

Memo

To: City Council

From: Amy E. Gilson, P.E., Director of Public Works

Date: November 30, 2021

Re: Water Meter Purchase

In regard to questions raised at the last council meeting regarding water meter purchasing, I offer the following:

Charlotte made a choice years ago to switch to Sensus because it provides longevity to the system, some of the best alarms that offer better control of the system as a whole, increased monitoring, faster detection of issues, and the best revenue reclamation. We have been using and installing Sensus water meters for over 12 years, and sporadically for 2-3 years prior to that. Currently the city is installing the IPERL for residential meters (5/8-1") and Omni for the Commercial (1.5" and up).

IPERL meters offer a 20 year warranty on their accuracy. 15 year full coverage from any manufacturer defect and 5 years of prorated coverage (pay a discounted percentage of full price). This is the best warranty in the industry at this time. These meters have no moving parts (pro: no breakdown/wearing of moving parts or accuracy loss due to buildup of mineral or sediment deposits inside the meter like typically seen in a PD meter) These meters are also equipped with 'smart alarms' – they will flag a meter reader for leaks, back flow, low flow, high flow, empty pipe, tamper, low battery, and a few more. They also have the ability to log 35 days of hourly usage that can be pulled when needed to appease a customer arguing a bill, this can be changed to longer data logs if requested, but it is a special order item from the manufacturer. This helps keep better control on water loss and allows the utility to be proactive vs. reactive in many situations. The Iperl meter will begin reading water usage at .03 (seen as low as .025) GPM which is the lowest in the industry for water pick up in a meter. This equates to more revenue and less water loss, it also allows IPERL to flag leak alarms for very small leaks that even a resident may not be aware of.

Also used with the IPERL is the transmitter (SmartPoint) that sends the read from the meter wirelessly to a collector in a vehicle or meter reader. These SmartPoints also have a 20 year warranty, 15 year full coverage and 5 year prorated, again, the best in the industry. Another bonus about the Sensus system is the ability to move from an AMR (how we read meters now) to an AMI system (meters report to

a tower, tower

then sends reads directly to city hall/water dept) very easily with little infrastructure, utilizing the assets already installed like the meters and SmartPoints. Moving to an AMI system and utilizing the alarms of the IPERL meters can give the utility access to real time data, alarms, and the ability to remotely disconnect meters without sending a truck out.

Some of the other meters offered by Sensus are the AccuStream (residential 5/8-1" meter). This is a 10yr warranty meter, composite body, positive displacement (moving piston that measures flow) – this is the economical version to compete against some of the competition's PD style meters. ALLY (5/8 and 3/4 residential meter) is another non-moving part meter. This meter has a ball valve that can be actuated remotely for water shut off – trickle (1/4 GPM) – or full on. This meter has all the capabilities of the IPERL with the addition of being an RDM (remote disconnect meter) and able to measure temperature and pressure, this can be a huge advantage in a frost prone water line, low pressure zones, and customers that are 'frequent flyers on shut-off day. The third residential meter offered is an SR2 (SRII 5/8-1" residential meter). It has a PD (positive displacement nutating disc measuring chamber) with a bronze body and most associated with the 'old style' meter. It has a 10 year warranty. It does not offer smart alarms, though some can be configured through the SmartPoint. At this time, bronze body meters are costing about 20% more than the composite meters. This meter is primarily used in utilities that do not offer, or want to use composite body meters.

As far as the commercial meters, the OMNI is currently deployed in our utility. It uses floating ball technology whereby the measuring ball makes revolutions in the flow of water to calculate consumption. This meter is the best for this application in our system. It has a 10 year warranty on the register, and 1 yr on the body and measuring chamber. The great thing about these meters is they are very field repairable. More often than not, the meter can be left in the service line, and if a repair needs to be made, the measuring chamber and the register can be swapped out in a matter of minutes by removing a few bolts, and the warranty re-starts on any replacement parts. This cuts down on water shut-off time and the potential of lost revenue water if a non-metered bypass is open to make repairs/replace. Typically, these meters last 11-12 years with no issues on accuracy. Most often the need for a repair is a register battery dying (it will alarm at 6months left of life). The register replacement cost is a fraction of a new meter and again, only takes minutes to change out. OMNI registers can register 180 days of hourly usage as well. Another meter used in pump-house/well house, intake and discharge operations would be the Sensus Prop meter (propeller meter) – this commercial meter is designed with moving parts that can withstand large high flows of water. They are typically used in a utility to measure water out of the ground. The last meter offered by Sensus is the Hydroverse. This is a non-moving part commercial meter that reads water consumption very similarly ● Page 2

to the IPERL, by creating a magnetic field and reading the charged water that passes through the measuring chamber. This meter is a solution when meters in large service lines for commercial operations are needed and consumption usage far outweighs the life expectancy of an OMNI meter. They are

typically used in a large hospital setting, college and university main lines, and

some well house applications where high sediment is a big issue.

Here are the current costs for the meters discussed:

IPEARL 5/8" \$140 IPEARL 3/4" \$145 IPEARL 1" \$235 AccuStream 5/8" \$110

AccuStream 3/4" \$125 Accustream 1" \$190 SR11 5/8" \$155 SR11 3/4" \$175

SR11 1" \$265 This is the inventory of meters as of November 29th:

24- 3/4" iperl pit meters

81- 3/4" iperl inside meters

4- 1" iperl meters

4- 1.5" omni meters

0- 2" omni meters

3- 3" omni meters

2- 4" omni meters

Again, as I stated in the original resolution, the meters are 44 weeks until delivery.

Moving towards the future, an AMI project would give even more control to the system, but will require a significant financial obligation. It will be a smaller one than a community starting from scratch since many of the meters have already been moved to IPEARL. Once in an AMI system, lighting can be added, acoustics, pressure monitoring, and much more are add-ons that can take a utility further. We are currently working on an in-depth propagation study that will determine an approximate cost to go to this remote reading system.

cc: Erin LaPere, City Manager