



## EXECUTIVE COMMITTEE

**Monday, November 25, 2019, to commence immediately following the City Council meeting**  
**Council Chambers, (Public)**  
**Scoop Lewry Room (In-Camera)**  
**2nd Floor, City Hall**

**1. CALL TO ORDER**

**2. REPORTS**

- a. Hillcrest and Lynbrook Golf Course Irrigation, EC-2019-0240
- b. RFP for Trades Services, EC-2019-0247
- c. Smart Water Metering, EC-2019-0249

**3. CONFIDENTIAL MATTERS**

- a. Confidential Matter, EC-2019-0235

The confidential matter may be considered in closed session pursuant to section 94(2) of *The Cities Act* as it contains information that is within one or more of the exemptions in Part III of *The Local Authority Freedom of Information and Protection of Privacy Act*, in particular section 18(1)(c).

- b. Confidential Verbal Matter

The confidential matter may be considered in closed session pursuant to section 94(2) of *The Cities Act* as it contains information that is within one or more of the exemptions in Part III of *The Local Authority Freedom of Information and Protection of Privacy Act*, in particular section 17(1)(b)(i) and (ii) and (d); and section 18(1)(c) and section 21.

c. Confidential Procedural Matter - November 12, 2019

The confidential procedural matter may be considered in closed session pursuant to section 94(2) of *The Cities Act* as it contains information that is within one or more of the exemptions in Part III of *The Local Authority Freedom of Information and Protection of Privacy Act*, in particular section 15.

d. BACK TO OPEN SESSION

4. ADJOURNMENT



# City of Moose Jaw

**COMMUNICATION # EC-2019-0240**

**TITLE:** Hillcrest and Lynbrook Golf Course Irrigation

**TO:** Executive Council

**FROM:** Department of Engineering Services

**DATE:** November 6, 2019

**PUBLIC:** PUBLIC DOCUMENT

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## **RECOMMENDATION**

THAT the Hillcrest Golf Course and the Lynbrook Golf Course water irrigation rates be calculated based on a 3-year rolling average less the City's cost for weed control; and,

THAT the calculated rate is divided equally between the Hillcrest Golf Course and Lynbrook Golf Course.

## **TOPIC AND PURPOSE**

The purpose of this report is to provide City Council with information related to the City's provisions for irrigation services for the Lynbrook and Hillcrest Golf Courses. This includes a breakdown of City costs for services and rates paid by both Golf Courses over the last four (4) years.

## **BACKGROUND**

At a meeting of Budget Committee on February 23, 2017, Council carried the following two (2) motions:

*"THAT Administration be authorized to negotiate a renewal water supply agreement with Lynbrook Golf Course which establishes a rate structure increase on a cost-plus basis.*

*THAT Administration investigate the water supply operations of Hillcrest Golf Course and that a report be brought back to Council for future deliberations."*

In 2018, a one-year agreement was provided to the Lynbrook Golf Course to align their agreement expiration with the Hillcrest Golf Course. This allowed the process to commence the evaluation to cost recovery for the service. This was done with the intent of negotiating a new agreement with both Golf Courses, establishing a new rate structure

on a cost-plus basis. The following table summarizes the amount each Golf Course has paid over the last four years:

Year	Hillcrest Golf Course	Lynbrook Golf Course
2015	\$11,250.00	\$15,000.00
2016	\$0.00	\$15,000.00
2017	\$11,250.00	\$15,000.00
2018	\$12,600.00	\$21,000.00

Past agreements for the Lynbrook Golf Course have consisted of a flat charge due for each season. The Hillcrest Golf Course agreements had been structured to pro-rate their cost based upon Lynbrook's cost and the time of the year. The Hillcrest would pay a reducing percentage based upon when they first called for water in the season. For example, sixty percent (60%) of Lynbrook's costs after July 1 or forty percent (40%) after August 1. If the Hillcrest did not call for water in the season, then they were not charged for the season, which occurred in 2016. It is uncertain why previous agreements were structured this way; it may have been an attempt to make sure there was adequate water supply early in the season for the Lynbrook during dryer years by providing the Hillcrest with an incentive to wait.

## **DISCUSSION**

Water usage between the two Golf Courses cannot be determined by the City. Water is pumped from Snowdy Springs to a small open reservoir at Britannia Park. The water is then pumped from Britannia Park to where it exits and mixes with existing water in Spring Creek at Thatcher Drive. This water runs overland from this point to fill the ponds at the Lynbrook Golf Course, and if left pumping, will spill over and begin to fill the ponds located at the Hillcrest Golf Course.

Both Golf Courses irrigate from their series of ponds and that mixture of water could consist of rain water, additional storm runoff from City drainage infrastructure, Spring Creek water, and Snowdy Springs water. This makes it impossible for the City to accurately measure the portion of water supplied and consumed from Snowdy Springs. Additionally, the nature of the ponds at each Golf Course are very different. The Lynbrook has smaller ponds requiring them to call for water on a more frequent basis in smaller quantities, while the Hillcrest has larger ponds and can call for water on a less frequent basis but in larger quantities.

The City incurs costs to keep the facilities accessible and equipment and pipeline operable for this service when required. This water source is not potable in its current form and is not connected to the City water distribution system. There are only two users for this water, the Hillcrest and Lynbrook Golf Courses.

Communication with the Golf Courses began earlier this year. The City asked the Golf Courses to work together to determine a mutually agreeable cost share of City expenses in order to facilitate the new agreement as opposed to Administration or Council assigning this cost. A cost share has not yet been agreed to.

The costs to the City to keep Snowdy Springs and Britannia Park in operation and supplying water to the Golf Courses exclusive of weed control as that is required in any event is:

Cost Detail	3-year average	2018	2017	2016
Operation, Maintenance, Repair	\$5,046.20	\$8,572.00	\$4,413.24	\$2,153.37
Cost of Pumping (Power)	\$18,375.59	\$22,792.43	\$22,806.49	\$9,527.85
<b>Total</b>	\$23,421.79	<b>\$31,364.43</b>	<b>\$27,219.73</b>	<b>\$11,681.22</b>
<b>Add 12.36% administration charge</b>	<b>\$26,316.73</b>			

A 3-year average will serve to mitigate any rate shock to the Golf Courses for any unplanned repairs outside of normal operations. It is further recommended that as there are no usage figures that the costs be shared 50-50 for 2019 of \$13,158.37 to both the Hillcrest and Lynbrook Golf Courses. Final costs for 2019 are not known at this time but the 3-year average cost for 2020 is expected to rise for both Golf Courses to an estimated \$16,500.

The charges reflected above are for operating costs only. There is no provision for Capital Reserve creation. Below is a breakdown of the infrastructure involved and its general condition.

- The dam at Snowdy Springs is in poor condition and is leaking.
- The buildings that house the pumping equipment are small and receive little maintenance and function mainly as weather protection.
- The pumps in place are dated and not efficient by modern standards.
- The pipeline appears to be in decent condition where it has been exposed but breaks have been experienced.

Everything is repaired as needed but there will be a point in time when major failures will occur requiring decisions to be made on the future of this service. Connecting to potable water is an option, but it is unknown how much water each Golf Course irrigates with so costs cannot be estimated. It is expected to be a very expensive option. Construction costs to install an appropriate size water main to each golf course pump house would also have to be determined under this consideration.

### **OPTIONS TO RECOMMENDATION**

THAT the Hillcrest Golf Course and the Lynbrook Golf Course water irrigation rates be calculated based on a 3-year rolling average at a cost share determined by City Council.

**STRATEGIC PLAN**

This initiative is consistent with the following strategic plan objectives:

- Transportation & Infrastructure
- Entrepreneurial Civic Administration
- Core Amenities and Services

**OTHER CONSIDERATIONS/IMPLICATIONS**

There is no policy, financial, or privacy implications, official community plan implementation strategies or other considerations.

**PUBLIC NOTICE**

Public Notice pursuant to the Public Notice Policy is not required.

**PRESENTATION**

VERBAL: Administration from the Department of Engineering Services will provide a verbal overview of the report.

**REPORT APPROVAL**

Written by: Darrin Stephanson, Manager of Utilities  
 Reviewed by: Tracy Wittke, Assistant City Clerk  
 Approved by: Josh Mickleborough, Director of Engineering Services  
 Approved by: Jim Puffalt, City Manager  
 Approved by: Fraser Tolmie, Mayor

**CITY MANAGER COMMENTS**

The Golf Courses have a number of questions and concerns with the proposed agreement such as fairness with other City Facilities paying for water and cost when not used.

We are reviewing the questions and concerns and it is proposed that Council accept this report as an update and that my office co-ordinate a meeting with the Golf Courses to review their concerns and the proposed agreement.

*To be completed by the Clerk's Department only.*

Presented to Regular Council or Executive Committee on \_\_\_\_\_.

No. \_\_\_\_\_ Resolution No. \_\_\_\_\_



**Report Approval Details**

Document Title:	Hillcrest and Lynbrook Golf Course Irrigation - EC-2019-0240.docx
Attachments:	
Final Approval Date:	Nov 21, 2019

This report and all of its attachments were approved and signed as outlined below:



Tracy Wittke



Jim Puffalt



Fraser Tolmie





# City of Moose Jaw

**COMMUNICATION # EC-2019-0247**

**TITLE: RFP for Trades Services**

**TO: Executive Committee**

**FROM: City Manager**

**DATE: November 18, 2019**

**PUBLIC: PUBLIC DOCUMENT**

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## **RECOMMENDATION**

THAT City Council authorize a Request for Proposals for 2020 for the following trades with an option for a four-year renewal from January 1, 2021 to December 31, 2024:

- Electrical
- Plumbing/HVAC
- Carpentry

THAT a subsequent report be brought to City Council in December 2020 to determine if the four-year renewal option would be approved.

## **TOPIC AND PURPOSE**

The purpose of this report is to request authorization from City Council to issue a Request for Proposals for 2020 for the following trades:

- Electrical
- Plumbing/HVAC
- Carpentry

## **BACKGROUND**

In the 2019 Budget Plan for the City Manager's Office, the following was noted as an objective for 2019:

Continuous Improvement/Rationalization of Services

*In 2019, a concentrated approach will be undertaken to co-ordinate City Departments in areas such as purchasing, advertising, electrical and plumbing contractors, legal and external consultants.*

As well, at the City Council meeting of June 24, 2019, City Council tabled the following motion until a report is received from Administration regarding the entire process:

*"THAT Administration release an RFP for the provision of electrical services for the City of Moose Jaw."*

## **DISCUSSION**

The attached spreadsheet details a three-year analysis (2016/2017/2018) of the funds spent on the trades by the City of Moose Jaw. The City spends on average \$937,600 per year on the trades. In the analysis of actual sample of bills from those time periods, it is estimated that costs are 60% labour and 40% parts with an estimated 30% markup.

Option 1 to provide this service was to determine if this function could be brought in-house as other Cities have done. There is an estimated cost savings of about \$59,000 annually without the direct/indirect costs of advertising/filling the positions, maintaining and supporting the new division and overhead. Carpentry is not at a value that there should be any more consideration of what is being done, other than the 3<sup>rd</sup> option. It is believed that this option is too close to call and the cost reductions may be achieved by a City-wide RFP.

The 2<sup>nd</sup> option considered was the status quo which has seen no potential economies of scale and in essence each Department is completing their own contracting of day to day requirements.

The 3<sup>rd</sup> option considered was to source a coordinated City-wide Request for Proposals to determine if it is possible to achieve economies of scale. The costs would be analyzed over a ten-month time period so that a report could be formulated to recommend should the four-year option be renewed. That would be based upon costs, services provided, and satisfaction of the work completed. It is noted that the RFP's will include as much of the City's work that can be completed with the various firms, however, there may be some specialized expertise that would be outside the RFP.

Further, the City will coordinate specialized Mechanical Contracts such as elevators and ice plants with Mosaic Place to determine if economies of scale can be achieved.

## **STRATEGIC PLAN**

Entrepreneurial Civic Administration  
Co-ordination of functions

## **PRESENTATION**

VERBAL: Mr. Jim Puffalt, City Manager, will provide a brief overview of the report.

## **ATTACHMENTS**

- i. CMJ Journey Trades Analysis – 2016-2019.

## **REPORT APPROVAL**

Written by: Jim Puffalt, City Manager  
Reviewed by: Tracy Wittke, Assistant City Clerk  
Approved by: Jim Puffalt, City Manager  
Approved by: Fraser Tolmie, Mayor

*To be completed by the Clerk's Department only.*

Presented to Regular Council or Executive Committee on \_\_\_\_\_.

No. \_\_\_\_\_ Resolution No. \_\_\_\_\_

**Report Approval Details**

Document Title:	RFP for Trades Services - EC-2019-0247.docx
Attachments:	- CMJ Journey Trades Analysis - 2016-2019.pdf
Final Approval Date:	Nov 19, 2019

This report and all of its attachments were approved and signed as outlined below:

A handwritten signature in black ink, appearing to read 'Tracy Wittke', with a stylized, cursive script.

Tracy Wittke

A handwritten signature in black ink, appearing to read 'Jim Puffalt', with a stylized, cursive script.

Jim Puffalt

A handwritten signature in black ink, appearing to read 'Fraser Tolmie', with a stylized, cursive script.

Fraser Tolmie

**CITY OF MOOSE JAW  
JOURNEY TRADES ANALYSIS  
2016-2019**

[illegible]

\* Does not include Capital Construction Projects or Specialized Mechanical Contracts such as Controls or Elevators

Journeyman Costs are estimated at \$ 35 per hour plus benefits of 30%/Overtime	\$ 45.50
Full year Journeyman Costs - 2080 hours	\$ 100,000

Carpentry - not enough work to warrant a specialized position.

**Based upon the above the Maintenance Crew would be:**

Two Journeyperson electrician/Instrumentation Technician

Two Journeyperson Plumber/ HVAC Technician

One Journeyperson Working Supervisor



# City of Moose Jaw

## COMMUNICATION # EC-2019-0249

**TITLE:** Smart Water Metering

**TO:** City Council

**FROM:** Department of Engineering Services

**DATE:** October 2, 2019

**PUBLIC:** PUBLIC DOCUMENT

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### **RECOMMENDATION**

THAT approval be granted to the Department of Engineering Services to issue an RFP for the purchase and installation of an Advanced Metering Infrastructure including the replacement of the City's water meters with smart meters.

Further, that the RFP Report to Council will include financing options as well as timelines to complete the project.

### **TOPIC AND PURPOSE**

The purpose of this report is to outline the City's current water metering technology and engage in a discussion on alternatives to implement a new smart, customer service friendly, effective and efficient water metering network.

### **BACKGROUND**

The City of Moose Jaw currently provides potable drinking water services to 12,416 active customers, not including seasonal accounts. Water meters measure the consumption of water for each customer and billing is comprised of two charges:

- 1) A base fee for water and sewer which is dependent on the size of the water meter.
- 2) A consumption charge for water and sewer recorded by the water meter.

Water meters are critical to the operation of the Water and Wastewater Utilities to recover the costs associated with providing water and wastewater services and to provide billings. Information on the City's water meters is included in Attachment i.

The reading of water meters is performed by the Treasury Department. The City is separated into quadrants and meters are to be read three times annually (37,248 total reads) plus one estimated read. The City is only able to attain 24,744 actual reads per year and estimate reads for the other two billing periods. When staff are unable to obtain a read for a property the City relies on the residents to read and report the meter consumption or the Water Meter Department is booked through an internal order system to obtain the read. An employee is then deployed to attempt to obtain the required read. In 2018 the Water Meter Department was deployed to obtain 2,329 reads.

Estimated quarterly billing can be problematic for the customer. Small leaks or running toilets can go unnoticed in a home and lead to very large bills when a possible six months could elapse between actual meter reads. The City regularly receives billing complaints and is unable to effectively resolve them due to the infrequency of meter readings. Regular meter reads are the best indicator for homeowners and City personnel to detect and trouble shoot for high water consumption. It should be noted that staff requiring access to thirty-four percent (34%) of customers' homes, twice annually, coupled with long estimating periods are not customer service-oriented procedures.

## **DISCUSSION**

Smart Metering can be broken into two distinct discussion points, meter reading technology and meter design.

### **Meter Reading Technology**

The most modern meter reading technology is called Advanced Metering Infrastructure (AMI). Meter reads are automatic and can be collected on demand remotely. There are many benefits that can be realized from an AMI network coupled with the right water meters:

- Hourly meter reads collected automatically eliminating the need for staff to physically attend the property or for the City to estimate bills.
- Elimination of safety concerns from staff entering homes alone.
- Any billing cycle can be chosen - quarterly, monthly, etc.
- More accurate data through the reduction/elimination of manual entry.
- Alarms can warn the customer or City personnel to abnormal usage which can immediately indicate water leaks in the home.
- Customers and City personnel have access to real time data, reducing billing concerns and greatly enhancing transparency.
- Water services can be turned on or off remotely for select accounts (move ins/outs, snowbirds, delinquent accounts).
- Temperature sensors can alert customers and City personnel to the risk of freezing service connection lines when a reduction in temperature is detected.
- Immediate detection of meters that have been damaged, stopped, or tampered with.

Non-mechanical (solid state) water meters are a newer technology of meter that have no internal moving parts. This technology measures water by analyzing signals in the flow of water with a series of electrodes. These meters can read low flow rates well and maintain their accuracy for their entire service life translating to no loss of revenue from degradation. The life expectancy of these meters is twenty (20) years due to battery life limitations and manufacturers do offer up to a fifteen-year full warranty plus an additional five-year prorated warranty.

## **FINANCIAL ANALYSIS**

The City of Moose Jaw has had an average of 5,532.3 ML (megalitres) of treated water pumped annually from Buffalo Pound Water Treatment Plant over the last three (3) years. The City of Moose Jaw has billed customers for water usage and wastewater disposal and treatment at an annual average volume of 4,579.4 ML over the same time frame. This means that an average of 952.9 ML (17.2%) of water is unaccounted for annually. All water systems have loss and there are many causes for this discrepancy in water consumption:

- Water loss due to leaks and breaks
- Provision of temporary water due to system disruptions (water trailer, house to house connections for service leaks)
- Capital construction project consumption of water (water main replacement, water or sanitary main lining, paving, etc.)
- Operational programs (street sweeping, uni-directional flushing, sanitary main flushing, etc.)
- Metered service connections under read due to aged meters
- Undetected theft of water (unauthorized connections, meters that have been tampered with)

Through discussions with suppliers, industry studies and the City of Moose Jaw's own testing results from retired water meters, an estimate of 4% - 6% additional revenue gain has been used for this business case. This 4% - 6% increase in meter reading equates to an average of 183.2 ML - 274.8 ML or 19.2% - 28.8% of the water that is unaccounted for annually. The other would be from losses in the systems from leaks as well as preventative maintenance such as flushing.

In addition to a revenue increase, there will also be savings in annual operational costs (labour, materials, and equipment). Meter reading at every home or business in Moose Jaw will no longer be required as it will be automatically transmitted every hour. The number of water meters currently being replaced in the system will drop dramatically as the entire system is replaced through this program. Annual installs will consist of meters that have prematurely failed (warranty) or new home or business builds. With the reduction of reading required, the associated tools and vehicles can be repurposed or eliminated. The City anticipates a reduction of three (3) permanent positions which will be addressed through attrition.

## **COST ANALYSIS**

The cost to install the AMI infrastructure and replace the City's meter network is estimated at \$6,000,000. This estimate has come from high level discussions with several suppliers and other municipalities that have recently installed new systems. In order to install new



meters at every property in the City, water will need to be temporarily shut off for this installation. Internal water shut off valves at every property cannot be expected to work so the outside curb stop will need to be operated in those instances. Curb stops fail at a high rate over their lifetime and it has been estimated the number that will need to have some sort of repair (3 types, minor to major) during the project. All the costs, savings and revenue generation are shown in the following table:

AMI and smart meter system	Annually	20-year lifespan	Implementation Costs	One-time expenditures
Operational Savings	\$259,816	\$5,196,320	Additional Construction Work	\$570,965
Revenue Increase (4-6%)	\$495,342 - \$743,012	\$9,906,840 - \$14,860,240	AMI system and smart meter installation	\$6,000,000
Total	<b>\$15,103,160 - \$20,056,560</b>		Total	<b>\$6,570,965</b>
<b>Net Benefit (20 years)</b>	<b>\$8,532,195 - \$13,485,595</b>			

A simple payback model for this project would range from 6.6 to 8.7 years.

A request for proposal will be used to engage the contractor and the smart meter expertise required to complete the project. The project will be managed the same as a major capital project with a Technologist assigned as the Project Manager. The Project Manager will have an internal project team to support the project, including managers, technical, operational and communications support. The contractor will complete the required work and lead much of the communication when the work is underway.

Pending Council approval, the request for proposals would be drafted, issued and awarded. It is anticipated that the meter installation work would start in the summer of 2020. This would correspond well with the training and on-boarding of the additional construction crew which would be complete or nearly complete at this time.

## SUMMARY

The AMI project will result in costs savings from operational requirements and additional revenues from accurate meter readings, it is anticipated that there will be a new stream of monies that will be available to provide funding to finance the project over a period of time.

The simple payback on the investment is estimated to be 8.7 years based upon the worse-case scenario of operational savings/revenue increase of just over \$ 755,000 annually. This investment would fit within the City's guiding budgeting principles and it is recommended that the City should seek to invest in infrastructure when productivity, efficiency and effectiveness increases are possible.

Options to finance the AMI program include vendor supplied financing, external borrowing, self-financing, reserves or a combination of these methods. Once the RFP proposals have been received, the Department of Financial Services will work with the

Department of Engineering Services to determine the best means of financing. The financing method will then be presented to City Council for the appropriate approvals.

Not only does this project generate revenue and savings for the City in a utility that requires significant funding for infrastructure replacement, it also greatly increases transparency and customer service for the City's water users.

### **OPTIONS TO RECOMMENDATION**

- 1) That the City continue with the current practice of meter reading and meter replacement.

### **COMMUNICATION PLAN**

This project involves the replacement of all water meters in the City. Every property that has a water connection will need to be entered in order to perform the meter installations. Significant communication will be required before and during the project implementation. The Communications Manager will be an integral part of this communication development.

### **FINANCIAL IMPLICATIONS**

The estimated cost of this project is \$6,570,965 and is expected to be offset by cost savings and revenue generation. A separate report will be delivered by the Department of Financial Services once the RFP results have been received.

### **STRATEGIC PLAN**

This fits the following major objectives of the Strategic Plan:

- Entrepreneurial Civic Administration and the subheading of Updated Information Technology Systems.

As well as the following values:

- We will have the courage to try new things and not be afraid action could lead to failure.
- We will be forward thinking and innovative in identifying problems and finding solutions.

### **PUBLIC NOTICE**

Public Notice pursuant to the Public Notice Policy is not required.

### **PRESENTATION**

VERBAL: Administration from the Department of Engineering Services will provide a brief overview of the report.

## **ATTACHMENTS**

- i. Smart Metering – Water Meter History/Relevant Information

## **REPORT APPROVAL**

Written by: Darrin Stephanson, Manager of Utilities  
Reviewed by: Josh Mickleborough, Director of Engineering  
Tracy Wittke, Assistant City Clerk  
Approved by: Jim Puffalt, City Manager  
Approved by: Fraser Tolmie, Mayor

*To be completed by the Clerk's Department only.*

Presented to Regular Council or Executive Committee on \_\_\_\_\_.

No. \_\_\_\_\_ Resolution No. \_\_\_\_\_

**Report Approval Details**

Document Title:	Smart Water Metering - CC-2019-0249.docx
Attachments:	- Smart Metering Attachment i.docx
Final Approval Date:	Nov 21, 2019

This report and all of its attachments were approved and signed as outlined below:



Tracy Wittke



Jim Puffalt



Fraser Tolmie

**Attachment i**

**CITY OF MOOSE JAW**  
**Water Meter History/Relevant Information**

The reading of water meters has changed significantly with the introduction of technology. The following table summarizes the major changes in meter reading methods and how municipalities around the province currently collect meter reads.

**Introduction of Water Meter Reading Technology**

<b>Year</b>	<b>Mechanism</b>	<b>City</b>
pre-1950	Manual Read of Meters (enter home to perform read)	Moose Jaw
1950	Visual/Dial Read Meter (register on exterior of home – prone to inaccuracy)	Moose Jaw
1970	Scan/Touchpad Read Remotes (wired pad on exterior of home)	Moose Jaw, North Battleford
1980	Radio Frequency Mobile Reading (no requirement to enter homeowner's property – first version of Smart Metering)	Regina, Swift Current
2000	Two -Way Communication (Advanced Metering Infrastructure (AMI) – evolution of Smart Metering)	Saskatoon, Weyburn, Prince Albert, North Battleford

Moose Jaw currently uses three different methods to collect meter reads:

- 1) Manual Read of Meters – 4,246 customers
- 2) Dial Read Remote – 982 customers
- 3) Touchpad Read Remotes – 7,188 customers

Water meters vary in size from 5/8-inch to 8-inch. The current standard for a residential meter is 3/4-inch. A size breakdown of the water meters in service are shown in the following table:

<b>Meter Size</b>	<b>5/8"</b>	<b>¾"</b>	<b>1"</b>	<b>1.5"</b>	<b>2"</b>	<b>3"</b>	<b>4"</b>	<b>6"</b>	<b>8"</b>	<b>Unknown</b>
<b>Quantity in Service</b>	9,307	2,481	241	47	225	21	13	5	4	72

The inventory of water meters in use also vary in age, as illustrated in the following table:

<b>Meter Age</b>	<b>1 year</b>	<b>2–5 years</b>	<b>6–10 years</b>	<b>11–15 years</b>	<b>+15 years</b>	<b>Unknown</b>
<b>Quantity in Service</b>	326	1,389	2,038	2,399	5,674	590

### **Meter Design**

Water meter design has historically consisted of a positive displacement meter with an internal nutating disc (mechanical meter). Mechanical meters are not effective at reading low flow rates and this can result in a significant amount of water consumption lost the larger the water meter gets. Mechanical meters begin losing accuracy once

installed. This loss of accuracy accelerates as the meter ages, more sharply as the meter passes ten years in service. Mechanical meters typically lose 3% – 8% accuracy, under reading water consumption, when they are ten to twenty years in age. Over 50% of the City of Moose Jaw's in-service water meters are over fifteen years old, 70% over ten years old. Current resources in the Meter Department put the City on a replacement cycle of water meters at thirty-six (36) years.