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NUMBERS SPEAK VOLUMES: WATER DISTRIBUTION ASSESSMENT INCREASES SYSTEM OPERABILITY TO 84 PERCENT

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This large Midwest utility maintains and operates water collection, treatment, and distribution systems, as well as wastewater collection and treatment systems and stormwater management systems for its residential, business and wholesale customers in the region.

To ensure the accessibility and quality of water services to meet the growing needs of the region, the Utility needed to conduct a complete assessment of their water distribution system. The limited internal resources and need for quick results were more than the department could handle on their own.

To kick-start the process, and ensure success of the project, the Utility needed to identify the most economical solution that would provide the greatest impact on their distribution system in the shortest period of time.

The long-term project called for highly specialized valve maintenance expertise, equipment and technology, and the Utility elected to partner with the industry leader in valve management solutions, **Wachs Water Services** (<http://www.wachswaterservices.com/>).



Collecting valve status information critical for improving quality of water service

Because of its experience in the field, Wachs Water Services (WWS) was chosen to collect valve status information to assist in operational planning and speed of response, with the ultimate goal to improve the quality of water services in the growing region.

The comprehensive project called on WWS to dedicate an onsite team for the 5-year project, which included **water valve assessment** (<http://www.wachsws.com/water-services/valve-management>), mapping, and data management – including **fire hydrant assessments** (<http://www.wachsws.com/water-services/hydrant-management>).

During the course of the project, more than 35,000 valves were accessed, assessed and repaired where necessary. During these inspections, WWS discovered almost 2,000 valves with packing leaks, which were subsequently corrected by snugging up the valve to the seal.

Service included raising buried valves to grade to provide easy access

In addition to locating and assessing the valves in the distribution system, the WWS team took **1,065 valves buried in asphalt** and raised these to grade in order to provide easy access and shut off during an emergency. Additionally, **5,387 valves buried in non-asphalt** environments (dirt-grass-gravel) were raised to grade and are now accessible.

Almost 2,000 damaged or missing operating nuts on valves were repaired or replaced. This represented by far the largest number of operating nut anomalies that WWS had ever encountered in the field.

This was due, in part, to the use of over-sized tooling. While some of the operating nuts were over-sized, those that were not (the majority) were damaged by the over-sized tools.

As part of the condition assessment and repairs, more than **10,000 valve boxes** were vacuumed and cleared of debris so the valves could be accessed and assessed for damage/need of repairs.

Finally, more than **7,400 fire hydrants** were accessed, with a least 20 percent requiring some repairs. Hydrants were also pressure tested, and those with a low-flow reading were corrected.

System operability increased from 55 percent to 84 percent

Overall, the system operability increased from **55 percent to 84 percent**, which added up to an increase of **53 percent more valves** now accessible and operable than before the assessment.

The Utility's GIS was updated to increase the accuracy and include additional attribute information. In addition, WWS provided the Utility with assistance on numerous construction shut-downs for the duration of the contract.

The operating nut repairs eliminated more than **1,300 dead ends** caused by inoperable valves, a solution that increased water quality, increased fire-fighting capacity, and corrected system pressure problems.

Wachs Water Service also performed a leak sounding pilot on all the valves accessed during the first 5 months of the program.

Overall, tremendous progress has been made, and the Utility has set industry benchmarks for control point operability and system sustainability.



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