

## FEASIBILITY OF RESIDENTIAL METERING IN VAN ANDA

### REPORT SUMMARY

The Van Anda Improvement District has recognized that recent growth of the community, as well as limited water processing capacity, have the potential to impact the community significantly. Residents have requested the District to explore the feasibility of a universal metering program. Following is a brief summary of the report.

There are four main reasons for universal metering:

- **Equity** – financial incentive for consumer to conserve water.
- **Water Efficiency/Conservation** – can sustain the existing source of water supply for longer
- **Economic Benefits** – delay capital expansion, reduce operating costs
- **System Management** – detect and target leaks, identify areas in need of repair.

### WATER USAGE

VAID supplies water to residential, as well as Industrial, Commercial & Institutional (ICI – local industry, shops & services) customers within the District. Residential users pay a flat rate; ICI users are already metered. Using records from the last 3 years, the average yearly water usage is 127,798,000 litres

### CURRENT WATER DEMAND

- Over the last 3 years, VAID's current average daily water demand per person is 777 litres, much higher than the Canadian municipal benchmark values of 335 litres.
- Nationally, the average daily residential use in 2013 was 250 litres.
- During the month of November 2021, daily average litres per person was 707, compared to 834 in November of 2020 – leak repairs have made a positive impact.

### WATER USAGE REDUCTION POTENTIAL

A universal metering program can result in 10-20% sustained reduction in residential usage.

### COST OF METERING

- Capital cost of meters, parts & installation estimated around \$150,000.
- Amortized over 10 years plus the cost of quarterly meter reading gives estimated annual cost \$18,500.

### COST OF WATER

- \$1.01 per 1,000 – production only
- Cost of water production was determined from actual costs in 2020 (hydro, consumables e.g. salt, chlorine, filters, and plant maintenance labor) divided by the amount of water produced.
- The average annual use of 127,798,000 litres gives an average annual water production cost of \$129,573.

### POSSIBLE SAVINGS FROM UNIVERSAL METERING PROGRAM

- A 10% water reduction saves \$12,957
- A 20% water reduction saves \$25,915
- The cost of metering is approximately equal to the value of water saved with a 15% reduction annually

## **CONSIDERATIONS**

- Given the high amount of water loss attributed to leaks, it is unlikely Van Anda would achieve this amount of reduction if the majority of leaks are in the mains.
- It is possible that the final cost of meter installation would be higher, considering that some services will require much more than the four hours estimated for installation labor, and the fact that parts costs are constantly increasing.
- It has been noted by people experienced in the water service provision industry that new metering programs seldom result in financial savings for the provider.

## **Other Water Usage Reduction Programs**

### **VOLUNTARY METERING**

Many municipalities in BC have voluntary metering programs, and these target primarily single family residential customers. Voluntary metering programs are a good way to encourage the expansion of metering within the system area, without having to commit to the upfront costs of a universal metering program.

### **WATER CONSERVATION EDUCATION**

While metering and leak detection programs address the “hard” elements of the water system, water conservation education programs focus the “soft” aspects; customer awareness, knowledge and behaviour, as tools to reduce water usage. Water conservation programs can be designed to address these issues for all types of customers.

### **LEAK DETECTION**

- When comparing Van Anda’s average water consumption to other areas, it is estimated that HALF of our treated water is being lost to leaks.
- Leaks may be occurring both within the main distribution system, as well as within a customer’s property.
- Many local properties have poor quality lines that have deteriorated over time. Some have connections made with hose clamps (rated 75 psi) are not strong enough for the pressure in our system (125 psi).
- We are actively working on detection and repair of leaks. The public is encouraged to share information when they see and hear signs of a leak.
- A residential leak detection program is being developed to test lines on private property. This would be a one-time check whereas with meter installation, future leaks will be obvious.
- Installing meters can make customers aware of water usage, and encourage leak repair in an effort to reduce high water bills. Where customers are unmetered, motivation for private property leak detection may be lacking, as customers have little incentive to locate and repair leaks at their own expense.

### **ZONE METERING**

Zone metering allows utilities to evaluate water losses from particular areas of the distribution system, however meters for full size mains are very expensive and the money is better spent elsewhere.

*The full report can be found on our website at [vananda-id.ca/meter-report](http://vananda-id.ca/meter-report)*