COMMITTEE OF THE WHOLE
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RECOMMENDED ACTION

That the Committee of the Whole recommends to Council that:

1) The Town of Kingsville implements AMI Technology to achieve both the non-financial and financial benefits associated with the business drivers listed in the report.

2) A "Turnkey" Procurement Strategy be implemented instead of soliciting the market for separate components for the AMI system.

3) Existing assets/infrastructure be allowed for during Procurement.

4) The Town changes all water meters ten (10) years or older as part of the project.

5) The Town installs mechanical meters up to 1.5" in diameter and non-mechanical meters for 2" and larger.

6) A 20% contingency on the installation portion of the project be budgeted to account for potential complications during meter replacements.

7) This project consists of a 6-month procurement phase beginning in 2022 with a 3-month startup and a 12-month implementation phase starting in 2023.

BACKGROUND

The primary function of a water meter is to measure the amount of water consumed by customers to facilitate fair and accurate billing of water and wastewater services. Additionally, these meters are relied upon to ensure that appropriate revenues are collected to fund water and wastewater operations and related capital replacement projects.

As water meters age, they become less reliable, less accurate, and more costly to repair. The industry standard is to replace water meters every 15 to 20 years. The Town of Kingsville currently has 8708 meters of various sizes. The average age of the meters is over 15 years old, with a large contingent of meters installed in 1996. A breakdown of meter-age can be seen in the following table:

Age	Number of Accounts
< 5 years old	475
5-9 years old	676
10-14 years old	1219
15-19 years old	1737
> 20 years old	4364
Unknown	237

In conjunction with the physical meters, utilities use several different technologies to acquire meter reads, process information, and bill the customer. Most utilities use one of the following two technologies:

1) Automated Meter Reading (AMR)

AMR technology is the Town's current method to acquire meter reads for billing. These systems use drive-by data collectors to gather information from radio transmitters wired to the meters. This information is then manually uploaded via thumb drive into Customer Information Software for billing. Kingsville is divided into three read routes, with one read each month. Therefore, individual meters are read every three months, and customers are billed quarterly. Unfortunately, the AMR technology Kingsville uses to gather meter reads has become obsolete and is no longer supported by the Vendor.

2) Automated Metering Infrastructure (AMI)

An AMI system also consists of radio transmitters, data collectors, and software. However, data collector units are typically mounted on poles, towers, or buildings, meaning they can collect water meter readings more frequently than AMR technology (Daily). As identified in the report, this provides the following advantages:

- **Revenue Protection** e.g., Reduced theft and tampering, identifying stopped meters.

- **Operational efficiency** e.g., Improved response times, reduced meter reading expenses.

- **Improved Distribution System Performance** e.g., Leak detection, district metering, and demand monitoring.

- **Enhanced Customer Service** e.g., Online access to consumption, high usage alerts.

- **Societal/Environmental Benefits** e.g., Improvements in water conservation and carbon emissions.

To summarize, the Town's current meter reading system requires a significant upgrade. A large number of meters in Kingsville have reached the end of their useful life, and the AMR technology used to acquire meter reads is becoming obsolete.

Meter replacement projects are complex because they involve specialized technology, network design, software implementation, and experts in field installation services requiring customer interaction and scheduling across broad geographic areas. Furthermore, the technology that Kingsville chooses will serve customers for at least 20 years. Given the complexities of the project, the Town retained Diameter Services, a consultant specializing in metering, to review current technologies to help choose a system that aligns with the municipality's immediate and future needs (Report attached as Appendix A).

DISCUSSION

The report provided by Diameter Services contains a general summary of the project scope, financials, and implementation of a meter replacement project for Kingsville. The seven (7) recommendations begin on Page 35 of the report. Administration will seek approval to proceed with the procurement phase of the project at a future regular meeting of Council.

AMI and AMR technology have different features and functionality. The Diameter Services team reviewed 37 different business drivers with a project team consisting of Finance, IT, and Infrastructure and Engineering staff to determine organizational needs and identify the best technology fit. Administration considered these with several factors in mind, including Council's Top 15 Priorities, Kingsville's Strategic Plan, future growth and development, and the needs of Kingsville's diverse economy and business sectors.

Business Driver Assessment (Page 10 in Appendix A)

Page 10 of the report summarizes features that the project team deemed critical or most important. These features provide significant improvements in customer service, create operational efficiencies, and minimize revenue loss when compared to the AMR system currently in service. Improvements include the ability to:

- Quickly identify failed meters, misapplied meters, and leakage.

- Provide enhanced tracking of water consumption to predict changes in demand within specific industries or sectors. This data could be used to encourage off-peak consumption through time-of-use billing.

- Improve customer service by creating an online portal where residents can track usage over time. Residents could set leak alarms and receive automated notifications when abnormal use occurs.

- Create operational efficiencies by reducing staff time committed to meter reads, re-reads, and final reads.

- Help enforce water conservation strategies and reduce the impacts of climate change.

As specified in the report, 19 out of the 21 important or critical business drivers were fully satisfied by AMI, whereas AMR only fully supported one of them.

Project Scope

- Meters 10 years or older will be replaced entirely. There are approximately 4725 indoors that will require an appointment and 2570 in meter pits that will not require an appointment.

- Meters 10 years and under will be retrofitted with new transmitters to ensure they are compatible with the new system. There are 1151 meters in this age group. In most circumstances, no appointment will be required.

- Installation of 8 Fixed Network Data Collectors strategically placed across the municipality.

- Installation of AMI Meter Reading and Data Collection Software.

- Ongoing support and licensing fees.

Implementation & Schedule

An implementation plan will be developed with the successful vendor that maintains a high degree of customer service throughout the meter replacements, delivers accurate information to property owners, streamlines operations, and provides overall improvements in customer service. The project schedule is outlined in the following table:

Phase	Activities	Duration	Start Date
Procurement	- Determine scope of work and specifications - Issue RFP and vet bidders - Seek Council approval to award RFP	6 mths	Apr. 2022
Start-up	- Determination of data collector unit locations - Installation and configuration of software - Implementation of communication plan - Begin scheduling appointments	3 mths	Jan. 2023
Installation	- Installation of Fixed Base Collection Network - Set appointments for indoor meter installations - Complete replacements in meter pits - Complete meter retrofits	1 year	Apr. 2023

Communication Plan

Early communication will build awareness of the project and the benefits of implementing AMI. The communication plan will outline the requirements for informing water customers and other stakeholders about the project before, during, and after the transition to AMI technology. The project team anticipates that a variety of engagement tools will be utilized. Working closely with the Town's Communications Coordinator, the project team will develop the content, methodology, and time of customer engagement to ensure consistent, effective messaging to support the project's goal of achieving a conversion rate of 97%

Additionally, as the project progresses, Council will receive regular updates that provide information about AMI technology, project schedules, meter replacement status updates, and budget.

FINANCIAL CONSIDERATIONS

The financial model in the report incorporates the initial capital costs and the operational impacts on five critical functions- meter reading, meter maintenance, customer service, billing, information technology (IT), and distribution system management. Based on the business driver analysis outcome, two types of AMI were chosen and compared against upgrading Kingsville's AMR system. The following is a breakdown of the financials:

Capital Expenses:

From procurement to installation, the entire project will last approximately two years. As such, approval of the project would result in future budgetary commitments. A breakdown of capital expenses is as follows:

Assumption	Scenario 1- AMI (Standalone)	Scenario 2- AMI (Cellular)	AMR Upgrade
Install	$ 944,737	$ 944,737	$911,990
Meter Supply	$ 989,585	$ 989,585	$989,585
Radio Transmitters	$ 1,139,500	$ 1,166,795	$804,820
Consulting	$ 289,000	$ 289,000	$266,750
CIS Support	$ 67,500	$ 67,500	$22,500
Contingency	$ 197,035	$ 197,035	$182,398
Total	$ 3,636,355	$ 3,663,649	$3,178,043

It should be noted that the Town provides meters to builders, contractors, and sub-trades, who then install the meters in new builds. Inconsistencies in how the meters were installed could lead to unforeseen issues. A 20% contingency has been added for installation expenses to account for potential complications in the field.

While the AMR replacement option would result in lowest initial capital investment, with a projected savings of $458,312 over Scenario 1, this system would not provide the same operational efficiencies or customer service improvements offered by an AMI system.

Revenue Improvements:

As meters age, they become less accurate. To illustrate this fact, a meter installed on Lakeview Ave in 1996 was recently sent in for testing, and it was only 87.2% accurate. There are expenses associated with sending meters in for testing. As such, the consultant used a standardized method to estimate revenue gain from meter replacements. The potential water and sewer revenue improvements from meter replacements equals $1,575,000 over the 20-year life of the meters.

Operational Efficiencies:

Upgrading to AMI will create operational efficiencies and cost savings in several areas, including meter reading, customer service, water billing, meter maintenance, and distribution system management. As summarized in Table 18 within the report, when factoring in new expenses, upgrading to a standalone AMI system should result in net annual savings of $51,576 over an AMR system.

Based on this analysis, the payback period for the additional investment required for standalone AMI system is less than 9 years.

Net Present Value (NPV):

The Net Present Value provides a good comparison between scenarios over time, taking into account the present value of benefits over 20 years and the costs incurred in the project's first two years. The NPV for each option is negative, meaning initial

expenses are not fully recovered through revenue improvements and operational efficiencies over the system's life.

As highlighted during the business driver analysis, AMI has numerous intangible benefits that are difficult to quantify financially. Kingsville has a diverse set of water consumers, and upgrading to AMI will improve customer service and distribution system management. The project team believes the additional costs ($485,606.00) for the features provided by AMI come at a small premium given the 20-year life of this system.

Funding:

Administration would recommended financing the meter replacement program through an increase to the water volume distribution rate.

The Town does not currently have sufficient reserves to fund the meter replacement program and would recommend financing the majority of the project costs through the issuance of debt. The debt servicing cost on a $3.6M loan, at current interest rates of 3%, for a 15 year term, would be approximately $300,000 per year.

Based on current water volumes, the Town would need to raise its distribution rate by $0.05 / m3 to satisfy this debt servicing requirement.   As the average household consumes 15 m3 per month, this would result in an increase of $0.75 per month.

The rate increase noted above reflects somewhat of a 'worst case scenario' as it does not factor in the revenue improvements anticipated through replacing older, less accurate meters with new ones. Further, the Town could apply up to $1M from the Water Department's Working Capital Reserve towards the cost of this project. This would reduce the debt servicing cost to approximately $215,000 per year, requiring a $0.035 / m3 increase to the distribution rate.

ENVIRONMENTAL IMPACTS

Report noted benefit to catching leaks (water conservation), as well as reduced carbon emissions as AMI does not require drive-by collection

CONSULTATIONS

Diameter Services
Financial and IT Services

Respectfully Submitted by,

(signature)

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REVIEWED BY:

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LINK TO STRATEGIC PLAN

Support growth of the business community.

Link to Council 2021-2022 Priorities

☐ COVID-19 and the health and safety of the community
☒ Customer Service: Training, Technology, Staff, Review Standards/Level of service
☐ Housing: Affordability (lot sizes, developer incentives, second dwellings, density, etc.)
☒ Greenhouse: lights & dark sky, odours (site plan compliance, bylaws, other tools)
☐ Programming Increase: Youth and Seniors
☐ A development plan for Downtown Kingsville / Main Street
☐ Financial savings: Schools closings, Migration Hall
☐ Economic Development: strengthen tourism/hospitality

☐ COVID - economic recovery

☒ Communications: Strategy – Policy (social media), Website refresh and other tools, Public engagement

☐ Housing: Migrant Worker Housing – Inspections (Building/Fire), regulate, reduce, or increase

☐ Committees / Boards: Review and Report

☐ Policy Update: Procedural Bylaw

☐ Economic Development: diversify the economy, create local jobs, industrial, Cottam

☒ Infrastructure (non-Municipal): Union Water expansion & governance

☒ Infrastructure (Municipal): Asset Management Plan update, the infrastructure funding deficit

☐ No direct link to Council priorities