STAFF REPORT

Meeting Type:	Operations Committee/Board of Directors
Title:	Advanced Metering Infrastructure (AMI) Update
From:	Paul Sellier, Director of Water Resources
Through:	Ben Horenstein, General Manager
Meeting Date:	September 20, 2024

TYPE OF ACTION: Action X Information Review and Refer

RECOMMENDATION: Receive staff presentation on AMI update

SUMMARY: Staff will present on Advanced Metering Infrastructure (AMI) at Marin Water including an overview of AMI technology, key considerations, AMI pilots and equipment/portal testing, project schedule and next steps.

DISCUSSION: AMI has been a relatively recent upgrade for the municipal industry and has seen increased levels of adoption in the past 10 years. The District is currently preparing for full AMI deployment targeting completion by 2030. Since 2018, the District has leveraged grant funding from the Department of Water Resources (DWR) and Integrated Regional Water Management Plan (IRWMP) to install over 5,500 Orion cellular endpoints on replaced or retrofitted meters, which has provided the District with experience in working with AMI. Staff is currently preparing for full deployment of AMI and working closely with internal stakeholders, other utilities and vendors to understand several key considerations of implementing AMI such as:

Meter Technology: type, material, register design and battery life
Data Collection: communication type (radio, cell, hybrid), read frequency, privacy & data security, leak detection (both on consumer and District side), pressure, temperature and backflow monitoring
Customer Interface: direct from vendor, custom 3rd party, stand alone and/or integrated into billing
Additional Considerations: Integration into SAP upgrade, updating business processes and policies, RFP type, deployment approach (contractor installation, schedule, retrofit vs replacement), communications plan, potential need for external resources

Pilots and equipment/portal testing:
As part of the planning process, staff has been using both pilots and equipment/portal testing to learn as much as possible about several potential AMI vendors. The pilots and testing are designed to help identify the various features and functionality that each vendor offers as well as understand the potential for water savings. The largest pilot currently underway is with Badger, a major supplier of

meters and AMI equipment, where over 5,500 cellular endpoints have been deployed. The main goals of the pilot are leak detection, customer engagement with the portal and ways to increase it, learning from opt-outs and improved efficiencies in customer support and meter reading.

Staff monitors various aspects of the pilot installations including communication health, battery life, tamper alarms and customer leaks. Communication health, which is a measure of how many endpoints have successfully transmitted data in the past 72 hours, is consistently over 99%. The endpoint warranty is 20 years, yet there has been a failure rate of 1-2% each year. Failed endpoints are shipped back to Badger and replacements are provided to the District. The industry average for failure is less than 1% per year and Badger has assured Staff that their current endpoint version is more reliable.

Staff has also learned from the Badger pilot that it can be challenging to get customers to sign up for the customer facing portal that is separate from District services. Badger's customer portal, EyeOnWater, requires creating a separate account to receive leak notifications. Currently 45% of AMI customers have created an EyeOnWater account. Although this level of participation is above the industry average, other agencies using single sign on type customer portals where District services and water use information are available report higher participation resulting in more customers actively managing their water use. The District's efforts to increase participation through EyeOnWater continue and include letters, door hangers, phone calls and emails.

The Badger pilot has provided data on water savings through early leak detection. Since 2018, over 8,000 leak and high use letters have been sent out and over 1,200 leaks received additional efforts such as an email, phone call or site visit. Estimated water savings from these various forms of leak notification is over 200 acre feet (AF) per year.

Installation of AMI on residential accounts also seems to illustrate a potential for water savings beyond early leak detection. A recent analysis of data from the Badger Pilot compared all single-family users in the District to a sub-group of 3,759 services that were upgraded to AMI during 2018-2022. Although all single-family services across the District experienced a reduction in water use when comparing 2017 to 2023, the 3,759 AMI single-family services experienced an additional 3.39% reduction in use. A separate analysis compared two-meter reading routes in Corte Madera that boarder each other. One of the routes was upgraded to AMI in 2020 and the other was not. When comparing 2017 water use to 2023, the AMI route experienced an additional 7.25% reduction in use. Although this is a relatively small sample size of 453 total meters, it still indicates that AMI customers used less water. While these two example comparisons indicate lower water use for AMI customers, staff is continuing to analyze the data in different ways to understand the potential for water savings associated with AMI

Other pilots are underway in the District including a high water user pilot where in early 2024, 300 Badger cellular endpoints were installed on high water use single-family residential customer meters. Although it is too early to provide water savings or water use pattern data yet, Staff will be analyzing the pre/post AMI data for these users. Additionally, equipment/portal testing include the following vendors: Metron, Itron, Subeca and Kamstrup. All of these vendors will be evaluated on equipment design, quality, and communication as well as the District and customer portal experience and features.

Project Schedule & Next Steps:
Staff will develop an implementation plan targeting full deployment of AMI by end of 2030 with the first phase of AMI units scheduled for installation in July 2026.

ENVIRONMENTAL REVIEW: Not Applicable.

FISCAL IMPACT: None

ATTACHMENT(S): None.