



CITY COUNCIL STAFF REPORT

From: City Manager

Report Type: CONSENT CALENDAR

Lead Department: Utilities

Meeting Date: March 6, 2023

Report #: 2301-0907

TITLE

Approval of a Purchase Order with Badger Meter, Inc. in the Amount of \$3,000,000 for FY 2023 to Purchase Additional Badger Water Meters and Registers for the Advanced Metering Infrastructure Project; CEQA Status – Exempt (existing facility)

RECOMMENDATION

Staff recommends that Council approve and authorize the City Manager or their designee to execute a purchase order with Badger Meter, Inc. in the amount of \$3,000,000 to purchase 8,300 replacement water meters and related equipment for the Advanced Metering Infrastructure (AMI) Project and 340 AMI water meters and registers for stock inventory.

EXECUTIVE SUMMARY

City of Palo Alto Utilities (CPAU) meter records indicate approximately 8,300 water meters need replacement due to the age of the meter, incompatibility with the Advanced Metering Infrastructure (AMI) radio endpoints, or recommended standardization of meters and related materials. Replacement of these water meters will result in fiscal benefits such as more accurate billing of water usage, reduction of water loss and earlier detection of water leak, and reduction of inventory costs.

Due to staffing constraints in previous years in the Water Operations Division, CPAU has accumulated a large backlog of aged water meters that are more than 20 years old. The cost of these meter replacements and AMI radio endpoints is budgeted in the Water Meters (WS-80015) and Smart Grid Technology Installation (EL-11014) CIPs.

BACKGROUND

City of Palo Alto Utilities (CPAU) has installed Badger water meters for over 40 years. Staff has observed that Badger water meters have a longer long-life span with proven reliability compared to other water meter brands that CPAU deployed previously. Based on the City's water meter testing results and discussions with other water utilities, Badger meters have proven to be accurate and reliable. Further, field staff are trained on both the repair and maintenance of Badger water meters. Different meters from different manufacturers would result in additional

costs being incurred to maintain and manage adequate inventory stock for different types of meters; different types of calibration equipment; and additional training for all field service technicians to repair and test different types of meters.

Currently the City has approximately 21,000 Badger water meters in service. The City has had Badger water meters as a standard for approximately 25 years. Standardizing metering equipment is a cost-effective way of reducing both inventory costs and meter repair and replacement costs by reducing the margin for errors and “re-works” in the field, that can otherwise be caused by a lesser familiarity with a piece of equipment.

Procurement Process

In August 2020, the City Manager’s Office approved the use of a sole source/standardization purchase for Badger Meter, Inc., pursuant to Palo Alto Municipal Code Section 2.30.360(e) for three years (FY 2021 – FY 2023) in the amount of \$750,000 total. CPAU plans to request for a new sole source/standardization of Badger water meters for an additional three years (FY 2024 – FY 2026). The cost to incorporate meters manufactured by a different vendor into the City’s AMI network and Utilities’ business process would be significant. Operationally, incorporating meters manufactured by a different vendor would involve professional services and staff time to configure new type of water meters to the AMI and meter data management systems, additional staff time required to perform a meter exchange when considering re-plumbing/re-piping due to non-uniformity and compatibility of spare parts the need to maintain double the spare parts for other meters, and staff training on new meters.

ANALYSIS

On October 18, 2021, Council approved the advanced metering infrastructure (AMI) contract with Sensus for the citywide AMI system and installation services (Staff Report #13665)¹. AMI is a foundational technology that is becoming a standard in the utilities industry to implement smart grid systems designed to improve customer experience, strengthen system reliability, enable CPAU to operate more effectively, and enable the community to meet its environmental sustainability and resiliency goals.

Due to staffing constraints in previous years in the Water Meter Shop, CPAU has accumulated a large backlog of aged water meters that are more than 20 years old and in need of replacement. To achieve operational efficiencies and cost effectiveness, staff is planning to replace approximately 8,300 water meters along with the new AMI radios when the third-party installer is deploying AMI meters (electric, gas, water) in 2023 thru 2024. Replacing aged meters produces fiscal benefits by optimizing revenue recovery with higher reading accuracy and fewer repairs.

CPAU conducted a cost and benefit analysis with two other water meter brands that are compatible with the Sensus AMI network. The 5/8” size meter prices varied from 35% lower (\$91.00) to 145% higher (\$300) than Badger meter (\$122.50). CPAU piloted a few of the lower

¹ City Council October 18, 2021 Staff Report #13665 <https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2021/10-18-2021-id-13665.pdf>

priced meters in 2022. During the installation process, the meter technicians came across potential issues with the meter connections. The connections, which were made of plastic, could be over-tightened, leading to small cracks that were not visible at the time. These cracks could cause future leaks on either the customer side or City side of the meter. In addition to the quality concerns of the material, the additional costs to purchase and stock new valves, testing equipment, and reconfiguration of customer connection will outweigh the cost savings of the lower unit price meters.

As part of the AMI project, the third-party installer Utility Partners of America (UPA) will be replacing all water meters that are sized two inches or less and 20 years old or older. In addition, UPA will be replacing all three-quarter inch sized meters with one-inch size meters so CPAU can remove all three-quarter inch meters and parts from inventory. Due to the absence of reliable independent testing of ultrasonic water meters, staff is proposing to replace approximately 1,000 Badger E-series ultrasonic meters that were installed between 2012 thru 2019. With the AMI radio endpoints, CPAU will be alerted of continuous flow and water leaks in mechanical meters. CPAU will be responsible for replacing any water meters that are sized three inch or larger or incompatible with the AMI radio endpoint. Below is a table of the proposed number of replacement meters by size and construction year.

Construction Year	5/8"	3/4 "	1"	1.5"	2"	3"	4"	6"	8"	Grand Total
1979 - 1989				1	13	1		1		16
1990 - 1994	1,257	89	164							1,510
1995 - 1999	2,489	145	698	19	23	11	4	3		3,392
2000 - 2004	1,494	22	348	179	217	17	19	5	3	2,304
2005 - 2009		82								82
2010 - 2014	553	55	194	20	32					854
2015 - 2019	36	14	97	7	14					168
2020 - 2022		1								1
Grand Total	5,829	408	1,501	226	299	29	23	9	3	8,327

In addition to the 8,300 AMI water meter replacements, CPAU will be ordering an additional 340 AMI meters and registers of all sizes to stock as inventory in the Stores Warehouse. The stocked meters will be deployed for new customer connection services and unplanned meter replacements either due to incompatibility with the AMI radios or mechanical meter failures.

FISCAL/RESOURCE IMPACT

Funds of \$900,000 for the first order of approximately 2,700 water meters are available in FY 2023 Water Meters (WS-80015) and Smart Grid Technology Installation (EL-11014) CIPs. Due to the extended lead time of six months to receive delivery of water meters, staff is requesting authority to place an order for the entire number of water meter replacements at this time to prevent delays of the AMI project. In addition to preventing project delay, placing the full order of replacement meters will guarantee the current unit pricing. If the City places an order in 2024, unit prices will increase by a minimum of 10% due to inflationary material costs and supply chain issues. Funding of \$2,100,000 for the remainder of the replacement water meters and AMI registers will be requested in the FY 2024 Water Meters and Smart Grid Technology Installation CIP budgets. Payment is made when the City receives shipment of the water meters. There is no

cost to place an order but it secures the delivery time of meters. Funding for FY 2024 and beyond is subject to City Council approval of the annual appropriation of funds through the annual budget process.

STAKEHOLDER ENGAGEMENT

The need for an AMI system has been discussed with the UAC and Council since 2013, including the implementation of a pilot AMI system in the 2013-2018. As part of the 2018 Utilities Strategic Plan development, staff actively engaged with internal and external stakeholders to identify priorities to be carried out by staff over the next three to five years. AMI was a recurring theme and identified as a strategic initiative under the “Technology” priority to increase system reliability, enhance customer experience, improve response time, and meet the community’s sustainability goals.

Staff has begun a concerted effort to communicate the many facets of this project, including customer and organization benefits and costs, project timeline and what can customers and employees expect during different stages of the project, how will this project impact individual staff members, staffing, and training needs. Utilities is coordinating this project with multiple departments (Administrative Services, IT, Attorney’s Office, Planning) and discussing impacts to their organizations. Appropriate channels will be used to effectively communicate and engage with stakeholders. The AMI project related information can be found at www.cityofpaloalto.org/AMI. As the project progresses and mass meter deployment begins in mid-2023, additional meter installation related communications will also be undertaken with the community.

ENVIRONMENTAL REVIEW

Council approval of the purchase order for AMI-compatible water meters and related equipment is categorically exempt under California Environmental Quality Act (CEQA) Guidelines section 15302(c) as a Project involving minor alteration of existing public utilities facilities and equipment, with negligible or no expansion of existing or former use; therefore, CEQA review is not required.

ATTACHMENT:

Attachment A Purchase Order 2301-0907

APPROVED BY:

Dean Batchelor, Director Utilities