



DATE: March 12, 2018

TO: Council Sustainability Committee

FROM: Director of Utilities and Environmental Services

SUBJECT Advanced Metering Infrastructure Project Update

RECOMMENDATION

That the Committee reviews and comments upon this report.

SUMMARY

In April 2016, the City Council authorized execution of a contract to purchase and install an Advanced Metering Infrastructure (AMI) Project. Project implementation began at the end of 2015 and approximately 24,100 meters or close to 70% have been replaced, as of the end of February. This report provides an update on the project and the development of a customer engagement web portal.

BACKGROUND

On March 13, 2017, Committee members reviewed [information](#) regarding the AMI Project. At that time, the Committee provided direction to staff on features to be included in the development of a customer engagement web portal.

DISCUSSION

Meter Replacement To-Date

As of the end of February, just over 24,100 meters have been installed and programmed in various areas of the City. The replaced meters are currently reading at a 99.2% reception rate. The reception rate is defined as the number of transmissions received over a thirty-day period. The City's system is programmed to provide hourly reads (i.e. twenty-four reads per day per meter, or 720 reads over a thirty-day period). The required reception standard in the contract is 98.5%.

Challenges with AMI

Like any other hi-tech system, an AMI system requires care and attention well beyond a mechanical system. Not only electrical system and wiring are included in each meter, but each meter's communications component is a small computer with programming software. As such the systems are at times prone to malfunction. While such malfunctions would typically affect the transmission of information and not registering the correct consumptions, any such anomaly requires a visit to the meter's location, checking the wiring, the data transmission device, and the programming. This is time consuming and requires trained and skilled staff. Staff will be looking into retraining our existing meter readers and other related staff to become "water customer service technicians" and be able to address these emerging needs and resolve issues.

Hayward is among the first water agencies in the Bay Area to migrate to AMI. It is not unusual for early adaptors to face more challenges since they don't have the benefit of learning from the experience of others. However, City's Field Services staff have shown great aptitude and made remarkable progress in the past few months adapting this new and emerging technology.

Customer Concerns with "High Reads"

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, staff assists the customers to apply for a leak rebate.

Customer Web Portal

The interval consumption data generated from this project will populate a future customer engagement web portal, which would allow customers to see detailed water usage information and better understand and manage their water consumption. These portals, which can be accessed on a computer or smart phone, are becoming a popular tool to help AMI customers monitor their consumption and allow the utility to communicate directly and in a timely manner with their customers.

There are many vendors which provide this service, but each product's features can vary slightly. Preliminarily, staff is interested in requesting that the vendors provide the following features:

- Mobile and web-based customer engagement platform design
- Intuitive, functional, and customizable presentment of current and historical consumption data (graphs, charts, etc.)
- Ability for customer to customize alert thresholds (e.g. hours/days of continuous flow, water bill amount budgeting)

- Comparison tool between similar customers (i.e. how your usage compared to your “neighbors”)
- Real-time customer notifications (including text, email, IVR notification types) for outage, leak, and other communications
- Water waste reporting including ability to snap photo and geocode address
- Ability to view temperature and rainfall data on top of usage data
- Multi-language support allowing customer to choose language type

Staff had anticipated to release a Request for Proposals (RFP) for selection of a customer engagement web portal vendor last year, but staffing challenges within the department, along with the desire to obtain feedback and 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.

To gauge customer's needs, staff has been working with Moves the Needle to apply Lean Innovation techniques with Hayward water customers to get a better understanding of their water usage practices, challenges they face with the current layout of the City utility bill, and if they would be interested in participating in a focus group for the selection of the customer portal vendor. Staff began conducting customer interviews in early February and is currently working on a schedule to conduct additional interviews during non-business hours when more residential customers tend to be home, and possibly in other public places, such as the Revenue Center located in City Hall or local grocery stores. Once the research has been completed, staff will bring the results to the Committee for review.

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. And, the system should aid in the community 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

This project will be entirely funded by the Water Enterprise and therefore has no impact on the General Fund.

STRATEGIC INITIATIVES

This agenda item supports the Complete Communities Initiative. The purpose of the Complete Communities Strategic 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.

SUSTAINABILITY FEATURES

Energy: Electricity/natural gas/other fossil fuels.

Leaks in the water distribution system or at customer sites represent not only lost water, but in some cases wasted energy to distribute it. With the timelier consumption information provided by AMI systems, the City can be proactive when it comes to leak detection. The DCU's for this project will also be solar powered.

Water: Efficiency and conservation.

The more frequent water consumption data made available as result of this project 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, because it will be easier to pinpoint the timing of the increased water usage with more frequent reads. Remote notification of leaks allows for the ability to alert customers to an issue before substantial water waste or excessive charges occur.

Air: Air emissions of pollutants.

Eliminating the requirement for manual meter reading also reduces the number of vehicle miles traveled by City staff, which is in support of the Climate Action Plan goals of reducing greenhouse gas emissions.

Solid Waste: Waste reduction and diversion.

This project will generate construction waste. However, given that most water meters are made of brass, much of the waste can be recycled. The concrete meter box lids that are being replaced with polymer lids as part of the project will also be recycled.

Purchasing: Consistent with the City's Environmentally Preferred Purchasing Policy.

The City's current meter stock is, on average, over forty years old, and needs replacement independent of how the meters are read. The new water meters are

expected to last for at least the life of the AMI system (twenty years) and are considered a long-term investment. This complies with the subject purchasing policy, as it states that the maximization of life cycle economics is a factor to consider when determining that a product or service has environmentally preferable attributes. The meters are also mostly made of brass, which is a recyclable material. Other vendors offer a plastic/composite body meter that was specifically not chosen for this project.

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 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.

As previously mentioned, staff is conducting interviews with water customers to determine the key features to be included in the customer portal and to form a focus group for the selection of the customer portal vendor.

NEXT STEPS

With an estimated average of 1,200 meters completed each month, the project was originally scheduled to be completed in December 2018. However, due to the continued success demonstrated during the project, the pace was increased last year to approximately 2,000 meters completed each month and the anticipated project completion has now been moved up to September 2018.

Once the Lean Innovation surveys have been completed, staff will bring the results to the Committee for review. The customer web portal RFP is tentatively scheduled to be released in late Spring with an anticipated award by the City Council in June. The focus group will have the opportunity to participate in the product demonstrations presented and will be involved in the selection of the vendor.

Prepared by: Alicia Sargiotto, Management Analyst I

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

Approved by:

A handwritten signature in black ink, appearing to read 'K. McAdoo', is positioned above a horizontal line.

Kelly McAdoo, City Manager