By Delbert Zerr, KRWA Consultant

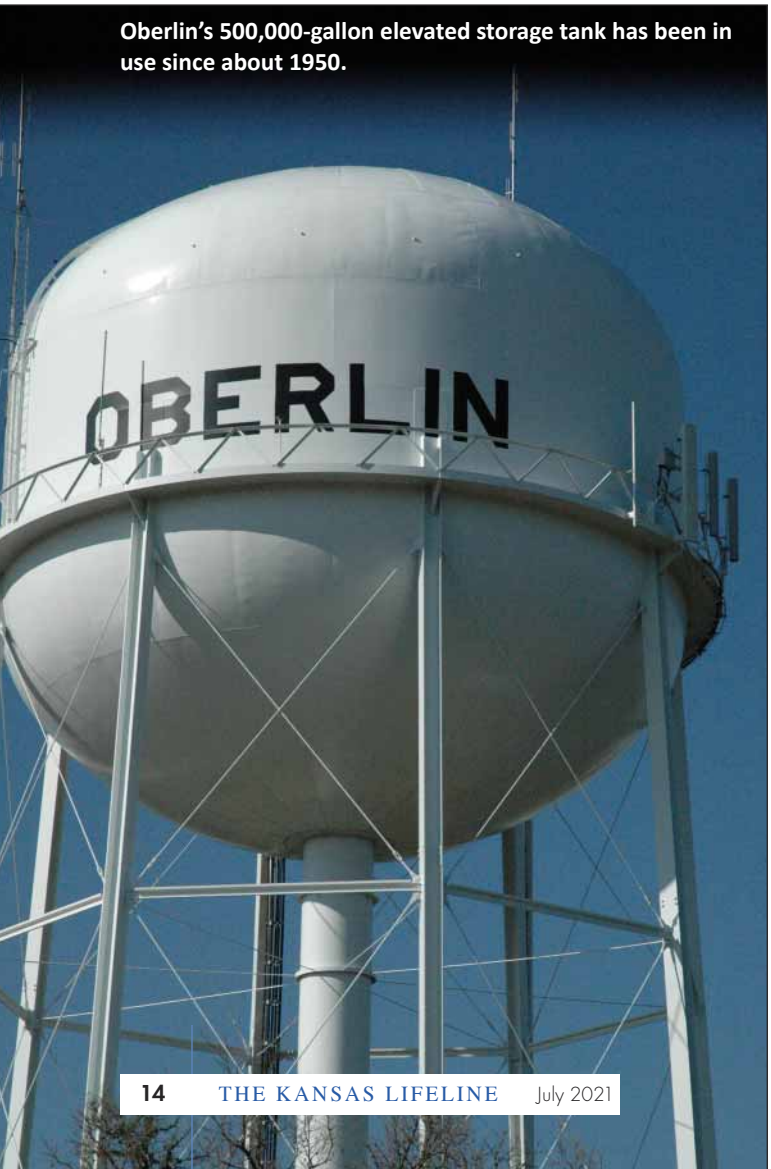
# Oberlin and Park Install New Distribution Systems

Anyone interested in learning more about the aging condition of the water infrastructure in the U. S. only needs to pay attention to the news or do an Internet search as there is a great deal of information provided by the Environmental Protection Agency (EPA), the American Water Works Association (AWWA), the National Society of Professional Engineers (NSPE), and many other sources. The following statement was taken from an EPA website: "The U.S. has invested billions of dollars over the years to build an extensive network of drinking water, wastewater, and stormwater infrastructure to provide the public with safe and clean water. Much of the network of water treatment plants, distribution lines, sewer lines, and storage facilities was built after World War II. Some of that infrastructure is now more than 100 years old."

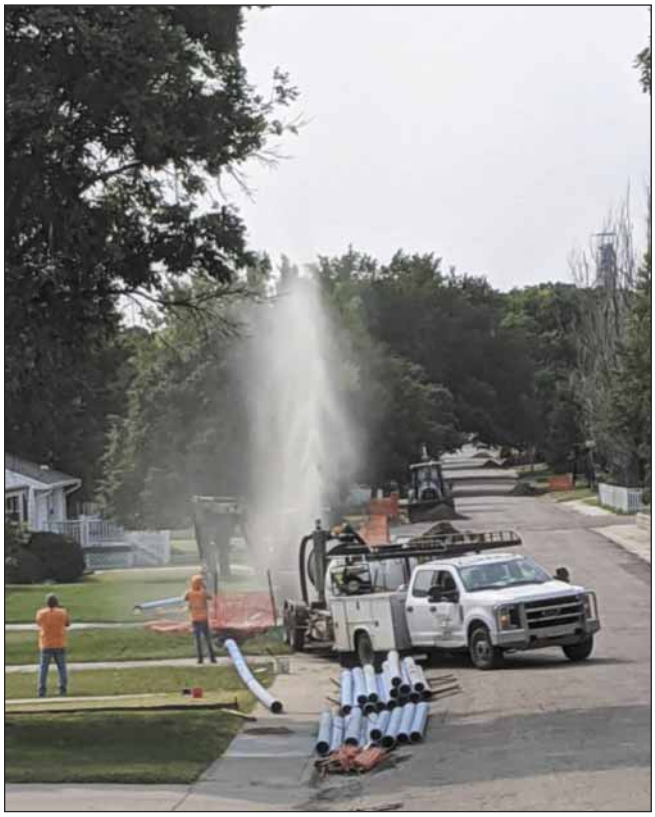
Many of the pipelines in use in Kansas likely fall in this category and are in need of replacement. This article will feature two cities – Oberlin and Park, in northwest Kansas as they are in the process of replacing all of their water mains.

## Oberlin installing all new distribution system

Oberlin is the county seat of Decatur County; the city has a population of 1,700. Oberlin is located along Highway 36 which is a major east/west route across the northern part of Kansas. The city began a series of major improvements several years ago when it was determined that the current city wells contained arsenic and uranium above the Maximum Contaminant Level (MCL) as established by the




**Oberlin's 500,000-gallon elevated storage tank has been in use since about 1950.**



**Oh shucks! The geyser shown in this photo occurred when the contractor caught a service line while pulling pipe back and caused a corp stop to break off the old main. The city was in the process of shutting down line valves when the water finally caused an opening forming a geyser.**

## City of Oberlin's Water Rate Schedule

### Base Service Fee Per Meter

- ¾-inch Meter $33.00
- 1-inch meter $39.80
- 1 ½-inch meter $53.40
- 2-inch meter $$67.00
- 3-inch meter $$80.60
- 4-inch meter $94.20

### Water Usage

First 750 cubic feet is $4.50, and is prorated up to 750 cubic feet; 751 to 2,000 cubic feet is $37.42 per 1,000 cubic feet prorated. Water used in excess of 2,001 cubic feet is $40.23 per 1,000 cubic feet prorated.

A subcontractor on the project is setting up to bore Highway 83 to install a 12-inch casing for a 6-inch main.

A Hydrastop is being done to allow replacement of a valve that was broken in the off position while the city was doing a shut down so the contractor could compete a tie-in.

EPA. As a result, the city located an area where new wells could be drilled with acceptable water quality. The area is about eight miles south of town. Eight wells were drilled into the Ogallala Aquifer. Anyone interested in more information on this project can check it out in the November, 2014 issue of *The Kansas Lifeline*. Following is a link to that article: https://krwa.net/portals/krwa/lifeline/1411/26.pdf

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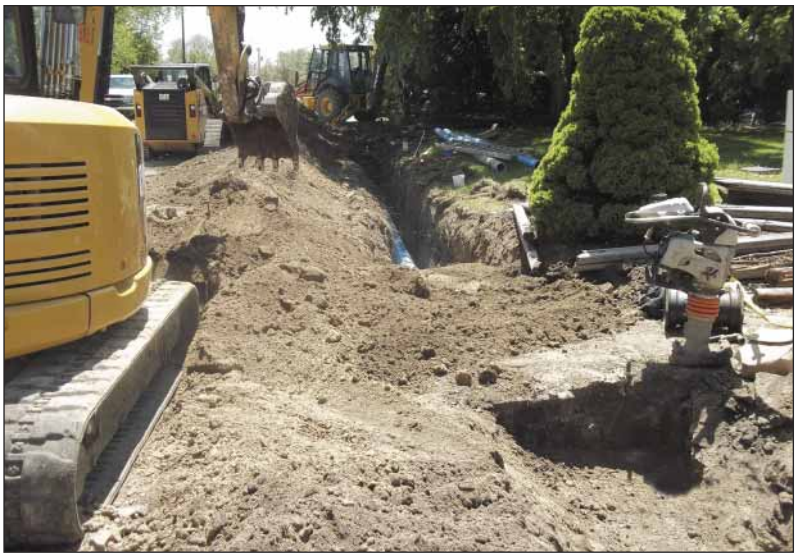
The city is continuing to make improvements to its system with a four-phase plan to replace the distribution system. Phase one was just completed and included about 20 city blocks of new main and service line replacement. A detailed listing of the main lines installed include 147 linear feet (L.F.) of 10-inch C900 PVC water main, 485 L.F. of 8-inch, 6,700 L.F. of 6-inch and 101 L.F. of 4-inch. In addition, 123 water services which included 115 water meters were installed with this project. Jeremy Tally, Oberlin Water Superintendent, noted that most of the mains being replaced were estimated to be from the 1880s. Also, Tyler Hillmer, P.E. with Miller & Associates Consulting Engineers, McCook, Neb., noted that many of the older valves and hydrants were no longer working, making it difficult to isolate main breaks or operate the system. The old cast iron pipes have heavy manganese encrustation resulting in reduced capacity.

Phase two bids have been received and the contractor of the Phase one project, BSB Construction, Curtis, Neb., submitted the winning bid. No start date has been set for

phase two but the city is hopeful that the project will be started soon, in early June. Jeremy stated this project will cover 24 city blocks and will include approximately 8,500 L.F. of water line, nine fire hydrants, and 129 new services.

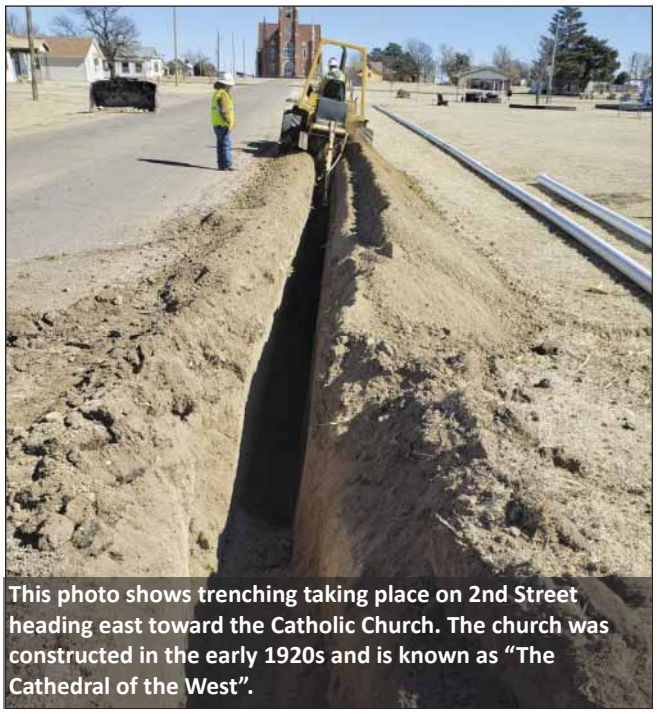
The final contract price for phase one was $852,361.01. Financing for the project includes a Community Development Block Grant (CDBG) of $600,000 along with internal funds. Jeremy stated no increase in customer fees will result from this project. The current rates are based on size of meter along with usage. The cost of water for a ¾-inch meter and 750 cubic feet (5,625 gallons) is $37.50. The city's proactive approach in improving the infrastructure has apparently paid dividends because Jeremy noted they have not had a main break in the past three years.



**This photo shows new PVC water line being installed in a very busy area.**

## City of Park also installing new system . . .

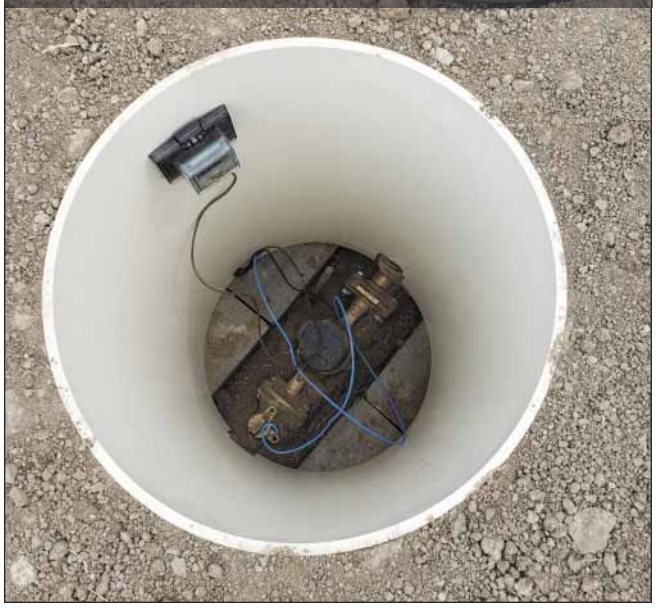
Unlike Oberlin, the city of Park is much smaller with a population of only 113. Park is located just to the north of Interstate 70 and is considered to be the oldest town in Gove County. The city was originally known as Buffalo when in 1868 it was a Union Pacific Railroad station. The name Buffalo was decided upon because buffalo could be seen from the top of the railroad station's 120-foot tall wooden water tank. In 1879, the name was changed to Buffalo Park; then finally in 1950, the city name became Park.



**This photo shows trenching taking place on 2nd Street heading east toward the Catholic Church. The church was constructed in the early 1920s and is known as "The Cathedral of the West".**

The water supply source consists of two deep wells that have provided a good source for many years. Unfortunately, the distribution system has been a major problem. Water loss in the system has been excessive and valves are not operable. Water loss from 2014 to 2018 has ranged from 49.5 percent to 60.7 percent. Water loss in this range is both a serious loss of revenue as well as a loss of a very valuable resource. After many attempts to locate the leaks including using various outside sources to assist with leak detection, the city felt more drastic measures were needed. As a result, the city retained the services of Wilson & Company, Inc., Engineers & Architects, Salina, Kan., to review possible upgrades including replacing the distribution system.

**This is the only remote read meter installed as a part of this project. It meters water usage for Catholic Church.**



| Historical Water Loss at City of Park, Kansas | | | |
|---|---|---|---|
| Year | Water Production (MG) | Water Loss (MG) | % Water Loss |
| 2014 | 12.707 | 6.289 | 49.49% |
| 2015 | 13.63 | 7.277 | 53.39% |
| 2016 | 13.564 | 7.816 | 57.62% |
| 2017 | 11.698 | 6.231 | 53.27% |
| 2018 | 13.986 | 8.48 | 60.63% |
| 2019 | 15.118 | 8.593 | 56.84% |
| 2020 | 14.89 | 7.657 | 51.42% |

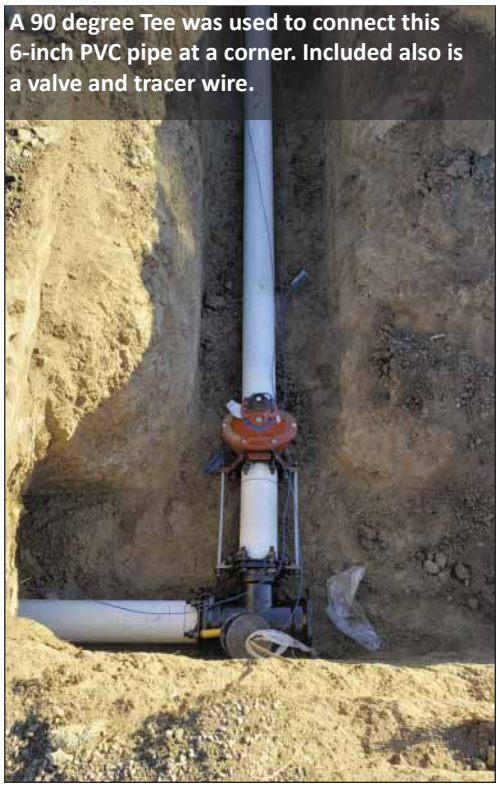
**Future plans include securing funding to replace the distribution system in west half of town and perform maintenance on the 50,000-gallon elevated storage tank.**

The cost of such an undertaking though would be prohibitive if not for a provision in the Kansas Department of Health & Environment (KDHE), Kansas Public Water Supply Loan Fund (KPWSLF) which allows Disadvantaged Communities to receive 100 percent principle forgiveness of up to $500,000 for any eligible project under this program. The KDHE defines a disadvantaged community as a public water supply system that supplies a population of 150 or less. Park was able to receive $500,000 of such funding. Phase one consisted of replacing water lines in the east half of the city. Nearly all work has been completed in this area and there is evidence that water loss has been significantly reduced, maybe as much as an 80 percent reduction, indicating that a major leak or many leaks were occurring in the east side of town. Future plans include securing funding to replace the distribution system in west half of town and perform maintenance on the 50,000-gallon elevated storage tank. The contractor on this project was Midlands Contracting, Inc., Kearney, Neb.

Kerry Billinger, Water Superintendent, stated that the city council is looking at increasing water rates but as of this date, a decision as to what the rates will be has not been made. Current rates are $20 for 5,000 gallons plus $1.40 per thousand for water used in excess of 5,000 gallons.

KRWA appreciates the cooperation of the city of Oberlin and Park in providing background information for this article.

*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.*



A 90 degree Tee was used to connect this 6-inch PVC pipe at a corner. Included also is a valve and tracer wire.