

## **WATER AND WASTEWATER COST OF SERVICE STUDY**

---

### **EXECUTIVE SUMMARY**

As part of the development of the 2015-2018 Action Plan, and as directed by Council, the Utilities have undertaken a Water and Wastewater Cost of Service Study. A cost of service study is a best management practice for Utilities and calculates the revenues required to provide utility services. A cost of service study ensures equitable allocation of costs among customer classes, and designs rates that support financial sustainability, fairness and equity to customers, and water resource management.

The Water and Wastewater Cost of Service Study consisted of three phases. Phase 1 determined the revenue required to fund the planned operating and capital expenditures, along with meeting the Utilities' financial targets over the next four years. This work was approved by Council on 2014 May 05.

Phase 2 of the Study provides an equitable basis for distributing the cost of utility service to each class of customer in proportion to the distinct demands they place on the utility system and is discussed in this report. The equitable distribution of costs in Phase 2 is a revenue neutral allocation. Phase 3 is currently nearing completion and will design the final rate structure within the indicative rate envelope, for customers from 2015-2018, including the fixed and variable portions of the rates.

This report outlines the guiding principles, the investigation, and the recommendations of the Water and Wastewater Cost of Service Study. The proposed rate implementation plan will enable the delivery of the capital investments outlined in the Water Infrastructure Investment Plan (WIIP) and the operating expenditures that are necessary for the Utilities to continue to deliver high quality services to Calgarians, while meeting regulatory requirements and providing the infrastructure necessary for a growing city.

### **ADMINISTRATION RECOMMENDATION(S)**

That the SPC on Utilities and Corporate Services recommends that Council:

1. Direct Administration to develop water and wastewater rates for each customer class, as outlined in section 9 of the Attachment, for 2015-2018.

### **PREVIOUS COUNCIL DIRECTION / POLICY**

On 2011 June 28, as part of the Utilities Financial Plan (C2011-66), Council directed Administration to incorporate a cost of service study for the Utilities and Drainage in the 2012- 2014 business plan.

On 2013 May 01, Utilities and Corporate Services Committee received the water, wastewater and drainage cost of service studies work plan for information (UCS2013-0045).

At the 2014 March 17 Strategic Session, Council adopted Report C2014-0088 (2015-2018 Utility Rate Scenarios) and directed Administration to return to the 2014 May 5 Strategic Planning Meeting of Council with indicative rates for the 2015-2018 Action Plan.

## **WATER AND WASTEWATER COST OF SERVICE STUDY**

---

At the 2014 May 5 Strategic Session of Council, Council adopted Report C2014-0103 (2015-2018 Utility Indicative Rates) and directed Administration to prepare the 2015-2018 Action Plan based on the indicative Utility rate increases, the Utility financial targets for 2015-2018 and an implementation plan for the cost allocation recommendations of the Cost of Service Study.

### **BACKGROUND**

Water and wastewater utility best practice is to conduct cost of service studies every five to ten years. Cost of service is a methodical process by which the costs of providing a service are assigned to customer classes in proportion to the benefit derived by that customer class. In addition to ensuring the equitable allocation of costs, these studies are an analytical tool to support financial management, and provide validation and documentation for ratemaking decisions.

The City provides water and wastewater services to over 340,000 customers with different water and wastewater needs. The Water and Wastewater Utilities must recover all of the costs to provide water and wastewater services. Since the 2004 Cost of Service Study, customer usage patterns have changed which has shifted the allocation of system costs among customer classes. If one customer class places a higher proportional demand on the system, cost of service principles indicate that customer class should pay for a higher portion of the system costs. Conversely, increases to one customer class require downward adjustments to other customer classes to restore equity among the customer classes. As such, adjustments to customer classes are revenue neutral to the Water and Wastewater Utilities.

### **Revenue Requirements**

At the 2014 May 5 Strategic Session of Council, Council adopted Report C2014-0103 (2015-2018 Utility Indicative Rates) and directed Administration to prepare the 2015-2018 Action Plan based on the following indicative rates:

**Table 1: 2015-2018 Approved Indicative Rates**

	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
Blended Rate Increases	8.3%	8.3%	8.3%	8.3%
Water Rate Increases	2.0%	2.0%	2.0%	2.0%
Wastewater Rate Increases	16.9%	15.8%	14.9%	14.2%

### **Guiding Principles for Utility Rates**

It is important to all customers and The City of Calgary that user utility rates be founded on a sound set of industry accepted principles. For the Cost of Service Study, the guiding principles for utility rates are used to support discussions with stakeholders, and strategic decision-making amongst Administration and Council. The guiding principles are organized into three interdependent categories: financial sustainability, fairness and equity to customers, and water resource management.

## WATER AND WASTEWATER COST OF SERVICE STUDY

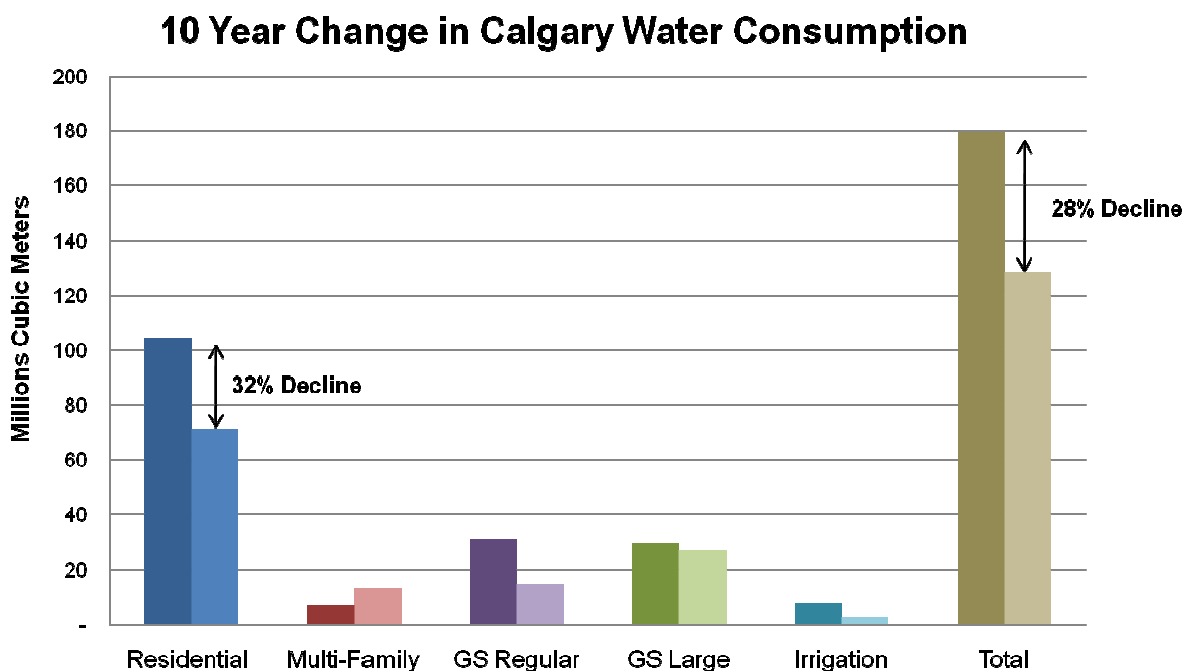
### INVESTIGATION: ALTERNATIVES AND ANALYSIS

The goal of the Cost of Service Study is to transition towards an increasingly equitable rate structure where customers contribute for their share of the system costs in proportion to their use of the system.

The Cost of Service Study groups customers with similar traits together and then allocates a share of system costs to each customer class based on specific cost drivers. Water customer classes include Residential (flat, metered and multi-family), General Service (regular, large and irrigation), and Bulk Water. For wastewater, customer classes include Residential (flat, metered and multi-family), General Service, Extra Strength and Septage Hauling. Cost drivers include base use, peak use, fire flow requirements, and meters and services for water customers; and flow, strength and customer for wastewater customers.

Water demand for most customers has decreased since the last Cost of Service Study in 2004. The total water consumption decreased by 28 percent since 2004. An analysis was undertaken to understand the decline across different customer classes and the impacts on the allocation of costs. Notably, demand has significantly decreased for single family residential customers. The 32 percent decline in water consumption for single family residential customers illustrates the success of conservation efforts and education programs undertaken with these customers over the last 10 years. As Residential is the largest customer class that bears the majority of the system costs, a decreased demand in this customer class has greater impacts on other customer classes with fewer customer accounts that have not experienced the same decline in water use.

Figure 1: 10 Year Change in Calgary Water Consumption



## **WATER AND WASTEWATER COST OF SERVICE STUDY**

---

Since the 2004 Cost of Service Study, Water Utility customer class' share of system costs has shifted towards General Service Regular and Large customers due to changes in proportional system use and due to changes in how peak system use and fire demand is allocated.

Wastewater customers are generally in line with cost of service requiring only minor adjustments, with the exception of Extra Strength surcharge customers.

### **Implementation Alternatives**

Consistent with the indicative rates that were approved by Council in May, all customer classes will receive the blended indicative rate increase of 8.3 percent in 2015, with the exception of Bulk Water. The cost of service adjustments that are recommended will start in 2016. This provides more lead time for impacted customers to plan for the adjustments.

The current cost allocation gap among customer classes was reviewed and the following options for phasing in an increased equitable allocation of costs, starting in 2016 were considered.

#### **Option 1: 100 Percent Equitable Allocation of Systems Costs by 2018**

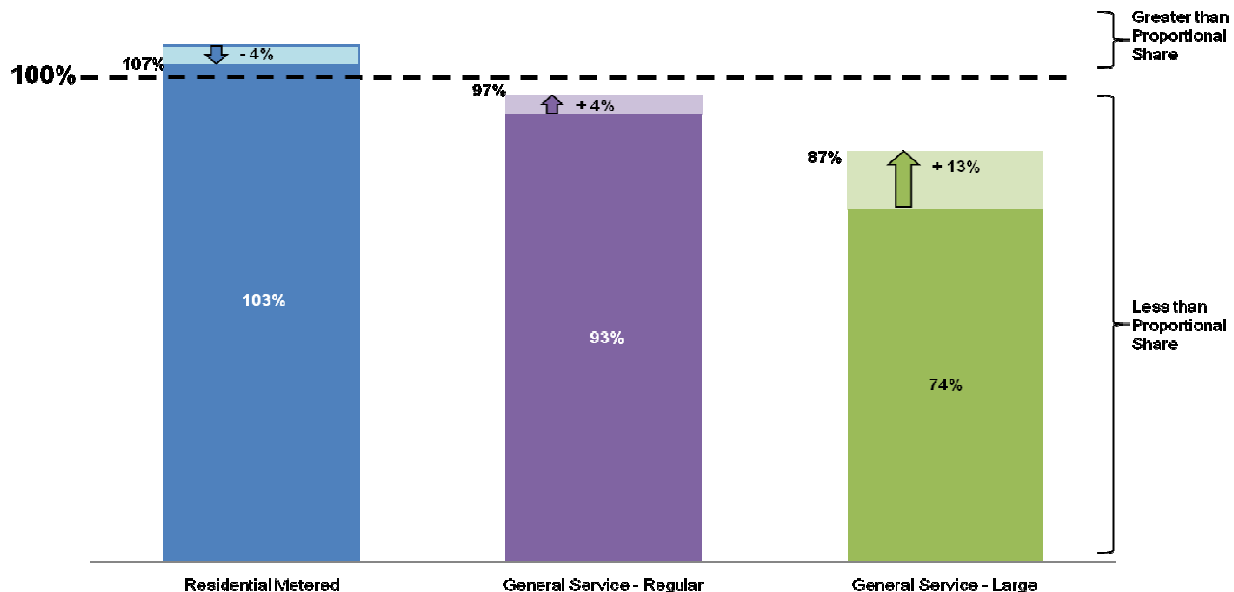
The Cost of Service Study considered the impact of shifting to 100 percent equitable collection of costs by 2018 for General Service Regular and Large customers. Large short-term rate increases of up to 24 percent to General Service Large customers would be required and these customers have not had time to prepare for such increases. Administration does not recommend this course of action due to the impact it would have on General Service customers.

#### **Option 2: Close 50 Percent of the Cost Allocation Gap by 2018**

With consideration for all three guiding principles for utility rates, the Cost of Service Study considered moving towards the equitable collection of costs while recognizing the importance of financial sustainability to the customer classes. This option moves customers towards a fair and equitable allocation of costs without rate increases that could be detrimental to any one class. By closing the outstanding equity gap by 50 percent, The City of Calgary is increasingly moving towards a fair share of system costs and allowing time for customers to adjust behaviours to reduce their share of the system use and prepare for rate changes. The 2018 rate increase for General Service Large customers is reduced to 16 percent instead of the 24 percent seen in option 1.

## WATER AND WASTEWATER COST OF SERVICE STUDY

Figure 2: 50 Percent Equitable Allocation of System Costs Achieved by 2018



### Recommended Rate Implementation:

Over the 2015-2018 budget cycle, Administration recommends to implement first year rate increases based on the 8.3 percent blended indicative rate approved by Council in 2014 May, with the exception of Bulk Water, followed by the implementation of option 2 to close the equity gap 50 percent by 2018. Specifically:

- Residential Metered is moved closer to full cost of service over the study period to promote fairness and equity between customer classes
- Residential Flat water rate is maintained at the indicative rate to continue to encourage the small percentage of remaining customers to move to a meter. Wastewater is increased to return to equitable share of costs.
- Multi-Family Metered and Bulk Water are phased to reach their full cost of service.
- General Service Regular and Large are phased in halfway to full cost of service from their current position, with incrementally larger increases towards the end of the current budget cycle. This approach gives more time for these customers to prepare for rate increases and apply conservation techniques to reduce their share of system costs.
- Irrigation maintains the indicative rate increase for 2015 and is then held constant to continue to promote conservation and environmental protection while equity is improved over the budget cycle.
- Extra Strength surcharges are increased at the approved indicative rate for 2015, followed by small increases to reach an equitable allocation of costs by 2018.
- Septage Hauling is increased by indicative wastewater system increases to continue to promote environmental protection.
- Although only a water customer, Bulk Water is increased in a linear fashion to produce a smoother rate increase as it moves towards an equitable allocation of costs.

The detailed phase in strategy for all customer classes is provided in Table 6 in the Attachment.

## **WATER AND WASTEWATER COST OF SERVICE STUDY**

---

### **Stakeholder Engagement, Research and Communication**

Water Resources recognizes the importance of proactive stakeholder engagement through each phase of the Cost of Service Study. Phase 3 (final rate design) of the Cost of Service Study will review every customer bill (+340,000 accounts) and identify those with the largest forecasted impacts. It is likely that the majority of the impacts will be borne by those in the General Service Large customer class.

Water Resources is working with JHOAD Consulting, who brings significant experience in public engagement, to develop and implement a comprehensive engagement plan.

All customers will have broad engagement and education on the concept of proportional system use and equitable costs. General Service Large customers will receive more targeted engagement as they will be the most impacted. Water Resources is developing a water efficiency program targeted to General Service customers that will provide education and other conservation programs to both mitigate the impact of increased rates, as well as potentially reduce the proportional use of the system for this customer class. This program will be modeled on the successful residential programs that have served to significantly reduce water consumption by residential customers.

The desired outcomes of the plan are to identify and involve stakeholders impacted by the cost of service work, to educate and facilitate dialogue with stakeholders throughout the Studies, and to foster an environment of open and transparent communication between The City and stakeholders. The engagement program will begin immediately following Council approval of the Cost of Service Study findings and continue throughout the next business cycle.

### **Strategic Alignment**

Sustainability for the Utilities is tied to achieving long-term goals as outlined in The City's 2020 Sustainability Direction, the Long Range Financial Plan, the Municipal Development Plan and imagineCALGARY. For example, the Utilities must ensure there continues to be an adequate supply of water for a growing population and economy, and that the river water quality is maintained downstream of Calgary. The Cost of Service Study contributes to the strategic alignment of the Utilities to The City's long-term vision and planning documents by ensuring sufficient and flexible funding is available for the continued operation, maintenance, and expansion of the Utility systems.

### **Social, Environmental, Economic (External)**

The Cost of Service Study requires a balanced approach to rate setting that considers the social, environmental, and economic implications of rates and rate structures. In alignment with the guiding principles for utility rates, results and recommendations will reflect fairness and equity to customers, be capable of recovering The Utilities' costs of providing service and continuing to meet regulations, achieve financial policies and plans, and support reaching The City's environmental goals.

### **Financial Capacity**

#### **Current and Future Operating Budget:**

The proportional rate increase for all customers has been incorporated into the Utilities financial models and meets the revenue requirements of the indicative rate increases approved by Council to deliver on the operating aspects of the water and wastewater 2015-2018 Action Plan.

## **WATER AND WASTEWATER COST OF SERVICE STUDY**

---

### **Current and Future Capital Budget:**

The proportional rate increase for all customers has been incorporated into the Utilities financial models and meets the revenue requirements of the indicative rate increases approved by Council to deliver on the capital aspects of the water and wastewater 2015-2018 Action Plan.

### **Risk Assessment**

With the recommended implementation strategy the Utilities will increase the fairness and equity among customers. The main risk is adverse reaction to a higher than anticipated rate increase by a customer or set of customers within the General Service customer class. To mitigate this Water Resources plans to undertake an extensive education and engagement program. Phase 3 (final rate design) of the Cost of Service Study will identify customers with the largest forecasted impacts. All customers will have broad engagement and education on the concept of proportional system use and equitable costs. Those with great impacts will receive more targeted engagement including education on how to mitigate rate impacts by identifying water saving actions.

It is also likely that new rate increases will cause customers to change their usage patterns. These changes could lead to less revenue than budgeted and a lack of alignment between those that use the system and those that pay for the system over the next budget cycle. To mitigate such inequity, Council directed Administration to conduct another Cost of Service Study in 2015-2018 (C2014-0103) to prepare for the 2019-2022 business planning and budget cycle.

### **REASON(S) FOR RECOMMENDATION(S):**

Cost of service is a journey towards fair and equitable rates between customer classes. By closing the outstanding equity gap among major customers by 50 percent, the City of Calgary is increasingly moving towards a fair share of system costs and allowing time for customers to adjust behaviours to reduce their proportional use of the system.

### **ATTACHMENT(S)**

2014 Water and Wastewater Cost of Service Study Findings and Recommendations