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CITY COUNCIL AGENDA ITEM

ACTION REQUESTED:

Receive the Water Utilities Automated Metering Infrastructure (AMI) business case report

DEPARTMENT: Water Utilities

SUBMITTED BY: Darrell Blenniss, Director

BOARD/COMMISSION REVIEW:

The Public Utilities Advisory Board considered the Water Utilities AMI business case at their meetings of March 15 and May 3, 2019. PUAB recommended approval of the business case assumptions with inclusion of a communications plan (5-0), implementation of an AMI meter reading scenario (4-1), issuance of an RFP (5-0) and a funding scenario with the lowest impact to rate payers (5-0).

The Financial Advisory Board considered the financing alternatives of the Water AMI project at their April 29, 2019 meeting and recommended funding options in the following order: using cash on hand within the Utility, cash on hand within the City, and borrowing from the outside.

BACKGROUND:

On Dec. 4, 2018, Council awarded a contract to West Monroe Partners, LLC to complete a Water Utility Automated Metering Infrastructure (AMI) Business Case analysis to examine options and feasibility of implementing alternatives to manual water meter reading.

The Water Utility has approximately 45,000 water meters, which requires monthly reads for billing. For numerous reasons, manual water meter reading is no longer viewed as a sustainable method to obtain water meter reads. This manual process currently generates a large percentage of estimated reads (approximately 25% of the time). In addition, high employee turnover rates and environmental and man-made conditions such as poor weather, animals and locked fences affect the reliability and

cost of the process.

The City's current manual meter reading vendor, Alexander, does not want to continue contracting with the City for manual read services beyond the current contract requirements, which expire in August 2021. (Alexander had requested terminating their contract in 2018.) With the continued decline in the number of utilities utilizing manual meter reading, staff is not optimistic about obtaining favorable bids if the manual meter reading contract is re-bid.

In the creation of the business case, the following factors were considered:

1. **Inadequacy of the current system:** The current manual reading system is inadequate for a variety of reasons; the primary one being the City's challenge to provide accurate monthly bills.
2. **Appropriate and expected service levels:** Implementing a new system will allow the City to raise the level of service to our customers. A new system would provide greatly reduced estimated reads, customer-side leak detection, more data to help inform customers about their usage and increased opportunities for customer water conservation. A new system will also allow for a streamlined process for final reads.
3. **Integration with upcoming technology platforms:** The City is in the midst of a technology transition to powerful new tools that will allow customers to interact with the City in ways they are coming to expect in today's technology climate. As the City takes a holistic approach to implementing new technology, now is the time to transition to new technology in the Water Utility. The new enterprise resource planning (ERP) system and utility billing platforms, coupled with modern meter reading technology, will enhance the customer experience and provide efficiencies for utility billing.

West Monroe Partners looked at various factors for the business case analysis, including available technologies, potential benefits of the various systems, how to leverage existing assets, long-term sustainability and internal operational benefits. The project was managed by an interdepartmental team including representatives from Water, Electric, Finance, IT, CMO and Communications.

DISCUSSION:

During the business case analysis, four technology options were compared against a baseline in-house manual meter reading scenario. These include:

1. *Leveraging the City's current Elster AMI system that is used to read electric meters.*
2. *Installing a low-site point to multi-point AMI network.* This option would utilize approximately 35 to 40 collectors mounted on objects 30 feet high, such as street lights.
3. *Installing a high-site point to multi point AMI network.* This option would utilize approximately six base stations mounted at 150-190 feet high, such as on water towers.
4. *Utilizing a mobile radio AMR system.* This option would involve meter reads being collected via a motor vehicle-mounted mobile radio system.

AMI systems transmit readings multiple times a day allowing for up to date usage. This facilitates proactive leak detection and provides the water utility customer more information about their water usage.

Mobile AMR has been around for several decades, and in fact, the City utilizes this technology to

read water meters for water only customers in unincorporated Naperville today. AMR data is collected on a monthly basis, or as often as the vehicle drives by to collect the information.

As the technology for AMI has improved, water utilities continue to move from AMR technology to AMI. Surrounding communities including Aurora, Downers Grove, Lombard and Joliet have all transitioned to AMI systems in recent years.

Benefits

Based on the findings of the business case, staff is recommending the implementation of an AMI system for the Water Utility. The primary reason being the increased customer benefits achieved for the incremental cost over a twenty-year period. Customer benefits of an AMI system include:

- Reduction in the number of estimated bills
- Proactive leak detection
- Sustainability improvements with less trucks on the streets
- Conservation opportunities with customers having access to their consumption data through an online portal

While AMR would reduce the number of estimated bills, the remaining customer benefits would not be achieved with an AMR system.

In addition to above customer benefits, the Water Utility will have significantly more data to better manage the water system. This includes the potential to assist in system-wide leak detection and continued efforts to reduce non-revenue water.

Project Costs

Estimated costs for AMI implementation range between \$7 and \$10 million. Deployment of the AMI solution would be provided by a contractor and implemented over the course of 2020. No funds are currently budgeted for this project, it is not part of the current Capital Improvement Program. Although project costs will be offset by the current contractual meter reading costs, each of the alternatives will exceed those costs and result in the need for a rate increase. More detailed cost projections are included in the attached business case.

When comparing the 20-year cost and service level projections, AMR has the lowest costs but also does not provide the customer benefits of an AMI system. A solution leveraging the current Electric network is estimated to have the lowest cost of the AMI solutions while also providing the customer benefits of proactive leak detection, sustainability improvements, and conservation opportunities.

Staff recommends development and release of an RFP to select a vendor capable of cost-effectively providing AMI design and implementation services. The RFP will be drafted by staff with assistance from West Monroe Partners. Although targeted towards achieving the benefits of an AMI solution, AMR solutions will also be considered for total project costs and benefits. Staff and West Monroe both recommend an RFP process to fully evaluate the variety of solutions in the marketplace and enhance competition.

Funding Options

Implementation cost estimates within the business case are based on West Monroe's experience with projects across the country. Because these are only estimates at this time, staff is recommending that the final decision on a funding solution occurs after more refined costs are determined through the RFP process.

Three funding scenarios were discussed by FAB and PUAB and are described in more detail in Attachment 2 (FAB memorandum):

1. *Borrow from cash on hand* - In 2017, the City established the Phosphorus Fund, along with a fixed monthly phosphorus surcharge to generate money for facility upgrades to the Springbrook Water Reclamation Center. The fund began 2019 with a balance of approximately \$16 million, which includes the Water loan repayment from the Electric Utility. Under the Cash-on-Hand option, the City would borrow from this fund to cover initial costs and pay back the loan with interest based on the City's return rate of 1.1%. Significant capital costs are anticipated in 2027 for the phosphorus project.
2. *Outside Borrowing* - Another option to fund AMI is to borrow from outside the organization. Based on history, the City could borrow needed funds at a 3.6% interest rate with a 20-year payback. The option would keep the Phosphorus Fund intact but would result in a higher overall cost for the utility. The Water Utility has not borrowed since 2011.
3. *Built in Rates* - The third funding scenario is implementing a rate increase in 2020. Staff, however, does not feel this is a realistic option, as rates would likely surge anywhere between 20% and 25% in 2020.

Based on the estimated total costs provided by West Monroe, the use of cash-on-hand would be the least expensive funding method. Projected total costs for use of cash-on-hand range between \$8 and \$10 million, while borrowing ranges between \$11 and \$14 million due to the increased interest rate.

Recommendation and Next Steps

Staff is recommending that the City Council receive the business case and direct the issuance of an RFP for an AMI solution. In addition to the RFP process, the following items would also occur in 2019:

- Update the Customer Bill of Rights
- Design an opt out program for water customers
- Finalize security evaluation and launch Electric portal