



City of Broken Arrow
Special Meeting Minutes
Broken Arrow Municipal Authority

City Hall
220 S 1st Street
Broken Arrow OK
74012

Chairperson Debra Wimpee
Vice Chair Christi Gillespie
Trustee Johnnie Parks
Trustee Lisa Ford
Trustee Justin Green

Tuesday, November 7, 2023

Council Chambers

1. Call to Order

Chairperson Debra Wimpee called the meeting to order at approximately 5:00 p.m.

2. Roll Call

Present: 5 - Justin Green, Lisa Ford, Johnnie Parks, Christi Gillespie, Debra Wimpee

3. General Authority Business

A. 23-1382 Consideration, discussion, and possible approval of Grand River Water Supply Study Alternatives Recommendation (Project Number WL22040)

Director of Engineering and Construction Ethan Edwards reported in August 2021, Staff made a presentation regarding the long range study completed by HDR. He explained the purpose of the presentation was to obtain authorization to proceed with this Grand River Water Study to evaluate alternatives for a secondary water source including phasing options for a potential long term project; authorization was granted and in March 2022 a contract with HDR was approved for the study. He indicated HDR was present to help present the study findings.

Assistant City Manager of Operations Kenny Schwab reviewed the history of Broken Arrow's water supply plan noting the first pumphouse was built in 1909 at Ray Harral Spring with the first Broken Arrow revenue bond. He stated the first pumphouse served as Broken Arrow's primary water supply until 1967 when a new water treatment plant was built to handle 4 million gallons of water a day. He indicated Broken Arrow's population boomed and by 1976 Broken Arrow needed more water and expanded the plant to handle 10 million gallons per day. He stated in 1982 a purchase water agreement with OOWA was established for 31 years to purchase treated water. He reported in 2014 a new water plant opened and processed water at 20 million gallons per day. He stated in August 2021 the governing body authorized the City to enter into an agreement with HDR to look at how the City might move forward.

Mr. Schwab discussed why the City needed to conduct the Grand River Water Supply Study. He explained at present, the City relied on only one water source (Verdigris River) at 30 million gallons per day; Broken Arrow had no backup water source. He indicated Broken Arrow was tied into Tulsa Metropolitan Utility Authority with two major tie locations, but this only a supplemental supply. He stated the Verdigris River was home to the furthest inland port in the United States in Catoosa which could pose challenges to Broken Arrow's water supply if there were a spill or major contamination. He stated Adams Creek which tied into the Verdigris River was shallow and had algae blooms which affected taste and odor of water. He noted OWRB could curtail Broken Arrow's existing water rights. He

stated currently the Grand River was a possibility as another water source. He introduced Kristi Shaw with HDR.

Senior Water Resources Engineer for HDR Kristi Shaw reported currently there were two water rights on the Verdigris River; combined, the two allowed the City to use 24.3 million gallons per day, with a maximum diversion of 30 million gallons per day. She reported in 2015 a study performed by HDR identified Broken Arrow's need for additional water in the future, at the same time Broken Arrow received a letter from the OWRB which indicated Broken Arrow's water rights were going to be reviewed for curtailment. She stated HDR reached out to OWRB recently to discuss the letter which was issued but was unresolved. She indicated earlier this year, at Tenkiller Ferry Lake, the permit was released by Broken Arrow due to the distance Tenkiller Ferry Lake was from Broken Arrow, and because there were no storage rights. She reviewed a slide illustrating water need projections to the year 2070: in 2070 the average water use would be around 23 million gallons per day (mgd) and peak water use would be around 46 million gallons per day (mgd). She discussed agency coordination regarding the Study. She stated the third permit Broken Arrow applied for (at the Verdigris River) was still pending from OWRB and it was discovered OWRB was not actively seeking to curtail Broken Arrow's existing water rights. She reported HDR also contacted the Grand River Dam Authority who confirmed that they had water available; only half of the water available was being used and over 90 million gallons of water were available per day. She indicated HDR also had favorable conversations with the Oklahoma Ordinance Works Authority (Mid America Industrial Park) during which it was determined OOWA had up to 25 mgd available. She noted with the infrastructure in place (36 inch water line) between Broken Arrow and OOWA this represented an excellent opportunity for partnership. She reported HDR also looked at four raw water sampling locations, three in the Grand River and one in the Verdigris River. She indicated it was important to continue monitoring as there could be fluctuations in the water chemistry. She stated water sampling and monitoring was the precursor to blending studies, jar testing, and bench scale testing which would be needed before integrating a new water source. She reported the water sampling revealed the Verdigris River had total organic carbon higher than the Grand River which made the Verdigris water more difficult to treat. She stated HDR also assessed the pipeline, the 36 inch pipeline from the OOWA pump station (owned by Broken Arrow) over to the water treatment plant which was 21.3 miles long with two sections (same size and type of concrete pipe, but different manufacturers). She indicated section one of the pipeline (approximately 10 miles) had issues with collapse. She noted the other section (approximately 11 miles) had no history of breaks. She reported upon spot inspection and hydraulic analysis, it was determined approximately 12.3 mgd could be drawn through this pipeline under gravity circumstances; the pump station would need to be restored in order to draw up to 25 mgd. She stated moving forward, section one of the pipeline would need to be replaced, the pump capacity should be restored, and then section 2 of the pipeline should be replaced. She introduced Joel Cantwell with HDR.

Council Member Lisa Ford asked if Broken Arrow replaced the 36 inch pipeline, should the line be replaced with a bigger pipe.

Ms. Shaw responded HDR looked at replacement of the 36 inch pipe which would allow the City to deliver 25 mgd which would bring Broken Arrow through 2070.

Vice President of HDR Joel Cantwell indicated he and Ms. Shaw had been working with Broken Arrow since 2007. He stated he enjoyed working with Broken Arrow Staff. He noted HDR did look at installing a larger 42 inch pipeline and with this increase the City could increase the gravity flow from 12.3 mgd to almost 15.3 mgd; with a 48 inch pipe this could increase another 1.5 mgd. He stated increasing the size of the pipe was a possibility. He continued the presentation with the alternative summary. He reported there were three

major alternatives. He explained the current plan, or alternative 1, was to treat Verdigris water alone at potentially 46 mgd (30 mgd with current permits and 16 mgd with potential new permit). He indicated alternative 1 was a partnership with OOWA divided into option A and option B: option A was water deliverable by gravity (12.3 mgd); option B was pumping the water to maximize the water deliverable to 25 mgd. He stated alternative 2 was a partnership with GRDA who owned the intake on the Grand River delivering 25 mgd (pump solution, no gravity supply). He noted with alternative 1B and alternative 2 the Grand River could become Broken Arrow's primary water source with the Verdigris supplementing during peak times. He explained with alternative 0 to bring Broken Arrow to 2070 demands three things would have to happen, the City would have to 1) Expand intake pump station on the Verdigris River to 46 mgd; 2) Construct off-channel reservoir west of water treatment plant site (4,020 ac-ft); and 3) Expand water treatment plant to 46 mgd (16-mgd expansion). He explained the water treatment plant would need to be expanded regardless of the alternative. He displayed and discussed maps illustrating what would be involved with alternative 1 and alternative 2 showing where pipelines and pump stations would be located. He displayed and discussed a slide illustrating the cost comparison of alternatives noting alternative 0 was the least expensive with costs increasing with each alternative; alternative 2 being the most expensive. He stated cost was certainly a factor, but it was not the only factor to consider. He stated a benefit cost analysis showed alternative 1A/B as the best alternative, starting with 1A and 1B being the end goal. He reviewed the phases of alternative 1A/B: Phase 1 (immediate): Secure MOU with OOWA on water purchase (25 mgd), purchase rate, and use of infrastructure and begin land acquisition on OOWA property (if necessary); Phase 2: Replace Section 1 of existing 36 inch pipeline; Phase 3: Construct facilities to connect with OOWA; Place system into service to deliver 12.3 mgd to VRWTP by gravity; Phase 4: Conduct internal condition assessment of Section 2 of existing 36 inch pipeline; Rehabilitate/replace portions of Section 2 based on findings; Phase 5: Construct pump station (or rehabilitate existing) at WTP2; Place system into service to pump 25 mgd to VRWTP; Phase 6 (goal to be in service by 2035): Construct WTP expansion to 46 mgd and pre-sedimentation basin at Site 1A. He reviewed the recommended implementation timeline. He noted by phasing the project, the City would be able to put the necessary funds in place.

Mr. Schwab asked Ms. Rowland to discuss potential funding for this project.

Environmental Project Engineer Emily Rowland explained Broken Arrow had a Capital Improvement Spreadsheet which tracked current and future capital improvement projects throughout the City. She noted one project which was included on the spreadsheet (since 2013) was OOWA, whether it be rehabilitating the water line or the pump station, so Broken Arrow had over \$23 million dollars in the Capital Improvement Plan; half of which was included in the next five years through rate study models, then in the six years after that was the other half. She said it was good to know Broken Arrow would have \$23 million dollars to invest in this plan.

Council Member Johnnie Parks stated the pipeline right-of-way was big enough for two pipes. He asked if a new pipeline could simply be installed parallel to the existing pipeline rather than replacing the existing pipeline.

Mr. Schwab stated if Broken Arrow moved forward with this, and it was less expensive to install a parallel pipeline as opposed to replacing the pipeline, then this was what the City would do. He indicated this was an option.

Council Member Parks stated Broken Arrow worked well with MidAmerica over the years. He stated if the City could get higher quality raw water it would cost less to treat the water. He noted it would cost the City money to make these changes, but it could save money on the treatment side in the long run.

Mr. Schwab stated this was an excellent point. He noted Broken Arrow took samples from the Grand River a few times, took samples from the Verdigris, and was looking to see which water would be more of a challenge to treat, and from an organics perspective the Verdigris was more challenging to treat than the Grand River. He stated from this perspective the Grand River was a better water source. He stated currently Broken Arrow had only one water supply and this water supply was at risk due to the port upriver from the City.

Council Member Parks discussed a scare many years ago during which Broken Arrow temporarily shut down the water plant due to a potentially hazardous waste leak from a barge at the port in Catoosa. He stated there was another port being built as well.

Mr. Schwab stated having two water sources would provide flexibility in the event there was a problem with one source or the other. He stated Broken Arrow would have to build a new treatment plant, but how soon this was necessary would depend on how fast Broken Arrow's population grew. He stated the current projection date was from 2035 to 2040. He explained regardless of which alternative was chosen, including alternative 0, the water treatment plant would need to be built, and if the population did not increase as quickly as projected and the plant construction was pushed out a little further, it would help with the phasing of the project. He stated water consumption was tracked constantly and he felt the plant would not need to be completed until 2040 at this point, but this was just his opinion. He noted he also felt Broken Arrow could gravity draw water and store the water in the existing reservoirs and while a new reservoir was not needed at this time, it might be needed in the future. He stated Broken Arrow spoke with Tulsa, TMUA, who had land near 61st Street on which Tulsa wished to build another reservoir, and there was a potential partnership there. He stated he was in favor of alternative 1A/B. He stated alternative 1A would cost \$25.6 million dollars, the City already had \$23.1 million dollars budgeted, with \$12 million dollars in the first five years, so budget wise the City was halfway to fully funding 1A. He stated moving forward with alternative 1A/B gave the City more flexibility, was good stewardship, and provided the City better reliability in terms of water service. He stated Staff recommended BAMA authorize City Staff to work with OOWA to obtain a memo of understanding which could become an agreement and move towards an acquisition of property from which the City could gravity draw water.

Mayor Wimpee asked about the 1,200 acres of property annexed into Broken Arrow from Davis.

Mr. Schwab stated anything that came from the Robinson family was in the City limits of Broken Arrow.

Mayor Wimpee noted there was no infrastructure out there.

Mr. Schwab concurred.

Council Member Justin Green asked if Broken Arrow made OOWA its primary water source would the Verdigris River water rights be withdrawn.

Mr. Schwab responded in the affirmative. He stated under OOWA statutes, water usage was reviewed regularly and if a city was not using its full water rights, the rights could be reduced. He stated Broken Arrow had to provide usage projections regularly.

Council Member Green asked if the project included any biofilter which could help with water taste and odor.

Mr. Schwab responded in the negative; no biofilter was included in the project costs; however, he felt a biofilter should be considered. He stated he would love to see the plant expansion pushed out further than 2040 to allow funds for installation of a biofilter.

City Manager Michael Spurgeon stated he agreed with Mr. Schwab, and he felt the City needed to begin the planning process. He asked BAMA to accept the recommendation. He noted water rates would need to be raised to pay for these improvements and these rates would come before BAMA in the future.

Council Member Ford stated she felt citizens would be happy to pay a little more for better tasting water.

Mr. Schwab stated moving to OOWA should give the water less of a chemical taste; ultimately to get the best tasting water a biofilter would be needed. He stated what this really did was provide Broken Arrow flexibility and reliability for the future of Broken Arrow water.

Council Member Ford stated she did appreciate being able to draw water from an alternative source if something were to happen to the Verdigris River.

MOTION: A motion was made by Johnnie Parks, seconded by Christi Gillespie.
Move to accept the recommendation and direct Staff to start working with MidAmerica

The motion carried by the following vote:

Aye: 5 - Justin Green, Lisa Ford, Johnnie Parks, Christi Gillespie, Debra Wimpee

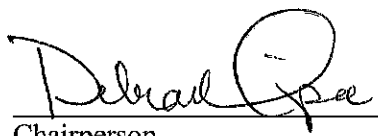
4. Adjournment

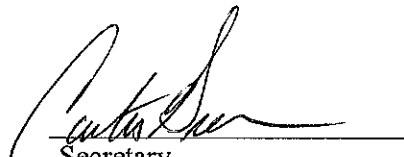
The meeting was adjourned at approximately 5:54 p.m.

MOTION: A motion was made by Christi Gillespie, seconded by Lisa Ford.
Move to adjourn

The motion carried by the following vote:

Aye: 5 - Justin Green, Lisa Ford, Johnnie Parks, Christi Gillespie, Debra Wimpee


Chairperson


Secretary

