

**Main Presenter: Jeff Heidrick**

**Abstract Title: Kaw WTP Water Transmission Main: Serving North Lawrence & Beyond**

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### **Abstract**

A preliminary analysis and routing study was completed to plan for projected growth in the southeast section of the City of Lawrence, KS (City) and to provide an additional water service feed to North Lawrence. The analysis recommended addition of a future 36-inch water transmission main to meet the City's needs. The nearly 6 mile water transmission main would connect to the Kaw water treatment plant, supply water to North Lawrence and ultimately provide service to the southeast section of the City to meet projected water demands through 2025.

Burns & McDonnell was selected by the City to design the first phase of the water transmission main project. This phase of the project included approximately 1.25 miles of water transmission main designed to connect the Kaw water treatment plant to an existing 12-inch water main located in North Lawrence. The major challenge with serving North Lawrence is that it is separated from the rest of Lawrence by the Kansas River.

In addition to the Kansas River crossing, other design challenges associated with this project included a US Army Corp of Engineers levee crossing, two railroad crossings, a creek crossing, and the crossing of a high use park enjoyed by the residents of Lawrence. Tree removal and construction activities had to be minimized, especially within the park area.

The design process included pipe material evaluation. Pipe material was evaluated not just for feasibility of installation with various construction methods, but also for corrosivity resistance due to the soils in the area of the project. Ultimately, fusible polyvinylchloride pipe (FPVCP) was selected and bid for the transmission main.

The proposed presentation will review the pipe material selection process, the various construction installation methods, and how those were utilized to overcome the design and permitting challenges associated with this project. Additional information will be provided regarding the use of horizontal direction drilling (HDD) for the river crossing as well as two sections of the park area crossing. A general review of the construction phase will be provided. At the time of installation, the Kansas River crossing was the longest FPVCP HDD installation in the world for 36-inch diameter AWWA C905 DR21 pipe, which is currently the highest rated pressure class available in 36-inch fusible PVC pipe.