

City of Gastonia Looks to the Future with Valve Exercising Program

Thirty minutes west of Charlotte, North Carolina, the City of Gastonia serves more than 100,000 customers with water and sewer services. Its municipal-owned water utility, Two Rivers Utilities (TRU), is home to the largest system in the area, with more than 13,000 valves.

For 15 years, TRU has known that a valve exercising program would be beneficial. (Valve exercising is the routine task of opening and closing a valve to check if it's functioning properly.) But it was only within the past 5 years that the utility hired the right team to champion the project.

Leading the charge were GIS analyst Brian Hart and utilities division manager Brian Potocki.

"We brought in the right staff, with our two Brians," said Ron Cook, TRU assistant division manager of systems maintenance. "One made the case for a valve exerciser and trailer, while the other was able to get the technical side of things running."

Gastonia purchased a valve exercising trailer from EH Wachs, which included a built-in handheld controller to guide the complete workflow.

The controller can also connect via Bluetooth to an external GPS receiver, which was critical because this would allow TRU to update valve locations through the exercising program.

"Most of the locations were OK," Hart said. "But they weren't pinpoint accurate."

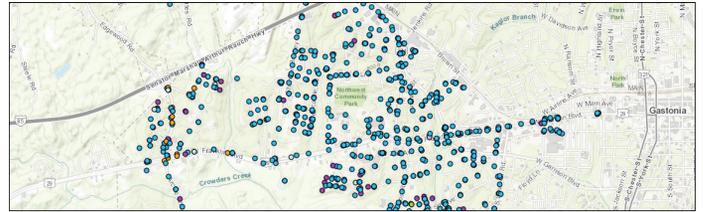
Pinpointing Every Valve

Hart had heard about the Esri-aligned Arrow 100 Global Navigation Satellite System (GNSS) (GPS) receiver made by Esri Silver partner Eos Positioning Systems. He contacted Eos for help connecting the Arrow 100 to the handheld controller. Once paired, the Arrow 100 provided (on average) 40-centimeter-accurate locations to the handheld, which snapped the data to the valve ID, thanks to the free Wide Area Augmentation System (WAAS) differential correction service.

Hart had the Arrow 100 welded to the valve exercising trailer, and two field technicians were trained on the equipment. A third (a previously retired field technician who knew the system well) was hired to "hopscotch" ahead of the exercising crew and paint valves, based on printouts from ArcMap.

"We're speeding up their time because they do not have to locate each valve themselves," Hart said.

After data was collected, Hart exported it from the handheld to ArcGIS Online. Sometimes, a valve not previously recorded in the GIS was recorded in the handheld as a New Valve Number X. This lets Hart add new valves to the GIS and keep a count of the total number of newly discovered valves.



↑ By having a highly accurate representation of its water system, TRU will be able to isolate smaller sections of its water system, especially during emergencies.

"In the first zone alone, we've found 400 valves that were not in the GIS," Hart said.

Improving the Workflow

Mapping all the valves in Gastonia's six zones is expected to take six years. With two zones mapped in the first two years, TRU decided to pilot a new workflow in the third zone, aimed at greater efficiency.

Instead of using ArcMap printouts, the field technician used an iPad configured with Collector for ArcGIS to locate valves. Hart purchased a second Arrow 100 GNSS receiver to connect to the iPad through Bluetooth. The first benefit was the elimination of manual data entry to ArcGIS, thanks to real-time updates via Collector and ArcGIS Online. Second, the time to locate valves sped up dramatically.

"The field technician was almost too quick," Hart joked. "Some of his paint was already starting to wear away by the time the valve exercising technicians arrived."

Fewer Service Interruptions with Isolated Tracing

The ultimate goal for Hart is a long-term eye toward valve tracing using the ArcGIS Utility Network Management extension. With a highly accurate representation of its valve network, TRU will be able to isolate smaller sections of its system during emergencies. Crews can easily address service interruptions so as to disrupt the fewest customers.

"We'll be able to pinpoint valve shutoffs during a main break, as opposed to cutting off water to a larger section of customers," Hart said. "This will allow us to keep the service running for the other customers."

Routine maintenance and scheduled repairs are expected to similarly benefit.

"We are really passionate about customer satisfaction," Hart said. "Being able to reduce service disruption is a huge win for us and our customers."

For more information on Eos Positioning Systems, visit go.esri.com/eos-gnss.



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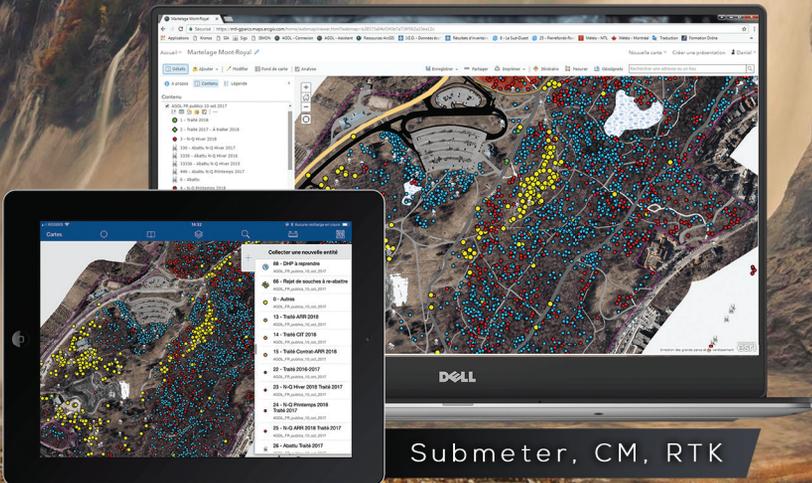
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