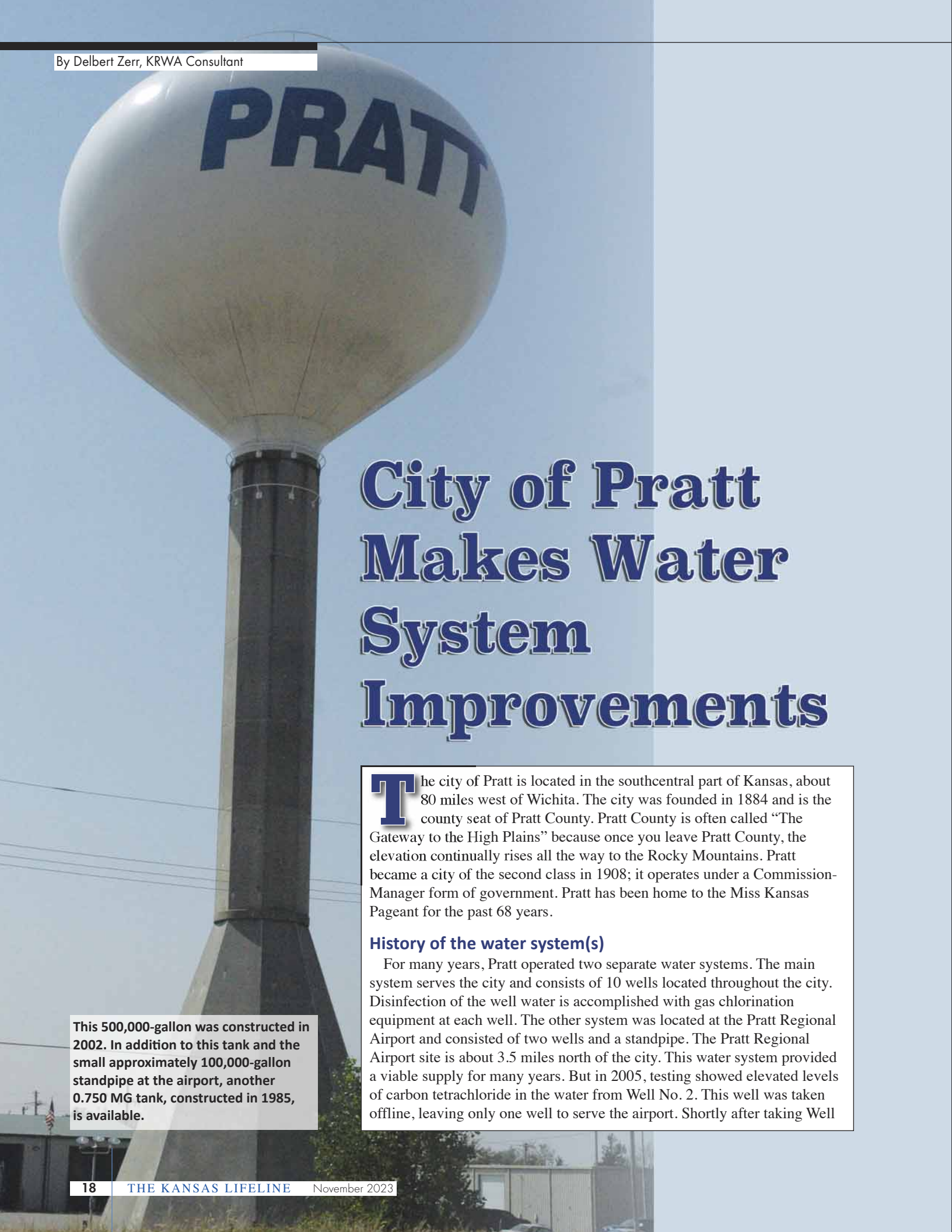
By Delbert Zerr, KRWA Consultant

City of Pratt Makes Water System Improvements



This 500,000-gallon was constructed in 2002. In addition to this tank and the small approximately 100,000-gallon standpipe at the airport, another 0.750 MG tank, constructed in 1985, is available.

The city of Pratt is located in the southcentral part of Kansas, about 80 miles west of Wichita. The city was founded in 1884 and is the county seat of Pratt County. Pratt County is often called "The Gateway to the High Plains" because once you leave Pratt County, the elevation continually rises all the way to the Rocky Mountains. Pratt became a city of the second class in 1908; it operates under a Commission-Manager form of government. Pratt has been home to the Miss Kansas Pageant for the past 68 years.

History of the water system(s)

For many years, Pratt operated two separate water systems. The main system serves the city and consists of 10 wells located throughout the city. Disinfection of the well water is accomplished with gas chlorination equipment at each well. The other system was located at the Pratt Regional Airport and consisted of two wells and a standpipe. The Pratt Regional Airport site is about 3.5 miles north of the city. This water system provided a viable supply for many years. But in 2005, testing showed elevated levels of carbon tetrachloride in the water from Well No. 2. This well was taken offline, leaving only one well to serve the airport. Shortly after taking Well

The entrance to the airport with military aircraft on display and the water storage standpipe in the background is shown here.

No. 2 off-line, the well in use began showing elevated nitrate levels, as high as 15 mg/L. At this point, the city decided to address not only the water quality issue but also a problem with the lack of proper fire flow protection. In addition, with only one well supplying the area, city officials were concerned about the lack of redundancy with the supply.

The city airport was the Pratt Army Airfield from 1942 to 1945 and was the first base used for training Boeing B-29 Superfortress bomber crews. It was also used as a staging area for getting early aircraft combat-ready. The airport currently supports light airplane traffic as well as an industrial park. Also located on the grounds is a B-29 All Veteran's Memorial and Museum.

System improvements

The engineering firm of Evans-Bierly & Hutchinson (EBH) was retained to design the necessary improvements to solve the water issues at the airport. The plan chosen was to extend a line from the city to the airport. The project consisted of two phases. Phase 1 consisted of installing a 12-inch line for the first 1 1/4 miles. The city crews installed all of Phase 1 work. Phase 2 consisted of constructing a pump station and installing the remaining 2.13 miles of pipeline.

The pump station is located north of town along U.S. Highway 281 and consists of a "Chief" metal building with three pumps driven by 20 HP electric motors. The pumps are equipped with variable frequency drives and each of the pumps is capable of delivering 600 gpm to the airport.

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The water system improvements at Pratt included these three booster pumps at the new pump station. Each pump is provided with a 20 HP electric motor and can deliver 600 gpm to the airport 3.5 miles north of the city.

Each of the new booster pumps are controlled by a variable frequency drive (VFD). A VFD is a device that controls a motor's speed and torque by adjusting the power supply's frequency and voltage.

Gas chlorination is provided at the new pump station.

Water from the pump station flows into the existing standpipe and distribution system. The distribution system consists of PVC piping installed as a previous water project in 2000. Customers being served include 32 commercial and industrial users located at the airport. Also, there were 12 new customers added to the system as a result of this project. A new SCADA system was installed at the pump station. The existing SCADA system previously used by the city was updated to be compatible with the new system.

Funding and rates

The city obtained a $1.5 million loan through the Kansas Public Water Supply Loan Fund administered by the Kansas Department of Health and Environment (KDHE). The funding arrangement included a provision for 30 percent forgiveness due to the consolidation of public water systems.

Kevin Clay, Water Superintendent, noted that this project did not directly affect customer rates. The city's water sales are per unit with each unit equaling 748 gallons. Currently, the cost of 5,000 gallons to residential customers is $24.02.

Contractors on the project included APAC, out of Hutchinson, Kan. APAC served as the general contractor. M & D Excavating, Hays, Kan., did the locational boring, which included a highway crossing to improve flow. ECK Services, Pratt, Kan., provided the electrical work and Don's Electric and Rewind, Ellis, Kan., installed the telemetry equipment.

Looking forward

Kevin stated that nitrates are starting to be a concern and that plans include drilling a new well on property currently owned by the city located east of town. Test results of the water from a test well at this site indicate a favorable water quality. The city wants to be proactive in its planning to be

This is the metal pump station building with standby generator and chain link security fence.

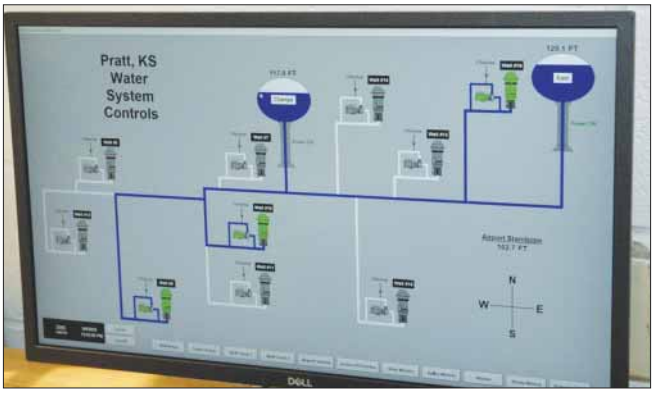
Rates for 2023	WATER		City of Pratt, Kansas
NOTE: 1 unit = 748 gallons			
		Inside City	Outside City
5/8 X 3/4 inch	0-2 units	18.78	21.79
	Over 2 units	1.12 per unit	1.44 per unit
1 inch	0-3 units	21.27	26.20
	Over 3 units	1.12 per unit	1.44 per unit
1 1/2 inch	0-7 units	27.15	36.49
	Over 7 units	1.12 per unit	1.44 per unit
2 inch	0-10 units	35.42	50.63
	Over 10 units	1.12 per unit	1.44 per unit
3 inch	0-17 units	47.41	72.51
	Over 17 units	1.12 per unit	1.44 per unit
4 inch	0-40 units	86.66	144.74
	Over 40 units	1.12 per unit	1.44 per unit
6 inch or larger	0-70 units	146.30	254.57
	Over 70 units	1.12 per unit	1.44 per unit
Minimum charges shall not be less than $18.78 more than $146.30 within the City.			
Minimum charges shall not be less than $21.79 nor more than $254.57 outside the City.			
08/05/2019 - Ord. 1908 Increased Water Min. by $2 for 5/8, 1 & 1 1/2 Eff. 9/01/2019			
08/05/2019 - Ord. 1908 Increased Water Min. by $4 for 2, 3, 4, 6 Eff. 9/01/2019			
RATE INCREASE 1/2023			
Rate Increase per Ord. 1908 (8/05/2019) -Year 5 of 5 Years			
Gallon Swr Mtr	Min. Chg.	17.52	
	0-3 units	.005732 per unit	
	Over 3 units	.00241 per unit	
Ethanol Plant-Contract	.3826 per cu. ft.	.5212/1000 gal.	
Bulk Water	5.90/per 1,000		

Water is billed at cubic feet. Transferred to gallons, the city's rate structure as of 2023.

sure it can supply an adequate quantity and quality of water to all customers, including relatively large users such as the ethanol plant currently being supplied by the city. Also, this site would serve as a possible water plant site if needed.

Other projects

Probably not so much a project as the construction work recently completed but as noted by Kevin, a very time-consuming project nonetheless was the completion of the lead and copper materials inventory. Kevin noted that an onsite inspection of piping at each meter was done using hydro excavation. The city has approximately 3,500 service connections. Kevin said that the completed materials inventory has been submitted to the KDHE and that he thought it might be the first in Kansas to be submitted.



This display shows the SCADA monitoring and control system located at the water maintenance building. The old SCADA system was updated to be compatible with the new system.

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.