

**MEMORANDUM**

TO: Utility Advisory Committee

FROM: Meliss Maxfield, Drinking Water Quality Program and Planning Supervisor *MM for 1/1/12*
Public Works, Water Resources

DATE: April 26, 2012

SUBJECT: Automated Meter Reading Update

The purpose of this memorandum is to provide an update on Automated Meter Reading (AMR).

Background

The City's water meter inventory consists of approximately 19,250 water services covering 26 square miles (includes the urban growth area). Approximately 57 percent are manual/direct read meters and 43 percent are touch-read meters. Approximately 90 percent are residential meters (3/4-inch to 1 1/2-inch) and 10 percent are commercial meters (2-inch or greater). The current predominant meter brands are Neptune and Master Meter. The City has four meter readers who visit these meters over an eight week reading cycle.

The City's water meter system is aging. Aging meters generally under-count and worsen as they age, affecting revenue recovery and customer equity. Approximately 74 percent of the meters are 10 years and older requiring a significant investment in meter replacement. The typical life cycle for a meter is 10 years or 1 million gallons. Our current investment in water meters is not keeping pace with the expected life cycle. With aging meters, meter inaccuracy results in an estimate of \$250,000 per year or more of under-billed water usage. Replacing a large number of old meters creates a significant opportunity to transition to AMR.

The City began its evaluation and development of a *Water Service Meter Strategic Plan* in 2006, recognizing the need for replacing aging meters, assessing which meter reading technology to pursue, exploring billing frequencies, and identifying potential staffing impacts. This plan resulted in the issuance of a request for qualifications (RFQ) in 2009. Eight vendors responded to the RFQ. The information received helped the City better understand the capabilities and functionality of mobile versus fixed AMR systems, how a new system would integrate with existing utility billing and financial applications, and associated costs.

A mobile system enables the meter reader to collect meter readings while walking or driving by a meter equipped with a small radio frequency transmitting device. The meter reader carries a radio frequency receiving device that automatically reads the meter and transmits the data to a laptop computer-equipped vehicle as it is driven down the street. A handheld reading device can also be used. This data is then downloaded to a centrally located computer system for billing.

Utility Advisory Committee

April 26, 2012

Page 2

A fixed radio system offers fully automatic reading capability. Meters are equipped with a small radio frequency transmitting device that transmits meter readings to a series of data collectors located throughout the utility's service area, which in turn transmits the meter reading to a computer system at a central location for billing. This method eliminates the need for walk-or drive-by data collection.

A hybrid system combines the two technologies, with the fixed portion of the system, for example, deployed in areas where meter readings are more difficult to obtain and the mobile portion deployed in areas where drive-by meter reading can be accomplished efficiently. These AMR technologies create significant opportunities for efficiencies, and allow for substantial reductions in fuel consumption and emissions.

Staff has presented information about meter reading strategies to the UAC on three occasions (June 5, 2008, May 7, 2009, and June 4, 2009). The UAC issued a letter dated July 9, 2009, to the City Council, supporting the Capital Improvement Plan for the 2009 – 2014 Water System Plan, which includes AMR. This support was based on improved meter accuracy, meter reading efficiency, customer service and environment benefits of the meter replacement strategy and AMR. The UAC also noted that the additional cost of transition to AMR (beyond meter replacement) could be paid for through operational cost savings and not require a utility rate increase.

Request for Proposals (RFP)

In July 2011, a RFP was issued to procure an AMR system. The RFP did not specify a mobile or a fixed system, but instead requested interested parties submit information about which system they felt would best meet City requirements. The RFP identified those meters installed in 2001 and prior would be replaced (14,268) while meters installed after 2001 would be retrofitted (4,904). Older meters will be replaced because they are less likely to be compatible for retrofitting and to align with the industry standard for replacement at 10 years or 1 million gallons.

Seven interested parties responded to the RFP. Of the seven respondents, four advanced to the field demonstration phase. The field demonstration consisted of the vendor installing their meter and AMR transmitter unit at six locations. Each vendor installed their product side-by-side with their competitor's product. The demonstration areas included downtown Olympia (Water Street, 4th Avenue W, and Capitol Way S), northwest Olympia (Aztec Drive NW), and west Olympia (Pearl Beach Drive and Conger Avenue NW). The respondents were required to demonstrate how their product performed in both mobile drive-by and fixed network modes. The mobile mode phase ran for one week and in the fixed mode phase ran for two weeks. Each respondent also installed a temporary data collector unit on the roof of City Hall. Existing meter reader staff rode along with each respondent for a day to learn about the AMR equipment (handheld reading device, laptop computer data receiver, software features, etc.) and evaluated the performance of the equipment. At the completion of the field demonstration phase, the four respondents presented their findings of the field demonstration, explained how their product would interface with the City's billing system, and provided additional details and considerations regarding implementation of their proposed AMR solution. The review team narrowed the candidate pool two: Itron and Ferguson. Itron and

Utility Advisory Committee
April 26, 2012
Page 3

Ferguson were then notified to submit a detailed system description of their proposed AMR system and the associated costs.

Vendor Negotiations

Costs were received for mobile and fixed systems with either a one-year or a three-year deployment schedule. There were significant savings under both proposals for a one-year deployment schedule. Based on a substantially better overall cost proposal, as well as system design and performance, staff has identified Itron as the preferred vendor. Negotiations have resulted in a hybrid AMR system that will allow for a fixed system covering over three quarters of the City's service area, and a mobile system covering the remaining area.

Project Funding

Funding for AMR has been approved at \$5 million in the Capital Improvement Plan of the 2009 – 2014 Water System Plan. Staff is currently preparing a financing strategy for the project based on a one-year deployment. This strategy will be presented to the City Council along with the proposed vendor contract, during June or July. Debt service costs will be partially offset through operational staff savings (approximately \$200,000 annually). In addition, due to the age of our current meter portfolio and meter inaccuracy issues cited above, staff expects some recovery of potential revenue from under-billed water usage. Based on industry figures, this may result in a revenue recovery of \$250,000 per year or more, and additionally offset debt service costs.

Communication Strategy

The utility's AMR Communication and Outreach Strategy will provide drinking water customers with information about when they can anticipate their meter being either retrofitted or replaced. Drinking water customers can anticipate being without water for approximately five to ten minutes during the meter upgrade. Communication tools to be used to notify drinking water customers include: the utility bill insert, the TCTV reader board, the City website, signage (e.g. such as a flyer in a box similar to those used by realtors) at entrances to neighborhoods, and news releases.

Next Steps

Staff's recommendation to the City Council will occur this summer to authorize the City Manager to sign a Professional Services Agreement with the selected vendor for service meter replacement and a transition to AMR. The anticipated project timeline starts with deployment in August 2012, with completion by August 2013.

If you have any questions about the utility's acquisition of AMR technology, please contact me at 360.753.8202 or at mmaxfiel@ci.olympia.wa.us.

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