



COUNCIL REPORT

Report Date: October 17, 2024
Contact: Alexander Ralph
Contact No.: 604.829.2092
RTS No.: 16570
VanRIMS No.: 08-2000-20
Meeting Date: November 27, 2024
[Submit comments to Council](#)

TO: Standing Committee on Policy and Strategic Priorities
FROM: General Manager of Engineering Services and Chief Procurement Officer
SUBJECT: Contract Award for Provision of Advanced Water Metering Infrastructure

Recommendations

- A. THAT Council authorize City staff to negotiate an agreement for Provision of Advanced Water Metering Infrastructure with KTI Utility Services Inc., for an estimated total contract value of \$6,050,207 over the initial five (5)-year term and the five (5) possible three (3)-year unilateral extension terms (the “Agreement”), which will be funded from the Multiyear Approved Capital Budget from the 2023-2026 Residential Metering Acceleration Program and the New Meter Installation Program.
- B. THAT Council delegate its authority to execute the Agreement to the City's Director of Legal Services, Chief Procurement Officer, and General Manager of Engineering Services.
- C. THAT no legal rights or obligations will be created by Council's approval of Recommendations A and B unless and until the City executes and delivers the Agreement.

Purpose and Executive Summary

The City issued a Request for Proposal PS20230244-ENG-RFP, on January 23, 2023, for the provision of advanced water metering infrastructure for the potable water system, including hardware, the software required to operate the hardware, and project implementation services (the “RFP”). This infrastructure will replace the City's existing metering system which is reaching the end of its useful life and requires replacement to ensure continued availability of water consumption data for billing and water system management.

The City advertised the RFP on the City of Vancouver website in accordance with the City's Procurement Policy (ADMIN-008). City staff on the RFP evaluation committee and the Bid Committee have considered the responses received and recommended that the City negotiate an agreement with KTI Utility Services Inc.

Council Authority/Previous Decisions

The City's Procurement Policy (ADMIN-008) requires Council approve contracts with a total value greater \$3,000,000 following review and recommendations by the City's Bid Committee. The Bid Committee has considered the bids and recommends KTI Utility Services Inc. as the successful proponent.

City Manager's Comments

The City Manager concurs with the foregoing recommendations.

Context and Background

The City of Vancouver Water Utility purchases bulk water from Metro Vancouver to provide potable water to residential, commercial, institutional and industrial customers through approximately 101,000 service connections. As of 2023, approximately 25,000 of the City's water service connections have water meters that are used to measure water consumption and bill customers based on the volume of water they use. More connections will be metered in the future in response to property redevelopment and capital program implementation.

The City currently uses an Automated Meter Reading System (drive-by **AMR**) that is reaching end of life and requires replacement in order to continue collecting reliable water consumption data for billing and water system management. The City engaged consultants for a feasibility assessment and market research to inform the optimal replacement strategy for the aging meter reading system. Advanced Water Metering Infrastructure (**AMI**) is the next generation of meter reading technology and was identified as the optimal replacement for the current **AMR** system at end of life. AMI is the industry best practice to optimize water system management by allowing for more accurate, frequent and efficient data collection and billing, quicker response to leaks and water losses, at lower life cycle cost.

AMI is provided as proprietary packaged systems of hardware and software. Similar to the existing AMR system, AMI is expected to have a service life of 20 years. This agreement will have a maximum contract term of 20 years in order to support extension of procurement commitments for AMI hardware, software and services. This will ensure all future meters continue to be compatible with the AMI reading system and will provide continued performance for the life of the system.

Additional background information about AMR and AMI meter reading technology is provided in Appendix A.

Discussion

The RFP was issued in accordance with the City's Procurement Policy (ADMIN-008). The City received responses from KTI Utility Services Inc., Neptune Technology Group Canada Co., and Itron Canada Inc. The responses were evaluated overall value, using both quantitative and qualitative factors, by an evaluation team comprised of representatives from Engineering Services, Revenue Services and Technology Services, under the stewardship of Supply Chain Management.

Some of the criteria considered in the overall evaluation process included:

- Meter reading technology reliability and performance;
- Demonstrated functionality of data management;
- Software services, functionality and features;
- Error management, quality assurance and system security;
- Communication network efficiency and hardware deployment strategy;
- Compatibility with City's systems and processes; and
- Added value for the City's water utility.

After the initial technical and financial RFP evaluation, the highest scoring proponent, KTI Utility Services Inc., was engaged for a field trial. A three-month trial was conducted to validate KTI Utility Services Inc.'s hardware and software performance and integration claims, demonstrate successful installation and operation of a base station (communication tower), and collection of water consumption data from a subset of existing City water meters. The field trial confirmed functionality as claimed in the KTI Utility Service Inc. proposal and verified that the proposed hardware and software systems meet the City's performance and service criteria as stated in the RFP.

The evaluation team concluded that the proposal submitted by KTI Utility Services Inc. met the City's requirements and provided the lowest overall cost of ownership and best value to the City.

Financial Implications

Finance has reviewed and confirmed that funding is available from the Multiyear Approved Capital Budget for the 2023-2026 Residential Metering Acceleration Program and the New Meter Installation Program. As a result of the RFP, the City is able to achieve cost certainty for the proposed five (5)-year initial term.

Legal Implications

The City's Procurement Policy (ADMIN-008) requires the Director of Legal Services to execute all contracts greater in value than \$3,000,000 that have been awarded by the Bid Committee and Council.

* * * * *

APPENDIX A BACKGROUND ON METER READING TECHNOLOGY AND SYSTEMS

Existing water meter reading system

The City currently uses a drive-by Automated Meter Reading (**drive-by AMR**) system for collecting potable water consumption data. City staff must drive within a specified range of the meters to obtain the data through radio transmissions. Data from the meter reading system interfaces with other City software platforms to support water system management and bill customers based on water consumption. Data is currently collected six (6) times per year; this supports three (3) customer utility bills every 4 months, with the additional three (3) meter reads used for water system operations and management.

The AMR system was originally procured in 2006 with an expected service life of 15 to 20 years. As the reading system is reaching end of life, there have been increasing communication and hardware failures requiring increased operational effort to maintain the integrity of the water billing information.

Meter reading system replacement strategy

In preparation for the replacement of the existing AMR system reaching end of life, the City engaged a consultant to conduct a feasibility study and market sounding to assess and recommend meter reading technologies. The consultants recommended Advanced Metering Infrastructure (**AMI**) rather than replacing AMR with another drive-by system. Through market sounding, the consultant showed that AMI may require higher initial capital infrastructure investment, but would have lower operating costs over the long term. An upgrade to AMI would result in lower overall life cycle costs for the expected 20-year life of the system. Figure 1 shows forecasted operating costs based on the consultant’s analysis. In addition to life cycle cost savings AMI also provides additional benefits and features to support improved water system management, water demand management and improved billing equity, accuracy and customer support.

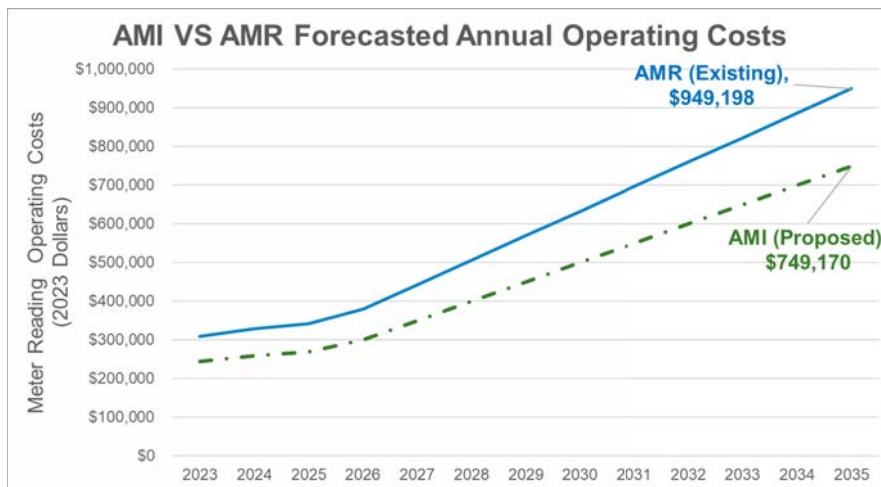


Figure 1: Forecasted operating costs for meter reading systems

Advanced Metering Infrastructure

Advanced Metering Infrastructure (**AMI**) is the best practice in the potable water industry for collecting and managing water consumption data to provide: more accurate, frequent and efficient billing; quicker response to water leaks and losses; and improved water system operations and management.

AMI systems on the market consist of proprietary packages of hardware and software: meter reading and communication hardware (a network of communication towers and compatible transceivers at each meter); and an integrated software system that collects, stores and manages the water use data from each meter. Together, AMI hardware and software will integrate with the City's existing processes and systems. The fixed communication network can collect data from meters daily, hourly, or more frequently, using radio or cellular signals. AMI eliminates the need to repeatedly drive through the City to collect data. Once the reading and data collection system is installed and commissioned, all end point transceivers for each meter must be of a compatible make and model from the same manufacturer.

In addition to lower operating and lifecycle costs, and increased reliability and accuracy of billing data compared with AMR, AMI's real-time water consumption data will improve water loss management, strategic water system planning and demand management. More frequent and readily available water consumption data will increase customer service through improved high-consumption monitoring and warnings, improved billing processes, and enable more frequent billing cycles.

Alignment with City Policies and Programs

The implementation of AMI for the City's potable water utility aligns with a variety of ongoing programs to manage potable water demand and conserve water resources, including the Water Demand Management Strategy and Green Operations Plan 2.0. It also supports the City's Climate Emergency Action Plan's core goal of reducing carbon pollution by eliminating vehicle trips to capture meter data, and the Climate Change Adaptation Strategy to improve resilience to droughts and water shortages. It fulfills a principle of Transportation 2040 to use information technologies that help achieve our goals, reduce vehicle dependency and improve efficiency. Finally, renewal of end-of-life water metering assets is an identified priority in the Engineering Services Capital Plan 2023-2026.