



**BUSINESS OF THE CITY COUNCIL
CITY OF MERCER ISLAND**

**AB 6112
July 19, 2022
Consent Agenda**

AGENDA BILL INFORMATION

TITLE:	AB 6112: Water Meter Replacement Program Bid Award	<input type="checkbox"/> Discussion Only <input checked="" type="checkbox"/> Action Needed: <input checked="" type="checkbox"/> Motion <input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution
RECOMMENDED ACTION:	Appropriate \$3,252,916 for the Water Meter Replacement Program and award the contract to Ferguson Enterprises, LLC.	

DEPARTMENT:	Public Works
STAFF:	Jason Kintner, Chief of Operations/PW Director Allen Hunter, Utilities Operations Manager
COUNCIL LIAISON:	Lisa Anderl
EXHIBITS:	1. Mercer Island Meter Replacement Program contract
CITY COUNCIL PRIORITY:	1. Prepare for the impacts of growth and change with a continued consideration on environmental sustainability.

AMOUNT OF EXPENDITURE	\$ 7,352,916
AMOUNT BUDGETED	\$ 4,100,000
APPROPRIATION REQUIRED	\$ 3,252,916

EXECUTIVE SUMMARY

The purpose of this agenda bill is to award a public works construction contract for the replacement of all water meters on Mercer Island to an Advanced Metering Infrastructure (AMI) system. This multi-year water utility project began in 2018 and construction is ready to commence.

- This project will replace approximately 7,900 water meters with meters that transmit water use data to the City’s network on an hourly basis.
- 59% of the meters are considered older and contribute to high, unaccountable water loss, lost revenue, and wasted water from leaks.
- Replacing the City’s water meters will conserve water, improve leak detection, and increase accuracy of utility billing.
- Nine proposals for meter replacement program were received. The City negotiated a contract with Ferguson Enterprises to complete the meter deployment project for no more than \$5,101,745.
- Three limited-term positions will be created to support the project: 2.0 LTE field staff will be responsible for preparing all meter boxes for equipment replacement, and 1.0 LTE inspector position will ensure that the new meters are installed and transmitting data accurately.
- The available budget for this project, adopted in the 2021-2022 Water Fund Capital Improvement Project budget, is \$4,100,000. This original project budget did not include costs for project management or the limited-term staff positions, and was based on an estimate of equipment needs,

which have now been updated by Ferguson’s detailed study of the island. Combining these additional costs with a 15% project contingency brings the total estimated project cost to \$7,352,916.

- An appropriation of \$3,252,916 is requested from the Water Fund balance to cover the additional project costs.

Equipment procurement for the Water Meter Replacement Program is expected to start in August 2022, and installation of new meters is expected to begin in April 2023. The entire program is projected to be completed by August 2024.

BACKGROUND

MERCER ISLAND WATER METER INFRASTRUCTURE

The City of Mercer Island owns and maintains 7,871 water meters, which vary in manufacturer, type, and age. Currently, 59% of the system’s meters were installed more than 15 years ago, the age at which meters are considered to be declining and likely to malfunction. This large number of older meters contributes to high, unaccountable water loss, lost revenue, and wasted water from leaks.

The Washington Department of Health (DOH) regulates and monitors all drinking water systems in the state and provides guidelines on Municipal Water Law. One of the rules under this law, the Water Use Efficiency rule, was enacted to help conserve water. This rule requires that over a three-year average, not more than 10% of the water in a municipal water supply’s distribution system is unaccounted for, which may be caused by leaks and inaccurate meters.

Each year, the City is required to report its annual water loss to DOH, which is calculated by comparing the volume of water that the City purchases from Seattle Public Utilities (SPU) (the Island’s source of municipal water) and the volume of water sold to customers on the Island. For 2021, the City’s unaccounted water loss was recorded at approximately 119 million gallons, which means that 14.95% of the total volume of water purchased from Seattle Public Utilities for the year was not accounted for in water sales to customers. The City’s 2021 unaccounted water loss numbers are higher than normal, which usually fall in the 8% - 11% range. This higher level of recorded volume loss is likely attributable to SPU replacing their two master meters, thereby increasing their accuracy, and the City’s outdated meter infrastructure, which is likely to under-report water use.

City staff collect monthly readings from every water meter on the island in order to calculate water use and corresponding utility customer billing. Approximately 18% of these meters are radio-read, which transmit data to staff driving or walking by the meters. The remaining meters (approximately 6,500) are read manually, with staff visiting each meter to visually record usage data. All meter reading is completed by a 1.0 FTE position in the Finance Department.

PROJECT BACKGROUND

In 2018, Mercer Island hired HDR Engineering (HDR) to assess the City’s current metering program, provide an overview of meter reading technologies, and evaluate the feasibility and benefits of implementing these technologies for the Mercer Island water system. The technologies that were considered include:

- Manual Read – Water meter data is collected by a person who visits each meter.
- Automated Meter Reading (Radio-Read) – Water meter data is collected by a person walking or driving by each meter.

- Advanced Metering Infrastructure – Water meter data is automatically transmitted to a secure, cloud-based network, which sends the information to the utility billing software.

Based on HDR’s Water Meter Replacement Program Analysis Report, the City, in consultation with the Utility Board, decided to pursue an Advanced Metering Infrastructure (AMI) system, which has an expected lifespan of 20 years. AMI systems have a higher upfront cost but provide precise, real-time water use data that helps support conservation activities with improved leak detection and allows staff to focus on addressing water issues by significantly reducing or eliminating the amount of walking and driving to individual meters.

In 2019, the City released a Request for Proposals for the design and deployment of the Water Meter Replacement Program. Nine submittals were received. Two vendors were selected to participate in a 10-day pilot meter program demonstrating their system’s performance at five locations. Based on the results, the vendor’s experience with similar deployments, and the quality of the proposed products, the City’s evaluation team identified Ferguson Enterprises, LLC (Ferguson) as the most qualified contractor for project implementation. Ferguson will use Sensus equipment and software in the project implementation.

Since selecting Ferguson as the preferred contractor in 2019, staff has been working with Ferguson to determine the best equipment configurations for Mercer Island and negotiating the terms of the contract agreement for deployment of the new water meters and network equipment (Exhibit 1), as well as the software integration with the City’s utility billing system.

ISSUE/DISCUSSION

PROJECT DESCRIPTION

The Water Meter Replacement Program will replace and upgrade all existing water meters connected to Mercer Island’s water system and implement an Advanced Metering Infrastructure (AMI) system. Each meter will automatically transmit water use information to data collectors located throughout the City. This data is then transmitted to the City’s fixed network system, providing continuous hourly readings (see Figure 1).

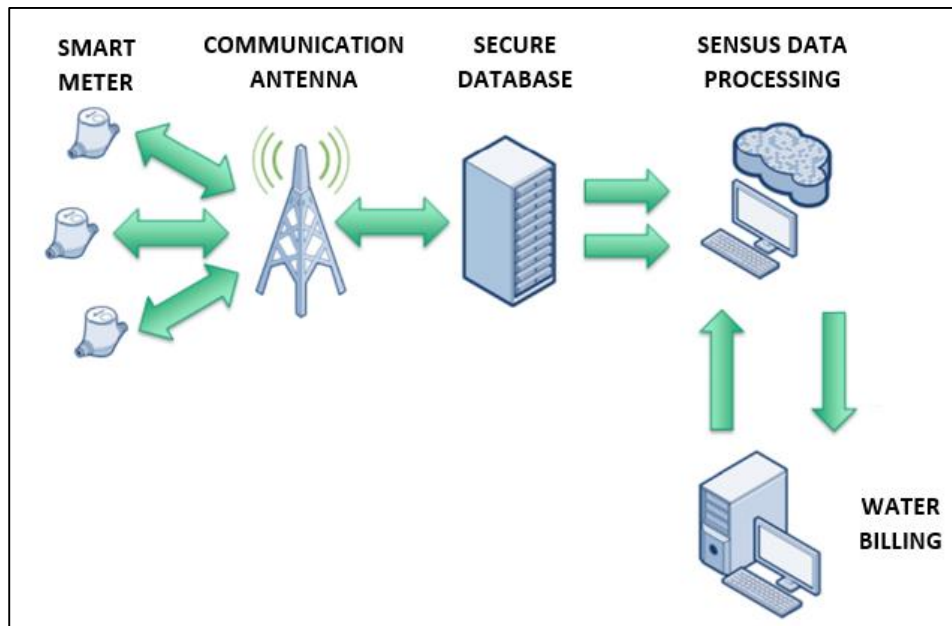


Figure 1. Advanced Metering System schematic

Real-time meter reading will allow City staff to address leaks within the distribution system before they turn into bigger issues (i.e., landslides), reduce the time between meter reads and customer billing, and assist customer service in responding to billing and usage issues. AMI water metering technology is currently used by many local cities and water districts, including Bellevue, Auburn, Mountlake Terrace, and Renton.

In preparation for the implementation of the AMI system, Ferguson conducted a study of the island to determine where data collectors must be placed to capture transmissions from all water meters. Given the island's varied topography, finding collector locations that could capture data from all parts of the City was challenging and took longer than expected. The study ultimately identified seven locations where data collection equipment will be mounted on utility poles at approximately 80' high. Three of these locations will have collector equipment installed on City-owned poles and will capture data from approximately 75% of the meters. These poles will be located at the City Hall/Public Works campus, the Water Reservoir Facility, and Island Crest Park. The four remaining locations, which will capture data from the remaining 25% of meters, require the replacement of PSE-owned poles located in the City right-of-way. These will be located at Roanoke Park, near South Mercer Playfields, near SE 72nd St Landing, and near South Point Landing.

Once the program is complete, customers will be able to access information about their account through a web-based customer portal. The City may also use this portal to convey notices and other information to customers. Information in the customer portal will be available in English and Spanish, with the option to add additional languages.

Throughout the deployment phase, Ferguson will train City staff in the best practices for installing and activating the new meters, as well as troubleshooting issues.

PROJECT MANAGEMENT AND STAFFING

HDR Engineering, a firm with many years of experience implementing new metering infrastructure for cities, has been retained to assist with project and construction management through the deployment phase of the meter replacement project. In addition to coordinating the installation of meters with Ferguson, HDR will also coordinate all communications and education about the program to Mercer Island residents and businesses. Information about the meter replacement program and upcoming service disruptions will be communicated to customers via regular updates on the City's website, social media outlets, and newsletters, as well as with informational inserts included with all utility billing and door hangers. Staff will be available to answer questions or concerns from customers.

Additionally, HDR will coordinate all project needs with Puget Sound Energy, including pole replacements, equipment mounting, and connections to the power grid.

Prior to the installation of each new meter, City Utilities staff will prepare each meter box for the equipment replacement. This work includes clearing vegetation and debris from around meter boxes, cleaning dirt and debris out of each box, and adjusting existing equipment and boxes to accommodate the new meters.

The extent of this work exceeds the availability of current Water Utility staff, who must continue to maintain the water distribution system and respond to emergency issues. Preparation work for the meter replacements will require two new, limited-term field staff positions for the duration of the project, dedicated to performing the body of work required by this project, as well as other needs that arise during the course of the deployment.

In addition, a limited-term Utilities Inspector position will be needed for the project’s duration to ensure information is collected from each old meter, inspect the installation of the new meter, and verify data is being transmitted accurately from the new meter and received by the City’s utility billing software. This position will also sign off on each of the eleven routes (or batches) of meter deployments.

Utilities Operations staff will work closely with Utility Billing staff during the deployment, as timing for replacements will need to align with the City’s monthly water billing cycles to ensure accurate, on-schedule billing.

FINANCIAL IMPACTS AND BUDGETARY ACTIONS

The available budget for this project, adopted in the 2021-2022 Capital Improvement Project budget, is \$4,100,000. This original project budget did not include costs for project management or the limited-term staff positions, and was based on an estimate of equipment needs, which have now been updated by Ferguson’s detailed study of the island. Combining these additional costs with a 15% project contingency brings the total estimated project cost to \$7,352,916. Project costs are summarized in the following table.

To construct this project as designed, an additional \$3,252,916 in funding is needed. Staff recommends that this additional cost be covered by an appropriation from the Water Fund balance. As of December 2021, the Water Fund balance was \$19.9 million.

WATER METER REPLACEMENT PROGRAM PROJECT BUDGET	
DESCRIPTION	TOTAL
Ferguson Enterprises Contract	\$5,101,745
Puget Sound Energy Pole Replacements	\$200,000
Project Management (HDR)	\$450,016
Contract Administration*	\$125,000
Field Staff (2.0 LTE, 2 years)	\$444,587
Utilities Inspector (1.0 LTE, 2 years)	\$266,306
Project Contingency (15%)	\$765,262
TOTAL PROJECT COST	\$7,352,916
2021-2022 Capital Improvement Project Budget	\$(4,100,000)
TOTAL BUDGET AVAILABLE FOR PROJECT	\$(4,100,000)
BUDGET APPROPRIATION NEEDED – WATER FUND	\$3,252,916

* Contract Administration includes staff time from the Public Works, City Attorney, and Finance departments.

NEXT STEPS

Equipment procurement for the Water Meter Replacement Program is expected to start in August 2022, and deployment of new meters is expected to begin in April 2023. The entire program is projected to be completed by August 2024.

Following implementation of this contract, staff will draft a separate Service Agreement for ongoing operation and costs for this project, including data hosting, customer portal support, and software/hardware support. These costs will be included in the Water Utility operating budget each biennium.

RECOMMENDED ACTION

Staff recommends that the City Council:

1. Authorize the City Manager to execute a contract with Ferguson Enterprises, LLC, a Washington-based company, substantially in the form hereto attached as Exhibit 1, for the deployment and implementation of the Water Meter Replacement project, in an amount not to exceed \$5,101,745 over a two-year period, with future year funding contingent on Council budget approval.
2. Appropriate \$3,252,916 from the Water Fund to increase total project funding not to exceed \$7,352,916.