



TECHNOLOGY WHITE PAPER

Texas Water Utility Improves Usage Reporting and Conservation with Smart Antenna Technology

Introduction

When several years of drought subsided and water restrictions were lifted this spring for the city of Round Rock, Texas, residents quickly returned to their pre-drought usage patterns—and as they watered their lawns, filled their pools and used water the way they had before the drought, their monthly bills began to rise. The utility billing office started getting calls from a number of the 33,000 homes and businesses throughout Round Rock.

“When our customers have really high consumption, they always call us and want to know why,” said Irma Mendoza, Round Rock utility billing manager. “Traditionally, the challenges have been when we had difficulty gathering readings in the field. The readings didn’t come in all the time, and we didn’t have them available to us at the desktop.”

As in most cities, the earlier metering technology that was in place in Round Rock presented different issues, caused by the harsh conditions in water pits and other unfriendly

meter environments. Round Rock had six employees who drove and walked the neighborhoods on a monthly basis, but the information they gathered was only as reliable as the equipment—and the data could not be made available directly to ratepayers, so the utility had no way to communicate with households about their actual water consumption.

“Round Rock is a very attractive place for people to move to, so we have a lot of growth,” said Michael Thane, director of utility and environmental services for this city just north of Austin. “When you have a drought going on, you’ve got to make sure that you have the water to meet the basic needs of our community. It’s important to have meters that are reliable because we are billing our citizens, and that’s how we run our utility department. So we need to make sure the metering system is reading as accurately as possible, because we don’t want to overcharge or undercharge anybody.”

Proactive Technology

Round Rock needed what many water utilities across the country have wished for: a highly reliable and accurate water metering system that provides all of the information utilities need to communicate with ratepayers about their water usage. With major growth projected to more than double the city’s population in the near future, utility officials knew that the time had come to make an investment in better metering technology.

The utility’s research into the latest technologies pointed them to Master Meter, makers of a new dual-band antenna



technology for advanced metering infrastructure (AMI). The Allegro™ Under-the-Glass (UTG) AMI Integrated Endpoint Register mitigates the adverse effects of flooded pits, adapting to changes in the pit environment while maintaining a consistent and reliable connection between each meter and a central data collector.

In traditional systems, a flooded pit can cause a signal frequency shift of 5 or 6 MHz, causing the meter to lose connection. Master Meter's new antenna technology detects this shift in frequency and compensates for it, maintaining a consistent signal by switching between the dual-band inputs and choosing the highest and most reliable connection so it can continue to transmit data.

With no data lost to the elements, the information collected represents a significant improvement in the overall reliability of the meter network—which results in more accurate readings and more useful data.

Because Everybody is a Water Manager™

The collected data then flows seamlessly into Master Meter's Harmony™ Water Meter Data Management and Analytics Software, which provides utility managers with access to their information—as well as integration with their customer information system, as well as with GIS, enterprise billing systems, and customer relationship management software suites. At Round Rock, work is nearly complete to make this consumption data analysis available first to city employees, then to ratepayers along with

their billing information on the water utility's customer website.

“One of the things we're going to gain from this new system is we track it by gallons per capita per day per citizen,” said Thane. “That number's been fairly high in the past and in Round Rock because we didn't have droughts, and everyone wanted a green yard. Using the data we're going to get from this, it's going to help us determine where our water is being used within our city.”

Leaks represent lost revenue, pure and simple, noted Thane, but the leaks had been hard to pinpoint with the old metering infrastructure. “This is going to help us determine where we have major water leaks within our system, so we can go out there and correct those,” he said. “We want to continue to have the low rates like we do, and we can do that by reducing non-revenue water.”

Customer Engagement

Equally important, the Allegro™ and Harmony™ systems will help the utility educate customers about how they use water. “Before we got the new technology, it was just the monthly read for their water usage,” said Jessica Woods, water conservation program coordinator for Round Rock. “They could get that one read a month, or if there was some special circumstance we would go out to their house, take another meter read, so that we could say, ‘Since your last bill to today, you used this much.’ But that was it.”



The new Allegro™ meters provide a great deal more information, Woods said. “Now as I go out to people’s houses, I’m able to take with me these fantastic graphs. I can show the person, ‘Look, here’s what day the water use happened, and here’s almost exactly what time it happened.’ So I can talk to them about, ‘Do you remember what happened at your house at this time?’ It’s wonderful, we have just a plethora of information.”

Woods can break the data down to a time period as short as three hours, giving her the ability to show customers what high consumption looks like in terms of gallons of water used. “It is helping my job tremendously as a water conservation person,” she said. “It’s giving us such a good tool to educate our customers about how much water they are actually using when they are home, and how much water their sprinkler systems are using as well. Many times people just say, ‘How can my water bill be this amount when I was out of town for three weeks?’ But then I pull up that AMI report, and we can see what happened during that billing cycle. They’ll see these large spikes when their irrigation system goes off. It makes them realize that their sprinkler system is using more than they thought.”

Peace of Mind

The new system has alleviated customers’ concerns that their meters are not being read properly, said Mendoza. “It gives us some credibility when we can identify exactly and pinpoint where the consumption is,” she said. “Often times,

customers are concerned that perhaps we don’t read the meters, or that the signal isn’t exactly reaching the tower. When you show them on paper what the consumption has been, it makes it real.”

This summer, Woods said, customers will be able to access this data themselves from any computer with internet access using. “Having the information to them will help them get the information they need much quicker, without having to go through a city process or figure out who to contact with the city,” she said. “They can log into their own dashboard and see their water usage when they want to see it.”



Moving at the Speed of Technology

Master Meter is intent on driving new and innovative ways to manage the vast amount of data flooding into Smart Cities and Utilities. We're a high-service solutions provider specializing in advanced metering, data delivery, and Utility Intelligence (UI) software and our portfolio of new and innovative technology continues to grow in support of a dynamic and rapidly changing water market. Mindful of a tight and very finite water supply, Master Meter is here to support your conservation efforts, ensuring ample supply for generations to come. Join us.