# Flow Monitoring in Lawrence, Kan.

By James W. Rush

To operate a wastewater collection system efficiently, access to accurate information is the key component. Having reliable, timely data is vital for system managers if they are to make the best decisions regarding the long-term performance of the system. By having the best information available, managers can ensure they are putting their limited rehab dollars to the best possible use.

One important tool available for system managers is flow monitoring data. The City of Lawrence, Kan., recently installed a flow monitoring system to help it assess its sewer system. The City elected to use the Data Delivery Services (DDS) program from Marsh-McBirney.

DDS is a new approach to sewer flow monitoring that provides customers with accurate, unedited data using Marsh-McBirney's Flo-Dar flow meters. The meters are installed above the flow to minimize maintenance issues and the cost of confined space entry of sending city personnel for meter repairs. Information is sent to system operators wirelessly through the Web, and has the ability to send notifications via cell phones, pagers or Web-enabled devices on any parameter that is monitored.

The City of Lawrence, Kan., is home to the University of Kansas and 90,000 full-time residents. The sewer system comprises 421 miles of collection system and 10,000 manholes. When developers were interested in building new housing in the northwestern part of town in 2005, sewer system managers were concerned if they had the capacity to handle the additional flows.

After initial testing yielded varying results, Lawrence personnel decided that a more thorough monitoring program was needed to ensure accurate results so that the sewer system was sized properly.

The City put out an RFP to outsource the flow monitoring program, which was awarded to Marsh-McBirney/Hach. "We needed to get some permanent flow monitors in the ground just to see what was happening on a daily basis," said Bob Brower, Wastewater Line Maintenance Manager for the City.

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The program included the installation of 31 Marsh-McBirney flow monitors and eight rain gauges from Hach. Hydromax USA was contracted by Marsh-McBirney to install the hardware in the pre-selected sites. The installation included manhole entry with full confined space safety requirements, drilling manhole walls and sealing of all apertures and coring reinforced concrete streets. During the installation process, personnel from Marsh-McBirney were involved in the calibration of the flow meter sensors and the testing of the wireless communication network. All units were fully tested prior to leaving the site.

"The Lawrence DDS project is a showcase for our DDS product and for Flo-Dar's integrity as an instrument that can be deployed and virtually left alone without costly site visits," said David Baker, DDS Project Manager. "Of course, none of this would have been possible if it weren't for the City of Lawrence's progressive thinking when it comes to data collection. Lawrence has been setting trends in many areas of their utilities department and this flow monitoring

project is no exception. Lawrence knew the value of Flo-Dar and it was no surprise to us, that they wanted nothing other than Flo-Dar and our Data Delivery Service to be used in their collection system."

Mark Shepherd, I/I Manager for the City, says that the system has several advantages. "With most flow meters, you have the band that's actually in the flow with the sensor strapped on to it," he said. "That allows debris to get caught on it and you get negative readings or inaccurate readings. In addition, it requires site visits from city personnel to maintain the meters."

With DDS the meters are actually owned by Marsh-McBirney/Hach so the City is not responsible for the installation or the on-going maintenance, creating a hands-off flow monitoring experience for customers. "It's great for us because we don't have the investment of buying all of the meters, we don't have to pay for the maintenance on them and we don't have to do the labor on anything," Brower said.

The fact that city crews are not spending time maintaining the meters is another big selling point, according to Brower. "We are able to get the data that we need, and it frees us up to have staff do other things that need to be done in the collection system. That's the biggest thing, we have someone do all of the legwork for us.

"Our crews clean, TV, inspect and repair the collection system, and outsourcing the monitoring freed staff up to do what they need to do to keep the system running. There are people that think we would be better off buying the equipment ourselves, but I believe contracting it out will save more money in the long run."

Having access to the data is also paying dividends. "We can now collect the data from the Web site," Shepherd said. "Right now we are doing trend charts by charting the level, flow and velocity. When we get a rain event, we can see how much it spikes and how many mgd we are getting. This data is used by engineers and developers to ensure that any new development has adequate capacity. We can tell which pipes need to be upsized or built."

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Having real-time access to the information has also been a bonus, Shepherd said. "The data access on the Web feature is one of the best features I've ever worked with. Even when I'm at home during a rain event I can start looking at meters from my home computer and decide what actions I may need to take based on the readings. Plus, I receive alarm notification of events."

James W. Rush is editor of *UIM*.