

# WATER RESOURCES ZBR IMPLEMENTATION PLAN



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#### 1. EXECUTIVE SUMMARY

Water Resources participated in a zero-based review (ZBR) in 2016 led by Scottish Water International (SWI). The resulting 17 actions to Water Resources fall within four recommendation areas: Customer Focus, Levels of Service, Investment Portfolio Management, and Capital Delivery Models. These recommendation areas are interconnected and collectively support a long-term strategy for delivery of customer focused services. Five actions have been completed, and the remaining 12 are long term initiatives in various stages of implementation.

Water Resources has reduced or deferred spending by \$8.5 million¹ through implementation of an investment portfolio decision making process (stage gating). Additionally, savings of approximately \$21 million are expected to be achieved between 2018 and 2021, by continuing to implement an alternative capital delivery model, which was one action within the Capital Delivery Models recommendation. Recommendations related to Levels of Service and Customer Focus area are long term and require a fundamental change to how the business delivers its services and many do not include year over year savings, or immediate reductions in budget.

The ZBR program has helped the Water Utility become a more effective and integrated service provider for water customers and supported the Water Utility's upcoming business planning budgeting activities through One Calgary. Several of the recommended activities have been scaled for use in other business units, supporting broad corporate goals related to optimizing investment planning based on customer needs and priorities.

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<sup>&</sup>lt;sup>1</sup> This will not be reflected in the ZBR Program Dashboard until the program's next financial update in December 2018.

#### 2. INTRODUCTION

In 2016, Water Resources, in conjunction with The City's Zero-Based Review (ZBR) program, undertook a zero-based review to identify efficiency and effectiveness opportunities. This review was conducted by Scottish Water International, an independent consultant that provided third-party perspective and expertise.

Leading up to the ZBR, Administration reviewed all services provided by Water Resources to determine what areas had the greatest potential for improved service efficiency (modifying service level and reducing costs) and effectiveness (improved results with available resources). Based on this, Scottish Water International reviewed three subject areas in-depth as part of the scope of the review: wastewater levels of service, capital delivery efficiency and data management and analytics. Scottish Water then presented recommendations broadly related to these theme areas, which Water Resources proposed be accepted. Council received the Scottish Water International Report on September 20, 2016 and approved Administration's response.

The Water Utility is on a journey to becoming more customer focused. Participation in the Zero-Based Review program has been a strong catalyst in advancing the Water Utility in a number of ways, including its focus on service to customers. This report highlights the progress made to date on implementing the ZBR recommendations, provides an implementation plan for the broader, long-term recommendations, and demonstrates how the ZBR program has helped the Water Utility become a more effective and integrated service provider for water customers.

#### 3. WATER RESOURCES

Water Resources and Water Services work together as an integrated utility to deliver three lines of service:

- 1. Water Treatment and Supply: This service treats and delivers water to customers. It protects public health and ensures long-term sustainability of water resources.
- 2. Wastewater Collection and Treatment: This service collects wastewater from customers, treats it, and returns it to the river. It protects public health, property and the environment.
- 3. Stormwater Management: This service collects and manages stormwater and surface water that originates during periods of rain, snow and ice melt to protect public safety, reduce damage to property and ensure watersheds are healthy.

These services are delivered through networks of over 15,000 kilometers of pipes. Every day, the Water Utility treats approximately 495 million litres of water, and returns over 400 million litres of treated wastewater to the river. The Water Utility maintains approximately 60,000 storm drains, which ensure rain and snow melt drains from city streets and properties, and manages 164 storm ponds and wetlands, which collect water from rain and snowmelt, and treat it using natural processes before it goes back into the river.

Much of the work of Water Resources focuses on long-term capital planning, infrastructure delivery, and watershed planning. The nature of this work offers the opportunity for the ZBR to focus on longer-term

improvement initiatives, which is different than other ZBR reports that focused on short-term operational savings.

### 4. FINANCIAL CONTEXT

In 2017, Water Resources planned and delivered infrastructure to support the services outlined above, with a capital budget of \$373 million and a combined operating budget of \$346 million.

In 2017, the Water Utility was faced with a revenue shortfall due to changes in the economy. This shortfall was addressed through several different top-down and bottom-up initiatives, including:

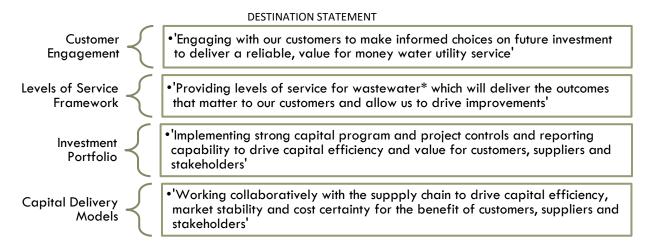
- Managing our risk differently
- Increasing focus on the delivery of core services to citizens
- Embracing new ways of doing things
- Adjusting operating practices to create opportunities to right size our resources
- Reprioritizing and deferring work
- Managing vacant positions

The ZBR provided a foundation for informing opportunities and areas of focus for efficiency and effectiveness improvements during 2017. Highlighting the need to understand the Water Utility's customers and the services has been integral to informing decisions on spending reductions, and to support the Water Utility in work towards a service-based approach under the One Calgary Planning framework.

#### 5. RECOMMENDATIONS

# 5.1 SHARED VISION WITHIN THE THEME AREAS

Scottish Water International's recommended actions were categorized into the following four interconnected recommendations, each with a destination statement to describe the desired end state.



<sup>\*</sup>The initial recommendation suggested starting with advancing the levels of service framework for one line of service (wastewater); however, the Water Utility is implementing recommendations across all three lines of service in parallel.

# 5.2 INTEGRATION AND ALIGNMENT ACROSS THE UTILITY

Each recommendation contains specific actions to advance the Water Utility towards the destinations described above. The recommendations are interconnected and implementation was planned with line of sight to the collective destination, which is to ultimately optimize the investment plan based on customer needs and priorities. The way in which these recommendations are interconnected is demonstrated through Figure 1.

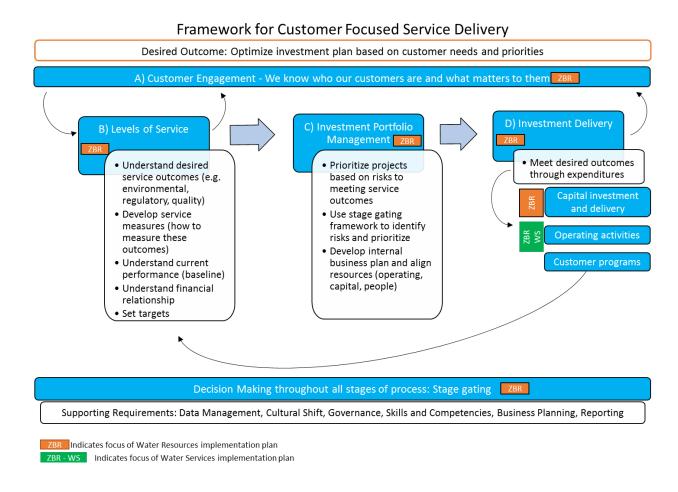


Figure 1: Framework for Customer Focused Service Delivery

This framework presents the ideal state for delivering customer focused services and is in line with Infrastructure Calgary's perspective on Infrastructure Planning. This is also consistent with The City's progression on service planning, for example the One Calgary 2019 – 2022 service plans and budgets approach.

The Water Resources ZBR Report Cards provided in Appendix 1 offer a complete list of all recommended actions, progress to date and planned next steps. Details of the broad themes in the framework are further explained below.

# A) CUSTOMER ENGAGEMENT – GAINING KNOWLEDGE OF WHAT MATTERS TO CUSTOMERS

The Water Utility is on a journey towards being more customer focused. This transition is expected to be implemented in multiple phases. The foundational piece is gaining a better understanding of customer needs, values and expectations.

The customer focus journey within the Utility is evolving operational activities, and interactions with customers. Internal activities include communications, process development, and project management,

which are becoming more connected to customer outcomes, and demonstrate a commitment to providing the best value for customers. Externally, the customer focused journey is evolving directly with customers through development of formal engagement strategies and through the use of the customer voice gained through direct service provision, feedback or customer facing programs.

# B) LEVELS OF SERVICE FRAMEWORK

A Levels of Service Framework is evolving in parallel with the customer focus area. The goal over time is to have levels of service reflect customer needs at an acceptable cost. For example, a level of service could include the total duration of water interruption, the total number of sanitary back up calls per year, or the quality of stormwater being released into the river. The Water Utility is currently refining its service measures, confirming the baseline service currently offered, the cost of providing the services, and developing targets. The targets and potential adjustments to those targets will then be validated with customers through engagement activities. The ultimate levels of service targets should reflect customer needs, values and expectations. To date, the Water Utility has developed an understanding of levels of service and initiated implementation. This sequence of activities aligns with the One Calgary planning process.

In the original September 2016 implementation plan, a timeline was provided to Council which focused on wastewater levels of service only (refer to attachment 3 of PFC2016-0660). The Water Utility determined that the best path forward was to advance the levels of service framework throughout all service lines concurrently, rather than starting with one case study. This will allow for the organization to leverage learnings across the organization, have a focused approach, and ensure all services align with the One Calgary planning process which iteratively drives the service lines towards a levels of service framework. In addition to the change in scope and approach, work on levels of service was deferred (as per PFC2017-0431) to allow the Utilities to focus on budget reduction efforts. As a result, the timelines for this portion of the implementation plan have been modified.

# C) INVESTMENT PORTFOLIO MANAGEMENT

Once targets are established, the role of investment portfolio management is to prioritize projects at the portfolio level, based on risks to meeting the service level targets. The pivotal change for improving investment portfolio management within the Utility has been implementation of the stage gating framework in 2016.

The Stage Gating Framework for Utilities & Environmental Protection is comprised of five stages and gates as indicated below:

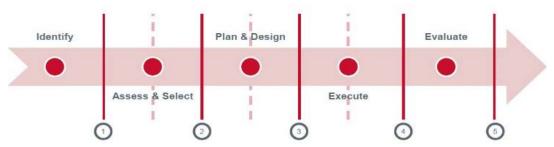


Figure 2: Stage Gating Framework used by Utility and Environmental Protection

These stages enable portfolio-wide decision making based on desired outcomes, priorities and risks and improve Project Managers' understanding of project costing, budgeting and forecasting. It is also important to have adequate cost and project data to enable accurate and timely decision making. Work on advancing this area is planned for the upcoming business planning cycle. The Water Infrastructure Investment Plan (WIIP) has been developed to serve as an internal business plan to ensure investments are planned appropriately to maintain assets, meet regulatory requirements, provide reliable and high-quality services and keep pace with growth.

# D) CAPITAL DELIVERY MODELS

Once risks to meeting targets are understood and investments are prioritized, the capital program must be delivered efficiently and effectively, focusing on value for customers. Within the Water Utility's Capital Program, this includes ensuring collaboration between procurement specialists, project delivery managers, and ensuring effective communications and transparency with industry and internal stakeholders to ultimately enable cost savings and effectiveness improvements in project delivery. Alternate models for delivery will be considered and tested, to ensure opportunities for achieving value for money are understood and implemented when applicable.

# WATER SERVICES ZERO-BASED REVIEW

The two business units which make up the Water Utility work very closely together to treat and deliver water, collect and treat wastewater, as well as collect and manage stormwater. Water Services undertook a similar Zero-Based Review with a number of recommendations approved by Council in 2015. Several of these recommendations and associated destination statements relate to Water Resource's implementation plan, and support the overall journey for the Water Utility. For example, Water Services recommendations related to finding more efficient ways of maintaining infrastructure, such as implementing trenchless technology as a lower cost and less invasive method of repairing and

maintaining pipes. This can allow the Water Utility to better meet customer expectations by reducing the duration of wastewater service interruptions at a lower cost to the customer. This example and the other Water Services recommendations are critical to ensuring investment delivery contributes to customer focused levels of service targets.

### 5.3 EXPECTED SAVINGS

Recommendations related to Capital Delivery Models are estimated to yield an approximate annual capital cost avoidance of \$17.0M - \$20.5M, expected to be fully realized by 2022. Savings through Investment Portfolio Management have already been realized through the implementation of stage gating to defer and re-prioritize projects, in the amount of approximately \$8.5M. Additionally, Investment Portfolio Management has led to an increased delivery rate for the Water Utility. Continued savings are expected, however it is not known at this time how much will be saved in each year.

Water Resource's recommendations are long term and require a fundamental change to how the business delivers its services. As such, they do not include year over year savings, or immediate reductions in budget. The full suite of ZBR actions will be multi-year and span over multiple planning cycles. Successful outcomes of implementation will be customer focused service delivery, efficient capital program delivery, and value for customers. In Appendix 2, the Water Resources ZBR Implementation Timeline provides a timeline for all recommendations which shows sequencing and key areas of focus for the Water Utility in the upcoming planning cycle.

# 6. FOCUS FOR THE FUTURE: INTEGRATION AND ALIGNMENT WITH THE CORPORATION

#### 6.1 ALIGNMENT WITH ONE CALGARY

The destination statements provided by Scottish Water International are in strong alignment with One Calgary in many regards, and the service review has supported the Water Utility as it participates in the One Calgary planning process for 2019 – 2022.

Service plans and budgets will focus on community and customer results, future strategies for service delivery, risks and investments, enabling The City to determine where and how to invest money. Completion of this review prior to One Calgary planning has enabled advancements in the internal planning processes and capacity to be better equipped to respond to The City's corporate direction and align with the collective corporate vision.

#### 6.2 SCALABILITY TO OTHER SERVICES

Successful implementation of the recommendations can be leveraged and scaled across the rest of the Corporation. For example, stage gating was developed and implemented in the Water Utility as a core investment portfolio decision making framework and Facilities Management has successfully utilized the Water Utilities documentation and processes to initiate their own stage gating process within their business unit. The stage gating framework has also been recognized and championed by Infrastructure Calgary, as a method to provide structure for evaluating and prioritizing investments and facilitating risk management for capital investments. As other actions on recommendations and theme areas progress,

there will be additional opportunity to collaborate with other service areas across the Corporation, to collectively advance service-focused plans.

Appendix 1 – Water Resources ZBR Report Cards

Appendix 2 – ZBR Implementation Plan Timeline

### APPENDIX 1 – WATER RESOURCES ZBR REPORT CARDS

Water Resources Recommendation: Customer Engagement			
Destination Statement	Strategic Alignment		
'Engaging with our customers to make	City Council Priority: A well run city		
informed choices on future investment	Strategic Actions:		
to deliver a reliable, value for money	W5 Regularly collaborate and engage citizens to encourage participation in City decision-		
water utility service'	making, and better communicate the reasons for the decisions.		
	W7 Continue to transform the organization to be more citizen-focused in its approach and		
	delivery of service.		

#### **Expected Outcomes**

- Understanding of customer segmentation to enhance methods of communication, service information, and priorities.
- Understanding customer expectations, priorities and willingness to pay for services provided
- Customers have a better understanding of our services
- Delivering agreed outcomes for the customer
- Providing a voice for the customer in the service provided
- Fewer complaints and possible increased usage of services
- Identifying at risk and vulnerable customers

#### ZBR actions:

#### In Progress Progress update and planned next steps Golden thread/line of sight Embedded voice of the customer to increase understanding of customer needs and values, and expectations in alignment with One Calgary and Corporate direction. Customer forum to ensure customer voice is heard Customer commitments developed to enhance line of sight to customer experience Engage market research Customer framework has been developed to guide the water utility to be customer provider to build and focused implement engagement plan **Next Steps** to support levels of service Continue to refine and develop our understanding of customer needs, values and development

- Create additional opportunities for incorporating the voice of the customer into our business
- Embed a customer mindset so that utility actions (in communications, processes, project management, etc.) demonstrate that we act in all customers' best interests
- Ensure customer interactions have documented standards and processes

# **Financial Overview**

Through the activities planned in the 2019 – 2022 business cycle, there will be an increase in understanding of the financial relationship between spending decisions, costs and outcomes for customers. Increasing this understanding will enable us to most efficiently maintain or adjust service levels to align with customer needs and priorities.

#### **Timeline**

2019 – 2022 One Calgary

Integrate voice of customer into service planning

Align and coordinate utility engagement plan that uses diverse tools, including a customer forum, to understand customer perception and value of service

Water Resources Recommendation: Levels of Service			
Strategic alignment			
City Council Priority: A well run city			
Strategic Actions:			
W2: Be as efficient and effective as possible, reducing costs and focusing on value-for-money.			
W4: Balance demand for quality City services with affordable taxes.			
W6 Effectively manage The City's inventory of public assets, optimizing limited resources to balance			
growth and maintenance requirements.			

#### **Expected Outcomes**

- Provides well-defined and easily understood levels of service, giving line of sight to employees, and outcomes for customers that can be tested to gain a true measure of customer expectations
- Development of a baseline level of service facilitates the setting of current and future targets to drive improvement, maintain or adjust current service levels
- Understanding the financial relationship between the cost of maintaining service level allows for the customer to understand the value they experience
- Provides the ability to mitigate infrastructure risks and assess risk tolerance for services based on knowledge of the baseline and an enhanced understanding of the cost and risks of adjusting service levels
- Allows the opportunity to prioritize the investment program, and optimize capital investment by using targeted operational spend to maintain a level of service, if this is more efficient

ZBR actions:	
In Progress	Progress update and planned next steps
Golden thread and line of	Internal Understanding & Awareness
sight	Built understanding of levels of service within the Water Utility
	Identification of global best practices for customer levels of service measures
	Identification of opportunities to improve data collection and business intelligence
	Business Integration
	<ul> <li>Defined customer commitments for 3 service lines</li> </ul>
	Defined service outputs aligned to customer commitments
	Conducted maturity assessment of asset management practices
	Long term utility plan includes priorities to incorporate Levels of Service into decision
	making frameworks
Key performance indicators	Evaluation of existing performance measures and whether they reflect customer
(KPIs) and Reporting and	values
baselining of current	Draft performance measures developed and preliminary feasibility evaluation
performance	complete
	Draft performance measures being advanced through One Calgary planning process
	(i.e. Data requirements, alignment with values and outputs)

#### **Financial Overview**

Through the activities planned in the 2019 - 2022 business cycle, there will be an increase in understanding of the financial relationship between spending decisions, costs and outcomes for customers. Increasing this understanding will enable us to most efficiently maintain or adjust service levels to align with customer needs and priorities.

#### Timeline

Timeline				
2018		2019-2022	One Calgary	
Refine service measures and establish baseline service levels  Start to embed service levels and risk into critical decision making frameworks such as stage gating	maintaining or adjusting service levels	Establish service level targets in alignment with Council Directives	Understand risks to service level targets	Leverage customer values and priorities to inform service levels adjustments

#### Water Resources Recommendations: Investment Portfolio Management Destination statement Strategic Alignment 'Implementing strong capital City Council Priority: A well run city program and project controls Strategic Actions: W2 Be as efficient and effective as possible, reducing costs and focusing on value-for-money. and reporting capability to drive capital efficiency and W3 Examine opportunities for alternative service delivery for competitiveness value for customers, suppliers W6 Effectively manage The City's inventory of public assets, optimizing limited resources to balance and stakeholders' growth and maintenance requirements. **Expected Outcomes** Improve predictability and visibility of the capital delivery program, the efficiency (budget and schedule) and the effectiveness (scope and quality) Ensure the status of capital delivery projects is well reported and communicated Improve the ownership of projects and programs ensuring that projects are delivered on time and on budget Increase understanding of the financial mechanics of the business and the impact of investment decisions ZBR Actions: Complete Progress update Stage gating framework Stage gating implemented in Q2 2016, with projects split into a series of stages, divided by gates, allowing for budget to be allocated more efficiently as the project progresses. Evaluation and continuous improvement are ongoing. In 2017, 321 projects representing \$311M in spending have gone through the stage gating process. A Capital Budget Dashboard containing key indicators related to the capital program, was developed Monthly reporting cycle in 2016. It is distributed to key decision makers on a monthly basis to support budget management and project and portfolio management. Internal business plan and Water Infrastructure Investment Plan is prepared for 2019 – 2022 and will be approved by Council business portfolio as part of One Calgary planning process. Capital delivery reporting Project data is input into a centralized database monthly and customizable capital delivery reports are available to stakeholders as needed. Ongoing activities underway to improve data quality and reliability. Progress update and planned next steps In progress Portfolio management Portfolio-wide decision making based on desired outcomes, priorities, and risks facilitated through stage gating framework Improve project risk and triple bottom line assessment tools to ensure project managers are evaluating cost-benefit profile of projects consistently and comprehensively prior to passing through stage gates Financial awareness and Stage gating framework requires enhanced project costing, budgeting and forecasting skills which support are being developed through ad-hoc information sharing opportunities between Stage Gating Lead and Project Managers. Opportunities for developing and delivering customized financial training will be evaluated in 2018. Portfolio, program and project In January, 2018, a contingency management approach was implemented at project, stage gating risk and portfolio levels. Contingency allocation (% of total project) is now based on risk which allows for right-sizing of capital budgets and frees up capacity for high priority projects. Status and planned next steps Implementation being planned Project and costs data store Project scoping and implementation planning for the project cost and data strategy will be planned for 2018-2019 to enable improved cost estimation. Financial Overview Expected savings: 2% – 3% of Realized savings: \$8.5M in investments were deferred or reprioritized as a result of stage gating. 2018 capital portfolio savings will be identified by year end. These will be presented in the next ZBR Program financial update. Timeline

Timeline				
2018	2019 – 2022 One Calgary			
Create 2019 – 2022 WIIP with business plan milestones	Incorporate levels of service into stage gating and other \			
Evaluate and refine stagegating and build financial awareness	decision making processes			
Advance risk based decision making				
Scoping and implementation of project cost and data strategy				

Water Resources Recommendation: Capital Delivery Models			
Destination Statement	Strategic Alignment		
'Working collaboratively with the	City Council Priority: A well run city		
supply chain to drive capital	Strategic Actions:		
efficiency, market stability and	W2 Be as efficient and effective as possible, reducing costs and focusing on value-for-money.		
cost certainty for the benefit of	W3 Examine opportunities for alternative service delivery for competitiveness		
customers, suppliers and	W6 Effectively manage The City's inventory of public assets, optimizing limited resources to		
stakeholders'	balance growth and maintenance requirements.		

#### **Expected Outcomes**

- Increased effectiveness of planning capital investment
- Bundling/ framework agreement of projects
- Capital delivery model potential savings could be 7% to 15% of the total capital program, and the financial benefits could be significant based on longer term strategic partnering (beyond 2022)

significant based on longer term strategic partnering (beyond 2022)			
ZBR Actions			
Complete	Progress update		
Supply management involvement and resources	• Supply management has become integrated into capital project delivery, and have greater visibility into the capital program. As a result, they are better able to strategize and support all aspects of procurement related to the capital program.		
In Progress	Progress update and planned next steps		
Capital delivery models	<ul> <li>Prior to the Service Review, a Construction Management contract was implemented for the Plant D Expansion at the Bonnybrook Wastewater Treatment Plant. This is a good example where an alternative delivery model has delivered efficiencies and savings (see Financial Overview) due in part to the early involvement of a contractor to provide constructability input to optimize design.</li> <li>In 2018, capital delivery improvements were implemented to accelerate delivery of Community Drainage Improvements (CDI) projects.</li> <li>A work plan will be developed to investigate potential benefits of using different capital delivery models in different situations for individual projects or programs.</li> </ul>		
Implementation being planned	Status and planned next steps		
Planning and procurement horizon	• Infrastructure delivery and Infrastructure planning divisions within Water Resources will improve collaboration in capital planning processes to allow for improved transparency and clarity for industry and internal stakeholders, enabling cost savings and effectiveness improvements in project delivery.		
Financial Overview			
Expected savings: 7% - 15% of total capital program in the long term	Projected savings: Due to implementation of the Construction Management contract for the Plant D Expansion at the Bonnybrook Wastewater Treatment Plant, secondary treatment, the largest work package, has yielded one-time savings of approximately \$21M compared to the original budget for 2018 - 2021. While this is not resulting from the ZBR directly, it demonstrates the capability Water Resources has for implementing alternative capital delivery models.		
Timeline			
2018	2019 – 2022 One Calgary		
Enhance planning and procurement process to increase transparency and clarity for delivlery industry, market and internal stakeholders			

Investigate value of using alternative capital delivery models on a project and portfolio basis

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Capital delivery improvements

to accelerate CDI projects

### APPENDIX 2 – WATER RESOURCES ZBR IMPLEMENTATION PLAN TIMELINE

