ADMINISTRATIVE REPORT

TO: Environment and Infrastructure Committee

FROM: J. Zaffino, Chief Administrative Officer

DATE: January 18, 2024

RE: **Universal Metering Implementation Plan**

Staff Recommendation:
That the Board direct staff to proceed with the preparation of a detailed universal installation plan and bring it back to the Board for consideration.

Purpose: To introduce the rational and scheduling for installation of water meters in all water systems owned and managed by the RDOS

Business Plan Objective: *(Tie to current RDOS Business Plan)*
KSD 2: Optimize the customer experience, Goal 2.2 To meet public needs through the continuous improvement of key services.
KSD 3: Build a sustainable Region, Goal 3.3 To develop an environmentally sustainable region.

Background:
Water Conservation is a common topic across the Okanagan Valley. One of the most effective ways to reduce water consumption is to introduce water meters and rate schedules that link the amount of water used to an incremental fee schedule.

Rationale for Water Metering:
There are a number of reasons to consider water meters on the water systems within the RDOS.

- The most important benefit of the metering program is to establish efficient and effective assessments of infrastructure.
- Generally, infrastructure associated with the RDOS managed water systems is aging and showing signs of needing upgrades and improvements to maintain level of service and allow for additional connections to service increasing populations across the region.
- With the effects of climate change and the impacts to the water supply seen in recent years, water conservation programming will aide in reducing excessive use and allow residents to monitor and manage their water use responsibly and make informed decisions regarding their consumption.
- Address water use concerns before critical shortages become an issue that would affect indoor use.

Drought patterns are cyclical and developing a robust program of sound infrastructure, responsible consumption, practical efforts for landscaping, knowledgeable residents and using reliable technology will allow the region to withstand pressures related to climate change and the variable weather patterns we have experienced in the recent past.

A steady and organized approach is proposed to begin universal metering of the systems using a priority scale based on size, age, consumption and history. The focus is on residential water use, so the reduction of excess outdoor use is crucial for managing water shortages.

Analysis:

Water System Prioritization

Several factors are being considered for the prioritizing of the systems for the installation of meters. These include

- age of the system
- what is the potential for undetected leaks in older infrastructure
- the number of connections and how many are residential, irrigation or commercial connections,
- what are the consumption patterns of users
- how does the infrastructure perform in peak use periods and is there sufficient capacity.

Each of the criteria looks at components of the water supply infrastructure, but the potential reduction in use and how that reduction can extend the service life of the system is also considered.

Water System Summary

The condition of the ten water systems owned or managed by the RDOS are summarized in the table below.

System name - EA	Year acquired	# connections	Source	Fire service	Notes	KMs mains
West Bench - F	2012	384	City of Pen	Y CoP	Fully metered	12
Naramata - E	1995	1113	Lake	Y	Some meters and some pits ready to go	55
Willowbrook - C	2016	82	well	Y	Low storage	4.5
Sage Mesa - F	2010	286	lake	Y CoP	Private owner, in acquisition process	
Faulder - F	1993	81	well	N	At capacity- supply limitation	3.6
Olalla - G	1999	226	well	Y	Low storage	16
Missezula Lake - H	2020	200	lake		Unstable supply	4.4
Okanagan Falls - D	2023	1050	wells	Y	Low storage, nearing well capacity	18

Gallagher Lake - C	2014	103	well		Bulk supply from OIB	.85
Sun Valley - D	2017	28	well	Y OK Falls	Infrastructure limitations	2.3
Totals:		3553				116.65

Benefits of Universal Metering

Universal metering is proven to have numerous benefits to a water system. For newly metered systems, an average of a 30% reduction in use is expected in the first year. This reduction results in benefits across the water system; residents have a better awareness of consumption and recognize ways to reduce in dry seasons, the wear on the infrastructure is also reduced and the life span of the system increases. This translates into the possibility of delaying infrastructure upgrades and replacement.

Metering allows staff to identify and repair leaks in mains that also contribute to a shorter lifespan for infrastructure. Eliminating leaks and excess use means reducing costs associated with extracting, treating and distribution of water in each of the water systems across the region.

Finally, as weather patterns change, the recharge and supply within both surface and groundwater sources are fluctuating. It is no longer appropriate to assume that our water supply is limitless.

With water restrictions implemented throughout the summer in 2023, on unmetered systems it is not possible to assess impacts of the restrictions. Having metered systems allows for data to support public outreach and education programs and determine how effectively the water system manages such pressures.

Implementing technology and infrastructure is critical to ensure waste is minimized and that users are responsible in their consumption.

Meters and Technology

Currently the only water system with universal metering is West Bench. The meter brand currently installed – Neptune Technologies, are performing well and have the capacity to implement additional technology that would be beneficial for both consumers and the RDOS. It is recommended to stay consistent with the meters and hardware already in place with Neptune Technologies. This eliminates any delay in activation as staff are already familiar with the functions and software.

The meters are currently being used as AMR or automated meter reading which requires an operator to access monthly meter readings by activating the handheld unit in close proximity of the meter; such as driving along the roadway. It also allows an operator to access the meter readings in alternate read modes to assist residents with leak detection on their property. This is a vital tool for West Bench as the high risk geotechnical concerns could be exacerbated by undetected leaks.

The current metering system is also compatible with AMI or advanced metering infrastructure which relies on receivers and antennae mounted throughout the community that will receive real-

time data from each meter. This would eliminate the need for an operator to perform the meter reading each month. There is an additional cost associated with the AMI systems, but it eliminates time needed for monthly meter readings and the leak detection deep read process.

Meter and Meter Vault installation

The installation process will be contracted out using the RFP process. Project management and oversight will be assigned to staff, but the installation of the pits and meters will be the responsibility of the contractor. All meters will be installed in pits at or near the property line frontage.

Once meters are installed, a period of mock billing will occur to allow the residents to become familiar with the billing process as well as giving them the ability to create efficiencies in use.

One of the lessons learned from assessing the consumption data in West Bench Water System is that following the initial reduction in consumption, it appears that as users grew accustomed to the costs associated with use, some complacency exists with conservation practices.

As a tool to discourage overuse or wasteful consumption, a tiered billing structure is proposed to ensure residents remain vigilant in water conservation activities. The concept has been adopted successfully by many of the larger water purveyors in the Thompson-Okanagan region. The rate structure proposed will be similar to neighboring regional districts and municipalities.

Purveyor	Flat rate- $	Base rate- $	Tier 1 limit-m^3	Tier 1 rate- $	Tier 2 limit-m^3	Tier 2 rate	Tier 3 limit- m^3	Tier 3 rate
West Kelowna	192.69/q		0-100	0.46	101-300	0.92	301+	1.47
Vernon	108/q		0-40	0.98	40-80	1.96	80+	2.94
Summerland		49.09/m	0-25	0.53	25+	2.09		
City of Kelowna		32.94 bi-monthly	0-60	0.563	61-160	0.757	160-250	1.148
Oliver	191.94/yr	567.18/yr						
Osoyoos	535.64/yr	1133.39/yr		0.97				

Recommended Next Steps

The initial systems recommended for universal meter installation, based on the prioritization criteria, would be Willowbrook and Faulder, followed by Sage Mesa once the acquisition process is complete.

The installation process is a phased process with the aim of minimizing costs to residents. Currently during all new or renewed service connection installations, a meter vault is installed.

For the five year proposed capital budget, the following metering projects have been included

Capital Budget Request	2024	2025	2026	2027	2028

Naramata - E		25k	100k	100k	100k
Willowbrook - C	17k	20k	30k	30k	30k
Faulder - F		100k*	120k*	120k*	80k*
Olalla - G				25k	100k
Missezula Lake - H			100k	100k	100k
Okanagan Falls - D	25k	50k	100k	100k	100k
Gallagher Lake - C		TBD	TBD	TBD	TBD
Sun Valley - D		50k	50k	50k	50k

*NOTE: combined costs for service connection replacement with meter vault & meter installation

There are several possibilities for funding universal metering. Capital reserves, Community Works Gas Tax or grants can be used to reduce costs to users. Currently, there are no grant funding streams open, however, applications will be a priority as available throughout the process.

A Universal Water Meter Plan is recommended to commence across all water systems owned by the RDOS, a priority list will be confirmed after discussion. An implementation plan will be finalized and reviewed during budget discussions annually. The plan will include a multi-faceted education and outreach program to support the metering program.

Communication Strategy:
A communications plan will be developed as part of the final implementation plan for universal metering within each water system.

Respectfully Submitted,

Shelley Fiorito
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