

## **CITY OF MOOSE JAW**

**DATE:** March 16, 2017  
**TO:** Budget Committee  
**FROM:** Engineering Department  
**SUBJECT:** Solid Waste Utility report

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### **PURPOSE:**

The purpose of this report is to provide Council with more information related to the City of Moose Jaw's Solid Waste Utility and make recommendations with regards to service changes and the utility rate structure.

### **BACKGROUND:**

City council at its budget meeting on February 23, 2017 tabled the Solid Waste presentation in consideration of a report to follow with recommendations.

### **DISCUSSION:**

Moose Jaw's Solid Waste Utility is comprised of landfill operation, recycling programs and waste collection. 2017 budgeted expenses are \$1.7 million for operations, \$760k for curbside recycling, \$180k for administration and \$810k for capital costs (closure & expansion/replacement of landfill) for a total cost of \$3.45 million. 2017 revenue projected to be \$1.6 million from the landfill, \$935k from the curbside recycling program, \$188k from MMSW and \$725k from general revenue for a total of \$3.45 million in revenue. Bylaw No. 5156, Waste Management Bylaw, states the following

#### **Section 3 - Public Utility Established**

- (1) A self-funded public utility service is hereby established for the collection, transportation, storage, management and disposal of Waste and Recycle.

The Solid Waste Utility is not completely self-funded. It requires an allocation from general tax revenue to operate and current capital reserve allocations are not sufficient. As well, not all costs associated with the operation of the utility are expensed or acknowledged. Further to Bylaw No. 5156:

#### **Section 3 – Public Utility Established**

- (3) The public utility service referred to in subsection (1) shall be operated as a self-funded entity in accordance with the following provisions:
  - (a) The City Engineer shall establish a Solid Waste Utility Reserve;

- (b) The City Engineer is authorized to reserve funds as needed for the capital and operating programs of the public utility; and;  
(c) The City Engineer shall establish a Recycle Utility Reserve.

A SWOT (Strengths, Weaknesses, Opportunities & Threats) analysis was conducted on the Solid Waste Utility in 2016. This analysis further revealed multiple weaknesses and threats facing the utility. The current expected lifecycle remaining in the City of Moose Jaw's landfill is less than three years and the capital reserve level is insufficient. Additionally, waste collection level of service is poorly defined, manual collection still exists in a portion of the city, waste bin replacement has grown to significant levels, back lane collection is problematic, recycling diversion is low and revenue rates are very low.

Provincial Regulations have/are changing for landfills. They are becoming more stringent to reduce environmental impact. Saskatchewan has more landfills than any other province. The trend is for modern landfills to serve regions, providing a higher level and a more sustainable service.

## **RESIDENTIAL WASTE COLLECTION**

### ***Level of Service***

As illustrated in the chart below, there are several different types of properties that receive collection in the city through both a private contractor and the City of Moose Jaw. The current level of service creates inequities in collection providing unfair and inconsistent service to different members of the community.

	CONTRACTOR		CITY			
**Please note that Contractor bins would be the larger 6 yard bins**	# of Bins	Units Serviced	# of Bins	Size		Units Serviced
				95 Gallon	300 Gallon	
Duplex (2 Units)	-	-	246	246	-	246
Apartments/Townhouses (3-6 Units)	4	24	46	39	7	85
Apartments (6 or More Units)	80	1406	104	41	63	724
Trailer Courts (private property)			347	347	-	347
Care home & Senior Facilities	11	11	19	9	10	17
Businesses	178	178	21	15	6	21
Churches	3	3	4	3	1	4
<b>Totals</b>	<b>276</b>	<b>1622</b>	<b>787</b>	<b>700</b>	<b>87</b>	<b>1444</b>

With the exception of two unit duplexes, all of the above properties generate much more waste than a residential dwelling. Most of them operate as a business for profit and the individual occupants do not pay taxes directly to the City. All of the trailer courts and some of the apartment properties require the City to operate on private property. The City does not own,

service or maintain the infrastructure on these properties (roads, water lines, hydrants, etc.) yet is accepting liability by operating heavy vehicles on them.

The City uses two different size waste bins to service these properties, 95 gallon and 300 gallon. The different size waste bins create problems with collection which will be discussed in the waste bin section. Private contractors are much better suited to provide collection on these properties. The City's residential collection would operate most efficiently servicing properties in alignment with the recycling program.

Standardization of service results in operational efficiencies and savings. Using the correct equipment and maximizing utilization of the equipment results in customers (residents) that meet the criteria paying less. In the City's collection operation the inefficiencies and additional costs associated outweigh the addition of costs for commercial (contractor) service providers. The commercial service providers have the specialized equipment to service large property's efficiently, i.e. large capacity box dumpsters with fewer pick-ups.

### ***Manual Collection***

The City still performs manual collection from approximately 680 properties because the back lanes are too narrow for the automated equipment to operate in. This requires operation and maintenance of a stand-alone manual garbage truck for these properties only. Manual collection is also much more exposed to potential employee repetitive and strain related injuries.

### ***Waste Bins***

Annual waste bin replacements are projected to cost the City \$116,000 (1200 bins) in 2017. There are four factors that contribute to this failure rate:

- 1) The industry expectation for waste bins is an average of ten years life cycle which we are at this year. While there has not been a mechanism previously for tracking waste bin replacements, it is estimated that the City has replaced 3500-4000 bins in the last eight years. This seems to indicate that the age of the waste bin is not a primary factor in failure.
- 2) The composition of the City's waste bins since the beginning of the program has been high density polyethylene. This material is not well suited to our climate or use of the product. Medium density polyethylene is better suited to our climate as it is less rigid or brittle and has greater impact resistance. The switch to this composition was done in July of 2016 with approximately 800 already deployed.
- 3) The City currently collects waste with 65, 95 and 300 gallon waste bins. The belt clamping device on the collection trucks is not adjustable in the field, it is set initially before the truck is deployed. In order to service the 300 gallon waste bins, more clamping pressure is required to prevent losing it into the collection truck when it is being emptied. This increased pressure does have the potential to crack the smaller waste bins particularly when temperatures are low.
- 4) Back lane collection waste bins fail at a rate 69% higher than curbside waste bins. Broken wheels are 1100% higher. It is assumed this is attributed to such things as vehicle contact and uneven surface conditions in the lanes.



### ***Back Lanes***

In addition to the increased waste bin failures from back lanes, there are several other operating challenges. Back lanes are a 'money pit' in regards to operational maintenance, \$266,204 in total combined budget in 2016, with no appreciable change in condition from the start versus the end of the program. A very conservative estimate from industry studies concludes that 52 Weekly passes of our waste collection trucks is equivalent to approximately 2600 passenger vehicles (50/week).

There are many lanes in the city that we either wholly or partially do not own. Once again this puts the City in the position of operating on private property. There are a few instances currently where property owners have refused to allow the City to operate on their property forcing collection to the front curbside as a result.

Utilizing information from the City's GPS program it has been determined that curbside collection is more efficient than both manual and back lane collection (est. \$87,000/annum) and less problematic than back lane collection (overhead lines, private property damage, waste bin congestion, etc.). Operation in back lanes also presents risk and danger to the public.

### ***Recycling Diversion***

Data suggests there is significant room for growth within the City's recycling program. Increased diversion is important not only from an environmental point of view but will also aid in extending the current life cycle remaining in the landfill. The following table is from the 2013 State of Waste Management in Canada report prepared for the Canadian Council of Ministers of Environment (CCME).

Province	Waste Diversion
PEI	61%
Nova Scotia	42%
British Columbia	35.4%
Nfld & Lab	29%
Ontario	22.9%
Quebec	22.9%
New Brunswick	22.4%
Manitoba	15.8%
Alberta	15.4%
<b>Saskatchewan</b>	<b>13.2%</b>

Following is a summary of the last three years of recycling and residential waste collection quantities in Moose Jaw:

	2014	2015	2016
Annual recycling (tonnes)	943 (8.3%)	750 (7.2%)	1477 (13.3%)

Residential waste collection (tonnes)	10,460	9,663	9,630
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Industry estimates are that 40% of all residential waste is recyclable. The above statistics indicate there is significant opportunity to increase recycling activities in the City.

***Residential Waste Collection – Collection Schedules and Pay-for-Service***

If the City were to change the frequency of waste collection, there are potentially significant efficiencies that can be realized with staff and equipment. Changes to the frequency of collection have been proven to positively impact recycling diversion rates. Utilities typically operate under the premise that a fee or rate is exchanged for a service provided. Currently there are many municipalities across the country that have implemented a fee-for-service program including the majority of Saskatchewan cities. The following table identifies the fee-for-service structure that Saskatchewan municipalities have implemented for their residential waste collection service:

City	Rate	Schedule	Service
Yorkton	\$10.65	Weekly	Waste
North Battleford	\$9	Bi-weekly	Waste
Swift Current	\$8.50	Weekly	Waste
Prince Albert	\$17	Bi-weekly (8 months)	Waste + Recycling
Estevan	\$7.30	Weekly	Waste
Weyburn	\$5.05	Weekly	Waste (env. & landfill decom. fee)
Regina	\$0	Weekly	Waste
Saskatoon	\$0 (in process)	Bi-weekly (7 months)	Waste
<b>Moose Jaw</b>	<b>\$0</b>	<b>Weekly</b>	<b>Waste</b>

A utility rate is visible to residents and directly tied to the level of service provided. This creates cost awareness and transparency as opposed to services financed through general tax revenue. If the City were to consider a waste collection fee it is recommended first that level of service is standardized; waste collection is provided to single family properties and 2 unit duplexes only. It is assumed that this would lead to a commercial business increase at the City Landfill estimated at \$55,000. Secondly, move all collection to automated collection and front curbside service. This creates a fair and equal service allowing for an even application of a rate and provides for an efficient use of City time and equipment. The following three options presented assume these changes.

### **Option 1**

Collection schedule stays at current model, five business day schedule (weekly).

**\$9.14/property/month or \$109.68 annually**

This option does nothing to contribute to increased recycling activity. There are no additional savings for this option.

### **Option 2**

Collection schedule changes to a seven business day schedule (pick-ups vary on a 9, 11 or 12 day cycle if bridging 1 or 2 weekends and stat holidays)

**\$7.64/property/month or \$91.68 annually**

**Additional \$204,140 in reduced operating costs from option 1**

This option is assumed to begin promoting additional recycling activity. A 5% waste reduction was factored in as part of this rate. The rotating schedule requires education and may create confusion for the residents.

### **Option 3**

Collection schedule changes to a ten business day schedule (bi-weekly)

**\$6.57/property/month or \$78.84 annually**

**Additional \$348,515 in reduced operating costs from option 1**

This option assumes further recycling activity than option 2. A 10% waste reduction was factored in as part of this rate.

### **LANDFILL**

The current lifecycle is estimated at less than three years as mentioned previously. Cell closure activities are required and are significant as are the costs associated with the creation of a new cell or landfill. This requires an immediate need to increase capital resources. Landfill rates and tipping fees can be evaluated for further revenue potential. Following is a list of current landfill rates in Saskatchewan:



SK Landfills	Residential Flat Rate	Commercial Tipping Fee (tonne)
Saskatoon	\$15 (150 kg)	\$105
North Battleford	\$5 + tip rate	\$85.50
Regina	\$10 (200 kg)	\$80
Prince Albert	\$10 (150 kg)	\$65
Swift Current	\$5	\$60
Yorkton	\$6.50 (500 kg)	\$55
Weyburn	\$10	\$46
Estevan	\$10	\$46
<b>Moose Jaw</b>	<b>\$8</b>	<b>\$40</b>

As noted above, the City of Moose Jaw is far behind other municipalities with respect to generating revenue to sustain its Solid Waste Utility. The majority of activity at the landfill is through commercial enterprises and as such the majority of the burden for funding the utility should not be borne by the residents at large. Changes to the landfill fees support activity based consumption of available airspace, a landfill's most critical asset. **A residential flat rate of \$10/load and a commercial tipping fee of \$60/tonne.** A review of other rates should be conducted at a future date. These changes would have a substantial impact on utility sustainability and as reflected above, the City would still only be in the middle of the pack with respect to other municipalities. At this rate the capital requirements of a new cell or landfill could be addressed. It should be noted that increased rates can impact the amount of waste received which are also subject to economic fluctuations.

### **SOLID WASTE UTILITY REVENUE & EXPENSE MODEL**

The below model is based on a ten day (bi-weekly) collection schedule. It assumes the move to a standard level of service with regards to single family homes and 2 unit duplexes, front curbside pick-up and a monthly residential collection fee. The three average for commercial tonnage at the City Landfill is 29,355 tonnes, revenue estimates following assume 27,000 tonne activity level.

	2017 Tonnes	2017 Tickets	#	Proposed Rate	Revenue
Recycling Revenue					\$935,915
MMSW Grant					\$188,000
Commercial	27000			\$60.00	\$1,620,000
Commercial w/add				20.2%	\$1,947,240
Residential Solid Waste Rate			11300	\$6.57	\$890,892
Resident tipping		23,165		\$10.00	\$231,650
Non-resident tipping		237		\$20.00	\$4,740
Commercial – Additional business	0.77		1198	\$60.00	\$55,348
Community Clean-up**		5524		\$10.00	\$55,240
Hazardous Waste**					\$30,000
Potters					\$30,000
<b>Total Revenue</b>					<b>\$4,283,785</b>
**not included in revenue projection					

Description					Expenses
Solid Waste Operation					\$1,213,697
Curbside Contract (recycling)					\$759,170
Administration					\$180,000
<b>Total Expenses</b>					<b>\$2,152,867</b>

The Solid Waste Utility would realize an estimated \$4.25 million in revenue and \$2.1 million in expenses in this model. Capital reserve requirement is estimated at \$1.1 million/year. There is an estimated remaining amount of \$1 million that can be paid to the City of Moose Jaw in the form of a franchise fee for expenses associated with the operation of the utility in the community. In



addition to this, the general tax revenue of \$725,000 allotted to the Solid Waste Utility can now be reallocated back to general tax revenue for new services, increased level of services or other budgetary considerations. The utility would be able to provide a more sustainable service to the residents of Moose Jaw.

## **SUMMARY**

In summary the solid waste utility structure needs to be formalized and consolidated. Operational changes that result in savings (changes to collection) should be implemented and through the utility these savings can be passed on to customers (residents). Costs associated with the operation of the utility need to be accounted for in the rate structure. This includes capital costs for expansion/creation and closure activities and costs associated with operation of the utility in the community.

In order address the challenges facing the solid waste utility in a cost effective and responsible manner the recommendations in this report can be summarized and reflected in the chart below which illustrates the financial impact to individual homeowners.

	Current	Proposed*
<b>Landfill</b>	\$2.51**	\$0 (in rates)
<b>Recycling</b>	\$6.90	\$6.90
<b>Collection</b>	\$0 (\$5.35 tax revenue)	\$6.57
<b>Total</b>	\$14.76	\$13.47

\*Assumes curbside pick-up, standardized duplex and single family home pick up, bi-weekly collection schedule and landfill rate changes

\*\*\$10,000,000 amortized over 10 years = \$8.96/month (11,300 homeowners), 28% of landfill revenue residential collection, 72% other

<b>Potential Franchise fee/tax reallocation</b>	<b>\$0</b>	<b>\$12.72 (\$1,725,000)</b>
Road Rehabilitation	\$0	\$5.72
Bridges	\$0	\$5.00
Storm Maintenance	\$0	\$2.00

The proposed changes are recommended as a whole to provide the most impact to the utility. The relative financial impact of the proposed initiatives within the recommendations can be identified as follows:

Change	Cost Reduction	Revenue
Standard level of service + curbside collection	\$87,000	\$55,348
Ten business day collection	\$348,515	
Waste Collection Fee		\$890, 892
Landfill Rate Changes		\$696,358

For reference annual budget estimates are provided below:

	2017 Budgeted	2017 Proposed (full year)
Revenue	\$3.45 million*	\$4.3 million
Expenses	\$2.65 million	\$2.2 million
Capital Contribution	\$810 k	\$1.1 million
Franchise Fee	0	\$1 million

\*includes \$725k from general tax revenue

Due to the current position in the calendar year, it is recommended that any changes be implemented effective July 1, 2017 allowing for proper communication and implementation. This would effectively reduce 2017's financial impact by 50%.

**RECOMMENDATION:**

- 1) THAT the City Solicitor be directed to bring forward amendments to Bylaw no. 5156 in accordance to the following recommendations that are passed.
- 2) THAT City residential waste collection be moved to front curbside collection.
- 3) THAT a standard level of service is adopted with waste collection whereby single family dwellings and 2 unit duplexes receive collection; all other properties receive waste collection through a commercial service provider.
- 4) THAT the City waste collection schedule be changed to a ten business day (biweekly) model.
- 5) THAT the City charge a waste collection fee of \$6.57 per month or \$78.84 per annum to each resident receiving waste collection service.
- 6) THAT the City Landfill rates be adjusted as follows:

Residential Flat Rate	\$10
Commercial Tipping Fee (per tonne)	\$60

Respectfully submitted,

Josh Mickleborough

Josh Mickleborough, P. Eng.  
Director of Engineering  
/ds

Darrin Stephanson

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Municipal Operations Manager

**CITY MANAGER'S COMMENTS:**

Myron Gulka-Tiechko

A/City Manager

**MAYOR'S COMMENTS:**

Assuming the utility rate fee on residential  
Collection provides a corresponding decrease  
in the tax mill rate?

Coun. Don Mitchell

Mayor