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**TO:** Chairperson Vered Meltzer and Members of the Utilities Committee

**FROM:** Chris Shaw, Utilities Director

**DATE:** August 28, 2019

**RE:** *Award Phase 1 Optimized Corrosion Control Treatment Studies to Jacobs in the Amount of \$34,080 with an option to Award Phase 2 Engineering Services for \$116,070 with a total not to exceed cost of \$150,150*

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**BACKGROUND:**

Corrosion in a water distribution system can lead to shortened asset life of infrastructure components and reduced water quality to customers taps. Nationally and at the state level lead levels have become a concern amongst the public. This is a result of corrosion where water systems release lead which is above regulatory limits. Currently, the Appleton Water Treatment Facility meets all State and Federal requirements for lead. However, the Wisconsin Department of Natural Resources is recommending improvements to the City's Corrosion Control Plan. The purpose of this Corrosion Control Treatment project is to determine the best course of action that will enhance water quality (reduce any existing lead) while being fiscally responsible to the utility's rate payers.

This project has the potential for two phases. The first phase would consist of an analysis of the City's corrosion control program. An outcome would be the completion of a report to the regulator that describes any necessary improvements. This report may produce results that meet regulatory requirements of an improved corrosion control plan and therefore a second phase would not be required.

A second phase would consist of demonstrating a corrosion control plan through analyses using field piping, coupons, or the City's distribution system itself. This second phase may include responding to the regulator's requests, performing additional testing, etc.

## **SCOPE OF WORK:**

Phase 1 work will develop a Corrosion Control Treatment (CCT) Plan. The objective will be to obtain a WDNR approved plan for optimized CCT studies to minimize lead and copper levels in the system. This CCT plan shall outline the steps to complete an optimized CCT program, including demonstrative CCT studies. Listed below are some of the highlights of Phase 1:

- Evaluate raw, entry point and distribution system water quality parameters and how the various parameters relate to corrosion control.
- Identify causes of elevated lead and copper in the system, based on pipe material information in the system provided by Appleton.
- Evaluate multiple corrosion control treatment methods, including phosphate addition, silicate addition and adjustment of pH, alkalinity, and hardness. Recommend methods to carry forward into demonstrative studies.
- Consider physical and chemical constraints of each treatment alternative and substantiate all decisions based on data and documentation.
- Revise the proposal based on comments from Appleton and WDNR and finalize the proposal.
- If the desktop analysis meets the regulatory requirements the engineer will submit the report and the justification as to why the report should suffice without demonstrative testing.

Phase II, if required by the WDNR will require the following:

- The engineer will prepare a proposal to DNR outlining the demonstrative CCT plan, including test alternatives, pipe material types, test apparatus, measurement parameters and implementation schedule.
- As stated in Phase 1, if the engineer determines that Appleton would meet Wisconsin Administrative Code requirements with the work completed in Phase 1 report the engineer would provide additional consulting services until WDNR accepted the Appleton OCCT proposal.
- Consultant shall design a demonstrative CCT test apparatus, including drawings, specifications and a list of equipment.
- If a pipe loop study is chosen, the consultant shall develop a pipe harvesting and handling plan to preserve pipe and scale integrity before placing into the test apparatus.
- Consultant shall start up and test the apparatus for proper operation.
- Consultant shall collect analytical results, record and analyze the data. The anticipated period of sample collection is 12 months.
- The consultant may recommend a sampling plan for profile sampling in selected homes to demonstrate the effectiveness of the current CCT and develop a baseline for any changes in CCT. Appleton will conduct the sampling and analysis of the profile sampling plan above.

- The consultant shall evaluate distribution system maintenance and flushing procedures and make recommendations for improvements that may help to reduce lead and copper levels and overall system cleanliness.
- The consultant shall prepare a report summarizing the demonstrative CCT work and recommendations.
- The report shall include recommended optimum chemical types, doses and design parameters for the chosen CCT method.
- The report shall include a cost estimate for engineering and construction to implement recommendations.
- The consultant shall revise the report based on comments from Appleton and DNR and finalize the report.

### **PROPOSAL RESULTS:**

A request for proposal (RFP) was distributed to four engineering firms. Each firm had staff with previous engineering experience with water distribution system corrosion control. A preproposal meeting was held with only firm in attendance from Jacobs. Two of the firms, CDM Smith and Process Research Solutions opted not to provide a proposal. The following table identifies the invited engineering firms along with their proposal score and proposal pricing

**Table 1: Engineering Firms and RFP Results**

<b>COMPANY</b>	<b>Proposal Score</b>	<b>Cost</b>
Process Research Solutions	DNP	NA
Strand Associates	140	\$19,320
Jacobs Engineering	221	\$34,080
CDM Smith	DNP	NA

**Notes:** DNP – Did Not Propose, NA – Not Applicable

An evaluation team comprised of myself, the technical services manager, the water plant manager and the public works director completed their review and scoring of the submitted proposals. The evaluation team found that Jacobs had scored the highest and provided a proposal that best met the City’s needs.

The evaluation team also reviewed if the additional costs for the Jacobs proposal brought added value. The team concluded that the Jacobs firm is experienced with multiple corrosion control projects including one at Waukesha and Oshkosh. Their proposal demonstrated a comprehensive approach that delivered specifically on Appleton’s needs. The evaluation team concluded that the initial investment in the work identified has long term effects including chemical cost ramification for the next 20 years.

It is further recommended that Phase 2 engineering award be conditional on whether value exists and whether there is a need to progress into Phase 2. Phase 2 engineering services will include demonstrative testing in accordance with Appleton’s Request for Proposal, dated July 30, 2019.

**RECOMMENDATION:**

Award Phase 1 Engineering Services Contract for the Optimized Corrosion Control Treatment to Jacobs in the Amount of \$34,080 with an option to Award Phase 2 Engineering Services for \$116,070 with a not to exceed cost of \$150,150. If you have any questions regarding this project please contact Chris Shaw at ph: 920-997-4200.