



DATE: July 24, 2018

TO: Mayor and City Council

FROM: Director of Utilities & Environmental Services

SUBJECT: Advanced Metering Infrastructure (AMI) Project: Authorization to Execute an Amendment to the AMI System Material Supply Contract to Purchase Additional Water Meters and Related Equipment

RECOMMENDATION

That Council adopts the attached resolution authorizing the City Manager to amend the contract with Delta Engineering Sales, LLC, to increase the contract amount by \$748,182 to a not to exceed amount of \$10,248,182, to purchase additional water meters and related equipment for the Advanced Metering Infrastructure Project.

SUMMARY

In April 2016, the City Council authorized execution of contracts to purchase and install an Advanced Metering Infrastructure (AMI) Project. The AMI Project will replace the City's aging water meters, eliminate the need for manual meter reading, and provide customers with information to better manage their water use. As of the end of June 2018, approximately 33,400 meters, or close to 98%, of the City's meters have been replaced. The City's contract with Delta Engineering Sales, LLC (Delta Engineering) for purchase of water meters and related equipment was based on the quantities and sizes of water meters identified in 2013, which has since changed. Staff is requesting Council approval to increase the contract amount with Delta Engineering by \$748,182 to a not to exceed amount of \$10,248,182, to purchase additional water meters and related equipment to complete installation of the AMI Project.

BACKGROUND

The City's water customers are billed for actual water use as measured by water meters, which are read on a bimonthly basis. The City has over 34,000 customer endpoints (water meters).

Even with safety procedures in place, City meter readers have been prone to frequent injuries due to the repetitive nature of the work. Bimonthly manual meter reading also provides customers with limited and outdated consumption information, which can be inefficient in

terms of conservation efforts because customers are unaware of their consumption throughout the bill period; and leaks can go undetected for weeks or months.

In recent years, some water agencies have started to implement a technology known as Advanced Metering Infrastructure (AMI). AMI enables two-way communication over a fixed network between the utility system and metering endpoints (customers). This allows meters to be read, monitored, and managed from a remote, central location rather than relying on the physical read of a meter in the field by an employee.

AMI systems can provide many benefits, including allowing meters to be read more frequently (e.g. daily or hourly). The resultant interval data can be used for purposes beyond billing, such as consumption reporting, leak detection, tamper alerts, as well as to populate a customer web portal, which allows customers to see detailed water usage information and better understand and manage their water use.

The City's meter stock that has been largely replaced by the AMI Project was, on average, over forty years old, and needed replacement independent of how the meters are read. The AMI installation process provided the opportunity to update the current meters throughout the service area and allowed the City to establish a comprehensive meter inventory with GPS coordinates for mapping purposes. AMI data also provides the City with the opportunity to consider transitioning to monthly utility billing, which may be a better option for customers, and frees up staff resources to deploy towards preventative maintenance activities and customer service.

In 2013, staff began to study the feasibility of implementing AMI in Hayward. Given the significant investment of resources, staff determined that it would be in the City's best interest to pilot-test three different AMI systems and to obtain equipment pricing for City-wide implementation of various systems. Based on the results of the pilot test, the City selected Aclara Technologies LLC (Aclara) to implement the City-wide AMI program.

On April 5, 2016, Council approved execution of an installation contract with Aclara in an amount not to exceed \$3,113,000 and a material purchasing contract with Delta Engineering in an amount not to exceed \$9,500,000, to implement the AMI Project. Contracts with Aclara and Delta Engineering were executed by the City on June 28, 2016 and June 15, 2016, respectively. The Aclara contract provides management, AMI infrastructure project materials and equipment (i.e. data collectors units (DCUs)), AMI software, and installation labor to accomplish meter replacement and conversion to AMI City-wide. The Delta Engineering contract provides for the purchase of project materials, including meters, meter transmission units (MTUs), handheld field programmers, and meter box lids.

DISCUSSION

As of the end of June, approximately 33,400 meters, or close to 98%, of City meters have been replaced with AMI meters. The contractual quantity of meters and related equipment required to be supplied by Delta Engineering were based on City records and estimates from the 2013 AMI feasibility study. Since installation began, there have been differences between

the quantities, types, and models of meters and lids included in Delta Engineering’s contract and the quantities of materials needed to complete installation of AMI meters. The reasons for these differences include:

- Added services due to new developments
- Dual and compound meters were originally counted as one single meter
- Minor miscount of total meter sizes and numbers
- Meter brands and models are different from City records, which requires additional retrofitting such as installing spacers
- Some meter box lids specified did not provide the correct fit, and the lid vendor was replaced

In addition, upon project acceptance of the AMI Project, City staff will take over responsibility for the AMI system and begin installing AMI meters for new development. Staff is recommending that the City purchase additional meters and related materials to be able to maintain a small inventory for repairs, replacements, and installations for new developments. Utilizing the existing contract with Delta Engineering to stock AMI meters would allow the City to take advantage of lower cost bulk pricing. In the future, after the initial inventory provided under the AMI Project is exhausted, staff would need to solicit quotes and purchase meters and materials directly from manufacturers.

A summary of the differences between the Delta Engineering contract and the quantity of materials needed to both complete installation of AMI meter replacements and provide a post-installation inventory of AMI meters is summarized in the table below.

MATERIAL DESCRIPTION	INITIAL QUANTITY (A)	ACTUAL QUANTITY (B)	INVENTORY REQUIRED (C) ¹	DIFFERENCE IN QUANTITY (D)= (B) + (C) – (A)	COST DIFFERENCE (\$)
MTU	34,225	35,089	719	1,583	\$179,584
Antenna Kit	0	655	0	655	\$18,340
Panasonic Toughbook	6	6	0	0	\$1,914 ²
Meters (5/8” to 8”)	34,225	33,239	590	(396)	\$199,194 ³
Meter Registers ⁴	0	2,112	224	2,336	\$162,350
Misc. Clips & Splice	0	2,350	0	2,350	\$4,913
Meter Box Lids	31,931	33,075	700	1,844	\$113,871
Total	-	-	-	-	\$748,182 (incl. 10% tax)

Notes:

1. Total cost for proposed inventory is \$233,005.55, including tax.
2. The City requested an upgrade to the Toughbooks to automate scanning of meter numbers, which saves time and eliminates the potential for manual error.
3. The total meter count decreased since newer meters only require retrofitting registers. However, the total cost of meters increased by \$199,194, due to a higher number of larger-sized meters than was originally estimated.
4. These meters were installed within the last five years. They can be retrofitted with new registers instead of replacing the meters, resulting in a cost savings.

Staff is requesting to increase the contract amount of Delta Engineering's contract by \$748,182 (\$680,166 plus 10% tax) to a not to exceed amount of \$10,248,182 for purchase of additional AMI meters and related equipment.

ECONOMIC IMPACT

The economic benefits of AMI to customers include greater control over water consumption, given increased interval data and a future customer portal and smartphone application, including prompt water leak notification. Most customers will also benefit from having more accurate meters because they will not be subsidizing a small percentage of customers with water meters which may be reading low due to malfunction, and these customers will more equitably share their proportional cost of water. The system should also aid the community in achieving greater water conservation results over time.

Over the next few years, there will be moderate increases in water service costs for the wholesale replacement of all water meters in the City.

FISCAL IMPACT

The total estimated costs for the AMI Project are as follows:

Project Administration (estimate)	\$	60,000
Pilot Study (actual)	\$	62,741
Purchase and Installation of AMI System (Aclara contract)	\$	3,113,000
Purchase of Project Materials (Delta Engineering contract)	\$	10,248,182
Customer Web Portal Development (estimate)	\$	<u>100,000</u>
Total:	\$	\$13,583,923

The total estimated project cost for the AMI Project is \$13,583,923, which includes an increase in the Delta Engineering contract amount of \$748,182 for purchase of additional water meters and related equipment to a not to exceed total amount of \$10,248,182. The total estimated project cost also includes \$100,000 to secure the services of a customer web portal vendor in fall 2018.

The adopted FY 2019 Capital Improvement Program (CIP) includes \$13,500,000 in the Water Replacement Fund for implementation of the AMI Project. The total project cost will be determined after vendor proposals are received for the customer web portal in late 2018. If additional monies are needed, staff will ask Council to consider the increased funding in the Water Replacement Fund. Implementation of the AMI Project will not utilize any General Fund monies.

STRATEGIC INITIATIVES

This agenda item supports the Complete Communities Strategic Initiative. The purpose of the Complete Communities initiative is to create and support structures, services, and amenities to provide inclusive and equitable access with the goal of becoming a thriving

and promising place to live, work and play for all. This item supports the following goal and objective:

Goal 1: Improve quality of life for residents, business owners, and community members in all Hayward neighborhoods.

Objective 4: Create resilient and sustainable neighborhoods

The AMI Project will replace the City's aging water meter infrastructure and provide customers with the ability to better manage their water use, further supporting the goals of the City Council.

SUSTAINABILITY FEATURES

The AMI system promotes efficient water use and water conservation. The more frequent water consumption data will provide detailed information to help measure the overall effectiveness of targeted conservation initiatives. This information can be used to inform customers about potential leaks or overly high consumption. Analyzing data by frequent time intervals could also enable the City to look at consumption profile data for education and awareness related to conservation. Customers will also be able to be notified of unusual increased or continuous water usage, which could be the result of a leak. Remote notification of leaks allows for the ability to alert customers to an issue before substantial water waste or excessive charges occur.

The AMI Project will also eliminate the need for manual meter reading, which reduces the number of vehicle miles traveled by City staff, furthering the City's Climate Action Plan goals of reducing greenhouse gas emissions.

PUBLIC CONTACT

The AMI project is arguably one of the most visible and customer-centric projects that the Utilities and Environmental Services Department has implemented in many years. The project affects every customer of the Hayward water system, and therefore customer outreach is a key component to a successful implementation.

In addition to having information about the project on the City's webpage, <https://www.hayward-ca.gov/your-government/AMI>, in advance of having a meter replaced, each customer also receives a notification letter regarding the benefits of the project and explaining the process and what to expect during and after the replacement has been completed. A typical meter replacement for a residential customer can take less than thirty minutes, during which time the water service to the customer is shut off. On the day of the replacement, the contractor will attempt to contact the customer by knocking on the door in advance of beginning work to inquire if it is a good time for them to complete the replacement. If the customer expresses that they would prefer another time, the contractor will work with them to find an agreeable alternative. If the customer is not present, or does not answer the door, the contractor will verify if the water is running by checking the meter

for movement, which can indicate that someone may be using the water but cannot come to the door, before shutting off the water. To replace a large commercial meter, it can take a few hours or more, therefore appointments will be made to minimize any impact to operations.

A few customers have used social media and other means to express their concerns regarding potential "high reads" related to AMI. In each case, staff reviews the specific concerns. In almost all cases staff has been able to show that the "high reads" are related to actual high consumptions and not a water meter or AMI malfunction. On occasion when the reason for the high read may be related to a leak or field installation issues, staff assists the customer to apply for a rebate.

A key component of the AMI Project is the development of a customer engagement web portal. The interval consumption data generated from this project will be used to populate a customer engagement web portal, which would allow customers to see detailed water usage information and better understand and manage their water use. These portals, which can be accessed on a computer or smart phone, are becoming an increasingly popular tool to help customers monitor their consumption and allow the utility to communicate directly and in a timely manner with their customers. Staff had anticipated releasing a Request for Proposals (RFP) to select the customer engagement web portal vendor last year, but staffing challenges within the department, along with the desire to obtain input from Hayward water customers on the features they would most like to see included in the portal, have pushed back the release of the RFP. Staff currently anticipates releasing the RFP for the customer engagement web portal in late fall 2018.

NEXT STEPS

If Council approves the recommendation, staff will increase the contract amount with Delta Engineering by \$748,182 to a not to exceed amount of \$10,248,182, to purchase additional meters and related equipment for the AMI Project.

At the current pace, all City meters are expected to be replaced by mid-August. After installation is completed, Aclara will perform system acceptance testing to ensure the functionality and accuracy of the system. Final acceptance of the project is anticipated by end of 2018.

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Recommended by: Alex Ameri, Director of Utilities & Environmental Services

Approved by:



Kelly McAdoo, City Manager