



## Northern Moraine Reclamation District, IL

### Overflows and Residential Backups Averted Using Real-time Remote Monitoring

Northern Moraine Water Reclamation District (NMWRD) is a regional wastewater treatment agency that provides sanitary sewer service and wastewater treatment to more than 15,000 people in four villages located in northeastern Illinois. The collection system, which handles an average of 1.5 million gallons of wastewater a day, includes 80 miles of gravity and force sewer mains, 1,600 manholes, and 24 lift stations.

### The Challenge

NMWRD wanted an extra layer of protection at three of its most critical lift stations to prevent sanitary sewer overflows (SSOs) and basement back-ups. They sought real-time visibility of changing sewer conditions so staff could pinpoint developing issues and perform corrective actions before they became problems.

Operating without SCADA and relying on an auto dialer to send lift station alarms over land lines had NMWRD staff increasingly worried they would not be able to respond quickly if something went wrong. The closest of the three critical lift stations to the operations facility is about 20 minutes away.

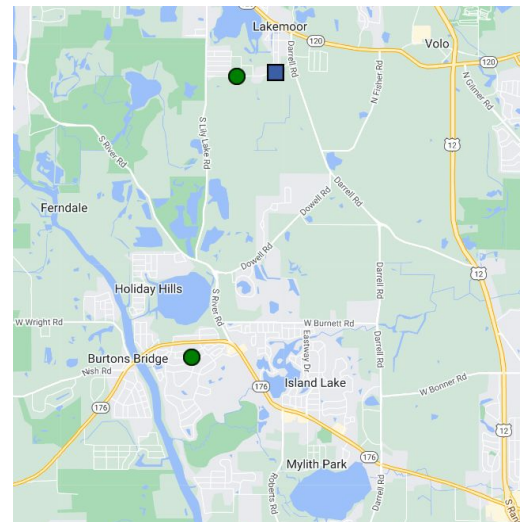
### The Solution

NMWRD deployed smart sewer technology up stream of the three critical lift stations to monitor water levels in manholes and to be a safety net in the event of a surcharge caused by a power outage or equipment failure. Real-time alerts provide district staff with immediate warning of changes within its sewer system, which results in a quicker response time for crews to avert potential sanitary sewer overflows (SSOs) and basement backups.

Additionally, knowing level trends helps schedule maintenance only when it's needed most. That knowledge eliminates cleaning high-risk areas multiple times a year, adding wear and tear on the infrastructure, and allows the small staff time to address other, more immediate problems.

#### Highlights:

- **Real-time alerts immediately warn staff of changes in the sewer system.**
- **Improved response time to address issues.**
- **Averted several sanitary sewer overflows and wastewater backups into hundreds of homes.**
- **Improved operations and maintenance with the ability to analyze data patterns.**



SmartLevel units deployed in the NMWRD

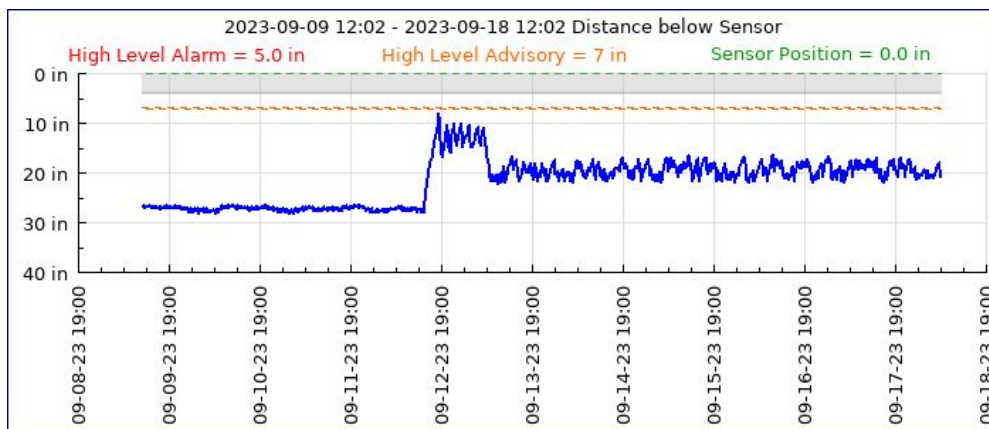
## The Results

By installing remote monitors at upstream locations, NMWRD was able to track the water levels in real-time and receive data to a computer dashboard and with a mobile app. Alerts are now dispatched to warn of potential surcharges due to inflow and infiltration, a blockage, a power outage, or other issues.

In the fall of 2023, months after installing the SmartLevel monitors, NMWRD averted a serious environmental and quality of life problem. The district was using rented equipment to bypass a wet well near Lift Station #1. During the second morning of the wet well bypass, NMWRD staff was alerted by its SmartCover monitors that an upstream manhole was experiencing an unusual level rise on a dry day and that the rise was almost 10 inches away from the top of the structure.

NMWRD staff discovered the bypass pump had stopped working and immediately began taking action as well as to contact the equipment company, which was obligated for repairs under a public bid contract, to come and reconfigure the transducer settings. The real-time alert made it possible for NMWRD staff to quickly respond to the level trend rise and prevent 15 sanitary sewer overflows (SSOs) and wastewater backup into 150 homes.

"We saw the SmartCover solution as a shoestring budget approach to achieving SCADA alarming ability at our three most critical lift stations," said Joseph Lapastora, NMWRD Director of Operations. He said the smart technology has prevented SSOs and backups as well, including once when rags got twisted around a pump's impeller, and another time during a power outage when a transfer switch was left on manual instead of auto.



SmartTrend Advisory Report - Level Trend Rise at MHC5NE21

## Conclusion

NMWRD has successfully enhanced its collection system with innovative and proactive smart sewer technology that helped prevent several potential public health hazards. Lapastora calls the SmartCover solution a good return on investment. The silent sentries have brought NMWRD peace of mind, knowing that its sewers and lift stations are being monitored 24/7/365 without the need for confined space entry.