SMARTCOVER
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Winter Haven Water Department, FL

Elevates Operations with Smart Technology To Monitor and Assess Collection System Conditions Without Entry

Water quality is of the utmost importance in the city of Winter Haven, FL, also called the Chain of Lakes City for its 50 local lakes. The Winter Haven Water Department (WHWD) maintains drinking water operations in addition to 250 miles of wastewater mains, 216 lift stations, 5,241 manholes and two wastewater treatment facilities that handle five million gallons of wastewater a day. The department serves more than 51,000 residents and 40,000 accounts in a rapidly growing area.

Highlights:

- **Gained real-time visibility into the collection system, alerting staff of trouble spots ahead of rapidly evolving wet weather events.**
- **Secure satellite surveillance, reliable during storms and hurricanes.**
- **Developed an optimized cleaning schedule, reducing separate sewer overflows.**

The Challenge

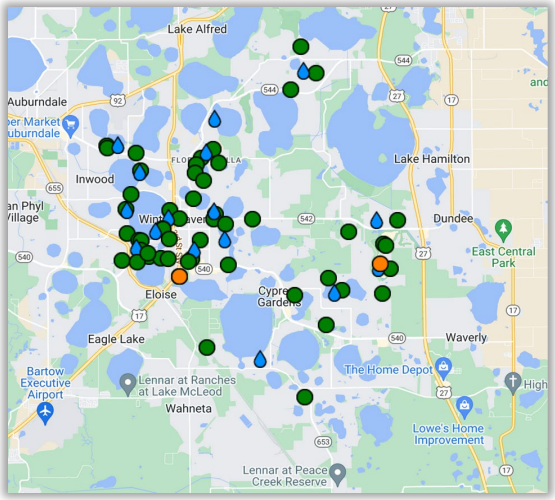
Heavy rain events contribute to sanitary sewer overflows (SSO) in Winter Haven, often damaging property, causing flooding, harming the waterways, and impacting public health. Because Winter Haven is surrounded by so many lakes, 24 of which are connected by canals, and has low-lying areas, it is challenging to manage inflow and infiltration (I&I).

Like many cities in charge of collection systems, Winter Haven tried to prevent sanitary sewer overflows by adhering to the EPA's capacity, management, operations, and maintenance (CMOM) program, which encourages utilities to incorporate traditional wastewater industry best practices to better manage, operate, and maintain collection systems. For Winter Haven's CMOM strategies included backup pumps, frequent cleaning in high-risk areas without knowing whether it was needed, costly capital improvement projects, and various flow reduction measures to maintain sewer pipes at their design capacity.

WHWD's staff needed more help to be proactive, particularly dealing with more frequent rapidly evolving events, such as storms and hurricanes and more population growth.

The Solution

WHWD's limited staff sought greater understanding of the system and better operational control and response to emerging conditions. They wanted more knowledge of SSO and rain trends, when and what to clean and why lift station backups occurred. Around-the-clock, real-time visibility at the status of Winter Haven's underground infrastructure was needed.



SmartCover Systems in Winter Haven

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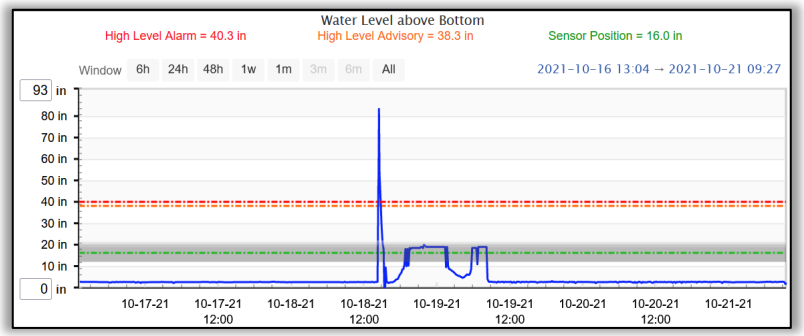
Winter Haven initially deployed a network of 18 SmartCover SmartLevel sensors and rain monitors to provide the real-time trend analysis information it wanted in its system's trouble spots. SmartCover's pioneered technology transmits data from sensors in the manholes to the Iridium Satellite network that relays reliable, uninterrupted sewer information to an online dashboard and mobile app. SmartCover's technology, using satellite instead of the limited land-based radio waves, is particularly beneficial to places like Florida where wet weather events can escalate quickly and disrupt transmissions.

SmartCover's patented sensors withstand harsh weather and sewer conditions and are installed and serviced without confined space entry. Sensor monitoring provides an event management platform with localized weather data from the National Oceanic and Atmospheric Administration (NOAA) to enable rapid response to issues. WHWD staff is now able to staff to proactively respond to blockages and other capacity conditions before wastewater becomes backed up into homes and businesses or flows into local waterways.

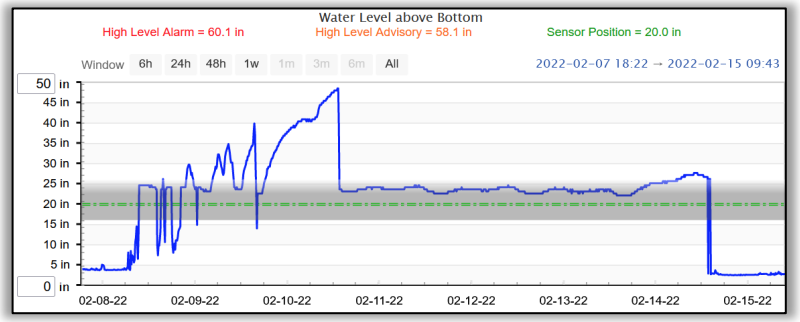
The Results

SmartCover's real-time, satellite-based technology has revolutionized the City of Winter Haven's management of and response to collection system concerns, reducing the uncertainty around the conditions in the network. Knowing the level trends in the sewers has helped better schedule maintenance when and where it is needed most and has been critical in preventing overflow events.

Within the first few hours of installation, Winter Haven was notified of an alarm that helped avoid a sanitary sewer overflow. Since then, multiple alerts in different locations have done the same. A few months later, a lift station failed due to an electrical issue. Winter Haven was able to pinpoint the exact location using the SmartCover technology and mobile app and respond within minutes to prevent an overflow.



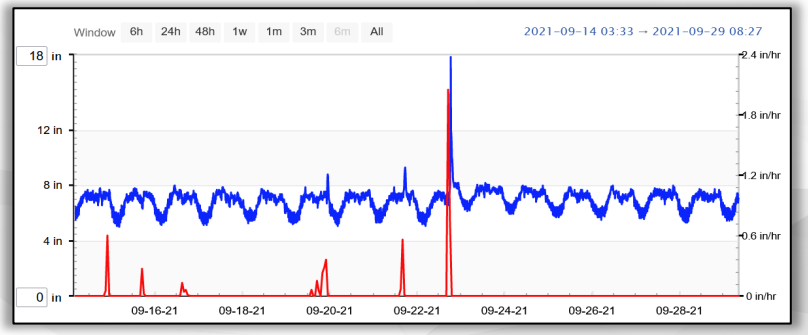
Lift Station Backup Alert



SmartCover Technology Saved Sewer Spill

Conclusion

Winter Haven has addressed the challenges posed by the impact of heavy rain events on its collection system. Today the WHWD proactively manages the city's 250-mile collection system with 70 SmartCover sensors and rain monitors that provide analytical data 24/7/365. With SmartCover as its partner, the city of Winter Haven has reduced the uncertainty surrounding sewer system conditions and manages its operations with more confidence, safeguarding its infrastructure and preventing more sanitary sewer overflows.



Level Rise with I&I Overlay