Agenda Item _
January 29, 2025
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Water Utilities

I. SUBJECT, ATTACHMENTS, AND BACKGROUND

Discuss and take action regarding Bartlesville's long-term water supply options.

Attachments:
None

II. STAFF COMMENTS AND ANALYSIS

In September 2023, the Water Resources Committee decided to further investigate the water supply options at Hulah Lake, Copan Lake, the Ada-Vamoosa Aquifer and Kaw Lake. The goal is to add between 10 to 16 million gallons per day (MGD) of water to secure the City's water supply for the next 75 to 100 years. On January 6, 2025, the City Council received an update on these 4 options, which are summarized below.

Hulah Lake

- Reallocate up to 10% of the lake's flood control storage to water supply, as recommended by a 2007 Planning Assistance to States Study conducted by the US Army Corps of Engineers (COE). This 10% reallocation would provide an additional 10 million gallons of water per day (MGD).
- Requires a reallocation study by the COE and must be authorized and funded by Congress.
    - The anticipated cost of the study is $3MM and requires a 50/50 cost share.
    - The quickest legislative route will be through the next Water Resource Development Act (WRDA) set to be introduced in 2026. Study will take between 3 to 6 years to complete.
- The estimated cost to secure the converted storage, including environmental/recreation mitigation, is $12.5MM. This pricing assumes storage costs based on preferred rates, which will require federal legislation, and the mitigation costs are conceptual, since these will be derived through the reallocation study.
    - The estimated water rate impact for this option (assuming 6% interest rate and 30-year financing) will increase the average residential water bill by approximately $8 per month.

Copan Lake – Two items are being investigated.

- Secure the remaining 2 MGD of water storage that is currently reserved for the Town of Copan. Federal legislation was approved in 2022 and 2024 that facilitates the Town of Copan being able to release these reserved rights and Bartlesville purchasing these rights at a preferred rate.
    - The Town of Copan's cost to purchase these reserved storage rights is approximately $12MM. With the federal legislation, the City of Bartlesville can purchase these reserved storage rights (assuming the Town of Copan releases them) for $550k.
    - City staff is currently working with Copan officials to negotiate an agreement pursuant to a Memorandum of Understanding (MOU) signed by Copan's mayor in 2021. This MOU requires Bartlesville to pay Copan to release the reserved rights, and then Copan will have the ability to sublease these rights back at the rate that Bartlesville paid. Thus, both communities can secure additional water rights at a fraction of the cost.
    - The $550k will not have an impact to current water rates.
- The other item being investigated is the option, recommended by a 2007 Planning Assistance to States Study conducted by the COE, to reallocate up to 10% of the lake's flood control storage to water supply. 10% reallocation will provide an additional 10.5 million gallons of water per day.
    - Unfortunately, reallocation is not possible due to the lake's current Dam Safety Action Classification (DSAC) rating, which is 3.
    - Any effort to pursue reallocation at Copan Lake will first require a re-assessment of the DSAC score that will need to be initiated through federal legislation. Even if legislation is approved for this re-assessment, it is unlikely that the score will change without some sort of structural improvement or downstream mitigation. The specific parameters that have influenced the DSAC score are unknown and will require significant time and effort to coordinate with the COE to derive the parameters influencing this score to determine options to improve the rating.

Ada-Vamoosa Aquifer – This is a major aquifer located in central Osage County close to the City owned Hudson Lake.

- The aquifer has limited yield capabilities. 25 wells will produce a maximum of 1.4 million gallons of water per day and requires a water lease over 700 acres of land.
- The estimated cost for the well field, pump stations and pipelines to get this water to Hudson Lake is $12.8MM.
    - The estimated water rate impact for this option (assuming 6% interest rate and 30-year financing) will increase the average residential water bill by approximately $8 per month.
    - A separate study is needed to investigate the feasibility of securing these water leases. In addition, several test wells will need to be installed to confirm yield and model the impacts of a well field. The cost of these items will be between $600k to $1MM.

Kaw Lake

- 38 million gallons of water per day are available at Kaw Lake. The water is compatible with the City's current treatment process.
- The most economical option for a pump station and pipeline to convey 14 million gallons of water per day to Hudson Lake will cost $252,534,089.
    - The estimated water rate impact for this option (assuming 6% interest rate and 30-year financing) will increase the average residential water bill by approximately $160 per month.

On the following page is a summary table of the options.

SOURCE	WATERSHED SIZE (sq. mi)	WATER YIELD (mgd)	COST	COST per MGD	INCREASE TO AVG. RESIDENTIAL CUSTOMER	NOTES
HULAH	732	10	$ 12,500,000	$ 1,250,000	$ 8 per month	Reallocate 10 mgd (10%) of flood control to water supply. Existing infrastructure from Hulah to Hudson can convey 10 mgd. Pipeline and pump station upgrade not needed immediately. Requires federal legislation to initiate the reallocation study. Next legislative route will be through the 2026 WRDA. Study will take between 3 - 6 years to complete and cost $3MM (50/50 cost share)
			$ 30,000,000	$ 3,000,000	$ 19 per month	Pump station and pipeline upgrade to convey an additional 5 mgd (15 mgd total)
COPAN	505	2	$ 550,000	$ 275,000	None	Secure remaining 2 mgd of reserved water storage rights through partnership with the Town of Copan, made available through the 2024 WRDA.
		10.5	$ 70,000,000	$ 6,666,667	$ 44 per month	Reallocate 10.5 mgd (10%) of flood control to water supply. Currently the lake is not eligible for reallocation due to DSAC rating, which is a 3 (must be either a 4 or 5 for COE to allow reallocation).
ADA-VAMOOSA AQUIFER	N/A	1.4	$ 12,810,000	$ 9,150,000	$ 8 per month	Need 25 wells to produce 1.4 mgd. Cost includes infrastructure to convey water to Hudson Lake. Well field requires 700 acres of land. Option needs additional investigation through property research/coordinate and several test wells to refine yield and impacts of a well field to the aquifer. Estimated cost of research and installation of test wells is between $600k to $1MM.
KAW	38,771	14	$ 252,534,089	$ 18,038,149	$ 160 per month	38 mgd is available at Kaw Lake. Costs based on study completed by S2 Engineering in November 2024.
SAND	137	12	$ 130,000,000	$ 10,833,333		Cost does not reflect mitigation for mineral rights or cultural/archaeological impacts, which are likely substantial. A detailed investigation has not been performed.
SKIATOOK	354	8.5	$ 128,577,092	$ 15,126,717		Storage rights - $21,759,281 (quote 9/2023). Yield from Skiatook Lake is 5.5 mgd, if go to Skiatook would pick up yield from Birch Lake (3 mgd) as well. A detailed investigation has not been performed.
POTABLE WATER FROM COLLINSVILLE/ SKIATOOK/TULSA	NONE	3	$ 50,000,000	$ 16,666,667		Purchase treated water (1 mgd from Collinsville and 2 mgd from Tulsa/Skiatook). This option would only serve east of the Caney River and south of Tuxedo. A detailed investigation has not been performed.
BIRCH	66	3	$ 76,817,811	$ 25,605,937		Storage rights - $21,817,811 (quoted 9/2023). A detailed investigation has not been performed.

III. BUDGET IMPACT

N/A

IV. RECOMMENDED ACTION

On January 28, 2025, the Water Resource Committee (WRC) considered the options and unanimously recommended the following actions:

- Pursue flood control reallocation at Hulah Lake through the next Water Resource Development Act, which will be available in 2026.
- Secure the reserved storage rights at Copan Lake made available through recent legislation, with staff continuing to work with the Town of Copan to finalize an agreement for this purchase.
- Develop a contingency plan to access potable water from Tulsa, Colinsville and/or Skiatook in the event of an emergency.

Due to uncertainties around water rights, yield, and investigation costs, the WRC does not recommend proceeding with the Ada Vamoosa aquifer at this time.

For Kaw Lake, the WRC advises exploring federal grant opportunities and maintaining communication with the Osage Nation to explore potential partnerships that could help offset costs. If no substantial partnership, grant, or alternative funding opportunity materializes, the WRC advises against moving forward with Kaw Lake at this time.