THE CITY OF LAKE ELMO

STAFF REPORT

DATE: February 20, 2024
REGULAR

AGENDA ITEM: Approve Water System Study Findings, Recommendations and Next Steps

SUBMITTED BY: Jack Griffin, City Engineer
REVIEWED BY: Clark Schoeder, Interim City Administrator
Marty Powers, Public Works Director
Chad Isakson, Assistant City Engineer

BACKGROUND: The city council held a workshop on water supply strategies on June 13, 2023 and directed staff to proceed with the necessary engineering evaluations for a revised Water Supply Infrastructure Plan. A revised plan is deemed necessary due to the inability to construct future wells within the White Bear Lake 5-mile radius. Staff worked closely with the MPCA to secure grant funding for the studies and the following studies were authorized by council.

1. September 5, 2023. Authorized engineering services to evaluate treatment for PFAS at Well 2, including options for temporary treatment versus more permanent infrastructure solutions.
2. September 5, 2023. Authorized engineering services to perform water distribution system modeling to determine performance and potential system changes needed with Lake Elmo accessing new water supply source locations.
3. October 17, 2023. Authorized engineering services for the preparation of a water supply plan to develop South Area Production Wells (Well 6 and 7) with treatment for PFAS.

ISSUE BEFORE COUNCIL: Should the City Council approve the preliminary findings and recommendations and direct staff to initiate preliminary and final designs for certain improvements as recommended, and to apply for the applicable 3M Settlement Grant Funds?

PROPOSAL DETAILS/ANALYSIS: With Well 2 impacted by PFAS, the City evaluated temporary and permanent treatment solutions to produce compliant potable water and maintain Well 2 production capacities until alternative water supply sources can be made available. A summary of the findings and recommendations are as follows:

- Well 2 production capacities are needed to meet peak summer demands. Operate Well 2 on emergency basis only through peak 2024 summer demands. Initiate Well 2 rehabilitation and pump replacement in the Fall 2024.
- Temporary Anion Exchange (IX) treatment for PFAS at Well 2 is feasible. However, it is unlikely that the proposed system will be available to meet peak demands in 2024.
- A prefabricated trailer mounted 500 gpm GAC filter treatment system is not available for use in 2024.
- Permanent Anion Exchange (IX) treatment for PFAS at Well 2 is dependent upon further evaluation and MDH approval for long-term use of a pressure cartridge filter for iron and manganese (Fe/Mn) pretreatment. Treatment for PFAS at Well 2 using granular activated carbon (GAC) filter media is not feasible.
- Proceed with design phase engineering for an Anion Exchange (IX) Treatment at Well 2 using paired 8-ft high Streel Pressure Vessels.
- Secure a Grant Agreement Amendment to fund design phase engineering services.
- Obtain sampling and detailed testing of Well 2 for design purposes.
- Prepare direct procurement package and order treatment system equipment for accelerated delivery.

The revised Water Supply Infrastructure Plan was reviewed using the City's water distribution system model, to evaluate system performance and effectiveness for the alternative water supply source locations, including new Well 6 and 7 located in the southern growth area, a combined point source for Well 4 and 5, and the potential point connection for SPRWS. The modeling was also used to review the feasibility for operating independent North (Well 4 and 5) and South (future Well 6 and 7) water supply systems with emergency interconnects. A summary of the findings and recommendations are as follows:

- Adopt a revised Water System Plan to construct and operate a systemwide water supply delivery system with North Wells (Wells 2, 4 and 5) and South WTP (for Wells 6 and 7) – Option A1.
- Work closely with MDH to test and monitor PFAS at Wells 4 and 5. If PFAS exceedance is determined, initiate the design and construction of a centralized Water Treatment Plant to be constructed at Tana Ridge Park to treat both Well 4 and Well 5. Initiate raw watermain and distribution system infrastructure improvements recommended for Alternative A2.

As part of a revised Water Supply Infrastructure Plan, the city intends to construct new production wells (Wells 6 and 7) to be located in the south growth area and high-pressure zone. The new Wells are to be used in conjunction with the city's existing Production Wells 2, 4 and 5. The South Area Production Well and Treatment Plant Study identified and reviewed potential sites for two new production Wells (Wells 6 and 7), evaluated the potential use of existing Well 3, either as a third well or in place of Well 7, and identified and defined the proposed scope of improvements for permanent PFAS treatment for the south area production Wells. A summary of the findings and recommendations are as follows:

- Proceed with design phase engineering for Well 6 and a PFAS Water Treatment Plant to be located in the south part of the city in the high-pressure zone.
- A permanent water treatment plant (WTP) and construction of Well 6 at Stonegate Park is feasible. The full use of the park for recreational purposes will be lost. The property is city owned.
- A permanent water treatment plant (WTP) and construction of Well 6 just north of 10th Street and the Inwood subdivision is feasible. Property will need to be acquired. A Comprehensive Plan Amendment will be required to extend sanitary sewer to the WTP and to revise the zoning from RAD to Public Facilities.
- The Public Works Facility site resides within the White Bear Lake Court Order 5-mile radius and is therefore not feasible.
- A permanent water treatment plant (WTP) should be constructed with an initial 4,000 GPM capacity to serve at least two water supply wells (Well 6 and Well 3 or 7). The treatment plant should be designed to allow for expansion for 1 additional water supply well, for a total 5,500 GPM capacity.
- It is recommended that the water treatment plant (WTP) be designed to include pretreatment for iron and manganese (Fe/Mn).
- A pilot plant study could be preformed to inform specific design criteria and parameters for the water treatment plant and to optimize the treatment design. Staff is currently researching the cost and scheduling impacts and is therefore not yet ready to make a recommendation on whether or not to proceed with a pilot plant study.
- Assuming an April 16, 2024 design authorization for Well 6 and the South Water Treatment Plant, the plant will be operational for peak 2027 summer water supply demands. This assumes a 36-month design and construction schedule.
- A minimum 160-ft by 150-ft. building footprint is required for the South WTP with Fe/Mn pretreatment.
- Proceed with proposed improvements using an accelerated project schedule and using direct procurement methods for well pumps and treatment equipment as deemed beneficial.
- Initiate raw watermain and water distribution system improvements recommended for Alternative A1.
- Secure a MPCA Grant Agreement Amendment to fund design phase engineering services and the construction of a Test Well for Well 6.

FISCAL IMPACT: Detailed Project Costs are not yet known for the full scope of improvements and further cost refinement needs to be done. Treatment at Well 2 will be in the neighborhood of $2.0 million, and the Well 6 and South WTP Improvements will be approximately $35.0 million. It is anticipated that all or substantially all project costs will be paid through Grant Funds received through the 3M Settlement Funds, including 20 years of annual operating and maintenance expenses for the water treatment facilities.

RECOMMENDATION: Staff is recommending that the City Council approve the preliminary findings and recommendations as presented at the Council meeting, or as amended by the Council, and direct staff to initiate preliminary and final designs for improvements as recommended, and to apply for the applicable 3M Settlement Grant Funding through the MPCA.

"Move to approve the preliminary findings and recommendations as presented at the Council meeting, or as amended by the Council, and direct staff to initiate preliminary and final designs for the improvements as recommended, and to apply for the applicable 3M Settlement Grant Funding through the MPCA."

ATTACHMENTS:

1. Study Findings and Recommendations to be presented at the Council meeting.