Municipality of Jasper

Strategic Asset Management Study

- Final

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Executive Summary

The purpose of the Municipality of Jasper Asset Management study is to provide a high level strategic assessment of the Municipality's infrastructure assets and develop a long-range funding plan needed to attain infrastructure sustainability. The process for providing this analysis is in line with the Canadian Infraguide, "Seven Questions to Effective Asset Management".

Table ES-1 illustrates the current state of the infrastructure for each of the eight asset groups. The current backlog of infrastructure that has exceeded its theoretical service life (TSL) is in the Machinery and Vehicles Asset Groups. However, the major infrastructure groups (i.e. Roadways, Water, Sanitary, Storm, and Buildings) are currently in reasonable shape with a relatively small proportion of its infrastructure network that has exceeded its TSL.

Table ES-1 – Current State of the Infrastructure

Asset Group	Inventory	Replacement Cost	Currently Exceeded TSL
Roadways	• Roadways – 22.9 km • Alleys – 7.4 km • Sidewalks (incl. C&G) – 24.1 km • RR Pedestrian Underpass • Signals and Street Lights	$57.1 Million	7%
Water	• Pipes – 32.2 km • Wells and Pumping Facility – 3 wells • Treatment and Reservoir Facility	$45.7 Million	14%
Wastewater – Sanitary	• Pipes (Gravity) – 23.6 km • Pipes (Force Main) – 1.0 km • Lift Stations – 2 • Treatment Facility	$41.6 Million	3%
Wastewater – Storm	• Pipes (Gravity) – 13.4 km	$31.0 Million	0%
Land Improvements	• Engineering (i.e. parking lots) – 17 records • Recreation (i.e. courts, fields) – 6 records	$4.2 Million	23%
Buildings	• Facility Envelopes (excluding water and wastewater facilities) – 20 Structures • Interior Components (i.e. renewal items) – 188 records	$61.7 Million $13.7 Million $75.4 Million	11%
Machinery	• Various non-mobile, including building components – 103 Records	$5.0 Million	32%
Vehicles	• Mobile equipment for all Departments – 75 Records	$8.9 Million	38%
TOTAL		**$268.9 Million**	

Based on each of the asset group's Infrastructure Renewal Investment Plan, Table ES-2 illustrates the results of a Long Range Funding Plan showing the Capital Renewal Needs required to attain infrastructure sustainability. The table shows two scenarios. The first is based on conventional renewal, which would typically involve infrastructure replacement at the end of its service life. The second involves some preservation enhancement measures applied mid-life. Preservation maintenance is starting to become common practice to a few of the Engineering Services

asset groups (i.e. Roadways, Sanitary, and Storm Water). This is a key component to the National Infraguide and measures to minimize costs over the infrastructure life-cycle.

Table ES-2 – Long Range Funding Plan - 2016

			Conventional		Preservation Enhanced	
Asset Group	Replacement Cost ($M)	Current Budget Allocation ($M/yr)	Backlog ($M)	Capital Renewal Needs ($M/yr)	Backlog ($M)	Capital Renewal Needs ($M/yr)
Roadways	57.10	0.71	4.07	1.41	4.52	1.22
Water	45.70	0.31	6.25	0.94	6.25	0.94
Sanitary	41.60	0.11	1.29	0.89	3.90	0.52
Storm Water	31.00	0.02	-	0.82	0.01	0.21
Land improvements	4.20	0.11	0.97	0.20	0.97	0.20
Buildings	75.40	1.05	8.59	1.73	8.59	1.73
Machinery	5.00	0.18	1.61	0.38	1.61	0.38
Vehicles	8.90	0.05	3.35	0.65	3.35	0.65
TOTAL	**268.90**	**2.54**	**26.13**	**7.02**	**29.20**	**5.85**

Note * Shaded cells indicate preservation enhancements not currently explored in these asset groups

Comparing the two scenarios (i.e. Conventional vs. Preservation Enhanced), the Preservation Enhanced solution requires $1.17 Million/year (i.e. 7.02 - 5.85) less capital investment than the Conventional approach. However, a Preservation Enhanced solution still requires $3.31 Million/yr ($5.85-2.54) additional funding needs (i.e. 130%).

Looking into the budget category for each of the asset groups, Table ES-3 presents an illustration of the proportion of tax increases, utility rate increases, and user fees would be required to meet these new capital renewal funding needs. This is based on the Preservation Enhanced scenario.

Table ES-3 – Capital Renewal Funding Needs to Current Budget Revenue Comparisons

Asset Groups	Additional Funding Need ($ Million)	Budget Category	2015 Budget Revenues ($ Million)	Increase (%)
Roadways Machinery Vehicles	1.22-0.71 = 0.51 0.38-0.18 = 0.20 0.65-0.05 = 0.60 1.31	Municipal Taxes	6.84	16
Water Sanitary Wastewater Storm Wastewater	0.94-0.31 = 0.63 0.52-0.11 = 0.41 0.21-0.02 = 0.19 1.23	Utilities	3.17	28
Buildings Land Improvements	1.73-1.05 = 1.68 0.20-0.11 = 0.09 1.77	Culture and Recreation (i.e. user fees)	1.14	61

Recognizing a challenging funding issue, a Moving Forward Strategy was developed to address some additional processes that may further reduce the funding needs and help to close the financial gap. This strategy developed an implementation plan which is summarized in Table ES-4.

Table ES-4 – Implementation Plan

Item	Time	Estimated Cost	Comments
2016 Budget Plan	November, 2015	$0	Based on preliminary capital renewal needs revenue increases ranging between: • Municipal Taxes (4% – 16%) • Utility Rates (4% - 28%) • Culture and Recreation User Fees (4% - 61%)
Water Main Break History Condition Rating Assessment and Performance Measures	March, 2016	$8,000	Desktop analysis
Sanitary and Storm Flush, Sewer Photography, and Performance Measures	May – June, 2016	$126,000	Based on pipes with a TSL < 30 years. This would include 9600 m of sanitary sewer and 1000 m of storm sewer. Price estimated at $10/m for flush, CCTV photography and post data processing plus $16,000 for condition rating interpolation and forecasting.
Utility Rate Review * Key component to 2017 budget preparation	July, 2016	$15,000	To make certain utility rates meet not only operating needs but contain provision for capital renewal.
Roadway and Sidewalks Condition Rating	August-September, 2016	$20,000	Assumes manual condition rating for both roadways and sidewalks. Add $8000 to upgrade to automated pavement condition rating.
Engineering Assets (Roadways, sidewalks, water distribution, and wastewater (sanitary and storm) collection) Life-Cycle Optimization Analysis * Key component to 2017 budget preparation	February - October, 2016	$24,000	Based on minimizing costs of the infrastructures life-cycle, providing infrastructure sustainability, realistic budget allocations, and detailed treatment scheduling of all listed infrastructure assets within these groups. A key component is expected to include new preservation enhancing treatments (i.e. sewer liners, etc) designed to minimize capital renewal costs over the life cycle.
Facilities Risk Management Enhancement to Restricted Funds Workbooks * Key component to 2018 budget preparation	January, 2017	$5,000	Enhancement to existing Culture and Recreation capital renewal facilities programming
Water and Wastewater Treatment Plants and Pumping Facilities Internal Components Assessment and Capital	March, 2017	$8,000	Inspection and deficiency/preventative maintenance listing with internal Operations staff

Renewal Programming * Key component to 2018 budget preparation			
Fleet Management System (Vehicles and Machinery Asset Groups) * Key component to 2018 budget preparation	April 2017	$10,000	Based on conventional fleet management principles within a relatively simple spreadsheet environment.
Project Management (15%)	January 2016 to December 2017	$32,400	This may be internal management salary costs attributed to this initiative or an outsourced Owner's Engineer to manage the delivery of works listed above.
2017 Budget Plan	November, 2016	$0	Based on results attained in the above implementation planning components.
2018 Budget Plan	November, 2017	$0	
TOTAL		**$248,400**	

With respect to the findings of this study, the following presents the overall conclusions and recommendations.

Conclusions

- The computed replacement cost value of its infrastructure assets is $268.9 Million. This is significantly greater than the $84.5 Million compiled acquisition costs stated in the Municipality's 2014 Tangible Capital Assets Financial Statements.
- The Municipality of Jasper appears to be running an infrastructure deficit in all eight of its asset groups. Additional funding needs to bridge the financial gap is approximately $3.31 Million/year to $4.48 Million/year depending on the Municipality's decision to implement a proactive preservation enhanced approach or conventional replacement approach within the infrastructure renewal program.
- To address the Long Range Funding Plan needs will require approximately the following increase to existing revenue streams:
    - Municipal Taxes – 16%
    - Utility Rates – 28%
    - Culture and Recreation User Fees – 61%
- It is recognized that sharp tax/rate/fee increases would not be appropriate and that a gradual progressive approach be considered.
- It is recognized that post report asset management measures including condition assessments, life-cycle optimization modeling, risk management, and fleet management will contribute to further reduction in capital renewal funding needs and associated tax/rate/fee increases.
- A moving forward implementation plan beginning January 2016 and concluding December 2017 provides a period of the required assessment and analysis to derive budget programs and detailed work plans that will minimize costs while ensuring sustainability over the infrastructure life-cycle.

- Delivery of this plan should be carefully scoped as not all asset management systems and delivery thereof are created equal. Request for Proposal (RFP) development should reference Best Practices in the field of Asset Management and those practices that will maximize the Return on Infrastructure Investment (ROII) to the Municipality.
- The implementation plan may be managed internal to the Municipality of Jasper outsourcing each component; or managed and delivered in its entirety through the services of an Owner's Engineer.

Recommendations

i. That for budget year 2016, the Municipality of Jasper discusses and implements reasonable tax, utility rate, and user fees increases as a preliminary step to addressing the capital renewal funding needed to attain infrastructure sustainability.

ii. That for the period of January 2016 to December 2017, the Municipality of Jasper use the Implementation Plan to complete the needed analysis to develop a detailed Long Range Capital Plan that will maximize the ROII; and that the Municipality allocate $248,400 to complete those engineering works.

iii. That the Municipality of Jasper incorporates the detailed assessment results applied within the Long-Range Infrastructure Capital Plan for application in the 2017 and 2018 Budgets and beyond; and that this plan is used as a guide in addressing further tax, utility rate, and user fees increases.