



DEPARTMENT OF
UTILITIES

Department of Utilities
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MEMORANDUM

Date: August 22, 2024
To: Chairperson Brad Firkus and Members of the Finance Committee
CC: John Pogrant, Water Operations Supervisor
Kelli Rindt, Enterprise Accounting Fund Manager
From: Chris Stempa, Director of Utilities
Subject: **Finance Committee Action: Sole Source Engineering Services Contract to McMahon as part of Water Tower Booster Pump Improvements in the amount of \$44,500 with a 10% contingency of \$4,400 for a total not to exceed \$48,900**

BACKGROUND:

The City of Appleton water distribution system consists of a Appleton Water Treatment Facility (AWTF), four elevated storage tanks, one standpipe, one reservoir, two booster pumping stations, two valve stations and approximately 380 miles of transmission and distribution water mains. The water system is separated into three pressure zones to meet the service needs of the customers (Main, Ridgeway, and North). The distribution system is essential in providing fire flow capacities even during a power outage. Per Wisconsin Administrative Code NR 811, the minimum and maximum normal static pressure in the distribution system shall be 35 pounds per square inch (psi) and 100 psi, respectively. The distribution system pressure must also be maintained at a minimum of 20 psi under emergency conditions.

Previous hydraulic evaluations and more recent field measured pressure readings have indicated relatively low water system pressure between approximately 35 psi and 40 psi in the Southpoint Commerce Park and along East Midway Road (the area immediately south and southeast of Highway 441). Although pressures do not fall below regulatory standards, the pressures are likely less than those generally desired by customers, including potential new industrial customers as noted in the 2019 Master Distribution Plan. The Master Distribution Plan suggested water system improvements intended to increase pressures in this area. The suggested improvements included a reservoir, booster pumping station, a control valve station, an elevated storage tank, and the closing of gate valves to isolate a new pressure zone (i.e. Southeast Pressure Zone). The total costs for construction of these improvements in 2019 was projected to be at least \$3,000,000.

The 1.0-million gallon (Mgal) Matthias Water Tower is located adjacent to Fire Station No. 2 at 1801 South Matthias Street was constructed in 1988. At that time, the Matthias Water Tower was at the periphery of the City's distribution system and the more centrally located Water Street Filtration Plant was still in use. That changed with the 2001 construction of the Manitowoc Road AWTF which altered the hydraulic grade. Due to the tower's proximity to the "new" AWTF, the distribution system hydraulic grade line at the Matthias Tower is consistently above overflow elevation. As a result, the altitude valve at the tower remains closed, and the water in the tower would have very little turnover

without the aid of an onsite pumping system. The alternative to pumping is strategically lowering the overall operating pressure of the distribution system at specific times of the day by modulating the AWTF high service pumps. In 2005, the city chose to install small (450 gpm) booster pump at the base of the tower to counter the effects of the new hydraulic grade line to facilitate turnover rather than relying solely on a large diurnal distribution system pressure swing.

The 1.0 MGal Glendale Water Tower was constructed in 2016 and experiences similar operational circumstances to Matthias Tower but not as pronounced. The tower location is further north of the AWTF. As such, the pressure dynamics within this area of the distribution system requires a higher hydraulic grade in order to push water further to the northern extents of the City of Appleton.

In 2021, McMahon Associates, Inc. (McMahon) recommended upsizing the booster pump at Matthias to two 1,000 gallon per minute pumps and adding booster pumps at the Glendale Tower to restore the operational hydraulic profile. Those improvements would in turn allow for a more static pressure setpoint controlled at the AWTF in conjunction with the booster pump improvements to control bleed back into the distribution system that would match diurnal customer demands. It would also mitigate if not eliminate low pressure and high-pressure excursions throughout the distribution system that are currently required to fill and draw from water towers that fall outside of the current hydraulic grade.

The Matthias Tower pumping system has reached its useful life and requires replacement. The 2025 CIP will upsize the pumping system and upgrade the associated controls. The CIP will also add a pump station at the Glendale Tower to ensure water turnover. Additionally, the Wisconsin Department of Natural Resources has reissued the Water Utility's Wisconsin Pollution Discharge Elimination System (WPDES) permit. The permit does not allow for water from the tank to be discharged to the stormwater system such as would be needed during maintenance and inspection events. The CIP would allow for the pumping stations to pump the Glendale Tank water back into the distribution system. With this modification there will not be a need for disposal costs such as sanitary charges or dechlorination chemical treatment costs.

PROPOSAL

McMahon was asked to provide a proposal for professional engineering services that would deliver 90% design documents. The scope of services also includes processes associated with Wisconsin Department of Natural Resources (DNR) and Public Service Commission (PSC) for review and approval. That step is requisite prior to any construction activities could begin in 2025. The McMahon proposal detailed each aspect of the preliminary design work and the associated services required to provide the necessary deliverables that would allow AWTF staff to advance the construction public bid process early in 2025. The proposed cost of design phase services totaled \$44,500.

JUSTIFICATION

The AWTF budget has available funds to cover the proposed \$44,500 in design phase services in 2024. Engineering fees integrated as a function of total construction can be 15% or more depending on the complexity of the scope of work involved. Although the proposed fee by McMahon does not include construction management services, it is well within the anticipated level of effort associated with the design phase work. The 2025 budget identified \$130,000 for design and construction

management services. The funding necessary to administer this contract would be taken from available dollars in the 2024 budget, preserving what has been allocated in the 2025 CIP for construction and construction management services.

McMahon has institutional knowledge dating back to the 1988 Mathias Water Tower construction and 2001 AWTF Construction. The McMahon project manager that is assigned to Matthias and Glendale booster station work was the lead engineer on the previously mentioned projects. This individual has extensive experience across the Midwest with hundreds of different municipal drinking water related projects. Most importantly, he has extensive knowledge of the City of Appleton distribution system and the AWTF that can be leveraged to identify the most cost-effective solution to meet the needs of the city's distribution system. Their proposal reflects the value the city would be receiving which is supported in other recent contracts the city has engaged in with McMahon. It should be noted that the planned 2025 improvements at the Matthias and Glendale Water Towers will provide additional time to critically evaluate and plan for the long term "Southeast Pressure Zone" identified in the last Distribution Master Plan. The tower pumping installations slated in 2025 are to eventually serve as a backup or redundant system for the future pressure zone that will eventually include a new water tower, reservoir, and PRV station.

RECOMMENDATION:

I am recommending the approval of a sole source engineering service contract to McMahon as part of Water Tower Booster Pump Improvements in the amount of \$44,000 with a 10% contingency of \$4,400 for a total not to exceed \$48,400.

If you have any questions regarding this project, please contact Chris Stempa at 920-832-5945.

Encl: Finance Department Sole Source Request Form



SOLE SOURCE REQUEST

The undersigned certifies that the commodity/service shown below qualifies as a sole source request and meets one or more of the following requirements. The department has demonstrated, and the Purchasing Manager concurs that only one source exists, the price is equitable, and/or noncompetitive negotiation is in the best interests of the City.

- Unique, proprietary, or one-of-a-kind:** Specific commodity/service is required and available from only one source, giving the City a superior and necessary benefit that cannot be obtained from other sources.
- Inadequate competition:** Purchasing solicitation (bid, proposal, or quote) did not result in any qualified vendor responses and competition is determined to be inadequate.
- Health or Safety Concern:** When a health or safety concern exists that is *not* an immediate threat but needs to be addressed in a period that does not allow for formal competitive procurement procedures.
- Continuity of design:** Consistency with current commodity or service.
- Emergency procurement:** A risk of human suffering or substantial damage to real or personal property exists requiring immediate attention.
- Cooperative purchase:** Purchase from another governmental unit contract or state approved purchasing association.
- Other:** Description provided below

McMahon's historical knowledge and demonstrated expertise with the 1988 Matthias Water Tower and 2001 AWTF construction justify this request. Their extensive knowledge of the City of Appleton distribution system will provide the most cost-effective solution.

PROPOSED DETAILS

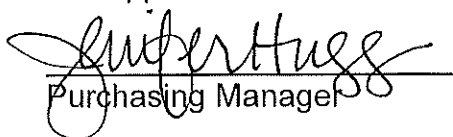
Requesting dept: Appleton Water Treatment Facility

Product/service: Water tower booster pump improvements

Vendor name: McMahon

Total cost: \$44,500 w/ 10% contingency of \$4,400 for a total not to exceed \$48,900

Justification and price quotation provided by the department, for the items to be considered and approved as a sole source purchase attached for review.


Purchasing Manager

8/22/24
Date