Dickson County, Tenn., Saves Millions by Addressing Lateral I/I in Its Comprehensive Rehab Program

By NASSCO's Lateral Committee

Dickson County, Tenn., located 50 miles west of Nashville, is proactively taking steps to address its aging collection system. The County is doing this not because it is being forced to by regulatory pressures, but because it's the right thing to do. Although its system is well within compliance guidelines, the Water Authority of Dickson County (WADC) is not resting on its laurels.

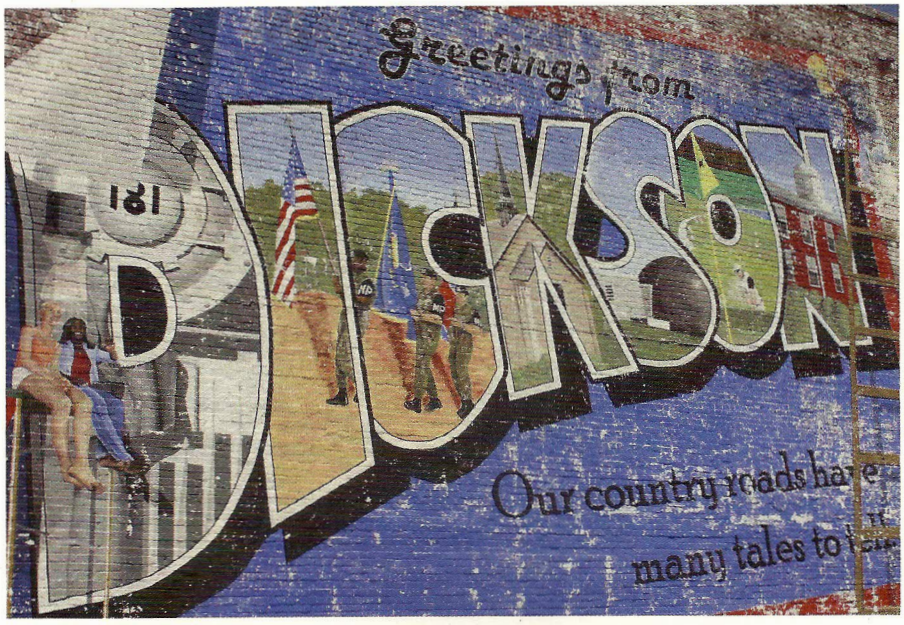
The WADC was formed as a regional water and wastewater service provider in 2002 by the consolidation of the City of Dickson Water and Wastewater System, Turnbull-White Bluff Utility District and Harpeth Utility District. Combining these entities resulted in centralized service to approximately 75 percent of the land mass and population of Dickson County, as well as portions of surrounding counties. Since the consolidation, WADC has been used as a model throughout Tennessee for other utility districts interested in combining to provide regional services.

Growth and expansion brought new challenges. The additional customers pushed its state-of-the-art treatment facility to near capacity and the decision had to be made to either expand that facility, costing tens of millions of dollars or reduce the volume needing treatment by addressing the inflow and infiltration (I/I) entering the system. Those working within WADC were aware of the I/I, but it was mostly "out-of-sight/out-of-mind" for the public.

WADC partnered with CH2M's Nashville office for guidance. CH2M senior project engineer Kevin Colvett worked closely with WADC to establish a systematic approach for identification of the leading contributors and the best way to resolve them.

"Rehabilitation of a sewer collection system is like painting a battleship," said Colvett. "It's not something you start and finish, it's something you start and keep doing. But the most important decision you can make is starting in the first place."

WADC began by CCTV'ing the areas it felt contained the most problems. Surprisingly, what was thought to be the areas with the oldest pipes was not the largest source of I/I. The largest contributor of excess flow in the system was pipes almost 50 years newer in Basin #6. In addition, it was determined that a great deal of the I/I was occurring from not only the main lines, but from the service laterals, particularly those with 4- to 6-in. transitions located in ditches and drainage ways. As a result, service laterals were included in the corrective action equation.



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Cured-in-place pipe (CIPP) was selected as the most cost-appropriate rehabilitation method, with Insituform the main line contractor and BLD Services LLC the contractor for the CIPP service laterals. The approach was not so much "find and fix a defect" as it was "find and fix a basin."

Flow monitoring was implemented prior to construction to establish a baseline of the infiltration volume and to measure improvements after rehabilitation. The resulting infiltration reduction from the CIPP main line and service lateral rehab performed were so dramatic that the calibration accuracy of the post-rehab monitoring devices came into question. Upon validating the accuracy of the monitoring instruments, WADC and CH2M confirmed that the CIPP rehab of both mainlines and laterals dramatically decreased their I/I, helping to potentially save the WADC millions of dollars when compared to what they would have spent had they expanded their treatment facility.

WADC was so pleased with the results that they are taking further steps to improve its collection system.

WADC's actions and results prove it doesn't take a consent decree to address issues within a collection system. WADC's inclusion of the service laterals in addition to main line rehabilitation proved to be an important component of its project success. The results observed is an example of the success that can be achieved when a service provider is proactive in addressing collection systems issues.

This article was provided by NASSCO's Lateral Committee.