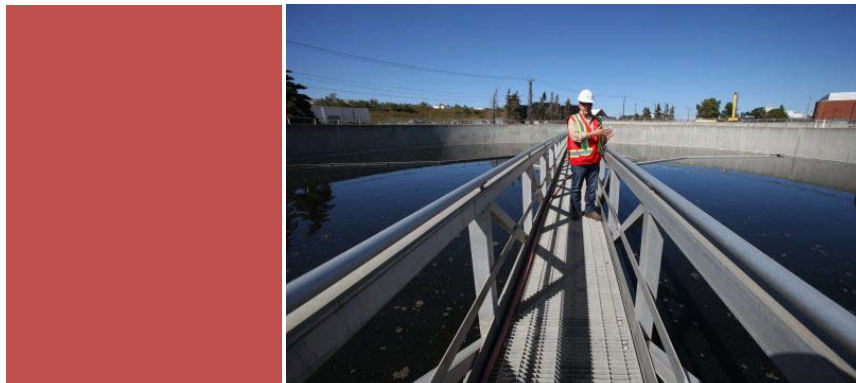




Water Resources Zero-Based Review

Opportunity Identification Report

September 2016



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Chief Financial Officer's Department

I. INTRODUCTION

Overview of the ZBR Program

The Zero-Based Review (ZBR) program is one component of The City of Calgary's Integrated Performance System to promote innovation and continuous improvement. The essence of the integrated performance system is to drive a results-focus across the organization to deliver services of value to City customers and citizens. The system includes four other performance improvement programs that complement the ZBR program and are integrated into the ZBR approach. These include: performance measurement and accountability, service-based plans and budgets, integrated risk management and individual performance development.

A Zero-Based Review evaluates services in light of strategic organizational goals, customer and citizen needs, and benchmarking and best practices information. Using this information, a ZBR provides business cases and recommendations regarding:

- 1) Changes to service level or delivery that would achieve cost savings or mitigate future cost increases (efficiency improvements); and
- 2) Changes to service level or delivery that would improve results or outcomes (effectiveness improvements).

The ZBR Opportunity Identification Process

In order to maximize the effectiveness of the ZBR program itself, the approved ZBR method calls for an initial review of all of the Business Unit's activities to identify potential opportunities for improvement. These are then shortlisted to those that are most likely to benefit from further review and the development of solutions. The ZBR resources – including both internal staff time and costs for external subject matter experts -- can thereby be concentrated on those areas with the greatest potential benefit. Opportunities were assessed using the following criteria:

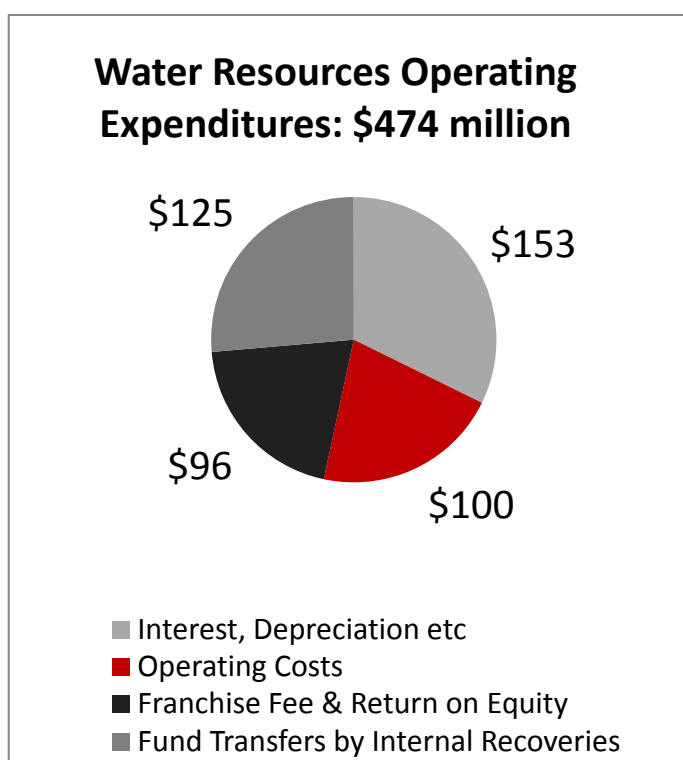
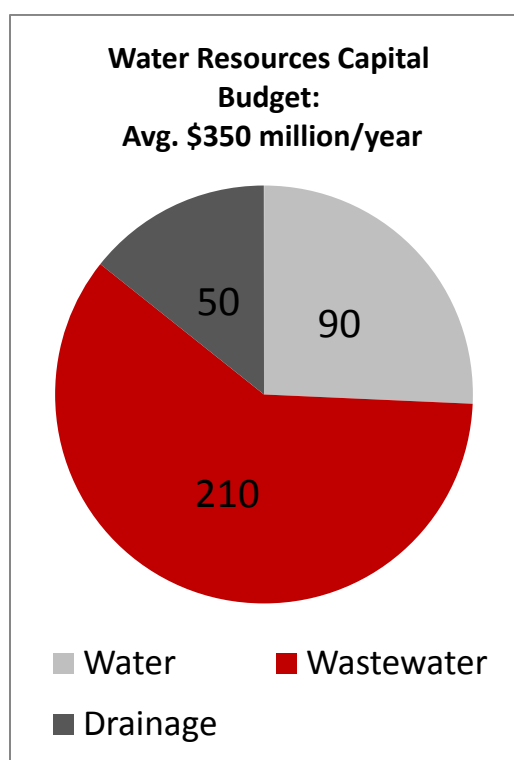
- **Benefit for business and consistency with ZBR program goals**
 - Potential for cost savings
 - Potential for business effectiveness improvements
- **Feasibility**
 - Sufficient time in ZBR review to complete the review
 - Improvements can be realized within 5 years
- **Readiness and Fit**
 - Leadership and business unit staff support this opportunity based on their knowledge and experience of the service
 - No other initiatives are currently underway to address this opportunity.

Overview of Water Resources

The Water Utilities (Water Services and Water Resources) manage the quality and delivery of Calgary's water supply – from the river, to our taps and back to the river. The Water Utilities protect public health and the environment through conservation and watershed management; delivering a clean and reliable supply of water; collecting and treating wastewater; managing storm water; and meeting regulatory requirements.

Water Resources oversees the planning and building of utility infrastructure. Specific responsibilities of Water Resources include:

- Plan and evaluate water, wastewater and storm water infrastructure in developing, developed and industrial areas and in the region
- Plan and manage the construction of capital infrastructure
- Inspect new infrastructure to ensure it meets City standards
- Replace, rehabilitate, or upgrade existing infrastructure to improve levels of service
- Provide scientific, technical and regulatory services and expertise



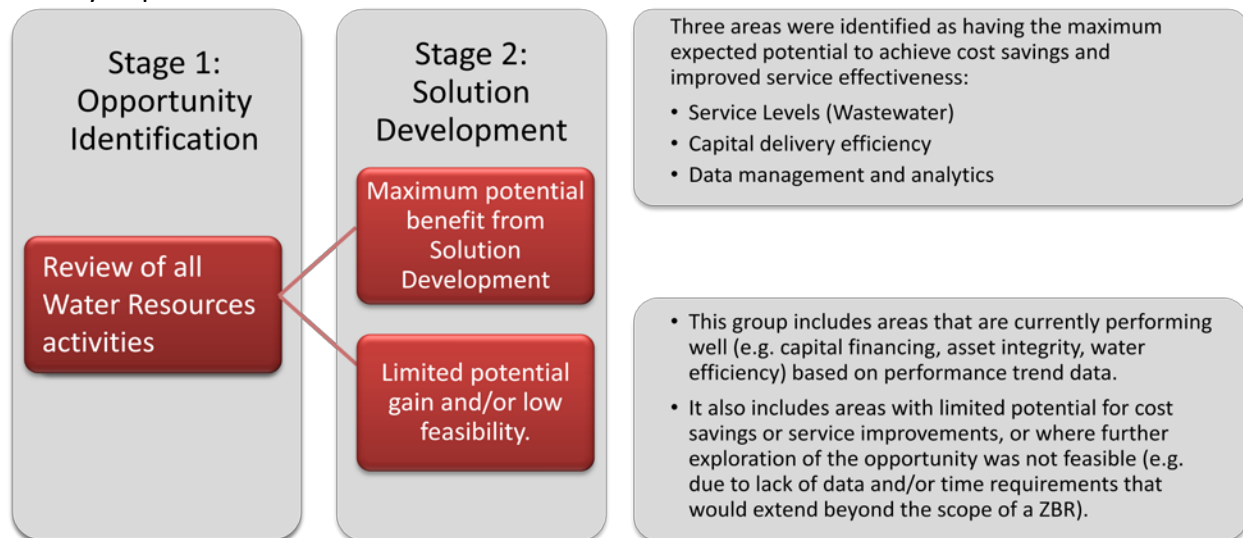
The Water Resources annual operating budget is \$474 million (2015 figures). Of this, \$153 million (32%) is for interest, depreciation, and other capital related expenditures, \$125 million (26%) is fund transfers by internal recoveries and \$96 million (22%) is for franchise fees and payments to The City. The balance (\$100 million) supports the activities of the Water Resources business unit. For purposes of the ZBR review, interest, depreciation, franchise fees, payments to The City and transfers are outside the scope insofar as they are unlikely to be changed as the result of a

service review of Water Resources operations. However, these costs could be impacted through changes in the delivery and approach to Water Resources Capital program.

The Water Resources annual capital budget averages \$350 million per year over the 10-year period of 2015 to 2024. To date, Water Resources is the most capital-intensive business unit to have been the subject of a ZBR in that a significant portion of the Business Unit's work (and therefore its budget) are related to delivering major capital projects. Greater efficiency and effectiveness in the delivery of capital would have a positive impact on operational costs for Water Resources related to interest, depreciation and contribution to reserves outlined above.

II. RESULTS OF THE WATER RESOURCES OPPORTUNITY IDENTIFICATION

The Opportunity Identification phase for the Water Resources ZBR resulted in three recommended opportunities for improvement and further exploration of those opportunities to identify improvements that could be made.



The Opportunity Identification phase for the Water Resources ZBR occurred from March to October 2015. During this phase, Administration conducted a review of all services in order to identify areas with the greatest potential for efficiency and effectiveness gains. The result was three recommended opportunities for improvement to pursue within this ZBR:

- **Service levels for wastewater**
- **Capital delivery process**
- **Data management and analysis**

These opportunities were used as the basis for an external consultant to develop detailed business cases and recommendations (presented in a separate report).

The tables below explain each of the three opportunity areas selected for further exploration.

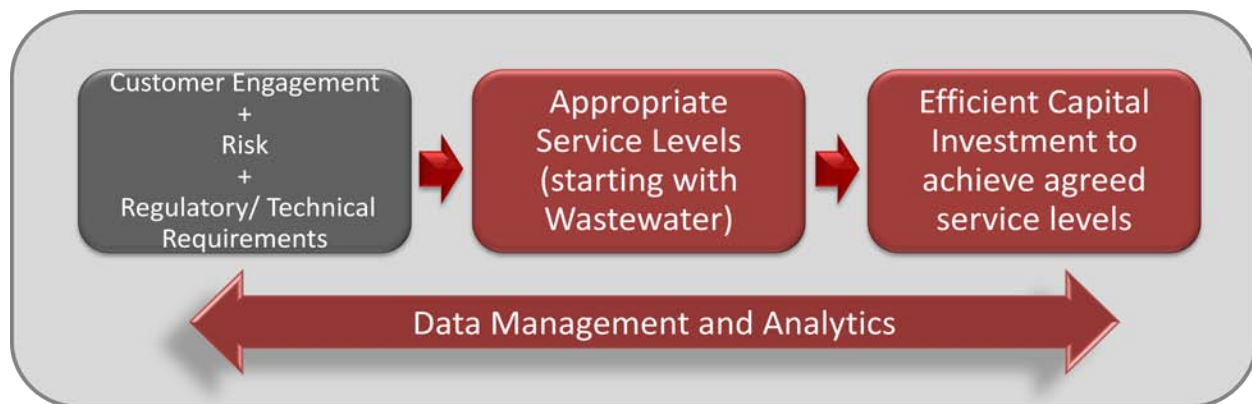
<p>Review Area:</p> <p>Service Levels for Wastewater</p>	<p>Description of the Opportunity</p> <p>To assess the current levels of service for the Wastewater line of business and evaluate what service level options are appropriate, considering varying best practices for service costs and service quality factors for public utilities.</p>
<p>Rationale for Selecting This Opportunity:</p> <ul style="list-style-type: none"> • Water Resources’ predominant culture and approach to its mandate has focussed on providing a high level of service, often measured in reliability. As a result, infrastructure and service has been delivered to a high standard – accompanied by higher costs. • Existing performance metrics are primarily asset focussed, with few measures that speak to customer needs and expectations. This has been described as ‘cart’ (assets/infrastructure) before ‘horse’ (understanding of risks and service level needs). • The Corporate Asset Management <i>Levels of Service Framework Guidance</i> rated the Water Utilities below the core level of implementation of service levels, but moving towards achieving the core level. • With limited information around customer and stakeholder expectations, key performance indicators and defined service level outcomes, it is difficult to determine whether the right level of service is being delivered and what options exist to change it. There is a critical upstream business benefit in determining appropriate service levels. This will focus downstream investments and process improvements • Better analysis and a decision-making method will help to determine what levels of service would be considered reasonable by the regulator and customers, based on overall service value, considering customers’ willingness to pay, regulatory requirements and assessment of risks. This analysis may result in different (lower or higher) service levels with the potential for resulting cost savings and/or for services that better meet customers’ and regulators’ priorities. • From 2015-2024, between 50 and 70% of the Water Resources capital budget (\$170-\$250m of an average total of \$350m per year) is allocated to Wastewater, making this service area the single largest area of investment within the utilities for the near future. It therefore makes sense to begin the work on determining service levels in the Wastewater area. This work and method can then be expanded to other utility services (i.e. drinking water and drainage). 	

Review Area: Capital Delivery Process	Description of the Opportunity: To identify aspects of capital delivery related to project management accountability, reporting, and governance and, where there are gaps or missing opportunities, to focus efforts towards efficient capital delivery.
Rationale for Selecting This Opportunity: <ul style="list-style-type: none"> • Water Resources is experiencing increased demand for capital project and program delivery based on long-term capital investment plans. Projected capital expenditures are approximately \$3.5 billion over the next 10 years, or an average of \$350 million per year. The sheer size of this investment makes it critical to ensure that the capital projects, and the capital portfolio overall, are managed as efficiently and effectively as possible. • While Water Resources has a program underway to streamline capital delivery, there are opportunities to assess its effectiveness, identify gaps, and ensure that leading practices are used. • An identified missing piece is the absence of measures and/or a way to capture data that provides real-time information related to capital efficiency both in the delivery of individual projects, and in the more macro perspective of the capital project portfolio. • There is also a bundling opportunity here: this opportunity would be considered downstream of the “Levels of Service” opportunity. Once appropriate levels of service have been determined, capital delivery process improvements can help to ensure that projects and services are provided as efficiently as possible, to deliver on desired outcomes. 	

Review Area: Data Management and Analysis	Description of the Opportunity There is an opportunity to standardize and formalize how data is created, used and stored in the business unit, and enhance data analysis to support the creation of information for knowledge attainment and transfer. In addition, there is potential to consider how real-time data and technology can support short- and long-term evidence based decision-making.
Rationale for Selecting This Opportunity: <ul style="list-style-type: none"> • As noted above, there is a shortage of measures and supporting data related to customer needs and expectations and capital project management. Having a strong set of performance metrics in these areas of the business can enable more effective decision making and investments. Decisions made without good information can be costly. • As well, Water Resources staff and managers expressed concerns with how information that is available is managed. Water Resources collects various types of data and it is received through different mechanisms is stored in numerous systems. Documents can be difficult to find, and tracking systems are outdated. There is therefore also a cost avoidance in well managed data. • Good data management and analysis are also critical to the success of the two other opportunity areas. 	

Summary of the Opportunity Areas Identified

The three opportunity areas selected for further exploration complement one-another, and address both the long-term (levels of service will drive choices about investments in infrastructure that may last more than 30 years) and relatively shorter-term opportunities (by maximizing the cost-effectiveness of capital projects built starting in the next five years) in this capital-intensive business unit. The selection of these areas recognizes the importance of determining appropriate service levels as a precursor to identifying and then efficiently delivering the capital projects required to achieve the agreed level of service. Good information (data and analysis) is essential to inform decisions at all stages.



The levels-of-service work was proposed to start with Wastewater because of expected large investments in wastewater infrastructure in the near future. Establishing appropriate levels of service starting with this service area thereby provides a solid foundation to determine the appropriate level of capital investment. Building on this experience, levels of service would then be established for the Water and Drainage areas. At the same time, improvements in the method for managing and delivering capital projects can start to be applied immediately to all capital projects in all service areas in the utility (i.e. including Water and Drainage as well as Wastewater), and ultimately can be extended to practices elsewhere in The City of Calgary organization.

Scope of the Opportunity Areas Identified

A proxy to measure the scope of the Opportunity Areas where further exploration is warranted is the size of the budget for the activities that will be examined.

- As noted on page 2, above, the Water Resources Business Unit's annual operating budget is \$474 million (2015 figures). However, excluding the part of the budget devoted to franchise fees, payments to the city, interest and depreciation, the relevant portion of the Water Resources operating budget for purposes of the ZBR is \$100 million. Of this, the opportunity areas identified for further exploration will address \$19.3 million.
- Given the capital-intensive nature of this business unit, a more useful proxy measure in this case is the capital budget. The opportunity areas identified for further exploration

address activities affecting 100% of the Water Resources capital budget, which averages \$350 million per year.

- In addition, reductions to capital costs will ultimately flow back and reduce other parts of the Water Resources operating budget, including depreciation, interest and franchise fees. In this regard, the opportunity areas identified for further exploration indirectly affect a large portion of the Water Resources operating budget.

III. OTHER OBSERVATIONS AND AREAS NOT EXPLORED FURTHER

The initial opportunity identification was extensive, and included:

- 13 staff orientation sessions, and interviews and workshops with 25 additional staff
- A review of approximately 35 documents (Business Unit plans, financials, risk register, and strategy reports).
- A review of existing performance data, through the Municipal Benchmarking Network Canada (formerly OMBI) and the National Water and Wastewater Benchmarking Initiative (NWWBI).

During the Opportunity Identification phase, the project team observed a number of strengths and areas of strong operational performance. These are among the areas where it was evident that an in-depth review was not likely to yield significant improvements.

Culture of Continuous Improvement

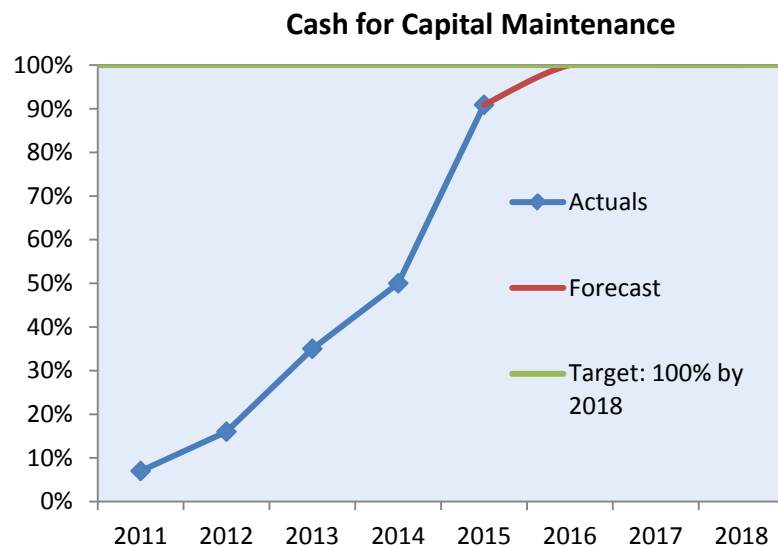
- ✓ Water Resources identifies ways to improve service delivery and reduce costs; for example:
- ✓ Raftelis financial review completed in order to determine optimal financial policies and ratios
- ✓ Overall Fleet Strategy in place to address concerns with fleet costs
- ✓ Dedicated resources to the improvement of understanding customers better and accessing and using customer data
- ✓ Strengthening general project management using the City's Project Management Framework

Proud and Loyal Workforce

- ✓ Employees are enthusiastic and proud to work for Water Resources
- ✓ Employees were eager to talk to Corporate Initiatives about the work that they do and ideas for improvement
- ✓ 85% of permanent UEP employees agree that they “know what is expected in customer service”, up 2.4% from 2015

Financial Policies: Cash Financing of Capital Maintenance

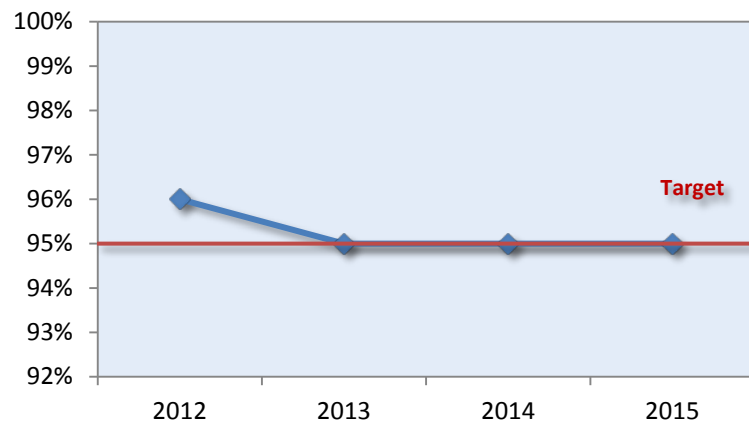
To preserve the financial health of the utility, a commitment was made to ensure capital maintenance within Water Resources is paid for by cash, and not debt-financed. With a goal of 100% cash financing for capital set, the utility has seen a positive turning of the curve, moving from 16% in 2012 to 90% in 2015, on track for 100% starting in 2016.



Asset Integrity

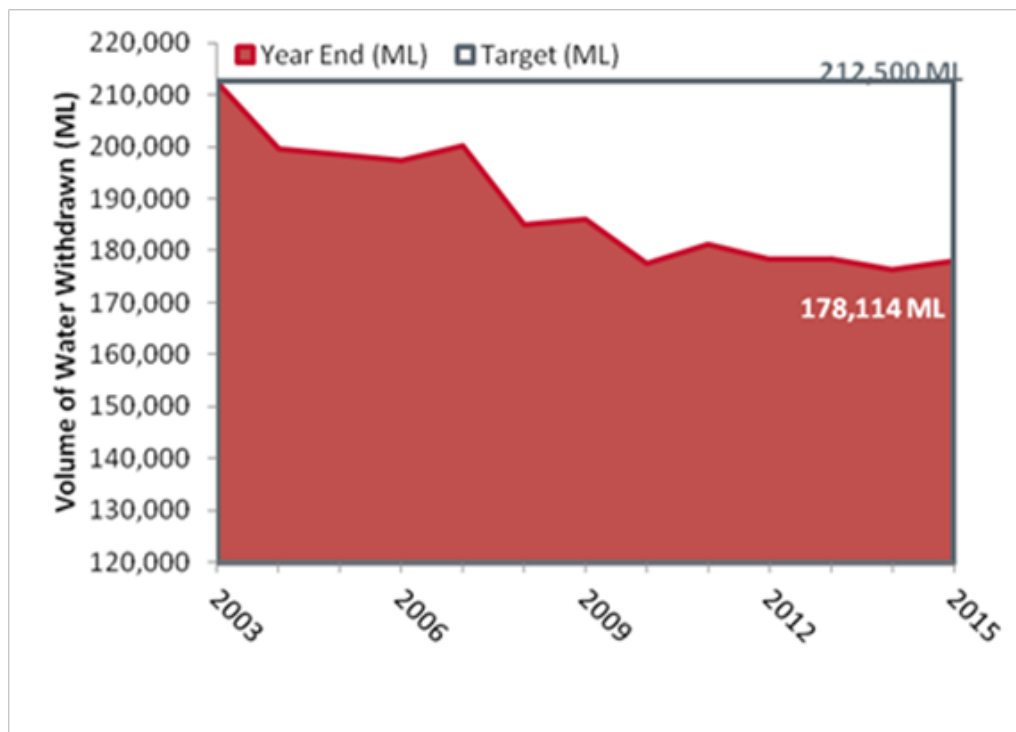
Water Resources has done an exceptional job in maintaining and preserving the systems that serve Calgarians. There has been a dedicated attention to ensuring and maintaining high quality assets. Water Resources has consistently met its target of 95%.

Water, wastewater and drainage systems assessed to be in fair or better condition



Water Efficiency

The City of Calgary has a Water Efficiency Plan to support population growth. The Plan's overarching goal is to accommodate Calgary's population growth until 2033 with the same amount of water that was removed from the river in 2003. Calgary is on track to meet this goal due to water-efficiency in its own operations (e.g. detecting leaks in water treatment plants, and detecting leaks and replacing water mains in the water distribution system). Customer programs promote water-efficient practices such as the adoption of water-efficient technology. The City is currently drawing less water than in 2003, despite a 30% increase in population.



Other Areas Not Explored Further

During the initial Opportunity Identification three other areas where improvement is possible were identified. However, these areas ultimately were not recommended for a variety of reasons.

Fleet Optimization: There may be potential to increase the efficiency of fleet operating and maintenance, which account for approximately \$20 million for the entire water utility. However, this area was not recommended for further exploration because work within Water Resources and Water Services was already underway to review the overall fleet budget and identify areas of opportunities.

Business Integration: There may be potential to improve the integration of strategic and enabling resources between Water Resources and Water Services. However, this opportunity was not recommended for further exploration. The potential for efficiency gains is low relative to other, and the feasibility to develop solutions within the ZBR timeframe was low. In addition, the internal focus of this opportunity may not have required external expertise

Growth Management: Another potential area of review is the role that Water Resources could take in the growth management strategy of The City. This area was not recommended for further exploration due to some recent process changes and work-underway on growth management and offsite levies.

IV. CONCLUSION

The opportunities selected for further exploration are those that demonstrated the greatest potential for gains (both efficiency and effectiveness), combined with feasibility, readiness and organizational fit. In addition, the three areas selected complement one another by addressing both upstream (service levels) and downstream (efficient capital delivery), linked by improved data management and analytics.

These opportunities were used as the basis for an external consultant to develop detailed business cases and recommendations.