

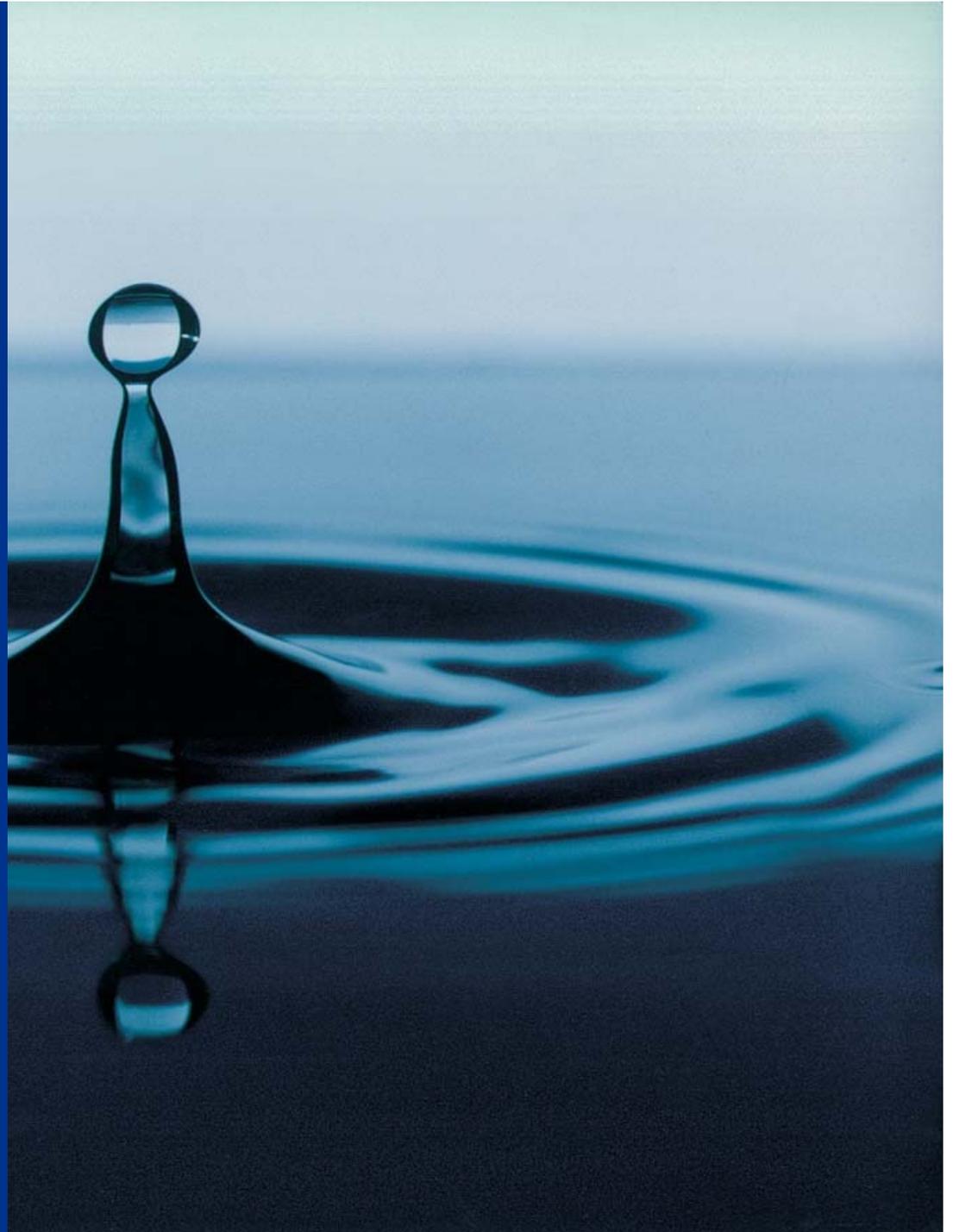


Municipality of Wawa

# Recommended Water and Wastewater Rate Structure

Final Report

January 29, 2018



# Executive Summary

KPMG LLP (“KPMG”) has been retained by the Municipality of Wawa (the “Municipality”) to undertake an assessment of potential water and wastewater rate structures for the Municipality, the intention of which is to provide recommendations with respect to rate setting and other activities for water and wastewater services. Our review has been requested in connection with the introduction of water meters by the Municipality, which provides the opportunity for alternative rate structures.

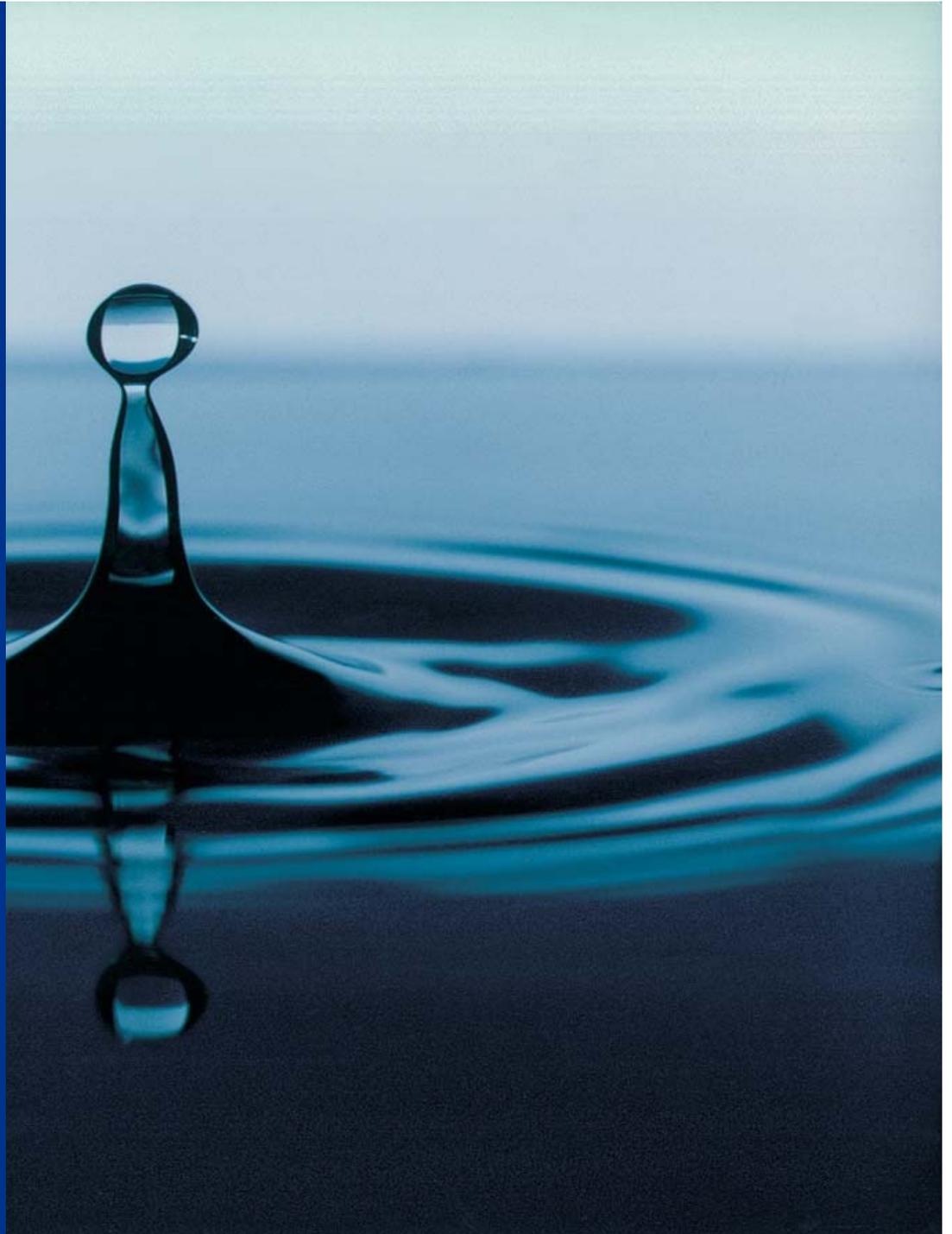
This report outlines the results of our analysis of the Municipality’s water and wastewater services and the recommendations presented for the consideration of Council and staff. As discussed in more detail in our report, we recommend that the Municipality consider the following courses of action with respect to water and wastewater rates:

1. The Municipality consider the implementation of a water rate structure that combines a variable component (i.e. based on consumption) and a fixed component (i.e. per customer charge), with the fixed component funding 75% of the Municipality’s water costs, eventually moving to 50% within three years.
2. The variable component should consider the use of a uniform variable rate, whereby customers pay a consistent rate per cubic meter of water consumed.
3. The fixed component should be calculated on an increasing basis based on the size of the water service.
4. The Municipality should determine whether to implement a fire protection charge that would fund that portion of water costs relating to fire protection capacity through the municipal levy as opposed to water rates.
5. The Municipality should determine whether to implement a phased-in sustainable capital asset funding program that would provide increased funding for water infrastructure reinvestment.
7. The Municipality should consider the establishment of a stabilization reserve for water and wastewater services that is funded through financial surpluses in water and/or wastewater services, with financial deficits in water and/or wastewater services funded through transfers from the reserves.
8. The Municipality should revise its current water and wastewater rate bylaw in order to reflect the recommended rate structure as well as other matters identified in our report (e.g. disconnect and reconnect fees, pre-authorized payments).
9. In connection with the implementation of the recommended water and wastewater rate structures, the Municipality should undertake an appropriate level of communication activities that commences several months prior to the introduction of the new rate structure. As part of these activities, consideration should be given to the hosting of one or more open houses for community residents.



Municipality of Wawa

# Introduction to the Study



# Introduction to the Study

## A. Terms of reference

KPMG has been retained by the Municipality to assist in the evaluation and implementation of rate structures for water and wastewater services. We understand that our review has been requested in connection with the installation of water meters by the Municipality.

The terms of reference for our review are established by the Municipality's request for proposal document (RFP 2017-02) and our subsequent proposal dated July 31, 2017. As noted in these documents, the terms of reference for our engagement include the following:

1. A recommended rate structure for water and wastewater services that appropriately funds the cost of these services and reflects best practices for regional communities in Northeastern Ontario
2. The development of an implementation plan for the transition to the recommended rate structures
3. The development of a communications strategy for the Municipality to assist with the introduction of the new rate structures

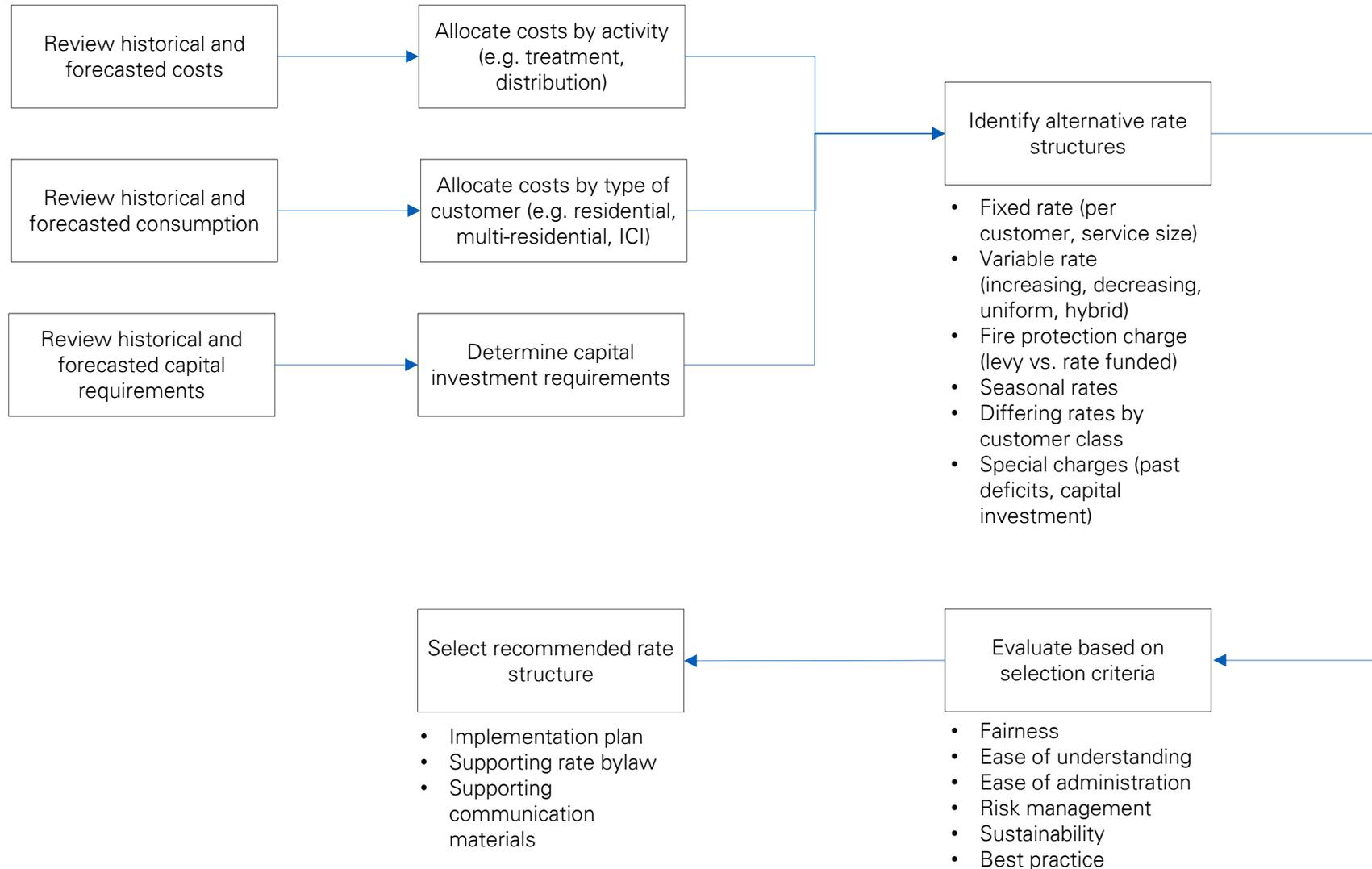
The scope of our review is limited to the Municipality's water and wastewater services and does not include the evaluation or recommendation of rates for other utility-type services such as stormwater management or streetlighting.

## B. Methodology

Our approach to developing a recommended water and wastewater rate structure is based on guidance provided by the American Water Works Association in their publication *Manual of Water Supply Practices – Principles of Water Rates, Fees, and Charges*. A graphical depiction of our methodology is included on the following page.

In developing our recommendations, we have relied upon financial and other information for the 2017 fiscal year and proceeding periods. It is important to recognize that our analysis and recommendations of water and wastewater rates will need to be updated upon finalization of the Municipality's 2018 budget and as such, the amounts presented in this report are subject to revision.

# Introduction to the Study



# Introduction to the Study

## **C. Restrictions**

This report is based on information and documentation that was made available to KPMG at the date of this report. KPMG has not audited nor otherwise attempted to independently verify the information provided unless otherwise indicated. Should additional information be provided to KPMG after the issuance of this report, KPMG reserves the right (but will be under no obligation) to review this information and adjust its comments accordingly.

Pursuant to the terms of our engagement, it is understood and agreed that all decisions in connection with the implementation of advice and recommendations as provided by KPMG during the course of this engagement shall be the responsibility of, and made by, the Municipality of Wawa.

This report includes or makes reference to future oriented financial information. Readers are cautioned that since these financial projections are based on assumptions regarding future events, actual results will vary from the information presented even if the hypotheses occur, and the variations may be material.

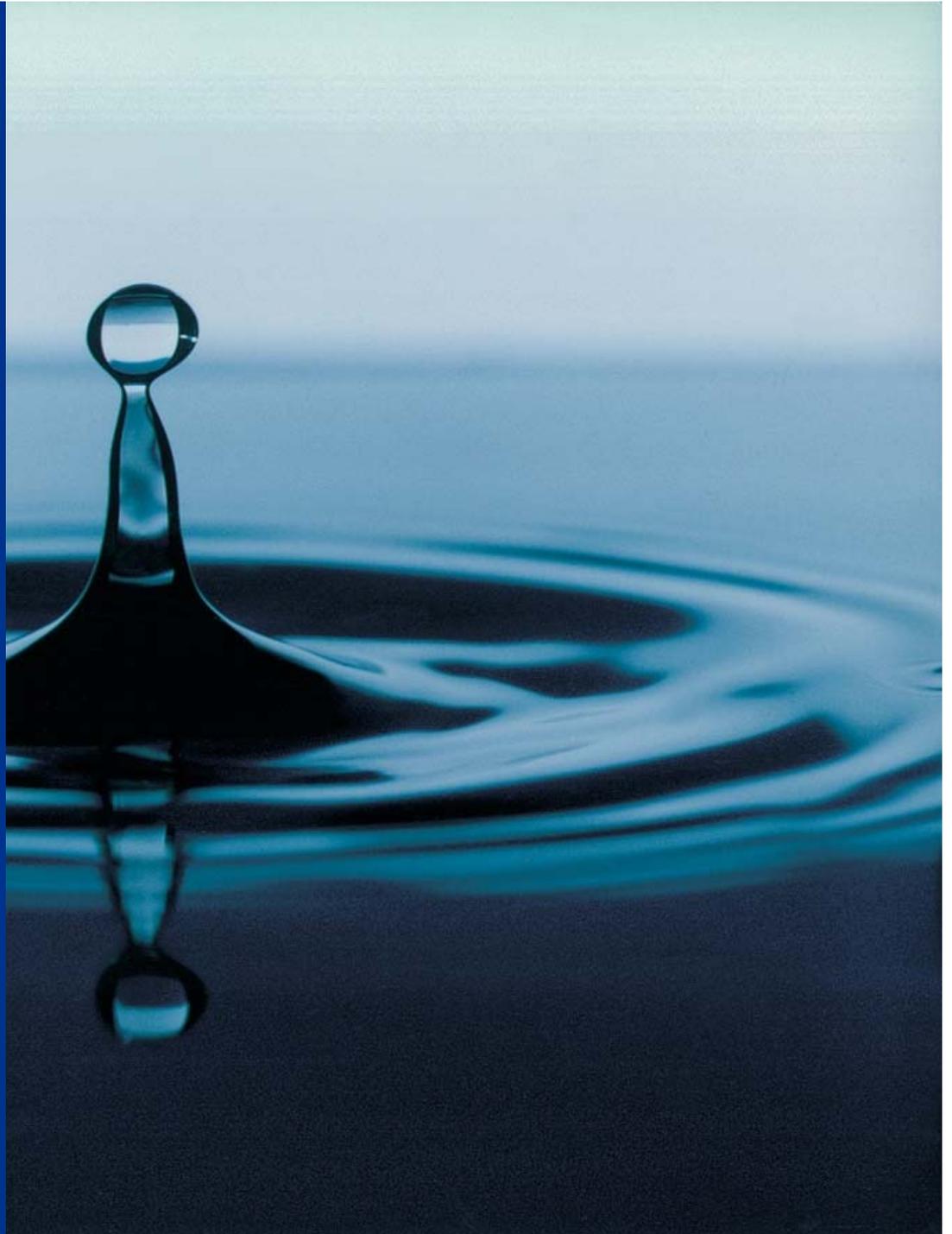
Comments in this report are not intended, nor should they be interpreted to be, legal advice or opinion.

KPMG has no present or contemplated interest in the Municipality of Wawa nor are we an insider or associate of the Municipality of Wawa or its management team. Our fees for this engagement are not contingent upon our findings or any other event. Accordingly, we believe we are independent of the Municipality of Wawa and are acting objectively.



Municipality of Wawa

# Overview of Water and Wastewater Services



# Overview of Water and Wastewater Services

## A. Water and wastewater treatment levels

The Municipality's provides potable water and wastewater treatment services to approximately 1,200 residential households and non-residential customers. The Municipality's water treatment and distribution system can draw a daily maximum of 25,000 m<sup>3</sup> of raw water from Wawa Lake, with a maximum rated capacity for treated water of 7,880 m<sup>3</sup> per day. The Municipality's wastewater collection and treatment system is rated to receive a maximum of 4,300 m<sup>3</sup> of wastewater per day, with treated wastewater discharged into the Magpie River.

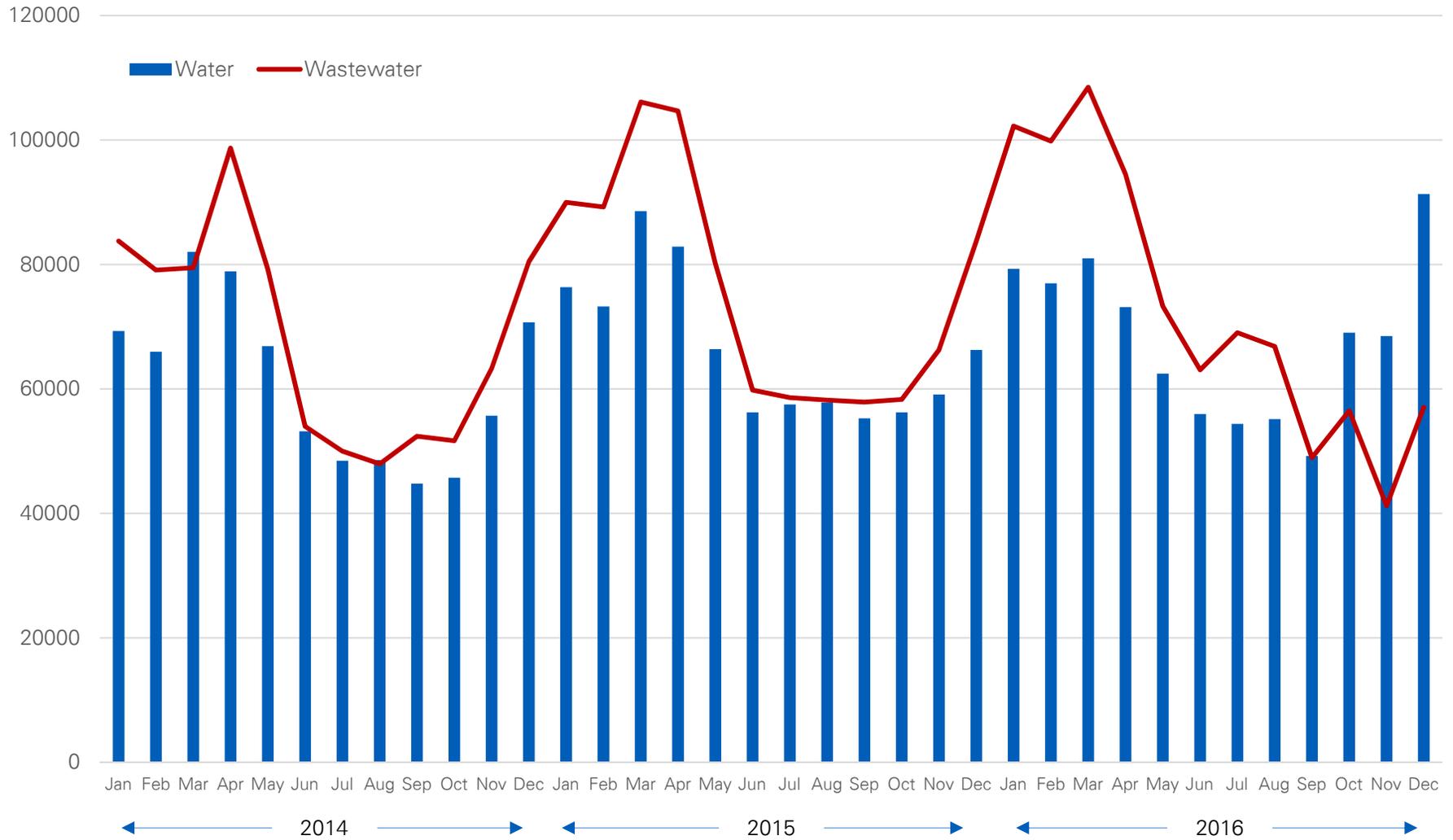
Over the last three years (2014 to 2016), the Municipality has treated and distributed an average of 780,000 m<sup>3</sup> per year of potable water to residents and non-residential customers, with an average of 871,000 m<sup>3</sup> per year of wastewater treated. The differential between treated water distributed by the Municipality and wastewater inflows is attributed to infiltration of the wastewater treatment system resulting from a number of potential factors, including (i) cracks in wastewater collection pipes; (ii) water infiltration through manhole covers; and (iii) stormwater connections to the wastewater system. The Municipality's overall infiltration rate during 2014 to 2016 is calculated to average 12%, which our experience indicates is lower than average for Northeastern Ontario municipalities.

We have provided a graphical depiction of the Municipality's water and wastewater monthly treatment volumes on the following page, which indicates that treatment levels are typically higher during the winter and spring months. Based on our discussions with management, we understand that this seasonal trend reflects:

- The high prevalence of customers that are permitted to continuously run water taps during the winter months to prevent the freezing of water services; and
- The infiltration of the Municipality's wastewater system by runoff from melting snow during the spring.

# Overview of Water and Wastewater Services

Monthly water and wastewater treatment volumes (in m<sup>3</sup>)



# Overview of Water and Wastewater Services

## B. Financial overview

On an annual basis, the Municipality generates approximately \$1.3 million in revenues to fund water and wastewater services, the majority of which is derived from water and wastewater rates. Other revenue sources include penalties and interest, sewage dumping fees, hydrant rentals and other charges.

The Municipality currently uses a flat rate structure for water and wastewater services, whereby residential customers are invoiced based on the number of rooms in their homes plus additional charges for plumbing fixtures above a threshold amount. Non-residential customers are invoiced based on specific categories (restaurants, stores, etc.) that vary based on varying considerations (number of rooms, seating capacity, parking capacity, etc.).

A summary of the Municipality's water and wastewater revenues and expenses is provided below.

Expenditure	2014 (Actual)	2015 (Actual)	2016 (Actual)
Water	\$512,674	\$509,130	\$562,687
Wastewater	\$152,896	\$215,095	\$151,343
<b>Total operating costs</b>	<b>\$665,570</b>	<b>\$724,225</b>	<b>\$714,030</b>
Contributions to reserves	\$20,000	\$50,000	\$51,850
Debt servicing	\$164,996	\$162,112	\$164,865
<b>Total expenses</b>	<b>\$850,566</b>	<b>\$936,337</b>	<b>\$930,745</b>
Water fees	\$585,343	\$609,379	\$644,689
Wastewater fees	\$544,048	\$566,344	\$601,969
Other revenues	\$77,667	\$88,248	\$96,918
<b>Total revenues</b>	<b>\$1,207,058</b>	<b>\$1,263,971</b>	<b>\$1,343,576</b>
<b>Financial surplus (before amortization)</b>	<b>\$356,492</b>	<b>\$327,634</b>	<b>\$412,831</b>

# Overview of Water and Wastewater Services

## B. Financial overview (continued)

As noted on the preceding page, the Municipality spent \$931,000 with respect to water and wastewater services, which includes operating costs, debt servicing charges and contributions to reserves. Traditionally, the Municipality's water and wastewater revenues have exceeded operating and debt servicing costs, with the excess being used to fund capital expenditures. Notwithstanding these apparent operating surpluses, however, the Municipality does not generate sufficient revenues to fully fund the amortization expense on its water and wastewater assets, resulting in losses for accounting purposes annually, as summarized below.

	2014	2015	2016
Financial surplus before amortization	\$356,492	\$327,634	\$412,831
Amortization expense	(\$879,733)	(\$983,996)	(\$890,005)
Financial deficit	(\$523,241)	(\$656,362)	(\$477,174)

The presence of financial deficits (after amortization) is indicative of the fact that the Municipality is not funding asset replacements at the same rate as the assets depreciate, resulting in continuous increases in its infrastructure deficit related to water and wastewater assets. At the same time, the magnitude of the required reinvestment is greater than the quantum of the financial deficits as amortization expense is based on an allocation of historical cost and not replacement cost. Given that the Municipality's asset management plan indicated that the replacement cost of linear assets was eight times the historical cost, the Municipality's ongoing shortfall in capital funding is higher than indicated above.

# Overview of Water and Wastewater Services

## C. Customer profile

The Municipality currently provides water and wastewater services to more than 1,200 residential and non-residential customers, or just under 90% of households in the community. While the Municipality has installed water meters and records consumption on a monthly basis, it continues to utilize a non-metered rate pending Council's adoption of a new rate structure.

KPMG's analysis of water metering data provided by the Municipality demonstrates a significant difference between recorded treated water flows from the water treatment facility and the amount of metered water consumption during 2016. We attribute these differences to the following:

- *Lost water production*, representing treated water flowed into the distribution system but not charged to customers. A number of factors can contribute to lost water, including (i) water consumed for non-billable purposes (firefighting purposes, hydrant testing and water main flushing); (ii) continuous running of water services during winter months to avoid the freezing of the water service; and (iii) leakage from the municipal distribution system. In our experience, lost water typically accounts for as much as 20% to 30% of total treated water production and we suggest that any losses above this level should be investigated.
- *Start-up issues with the Municipality's water meters*. During the course of our review, we noted a number of instances of negative consumption (both for individual customers and the overall water system in general), which we attribute to issues surrounding the accuracy of the water meters.

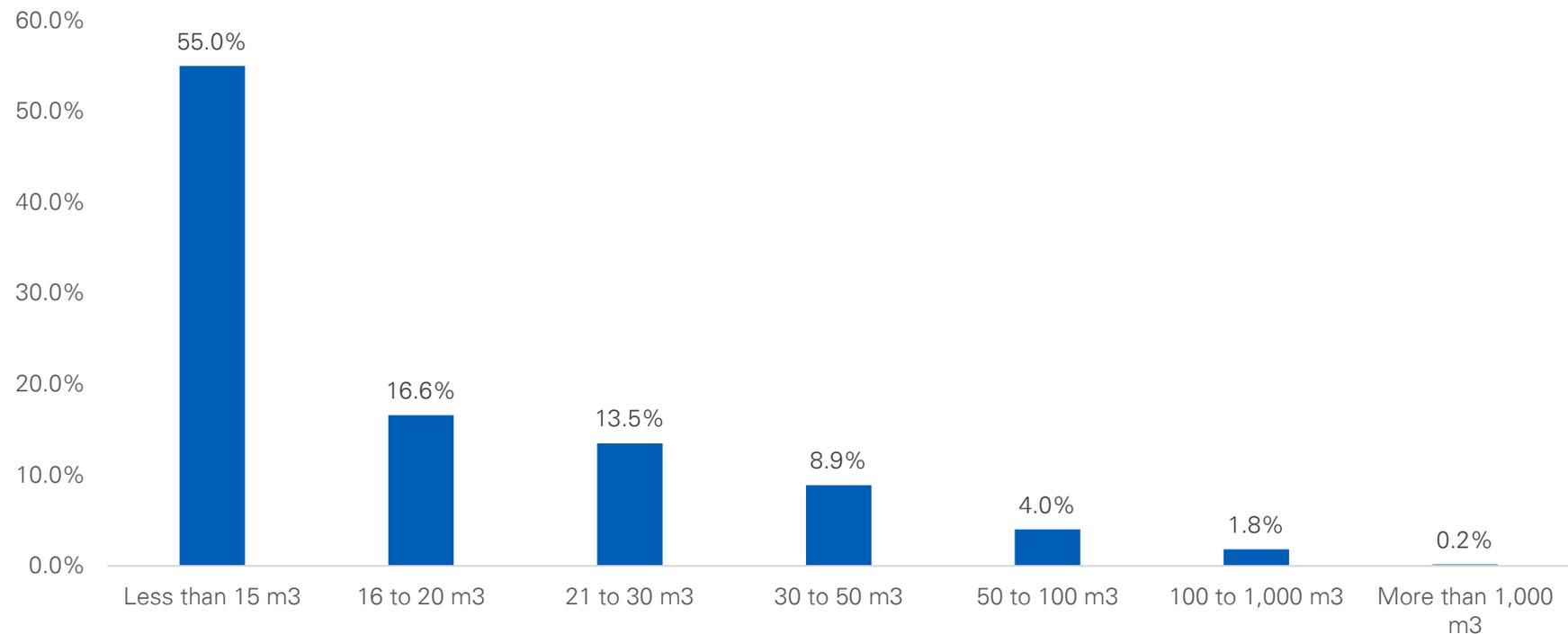
Month	Treated Water (m <sup>3</sup> )	Metered Water (m <sup>3</sup> )	Variance (m <sup>3</sup> )	As a Percentage of Treated Water
January	79,300	41,990	37,310	47%
February	76,973	24,374	52,599	68%
March	80,997	58,113	22,884	28%
April	73,130	82,141	-9,011	-12%
May	62,463	27,376	35,087	56%
June	55,967	28,073	27,894	50%
July	54,369	30,119	24,250	45%
August	55,154	30,817	24,337	44%
September	49,225	26,532	22,693	46%
October	69,046	25,714	43,332	63%
November	68,505	24,721	43,784	64%
December	91,318	26,258	65,060	71%
	816,447	426,228	390,219	48%

# Overview of Water and Wastewater Services

## C. Customer profile (continued)

Notwithstanding the differences between the recorded water meter consumption levels and the treated water volumes, the data provided by the Municipality does provide some insight into water customers. Specifically, we note that the majority of customers (55%) consume less than 15 m<sup>3</sup> of water per month, with 94% of customers consuming less than 50 m<sup>3</sup> of water per month. This distribution of consumption is indicative of a customer base that is comprised primarily of residential, multi-residential and small business customers, with minimal differences in consumption between the majority of customers.

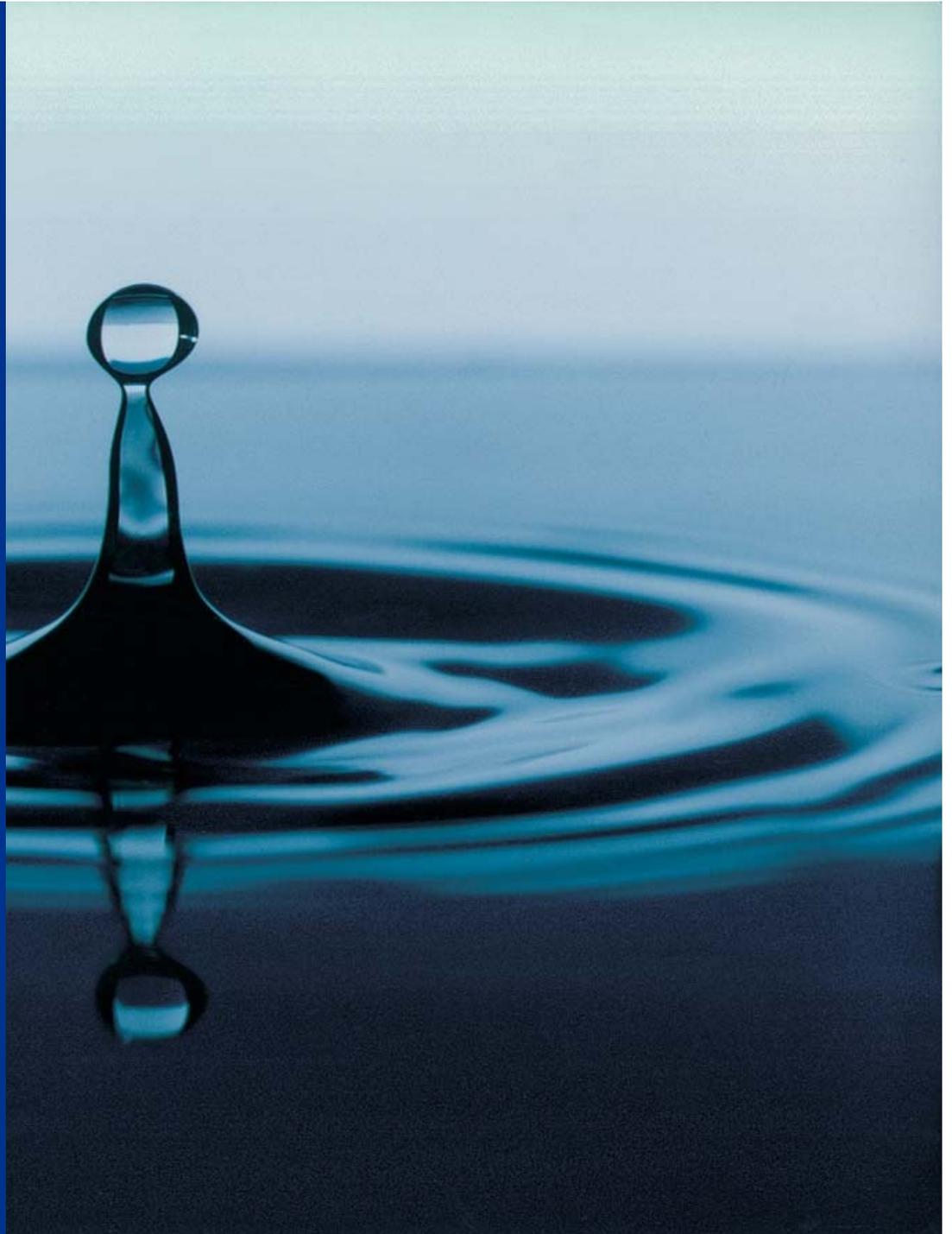
*Distribution of Metered Customers by Average Monthly Water Consumption (2016)*





Municipality of Wawa

# Analysis and Recommendation of Rate Structures



# Water Rate Alternatives

Generally speaking, water rates may consist of up to five components:

- A fixed charge, designed to recover costs that are incurred irrespective of the amount of water consumed.
- A variable charge, designed to recover those costs that relate to consumption levels.
- A flat rate for water services, typically used in areas where water meters are not present.
- Fire protection charges, designed to recover the cost of hydrant systems and excess capacity built into a municipal water system for the purpose of fighting fires.
- Rate surcharges, representing a charge added to current rates designed to collect a targeted amount of revenue in excess of that required to financing the cost of water services. Given that rate surcharges are normally used to finance specific projects or one-time emergency costs, we have not included a discussion of rate surcharges in our analysis.

Our analysis of each of these components follows.

## **A. Fixed charges**

As noted earlier, fixed charges are designed to finance water service costs that are incurred irrespective of the amount of water consumed. For example, expenses associated with meter reading and customer billing are a function of the number of water customers and not their individual consumption and as such, would be considered fixed costs that could be recovered through a fixed charge.

It is important to note that the concept of fixed costs for water rate setting differs from the definition of fixed costs from an accounting standpoint. Generally, the accounting definition of fixed costs relates to expenses that remain constant regardless of the level of activity. For example, wage costs relating to water production are considered fixed costs for accounting purposes as there is no direct relation between water consumption and labour costs. For water rate analysis, however, these costs are not considered to be fixed as they are only incurred if water is consumed (i.e. they relate to consumption).

# Water Rate Alternatives

## A. Fixed charges (continued)

Given that it can be argued that fixed costs apply to all water customers, regardless of consumption levels, the optimal solution is to finance these costs on a per customer basis rather than through a variable charge based on consumption.

With respect to the determination of what amount, if any, of fixed charges that could be levied, five approaches are commonly used:

- *Customer charges* – Under this approach, fixed costs are allocated based on a customer charge that is the same for all water users. For example, a municipality with fixed costs of \$5 million and 50,000 water customers would have a customer charge of \$100 per customer ( $\$5 \text{ million} \div 50,000 \text{ customers}$ ). Municipalities have the option of either applying customer charges across all types of water customers (residential, commercial and industrial) or designing different customer charges for each category of water customer.
- *Fixed service charges* – While the customer charge approach assumes that water users incur fixed costs evenly, a fixed service charge approach recognizes that certain fixed costs, such as water meter repair and replacement costs, increase with meter size. As a result, the fixed service charge approach allocates fixed costs to customers based on the size of their water services.
- *Minimum charges* – A third alternative available to municipalities for the recovery of fixed water costs is the establishment of minimum charges. Under a minimum charge structure, all customers are billed for a certain amount of water usage regardless of consumption.
- *Block rates* – While generally thought of as a means of recovering variable costs (as they are based on water consumption levels) block rate structures can be used to recover fixed costs by:
  - Establishing the amount of water consumption for the first block of water billing at a level so low that all customers will exceed the block; and
  - Establishing a water rate for the first block that is sufficient to finance the fixed costs.

For example, a block rate structure can be used to recover fixed costs of approximately \$100 per year by charging \$2.00 per m<sup>3</sup> for the first 50 m<sup>3</sup> of water consumed. Based on an average residential water consumption of 240 m<sup>3</sup> per year, this effectively becomes a fixed charge as the majority of customers will pay this amount.

# Water Rate Alternatives

## B. Variable charges

Unlike fixed charges, which are designed to recover those costs that are incurred regardless of consumption, the intent of variable charges is to recover costs relating to water produced for consumption. Generally speaking, five types of variable rate structures are used by municipalities.

1. *Uniform rate structure* – Under a uniform rate structure, a constant price is charged for water consumed. Theoretically, a uniform rate structure is appropriate where:
  - Customers exhibit similarities in usage characteristics;
  - Simplicity and understanding of the rate structure is desired; and
  - Cost and usage data by type of customer is not available or the costs of obtaining this information outweigh the potential benefits.
2. *Declining block rate structure* – Under declining block rate structure, the per unit price of water decreases as water consumption increases, based on blocks of water consumption established by the municipality. The use of a declining block rate structure is supported by the view that the cost of producing water decreases as the volume increases, due to cost allocations and economies of scale. In addition, declining block rate structures are often employed as a means of providing incentives to large water consumers to use public water services as opposed to private water systems. However, declining block rate structures appear to be inconsistent with the goals of water conservation as they do not provide a disincentive for increased water consumption. In addition, declining block rate structures are sometimes perceived as unfair by residential and other low volume users, who are required to pay more on average for water than larger water consumers.
3. *Increasing block rate structure* – As the opposite of a declining block rate structure, an increasing block rate structure has the effect of increasing the per unit price of water as consumption increases. Generally speaking, increasing block rate structures are more complicated than other types of rate structures and require higher levels of detail with respect to water costs and consumption levels. As a result, this rate structure is used primarily by communities:
  - That have a sufficient number of different customer classes to support an effective increasing block rate structure;
  - That possess the information and data necessary to design a block rate structure;
  - That are facing capacity constraints and/or the need to expand the existing infrastructure and where an increasing block rate structure would be suitable to finance these increased costs or reduce water consumption levels; and
  - That are not subject to significant fluctuations or volatility in water consumption levels

# Water Rate Alternatives

## B. Variable charges (continued)

4. *Seasonal rates* – When a water system is designed, a certain amount of excess capacity is built into the system to account for peak demand. In most cases, peak demand occurs during the summer months, primarily as a result of lawn watering. A seasonal rate structure can take two forms:
- The establishment of two separate rates – one for the peak demand season and one for the remainder of the year. The peak demand season rate is typically the higher of the two in order to encourage conservation and recover the costs associated with the higher levels of water production; or
  - The use of an excess-use rate, whereby customers exceeding a predetermined level of water consumption are charged a high rate for the excess consumption during the peak demand season.

Given the need for relatively timely meter readings (generally monthly), the costs of implementing a seasonal demand rate structure can outweigh the benefits. As a result, seasonal rate structures are generally used by municipalities with:

- Significant variations in water consumption between peak and off-peak periods;
  - Capacity constraints during peak periods; or
  - Seasonal fluctuations in the number of water customers.
5. *Combined increasing and decreasing block rate structure* – A combination of the increasing and declining block rate structure involves variable charges for water that initially increase as consumption increases, then decrease as consumption continues to increase. We understand that this type of rate structure is seen as being supportive of two important public policy issues:
- The increasing rate component of this structure is viewed as a means of encouraging conservation by motivating residential customers to reduce their water consumption. Generally, the increasing rate component comes into effect near or slightly below the average consumption level for residential customers (15 to 20 m<sup>3</sup> per month), thereby motivating customers to reducing their water billings by decreasing their consumption.
  - While this type of rate structure provides an initial increase in the cost of water consumed, the decreasing component of this structure reduces the cost of water consumed by large consumers, primarily industrial and commercial customers. As a result, this rate structure, while seen as a method of encouraging conservation, is also viewed as contributing towards the economic competitiveness of a community by reducing average water costs for large customers.

# Water Rate Alternatives

## C. Fire protection charges

As part of its mandate to deliver water services to its residents, the Municipality is also responsible for ensuring that sufficient water service exists to deliver adequate fire protection services. This is accomplished primarily through:

- The construction and maintenance of a fire hydrant system; and
- Increases in capacity of the water system to provide the increased water volumes required for firefighting operations.

Where increases in capacity for fire protection are identified and specifically funded, we understand that it is financed through one of two methods:

- *Municipal property taxes* – In certain instances, the costs associated with the increased capacity relating to fire protection are financed through property taxes. The decision to fund these costs through the municipal levy generally reflects the following views:
  - Essentially, the excess capacity incorporated into the water system represents a form of insurance – the excess capacity is developed even though it may not be used. As with insurance policies in general, the benefits obtained from the increased costs associated with the excess capacity are related to the value of properties protected – larger buildings, by virtue of their size, require more fire protection capability than smaller properties. As a result, it is reasonable to argue that the costs associated with the excess capacity should not be financed on the basis of water consumption or meter size, but rather the value of the properties; and
  - The excess capacity built into the water system is also used to protect institutions serving the public good, such as hospitals, schools and recreational facilities. Given that all members of the community benefit from these properties, the costs associated with the excess capacity should be allocated throughout the community.
- *Specifically identified fixed charges* – Certain communities charge a specific fixed amount for the excess capacity intended for fire protection services. We understand that the separately identifying these costs sometimes results in greater customer acceptance for the charge, as customers are more willing to pay for fire protection services than other fixed service charges.

# Wastewater Rate Alternatives

Generally speaking, wastewater rate structures can reflect:

- **Flat rate per customer.** A flat rate per customer charge assigns wastewater costs evenly across customer categories, with no consideration given to the actual usage of wastewater services. This approach is generally used where (i) consumption information is not available, thereby precluding the use of volumetric charges; (ii) customer utilization is expected to be relatively consistent, as would be the case where the majority of the wastewater users are residential customers; or (iii) municipalities wish to adopt a method that is the easiest to administer. Flat rates per customer are among the easiest to administer as the charges do not vary by billing period and the municipality is not required to collect consumption levels for billing purposes.
- **Fees charged as a percentage of water billings.** Some municipalities will charge for wastewater services based on a percentage of customers' water billings. This billing mechanism reflects the assumption that most water consumed by customers is eventually collected by the municipality's wastewater treatment system, with metered water flows representing a reasonable indicator of wastewater usage. This approach attempts to address the issue of fairness in the distribution of wastewater costs by aligning the cost of wastewater services to the amount of wastewater treated. In addition, by calculating wastewater costs as a percentage of water costs, this approach is relatively easy to administer.

Our experience and understanding of wastewater billing structures for Ontario municipalities indicates that it is not unusual for wastewater billings to be higher than water billings and as such, the percentage charged for wastewater services can be more than 100% of water billings.

- **Fees charged based on metered wastewater flows.** Theoretically, municipalities can charge for wastewater services based on metered wastewater flows. From a fairness perspective, this provides the best indicator of wastewater usage as water flows that are not collected by the wastewater treatment system (e.g. human consumption, grass watering, swimming pool filling, car washing) are excluded from the billing amount. However, this system represents perhaps the costliest to administer as a result of the need to (i) install separate meters for wastewater reading; (ii) conduct two meter readings per billing cycle (water and wastewater); and (iii) calculate water and wastewater billings based on different consumption levels.

Wastewater (or effluent) metering does not appear to be a common practice and in certain cases, is only used for non-residential customers where a significant portion of water consumption is not returned to the wastewater treatment system (e.g. bottling plants).

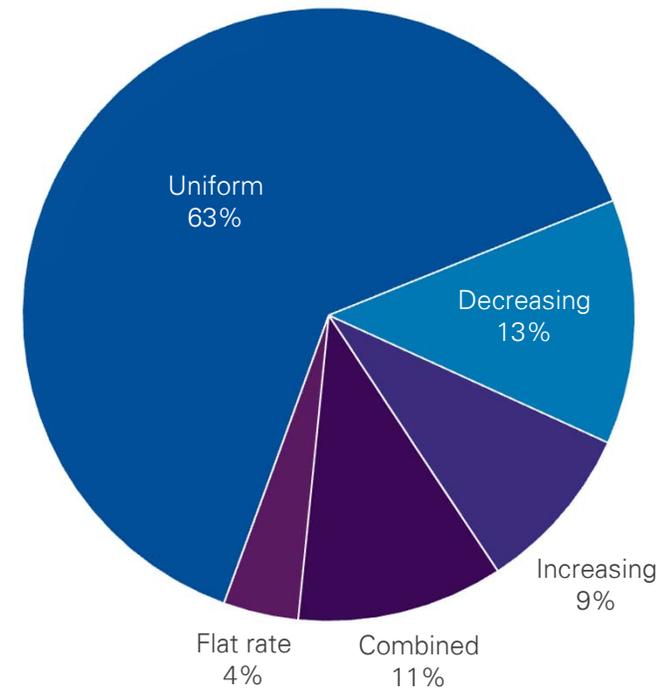
# Jurisdictional Review

There appears to be a certain degree of variety with respect to water rates established by small to mid-sized municipalities in Northeastern Ontario. As noted below, uniform variable rate structures are the most prevalent among the municipalities selected for inclusion in jurisdictional review (seven of nine) with the majority of the comparator municipalities relying on variable rates only (i.e. no fixed component).

The results of the jurisdictional analysis are somewhat consistent with information contained in the most recent BMA municipal benchmarking study of 103 Ontario municipalities, which indicates that a uniform rate structure is the most common approach for determining the variable component of the water rate (64%). However, the BMA study also demonstrates a higher degree of usage of fixed rates, with 93 of the 103 municipalities surveyed (90%) having some form of fixed water charge in addition to a variable consumption charge.

Municipality	Variable Component	Fixed Component
Blind River	Combined	None
Callandar	Uniform	None
Chapleau (non-residential)	Uniform	None
Cochrane	Uniform	Yes
Elliot Lake	Combined	None
Hearst	Uniform	Yes
Iroquois Falls	Uniform	Yes
Kirkland Lake	Uniform	None
Parry Sound	Uniform	Yes

Variable rate structure for BMA Survey municipalities



# Evaluation of Rate Alternatives

For the purposes of our review, we have considered six alternative rate structures for the Municipality, as summarized below.

	Alternative No. 1	Alternative No. 2	Alternative No. 3	Alternative No. 4	Alternative No. 5	Alternative No. 6	Alternative No. 7
Percentage of water costs funded through:							
• Variable (per m3) rate	100%	100%	100%	100%	75%	50%	25%
• Fixed rate	–	–	–	–	25%	50%	75%
Variable rate structure	Uniform	Decreasing	Increasing	Combined	Uniform	Uniform	Uniform

For the purposes of our analysis of these rates, we have considered the following evaluation criteria:

- **Fairness** – Customers pay for what they receive, recognizing that access to infrastructure is a benefit regardless of usage. Specifically, the Municipality incurs costs to ensure that customers can access water and wastewater services when or as required and as such, not all costs will vary based on usage. From our perspective, this is similar to other utilities for which fees are either (i) full fixed (e.g. cable television, local phone service); or (ii) include a fixed component (e.g. delivery charge component of electricity invoices) and reflects the general view that all customers benefit from access to a service, regardless of use.
- **Ease of understanding** – Customers can understand how their water bills are calculated and what they can do to influence their billings.
- **Ease of administration** – The billing process is not overly onerous for the Municipality, resulting in a significant resource investment (personnel, information technology infrastructure).
- **Supportive of conservation** – The proposed rate structure should provide an incentive to encourage conservation wherever possible.
- **Fiscal sustainable** – The mechanism for setting rates generates sufficient financial resources to provide for safe, reliable service that meets all regulatory requirements. This involves meeting both the operating and capital requirements of the Municipality’s water and wastewater systems. This also involves avoiding so-called consumption risk, which reflects the fact that the majority (+80%) of the Municipality’s water and wastewater costs are fixed in nature and do not change significantly with changes in water consumption. As a result, decreases in consumption levels, which would reduce the amount of revenue generated by the variable rate component, would not result in a similar scale of cost reductions. This exposes the Municipality to the risk of financial loss.

# Evaluation of Rate Alternatives

Based on the evaluation criteria listed on the following page and as summarized below, we have determined that the use of a uniform variable consumption charge with a fixed component represents the preferred rate structure for the Municipality. Ultimately, the Municipality can vary the extent to which water and wastewater costs are funded through the variable and fixed components.

	Alternative No. 1	Alternative No. 2	Alternative No. 3	Alternative No. 4	Alternative No. 5	Alternative No. 6	Alternative No. 7
Variable component	Uniform	Decreasing	Increasing	Combined	Uniform	Uniform	Uniform
Fixed component	None	None	None	None	25%	50%	75%
Fairness (based on use)	1	1	1	1	5	6	7
Fairness (based on access)	4	4	4	4	3	2	1
Ease of understanding	1	1	1	7	4	4	4
Ease of administration	1	5	5	7	2	2	2
Supportive of conservation	3	7	1	2	3	3	3
Fiscal sustainability	4	4	4	4	3	2	1
Consistent with best practice – NE Ont	4	6	6	5	1	1	1
Consistent with best practice – Ont	4	5	7	6	1	1	1
<b>Overall ranking</b>	<b>3</b>	<b>6</b>	<b>5</b>	<b>7</b>	<b>3</b>	<b>2</b>	<b>1</b>

We have included on the following page a demonstration of potential rates under the top four alternatives, based on 2016 financial information and consumption data. **We caution that these rates are intended to be indicative only** as the determination of the Municipality's water rates under water metering require:

- A forecast of projected costs for the period (i.e. 2018 budget)
- A forecast of projected water consumption.

# Evaluation of Rate Alternatives

<i>Combined water and wastewater</i>	Alternative No. 1	Alternative No. 5	Alternative No. 6	Alternative No. 7
Variable component	Uniform	Uniform	Uniform	Uniform
Fixed component	None	25%	50%	75%
Projected consumption (A)	571,500 m <sup>3</sup>	571,500 m <sup>3</sup>	571,500 m <sup>3</sup>	571,500 m <sup>3</sup>
Projected number of customers (B)	1,250	1,250	1,250	1,250

Funding requirement (based on 2016 actual costs):				
• Operating costs	\$714,030	\$714,030	\$714,030	\$714,030
• Debt servicing costs	\$164,865	\$164,865	\$164,865	\$164,865
• Contributions to reserves	\$51,850	\$51,850	\$51,850	\$51,850
• Contributions to capital	\$412,831	\$412,831	\$412,831	\$412,831
<b>Total funding requirement</b>	<b>\$1,343,576</b>	<b>\$1,343,576</b>	<b>\$1,343,576</b>	<b>\$1,343,576</b>
Non-user fee revenues	(\$96,918)	(\$96,918)	(\$96,918)	(\$96,918)
<b>Required user fee revenues (water and wastewater)</b>	<b>\$1,246,658</b>	<b>\$1,246,658</b>	<b>\$1,246,658</b>	<b>\$1,246,658</b>
Funded through variable component (C)	\$1,246,658	\$934,994	\$623,329	\$311,664
Funded through fixed component (D)	–	\$311,664	\$623,329	\$934,994

Variable rate (C) ÷ (A)	\$2.18/m <sup>3</sup>	\$1.63/m <sup>3</sup>	\$1.09/m <sup>3</sup>	\$0.55/m <sup>3</sup>
Fixed monthly rate (C) ÷ (B) ÷ 12 months	–	\$20.77	\$41.55	\$62.33
<b>Annual cost for low volume consumer (15 m<sup>3</sup> per month)</b>	<b>\$392.40</b>	<b>\$542.64</b>	<b>\$694.80</b>	<b>\$846.96</b>
<b>Annual cost for high volume consumer (50 m<sup>3</sup> per month)</b>	<b>\$1,308.00</b>	<b>\$1,227.24</b>	<b>\$1,152.60</b>	<b>\$1,077.96</b>
<b>Average annual cost under current rate structure</b>	<b>\$997.33</b>	<b>\$997.33</b>	<b>\$997.33</b>	<b>\$997.33</b>

# Recommendations

## A. Rate structure

Based on the results of our analysis, we recommend the following course of action with respect to water and wastewater rates:

- The adoption of a rate structure that includes a variable consumption charge and fixed monthly charge.
- The variable charge should be a uniform rate that does not vary based on the level of consumption. From our perspective, a uniform charge is the easiest to administer and understand and given the relatively homogeneity of the Municipality's water customers, we do not believe that other rate structures would provide for significant benefits.
- Initially, the fixed charge should recover 75% of the projected water and wastewater costs in order to provide the Municipality with time to develop an effective consumption forecasting capacity. After an initial three year period, the Municipality could consider reducing the percentage of water and wastewater costs recovered through the fixed component to 50%, which is consistent with the average percentage of costs recovered by municipalities included in the BMA Survey. We do not suggest reducing the percentage of water and wastewater costs recovered through the fixed charge to below 50% of total water costs.
- The fixed charge component for non-residential customers should reflect the size of the water servicing and increase in direct proportion to the residential service size. For example, a commercial property with a two inch water service will pay a fixed charge that is four times the residential fixed charge (which reflects a half-inch water service).
- For multi-residential properties, the Municipality should consider the following approach to determining the fixed charged component:
  - For multi-residential properties where each unit has its own water service directly connected to the Municipality's water system, the fixed charge component should be the residential charge for each unit; and
  - For multi-residential properties with only one connection to the Municipality's water system, the fixed charge component should be based on the size of the main water service, proportionately allocated to the building's tenants.

# Recommendations

## **B. Connection and reconnection fees**

From time to time, residents may request a disconnection of their water service for a temporary period of time (for example, during winter months when residents may travel out-of-country), with a subsequent request for reconnection. With respect to these services, the Municipality may wish to consider the following:

- The rate for water connections and disconnections should be calculated based on the actual time incurred in performing the service multiplied by a standard hourly rate that reflects costs for (i) labour; (ii) benefits; (iii) vehicle and equipment utilization; and (iv) a 10% surcharge for administration;
- The requirement for residents to book appointments for disconnections and reconnections seven working days in advance of the requested service date; and
- The introduction of a \$50.00 charge for (i) missed appointments; or (ii) appointments cancelled within 24-hours of the scheduled service;

In the case of disconnections, the above-noted fees (as applicable) should be added to the last water invoice, while fees relating to reconnections should be added to the first water invoice.

## **C. Fire protection charge**

As noted earlier in our report, a fire protection charge allocates a percentage of water costs to the municipal tax levy to reflect the cost of maintaining fire protection capacity. Based on guidance provided by the American Water Works Association and the characteristics of the Municipality's water demand, we have estimated that approximately 10% of water costs, or \$60,000 annually, can be reasonably attributed to fire protection capacity. Accordingly, we suggest that the Municipality consider the benefits of implementing a fire protection charge in connection with the adoption of a new water and wastewater rate structure.

# Recommendations

## **D. Sustainable capital asset funding program**

The Municipality's asset management plan identified an annual sustainable funding requirement of \$766,000 for water and wastewater assets which, if adjusted for inflation, would be in the order of \$863,000 in current funds. As noted earlier in our report, the Municipality's current contribution to reserves and capital is in the order of \$464,000, resulting in an annual capital funding shortfall of approximately \$400,000.

In order to ensure that sufficient funds are available to finance required infrastructure investments, the Municipality may wish to consider the adoption of a sustainable capital asset funding program that would establish a phased-in increase of capital financing over a ten-year period. This would result in an increase in annual capital funding of \$40,000 per year in each of the next ten years. This amount should be adjusted annually to reflect the non-residential construction inflation index as published by Statistics Canada.

The Province of Ontario is expected to implement new asset management planning requirements that will require the Municipality to update its existing asset management plan. To the extent that the revised asset management plan identifies a different level of capital funding shortfall, the Municipality should consider revising its ten-year phase-in of capital financing to reflect the updated asset management plan.

## **E. Water billing frequency**

In connection with the adoption of a new water and wastewater structure, we recommend that the Municipality invoice customers on a quarterly basis. Our recommendation with respect to the frequency of the billing cycle reflects the following:

- A monthly or bi-monthly billing cycle would require a higher level of administrative resources and costs;
- The results of the BMA Survey indicate that quarterly billing cycles are used by one-third of municipalities, which is consistent with monthly and bi-monthly billings; and
- A quarterly billing cycle would provide the Municipality with additional time to address water meter reading issues (in comparison to monthly or bi-monthly billing cycles).

For customers that pay their water bills through pre-authorized payments, we suggest that the Municipality consider utilization an annual reconciliation as part of the calculation of the fourth quarter water billing, with the quarterly installments based on an assumed rate of consumption of 30 cubic metres per month (120 cubic metres per quarter). If possible, quarterly water billings should indicate actual vs. invoiced water consumption as a means of providing perspective to water customers.

We further suggest that installment-based payment options only be provided to residential customers.



# Recommendations

## **F. Policy recommendations**

In order to ensure consistency in the Municipality's approach to rate setting, it may wish to consider adopting a formal rate setting policy that includes the following:

- Establishing a fixed service charge for water operating costs based on a percentage of budgeted costs;
- Establishing the process for determining projected consumption levels (e.g. lesser of the prior year's consumption or the average of the three most recent years);
- Adjusting operating costs by a minimum of the non-residential inflation index;
- Establishing a water and wastewater stabilization reserve, with annual surpluses automatically transferred to the reserve and deficits automatically funded from the reserve. This avoids the need to fund operating deficits from taxation or other sources;
- Requiring that unpaid water bills are automatically added to the resident's tax account if not paid by year-end;
- Adopting a formal communications policy for water rate setting, including the timing and nature of public consultation;
- Indicating that any funding used for debt financing is automatically transferred to capital reserve contributions upon the repayment of the debt, unless the debt is funded through a specific water surcharge;
- Establishing penalties for water meter tampering; and
- Establishing a dispute resolution mechanism that ensures the Municipality can recover unbilled amounts where water meters may have underreported the amount of water consumed.

# Recommendations

## **G. Communication recommendations**

The adoption of a new water and wastewater rate mechanism will be accompanied by public information efforts by the Municipality. With respect to public engagement, we suggest that these should be structured as education and communication relating to the new rate structure as opposed to consultation and input as to what the new rate structure should entail. In addition, we suggest that the Municipality consider the following:

- Commencing communication activities three to four months prior to the introduction of the new water rate structure so as to provide sufficient time for community education and understanding
- The distribution of educational materials relating to the new rate structure through resident mailings
- The inclusion of information relating to the new rate structure on the Municipality's website and social media
- The hosting of one or more public information sessions
- The development of a mechanism whereby individual customers can determine the impact of the proposed rate structure on their past water and wastewater billings



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