



MEMORANDUM

DATE: June 20, 2022

TO: Honorable Mayor and City Councilmembers
Dave Perrault, City Administrator

FROM: David Swearingen, P.E. Public Works Director / City Engineer
Gayle Bauman, Finance Director

SUBJECT: Water Meters

Budgeted Amount:	Actual Amount:	Funding Source:
N/A	N/A	Water Utility Fund

Council Should Consider

Council should consider hiring a consultant to evaluate the City’s existing metering system to provide a recommendation for replacement and transition.

Background

The City currently has 2,813 meters in its system. 2,512 are designated as Cycle 1 (mainly residential) and 301 are designated as Cycle 4 (mainly commercial). After reviewing our records, it appears as if 28 meters have been installed since January 2021 (19 new installs and 9 replacements). During this same period, we have also replaced 64 registers and/or endpoints in addition to the 19 new installs.

Commercial meters in the City were replaced in 1997. Most residential meters in the City were replaced in 1999-2000. Residential meters were not replaced at that time if they were in good working order and less than 10 years old. This means that the majority of the meters in the City are at least 22 years old with some possibly being up to 32 years old. The Galaxy readers were replaced throughout the entire City in 2012.

In late 2020 or early 2021, the City was notified that the Galaxy radio transmitter endpoints that were installed in 2012 would no longer be manufactured, therefore, there are no parts available for replacement if needed. The next option was to utilize endpoints that use cellular transmission. Public Works has been transitioning to the cellular endpoints as the radio endpoints fail. The radio endpoints are said to have a 20-year life before the batteries begin to fail, but we have also learned that if an endpoint struggles to send information to a “collector”, it will continue to try and send a signal which will use up battery life. This might be one of the reasons why Public Works has had to make replacements recently. A map has been included showing residential properties where we have had difficulty getting reads since May 2022. Registers and endpoints have been replaced on the majority of these.

Discussion

The general consensus based on available data is that a residential meter's average lifespan is 15 to 20 years. As with any mechanical device, water meters are subject to wear. Wear contributes to meter accuracy degradation, meaning that the water meters become less efficient for measuring flow and will generally under register the actual throughput. Age, as well as the total number of gallons that pass through the meter, affect the accuracy and wear on a meter. Lost water has a financial impact on the City because lost water does not generate revenue but still costs the City to pump, purchase, treat, and distribute the water and thus the taxpayers ultimately have to pay for it.

Studies on the internet vary widely, but ultimately support the 15 to 20 year lifespan. One study indicated the optimum year for replacement is year 16 when a meter is at 99.2% accuracy. The accuracy of older meters varies based on the quality of water in a system as well as the type of customer using the meter.

Prior to 2021, the City's unaccounted for water percentage was gradually increasing each year. The percentage unaccounted for was:

2018 – 2.45% (8.2 million gallons)
2019 – 3.79% (11.6 million gallons)
2020 – 4.13% (12.9 million gallons)

The 12.9 million gallons in 2020 equated to lost revenue between \$42,700 and \$97,140 depending on which tier of the rate structure is used.

Based on recent invoices, the estimated cost for residential meter parts (not including installation) are:

Meter body - \$75
Register - \$90
Endpoint - \$150

Budget Impact

Meter repairs and upgrades are funded by the Water Utility Fund. Based on the age of the system, the increase in unaccounted water and some of the issues we have been encountering, the City is probably in need of new meters city-wide in the next few years. Staff is seeking direction from Council on hiring a consultant to evaluate our current system and provide recommendations on next steps.

Attachments

A. Map showing residential properties serviced since May 2022