

Wastewater Rate

Rates

Within utilities, it is an approved industry practice (according to the American Water Works Association (AWWA)) to have customers classified into customer classes according to the demands that they place on utility systems, especially for establishing rates. As per the AWWA M1 manual¹, “it is neither economically practical nor often possible to determine the cost responsibility and applicable rates for each individual customer served”. Common customer classes in water utilities are residential, residential multi-family, and industrial, commercial and institutional (referred to in the Wastewater Bylaw as General Service). Often, utilities break these general groups down further based on similar servicing requirements and demands.

Rates for water and wastewater services are recommended to Council by Administration for consideration and approval, and are based upon the cost of providing these services to customers. The Water Utility is currently undertaking a Cost of Service Study, and the recommendations from this study will be presented to Council through SPC on UCS in June 2018 and will inform the rates for 2019-2022.

Wastewater Return Factor

Not all water used enters the wastewater collection system and this concept is applied to establish the wastewater rate, referred to as the wastewater return factor. The wastewater return factor is defined as the proportion of water used that is returned to the wastewater collection system.

To calculate the wastewater return factor, water and wastewater system demand is analyzed as part of a cost of service study, which takes place every 4 years.

The customer class is looked at aggregately, and a specific return factor is calculated for each customer class. It is calculated by comparing the customer class' water use, excluding the peak for outdoor water use, to the class' total water use, all on an annual basis.

The following table summarizes the return factors for various customer classes, as articulated in the Wastewater Bylaw.

Customer Class	Wastewater Return Factor
Residential Metered	0.90
Multi-Family Residential	0.97
General Service	0.90

¹ American Water Works Association, “Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1”, Sixth Edition, 2012

The return factor for each customer class is reflected in the wastewater rate that is applied to the volume of water used by that customer class; the higher the return factor, the higher the wastewater rate the customers in that class will pay.

For example, the wastewater return factor for residential metered customers is 0.9, meaning on average 90% of water used by the single family residential customer class is returned to the wastewater collection system. This means that 10% of the water used is not returned to the wastewater system, primarily attributed to outdoor use.

The bill for a residential metered customer does not show wastewater charges based on 90% of the volume of water used. Instead, the customer is charged a lower rate for wastewater, adjusted based on the wastewater return factor for that customer class. The already adjusted rate is what appears on the bill.

Consumption patterns will be analyzed as part of the upcoming cost of service study, and if there are changes in consumption patterns, the return factors will be updated and will be incorporated into rates, and will be in effect for the period of time for which the rates are approved. Application of a wastewater return factor to determine wastewater charged is considered industry best practice as wastewater is not metered.

The calculation below shows a sample of how the return factor is calculated.

Residential Metered Customer Class Return Factor Calculation Example (2016 Data)

Volumes in cubic metres (m³)

- Average monthly consumption in the Dec-Feb period* is 5,120,590 cubic metres per month.
- Dec-Feb annualized consumption is 5,120,590 cubic metres per month x 12 months = 61,447,100 cubic metres
- Total annual consumption residential metered customer class is 67,411,100 cubic metres

$$\frac{\text{December – February annualized consumption (61,477,100 m}^3\text{)}}{\text{Total residential annual consumption (67,411,100 m}^3\text{)}} = 0.91$$

(Based on 2016 data, ~91% of water is returned to the system on average)

*It is assumed that in Dec-Feb period, 100% of water used is collected in the wastewater collection system.

While the information above shows the sample calculations, the table below includes a summary of single family residential consumption data for 2014-2016 that supports the 0.9 return factor.

Customer Class	2014		2015		2016		3-Yr Average WS Return Factor
	Dec-Feb Annualized Consumption m3*	Total Annual Consumption m3	Dec-Feb Annualized Consumption m3*	Total Annual Consumption m3	Dec-Feb Annualized Consumption m3*	Total Annual Consumption m3	
Residential	59,627,237	66,428,908	59,480,601	67,952,914	61,447,073	67,411,086	0.895

Customer Experience

The Water Utility recognizes that the presentation on the bill is not clear for customers. Many customers characterize the wastewater charge on a specific bill as overbilling, because they recognize that a portion of water use during the summer is often outdoors, but this is not reflected clearly on the bill.

There are some customers that return less than 90% of the water to the sewer and some customers that return more than 90% but the wastewater return factor is based on the full customer class, and not the individual customers within the class. It may not seem fair in every individual case, but with these rates and the analysis done to inform them, the goal is to achieve equity across the whole customer class. The alternative to using a wastewater return factor would be to install wastewater meters in individual homes; installation and maintenance of this infrastructure would increase costs for individual customers significantly.

Customers have also indicated that, based on the presentation of drainage and wastewater charges on the bill, they are seen as connected services as opposed to two lines of service.

The Water Utility is committed to improving clarity and transparency on the bill and will be considering ways to modify how the information is presented in the future.