer systems to avoid flooding
- Reduce combined and separated sewer overflow volumes
- Eliminate dry weather events
- Decrease E. coli concentrations in receiving waters
- Reduce wet weather gray infrastructure costs
- Balance flows into wastewater treatment plants during wet and dry weather
- Predict flows into treatment facilities for wet weather operations
- Enhance operational decision-making across the enterprise
- Provide operational feedback and prediction to staff across the watershed



Xylem Wastewater Network Optimization forecasts sewer system behaviors during wet weather events and provides real-time recommendations for optimization.

Xylem Wastewater Network Optimization in Action

Buffalo Sewer Authority – Buffalo, New York, United States

Project Highlights

- \$145 million in savings to date from initial enforcement action, due in large part to reductions in combined sewer overflow activations and volume
 - First three sites have reduced CSO volume by 450 million gallons over a 12-month period -100 million gallons more than originally projected for the entire project
 - More sewage is being captured and treated safely instead of overflowing during wet weather into Buffalo's receiving waters
[Read the full case study](#)
-

Metropolitan Sewer District of Greater Cincinnati – Cincinnati, Ohio, United States

Project Highlights

- Overflow volumes reduced by 247 million gallons annually
 - More than a 90% reduction in cost compared to initial capital work estimated at \$38 million
 - CSO mitigation achieved at a price of less than \$.01/gallon
[Read the full case study](#)
-

City of Grand Rapids – Grand Rapids, Michigan, United States

Project Highlights

- Real-time decision support system brought in to help the Environmental Services Department for the sanitary system separation
 - Data demonstrated that the infiltration and inflow problem could be solved for \$30-50 million as opposed to the original \$1 billion estimate
 - The City has expanded the sensor network to more parts of the system
[Read the full case study](#)
-

City of South Bend – South Bend, Indiana, United States

Project Highlights

- Eliminated dry weather overflows
- Over 70% reduction in combined sewer overflow volumes (roughly 1 billion gallons per year)
- Over 50% drop in E. coli concentration (from sewer system) in the Saint Joseph River
- \$1.5 million per year in operations and maintenance cost-savings
- Estimated \$500 million in capital work savings
[Read the full case study](#)

With Xylem, utilities can count on a digital transformation solution that helps the water industry operate more effectively, safely and affordably. For more information on how we can help you, contact us at: decisionintelligence@xylem.com or [visit our website](#).



www.xylem.com

United States

1 International Drive
Rye Brook, New York USA 10573
Tel: +1 (914) 323-5700
info@xylem.com

Canada

5055 Satellite Drive Unit #7
Mississauga, Ontario Canada L4W 5K7
Tel: +1 (905) 624-1040
Fax: +1 (905) 624-4777
info@xylem.com

Europe

Edifício de escritórios JONOBRA,
EN 247, Sala 3, 2º Piso.
Ribamar, Santo Isidoro
Portugal 2640-027
Tel: +351 (261) 863-159
info@xylem.com

Asia Pacific

3A International Business Park
Tower B, ICON@BP, #10-10/18
Singapore 609935
M: +65 8292 8392
info@xylem.com