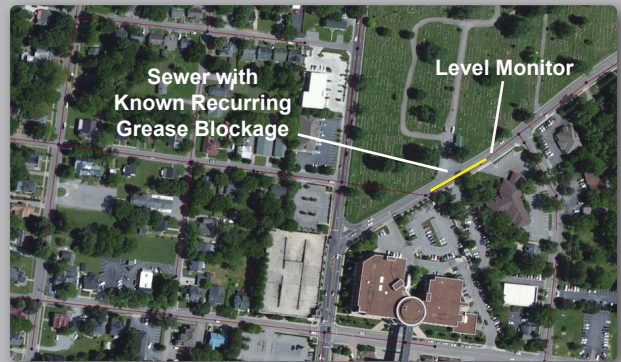


# Murfreesboro Explores Level Monitoring to Optimize High-Frequency Cleaning and Save Money

## Stopping Blockages Before They Become SSOs

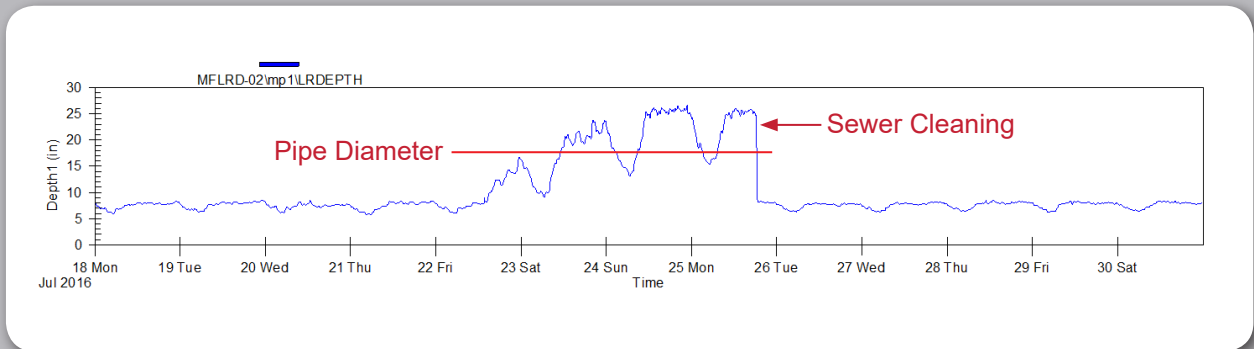
“Hot spots” are a common problem for sewer utilities. You know them well – areas where recurring grease blockages have caused repeated sanitary sewer overflows (SSOs) and recurring headaches for you and your staff. You also know the most common solution – high-frequency preventive cleaning. While this approach can be effective, it is not always efficient and the risk of SSOs is not eliminated.

The Murfreesboro Water Resources Department (MWRD) had a similar problem – an 18-inch gravity sewer with known, recurring grease blockages. Originally, MWRD managed this hot spot by cleaning the sewer on a high frequency basis – once every two weeks in this case – in order to reduce the risk of SSO.



Hot Spot Location in Murfreesboro, TN

MWRD allowed ADS to install a non-contact, ultrasonic level monitor just upstream from this hot spot. After installation, regularly-scheduled preventive sewer cleaning was suspended, leaving the level monitor to watch and wait. During a 15-month period from July 1, 2016 through September 30, 2017, three developing blockages were observed, identified, and mitigated well before any problems occurred. An example of one developing blockage is shown here.



Developing Blockage in Murfreesboro, TN

*“Level monitoring allows me to keep an eye on hotspots, provides peace of mind, and most importantly, allows MWRD staff to be more proactive in eliminating SSOs.”*

**Jimmy Stacey, Operations Manager**  
 Murfreesboro Water Resources Department  
 (October 2017)



Let's take a closer look at the observed blockages on the graphs below. While all three developing blockages were characterized by a gradual increase in the maximum daily flow depth, note that the first developing blockage differs from the second and third blockage in one important way. The minimum flow depth shows a gradual increase in the first developing blockage, but not in the second and third. ADS has found that the gradual increase in the maximum daily flow depth indicates the *presence* of a developing blockage, while the increase or lack of increase in the minimum daily flow depth provides information about the *type* of developing blockage. In this case, the first blockage was caused by debris accumulation in the invert of the sewer, while the second and third blockages were caused by grease accumulation on the pipe wall near the wastewater flow surface.



Three Developing Blockages in Murfreesboro, TN

Through the use of remote level monitoring and built-in alarming, transitioning from high frequency cleaning to proactive, on-demand cleaning reduced the number of mobilizations to this hot spot by 90% over the 15-month period. The number of scheduled visits dropped from 30 to three, with zero SSOs at that location. The return on investment was fast, with the payback period on the level monitoring equipment installation and service being less than 6 months. With fewer cleanings and equipment factored in, it is estimated that this location will yield savings of 73% in preventive cleaning over a five year period.

