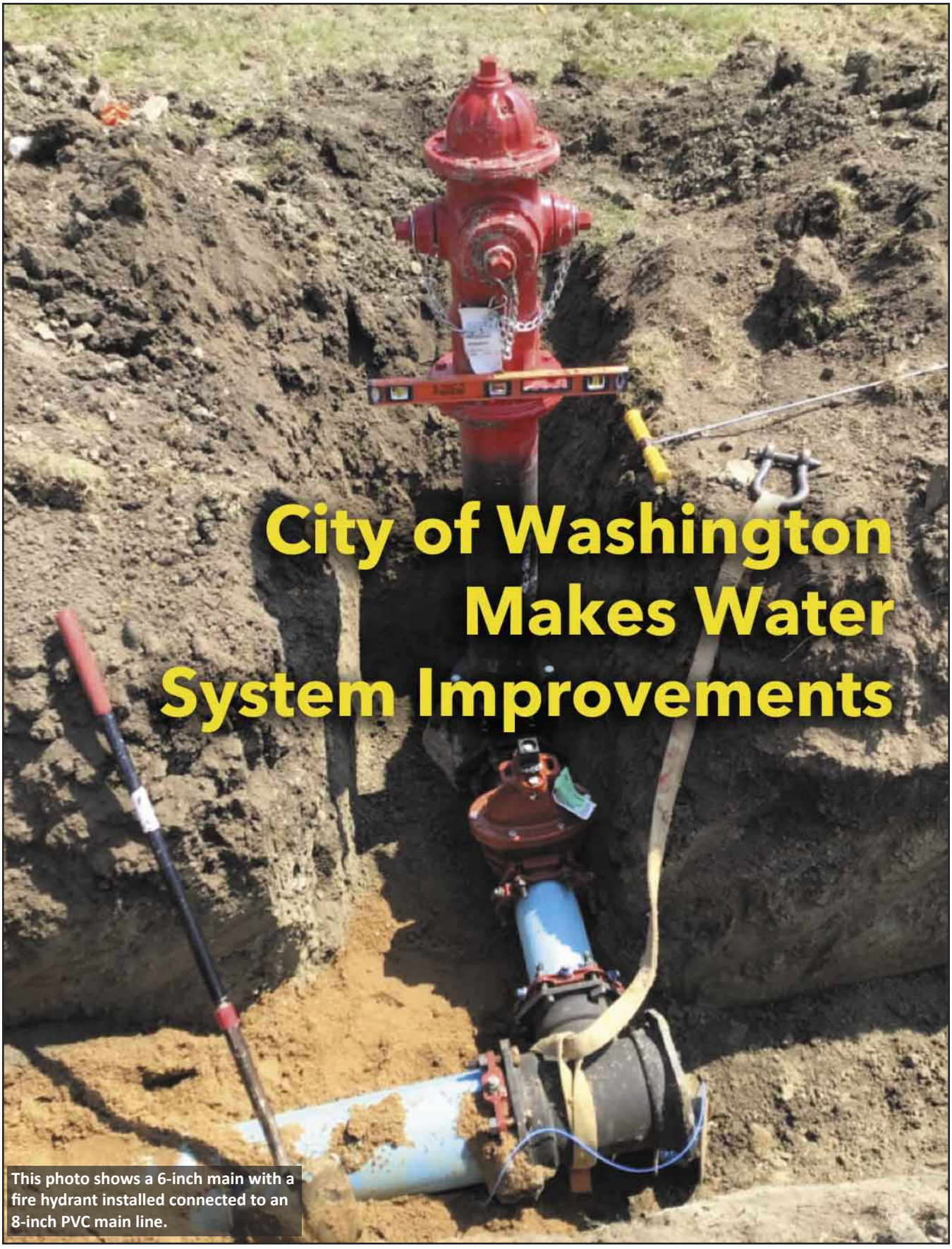
By Delbert Zerr, KRWA Consultant

City of Washington Makes Water System Improvements



This photo shows a 6-inch main with a fire hydrant installed connected to an 8-inch PVC main line.

The city of Washington with a population of 1,042 is located in north-central Kansas at the intersection of U.S. Highway 36 and Kansas Highway 15. The city is the county seat of Washington County and both the city and county were named in honor of the first president of the United States, George Washington. The county courthouse is a two-story Art Deco-style building that was built around 1932-1934 replacing the previous courthouse that was damaged in a tornado on July 4, 1932. The building is one of eight properties in the county listed on the National Register of Historic Places.

Washington was established in 1860 with the town site just north of Mill Creek. There is a plaque showing a date of 1914 on the water plant building indicating that Mill Creek was the source of water at that time. Mill Creek continued to serve as the source of water until about the early 1960s when the dependability of the creek became questionable and the overall water quality became a serious concern. As a result, the city began a search for a groundwater site and fortunately was able to construct a well field with an excellent water quality northwest of town. Total hardness from the three wells is about 130 milligrams per liter (mg/L) and there is no iron and manganese. These three wells continue to serve the city very adequately

The distribution system, also installed in 1914, consisted of small diameter cast iron lines. Carl Chalfant, City Administrator, reported that water loss averaged about 26 percent annually with maximum loss as high as 35 percent. Carl also noted that the city has experienced 35 main breaks in the past three years. When considering the age of the cast iron lines and the problems with water loss and main breaks, it was obvious that the distribution system had reached the end of its useful life. As a result, the city made the decision to have the water system professionally evaluated.

The city contracted with BG Consultants, Manhattan, Kan., to evaluate the system to identify the problems and to assist with securing funding for a project to correct the problems. The engineer's Preliminary Engineering Report recommended that approximately 55,000 feet of water line should be replaced. Funding for improvements was received in March of 2019 and construction began in March 2020. The project included 9,000 L.F. of 8-inch water line, 35,000 L.F. of 6-inch, 7,000 L.F. of 4-inch C-900 water line and 2,000 L.F. of 2-inch pipeline.

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Shown here is an 8-inch PVC main recently installed on D Street on the south side of town, south of Highway 36.

This is a 6-inch PVC main with a valve installed just before forming a tee next to a street.

Public Works Superintendent Chris Milam presents a plaque to City Administrator Carl Chalfant expressing thanks to Carl for his dedication to the project, specifically his leadership, guidance, and direction. The plaque was created from the very first piece of piping removed during the project. Also shown are Council members Roxanne Schottel and Carolyn Pinnack.

Mayor Ryan Kern cuts the ribbon on the official completion of the water project. The ribbon cutting was held on June 4, 2021, signifying the end of a project that took two years from the start of the application process to final completion. Council Members Roxanne Schottel and Carolyn Pinnack are looking on.

Administrator Chalfant notes that about 85 percent of the distribution system has been replaced with PVC pipe including service lines. Radio-read meters were also provided as a part of the project. The addition of radio-read meters has allowed all meters to be read in about 1.5 to 2 hours rather than the two days that were required in the past. He also stated that thus far in 2021, the water line replacement project has resulted in a large reduction in water loss currently showing a water loss of 8.4 percent.

Another part of the project included some piping work at the clearwell which is a part of the old abandoned water plant. Water from the wells flows into the clearwell where chlorine is added prior to being pumped into the system. A new Supervisory Control and Data Acquisition (SCADA) system was installed to allow for control and monitoring of the system.

The contractor that installed the water lines was Orr Wyatt Streetscapes, Raytown, Mo.

These photos show the condition of the cast iron pipe that was in use for more than 100 years. This may be indicative of much of the cast iron pipe in the ground in Kansas.

Sargent Drilling, Geneva, Neb. installed the SCADA equipment and piping at the wells and clearwell.

The funding breakdown included a community development block grant (CDBG) of $600,000 and United States Department of Agriculture Rural Development (USDA-RD) grant of $1,200,000 and loan of $6,300,000. The loan carries a very favorable interest rate of 1.78 percent. Carl noted that actual construction costs came in under the budget amount of $8,100,000. The city has received approval to use the remaining funds to make additional improvements including rehabilitation of the elevated storage tank.

Based on the size of this project, city residents can feel very fortunate to see only a modest increase in their water rates. The new rate for a ¾-inch meter is $21.00 minimum service charge and $4.50 per thousand. The cost increase to customers includes $1.00 per month service charge and 25 cents per 1,000 gallons of usage resulting in an overall increase of $2.25 for 5,000 gallons. Five thousand gallons of water prior to the project would have cost $41.25. After the project, the cost is $43.50.

Administrator Chalfant sums it up this way. "The mission of the city of Washington is to partner with our community to deliver and maintain services, while striving to preserve, protect and enhance the quality of life and maintain a progressive approach toward planning for the future."

In addition to the replacement of water mains and meters, fire hydrants and valves were also included. The following statement was given at a ribbon cutting held on June 14, 2021, "The upgrades to critical infrastructure were much needed, and the community will benefit from the end result for many years."

Bert Zerr is currently a consultant with KRWA. He has been with KRWA since 2005. Prior to that, Bert was a District Engineer with the KDHE in the Salina District Office for 32 years.