



City of Moose Jaw

COMMUNICATION #NA

TITLE: Review of Curbside Criteria and Solid Waste Utility

TO: Budget Committee

FROM: Engineering Department

DATE: January 10, 2018

PUBLIC: Public Information

IN-CAMERA: Not applicable to this report

RECOMMENDATION

- 1) THAT the City landfill operations budget be increased by \$436,000 to allow for compliance with the City of Moose Jaw's New Permit to Operate a Municipal Disposal Ground as required by Provincial Regulation.
- 2) THAT the City Landfill rates be adjusted for commercial tipping from \$60/tonne to \$69/tonne.
- 3) THAT an elevation limit of 577 meters is set providing for an additional 5 years of operation at the current landfill site given estimated waste tonnage intake.
- 4) THAT the City waste collection budget receive a one-time increase of \$72,000 to recycle broken waste bins located at the City yard.
- 5) THAT the City waste collection budget receive an annual increase of \$10,000 to recycle broken waste bins.
- 6) THAT the City move ahead with full curbside implementation.
- 7) THAT the City charge a waste collection fee of \$7.25 per month or \$87.00 per annum to each resident receiving waste collection service.

JUSTIFICATION FOR IN-CAMERA

Not applicable to this report

TOPIC AND PURPOSE

The purpose of this report is to provide Council with a review of curbside criteria and additional 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 through the budget process.

BACKGROUND

See attachment - 2017 Curbside Waste and Recycling – City Council Motions

REPORT

Solid Waste Management Master Plan

The City engaged a consultant in late 2017 to develop a Solid Waste Management Master Plan (SWMMP). This plan is multi-faceted and is focused on creating an environmentally sustainable, economically viable and socially acceptable utility. Several of the key deliverables are as follows:

- 1) A Political, Economic, Social, Technological, Legal and Environmental (PESTLE) analysis will be completed through surveys and interviews with residents, community leaders and other stakeholders.
- 2) Evaluation of current services and capacities of the City and the private sector.
- 3) Waste composition study.
- 4) Aerial survey and airspace analysis of the current landfill.
- 5) Evaluation of existing landfill site and potential sites for new landfill cell creation.
- 6) Assessment of capital and operating costs.

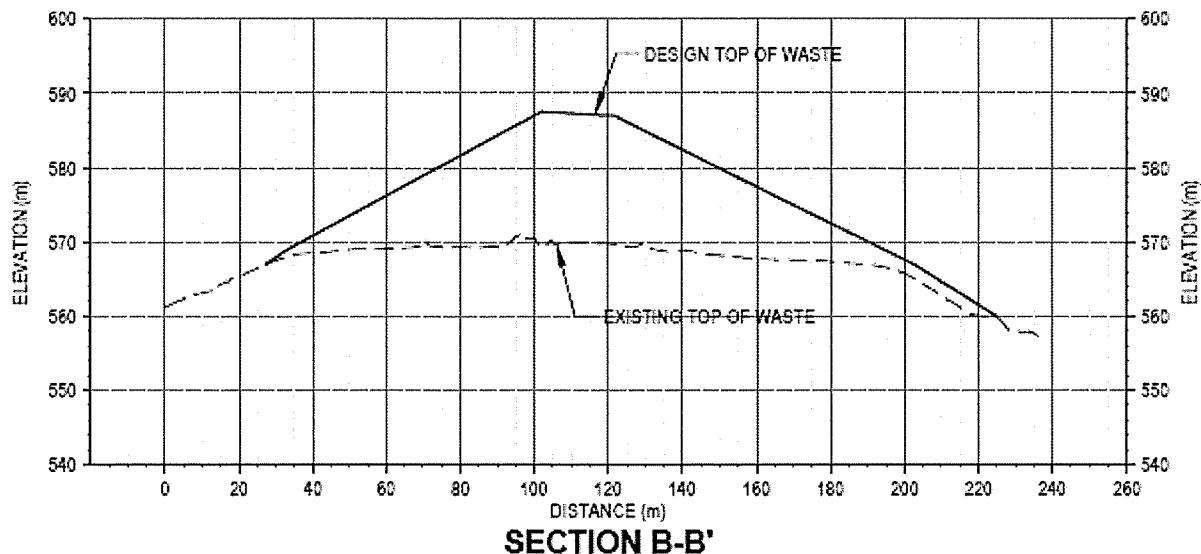
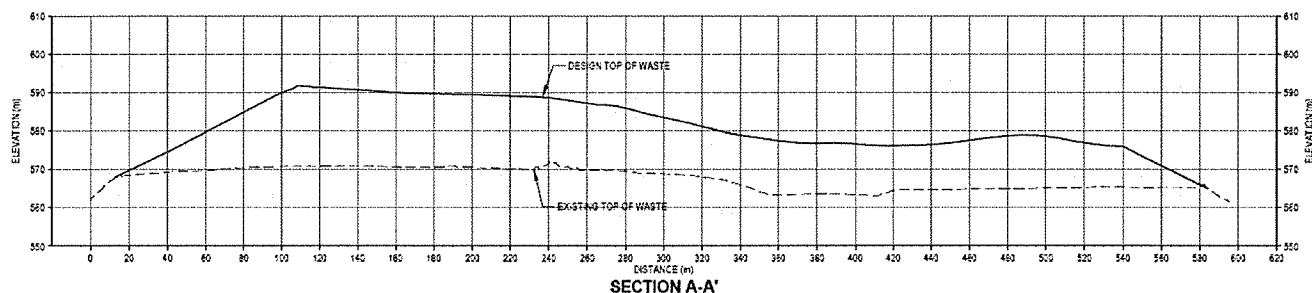
The SWMMP will also look at new and emerging technologies as part of its future state analysis. One example consists of landfill gas capture and use including potential carbon credits. Waste to energy technology will also be looked at, however the City of Moose Jaw's small population is a barrier to entry for this technology. A partnership with the City of Regina may realize the appropriate waste tonnage for this technology to be viable.

Composting options will also be investigated. An organics program is a complicated venture for many reasons and can have significant economic impacts on the utility. Financial implications to handling organic waste as a separate stream consist of advertising and public education, creation of an organics cell, passively aerated versus an actively aerated cell, collection equipment and/or pay-as-you-throw depots. There are several impacts to the landfill component of the utility such as reduced compaction per tonne of waste resulting in greater airspace consumption and reduced revenue from organics tonnage diversion. Organics aid in the breakdown of other waste products in the landfill resulting in increased airspace and reduced elevation. Any landfill gas capture and use program would be severely compromised with the removal of organics from the waste stream. In short, an organic/composting program needs to be considered in the context of the overall SWMMP.

Landfill

Landfill Remaining Lifespan

A new aerial survey was completed on our landfill and an airspace analysis report has been completed to assess the remaining life left in our landfill. Previous reports by consultants in the last decade estimated remaining life based on a range of different elevation numbers (564.5m – 577.5m). Whether these elevations were limits set by Council of the day or recommendations by the consultants is not clear at the time of this report. Part of the current analysis was based on the maximum elevation possible that could be engineered while maintaining proper side slope and cover cap drainage grade. This maximum elevation would be 591.73 meters above sea level and would include a top surface working area of only 19.5 meters. This gives a potential maximum lifespan of eight years based on annual cubic meter consumption for historical landfill disposal tonnages. This lifespan would be subject to future economic activity and waste diversion activities. It needs to be noted that maximizing airspace is not an optimized situation operationally. It typically requires temporary turn arounds, transfer stations and additional waste shaping/moving/double handling. Safety risks for the operators also increase as this maximum elevation is reached. All of these activities create additional operating costs. As the current maximum elevation point is 571 meters, an additional 20 meters (66 feet) is a significant increase and Council should consider the desired final geographic appearance. The following diagrams represent the longitudinal and latitudinal cross sections at maximum possible elevation.



Engineering recommends a maximum elevation of 577 meters to avoid or mitigate any potential increase in operational costs. This elevation level should provide an additional five years of operation at the current site and possibly a sixth year if the current trend of waste reduction continues forward. This timeframe should prove sufficient to open a new landfill cell or landfill site allowing for appropriate regulatory approvals and construction activities.

Landfill Site and Permit to Operate

The City of Moose Jaw had its permit to operate the landfill renewed on Dec. 21, 2017. The previous permit to operate required cover material (dirt) to be applied to the working face three times per week. Provincial regulators have changed this cover requirement for all new permits. The City is now required to cover the working face five times per week. While the cost of cover material is currently free for the landfill, there are significant costs associated with the hauling, spreading and compacting of this material. The associated increase in total cost is estimated at \$370,000 if City equipment and personnel carry out the work. The City does not currently have the personnel or equipment available to undertake all of this additional work and would need to enlist contracted services at an estimated total cost of \$436,000. This scope of work is not currently included in the operating budget. Failure to meet these new requirements would put the City in violation of its permit to operate. It is recommended that the current commercial tipping fee of \$60/tonne be adjusted to \$69/tonne and the corresponding operational budget be increased by \$436,000 to offset these new regulatory operational costs.

Additionally there appears to be an active leachate leak on the east side of the landfill which at a minimum requires further testing to confirm the size and severity. Any remediation activities and costs would be determined once these unknowns have been identified.

The permit also requires an Environmental Site Assessment and a Decommissioning and Reclamation Plan. The costs for these activities is not currently known.

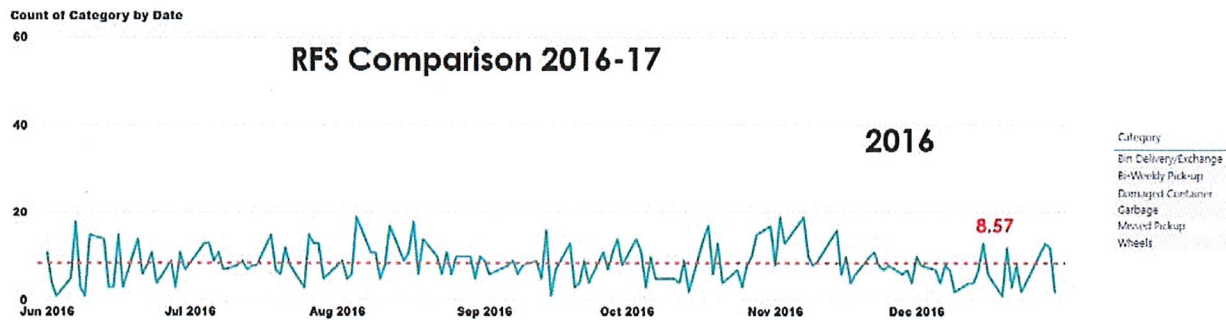
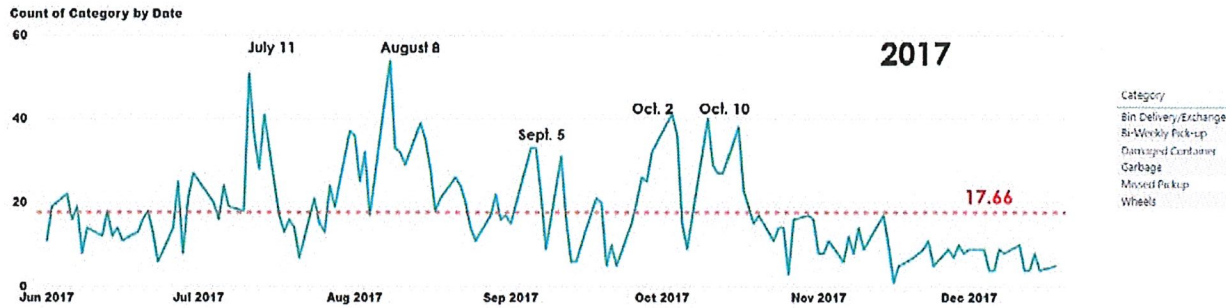
Collection Services

Curbside Collection

Curbside collection is currently being provided to approximately 5000 homes in the city almost exclusively in zones 1, 2, 3 and 4. Calls regarding curbside collection from the transitioned zones have significantly decreased in volume now that the program has had some time to run and are as follows from our RFS system:

	<u>Support Curbside</u>	<u>Opposed to Curbside</u>
October	2	4
November		1
December		1

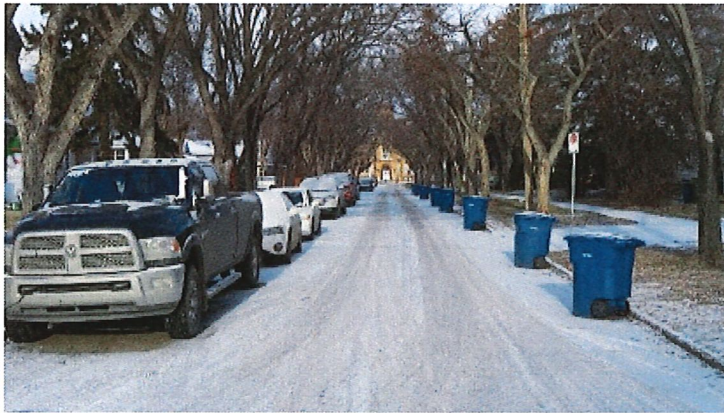
If the overall RFS call volume for waste collection is studied, the same trends are seen when services that directly affect residents are changed. There is a spike with each major announcement or change of service and then the call volume starts to normalize. November and December of 2017 returned to normal or below normal business activity levels. These changes can be illustrated in the charts on the following page.



An analysis of collection time per waste bin for the months of October, November and December was performed utilizing GPS route data. This data was compared to data from the same zones prior to curbside collection earlier in the summer of 2017. Curbside collection proved to be 18% more efficient than back lane collection. This includes winter conditions in the curbside data which is slower due to road conditions. It is assumed the efficiency pick up would be higher if similar summer months were analyzed for curbside collection but adequate data does not exist at this time. Due to the program being halted and referred to budget, no further labour has been expended to refine existing routes from the initial transition. It is expected that further progression to curbside will lead to increased efficiencies through better zone balancing and route refinement.

Manual Collection

The City still performs manual collection from approximately 500 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 and is significantly more inefficient. An equal level of service has been more difficult to obtain in the manual zone compared to the rest of the city as homes are not limited to the standard 95 gallon waste bin in use with the other 95% of homes. Further adoption of one sided parking on narrow streets would allow for automated collection eliminating all these concerns while addressing the serious safety concerns related to fire protection and emergency medical services. There have been zero complaints received with regards to waste collection in this manner since the program started on August 1, 2017. Other options for automated service in these narrow back lanes would consist of the purchase of a specialized piece of equipment to service this 5% of residential collection. A report on narrow lanes and one sided parking with respect to the pilot program will be forthcoming in the next few months.



Waste Bins

The total number of waste bins that failed in 2017 was 1,595 at an estimated cost of \$203,873. This can be further broken down as follows:

Curbside bin failures	209
Back lane bin failures	1,386

It is also estimated that the City has now approximately 6,000 broken bins down at the City yards. An initial cost estimate obtained to haul and shred these bins for recycling is \$12/bin or \$72,000. This is not currently included in any operating budgets and therefore would be a new budget request for 2018. Additionally, based on the current collection services, an annual ongoing budget of \$10,000 - \$15,000 (curbside cost versus back lane cost) would be required for continued management of broken waste bins.

Bi-weekly Collection & Diversion

The move to bi-weekly collection in October has had a significant impact to the residential waste tonnage being collected. The chart below illustrates the changes to our waste and recycling streams (recycling diversion % in brackets).

	2015	2016	2017	2017 (Oct-Dec)
Annual recycling (tonnes)	750 (7.2%)	1477 (13.3%)	1,496 (15.1%)	410 (20.2%)
Residential waste collection (tonnes)	9,663	9,630	8,433	1,619 (-14.5%)

The initial results for waste are very positive however recycling tonnage has only increased 1.3% over 2016. A waste characterization study was performed at the City landfill in early December of 2017. The results, while disappointing, illustrate how much potential remains for recycling diversion and corresponding waste volume reduction within the residential collection stream.

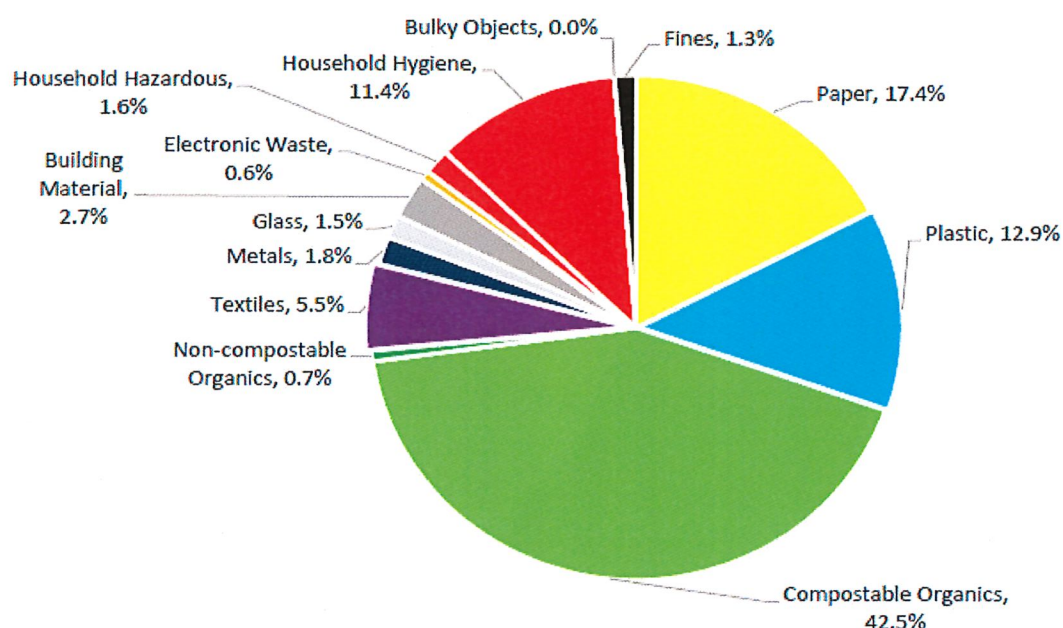


Figure 4-1: Single-family Residential Waste Composition

It is recommended that the City engages in further promotion and education of the recycling program with our customers due to the substantial room for improvement. It is expected if the bi-weekly program is allowed to mature the diversion rates will increase as the changes become more accepted and routine.

Waste Collection Fee

The rate provided for waste collection in 2017 was \$6.57/month. The cost of residential waste collection has changed due to:

- Increases in City labour costs (new labour contract in 2017)
- Waste bin cost, administration, delivery and disposal
- Landfill waste disposal costs due to provincial regulatory changes.

The new rate still reflects the cost of delivering the collection program and it is recommended that it is changed for 2018 implementation. The service level for this rate consists of bi-weekly collection with curbside collection at approximately 85% of the homes in the City.

\$7.25/property/month or \$87.00 annually

Savings are updated from pre-program implementation and can be split as follows:

Curbside Service	\$152,243
Bi-weekly Service	\$337,557
Total	\$489,800

OPTIONS TO RECOMMENDATION

Recommendation #7

Option 1

Bi-weekly collection schedule with no curbside collection, reverted to pre-program implementation status from summer of 2017.

\$8.36/property/month or \$100.32 annually

Option 2

Revert all services to pre-program implementation status from summer of 2017, no curbside collection, no bi-weekly collection.

\$10.75/property/month or \$129.00 annually

PUBLIC AND/OR STAKEHOLDER INVOLVEMENT

The Communications department has secured quotes from survey companies, and we are prepared to launch a random phone survey about the reaction to, and perceptions of, curbside pickup. The survey would encompass a balanced cross-section of Moose Jaw residents that transitioned to curbside August 1, and those in areas that still receive rear pickup.

We feel this survey would give the most accurate and unbiased representation of how our residents feel about the curbside program, including criteria for challenged areas and the program's effect on our budget.

The cost of the survey is \$10,000.00 and we would have a full report delivered by the end of February.

COMMUNICATION PLAN

Not applicable to this report.

STRATEGIC PLAN

Not applicable to this report.

OFFICIAL COMMUNITY PLAN

Not applicable to this report.

BYLAW OR POLICY IMPLICATIONS

Bylaw No. 5156 Waste Management Bylaw will require the rates to be adjusted for 2018 upon adoption of the appropriate recommendations.

FINANCIAL IMPLICATIONS

All financial implications are contained and funded within the Solid Waste Utility, not mill rate supported.

- Increase from \$6.57 to \$7.25 per month for residential waste collection
- One-time increase of \$72,000 to waste collection budget to recycle broken waste bins located at the City yard.
- Annual increase of \$10,000 to waste collection budget to recycle broken waste bins.
- \$489,800 cost savings with full implementation of curbside and bi-weekly collection service.
- \$436,000 increase to landfill operations
- Increase for commercial tipping from \$60/tonne to \$69/tonne.

PRIVACY IMPLICATIONS

Not applicable to this report.

OTHER CONSIDERATIONS/IMPLICATIONS

Not applicable to this report.

PUBLIC NOTICE

Not applicable to this report.

PRESENTATION

VERBAL: X AUDIO/VISUAL: X NONE:

ATTACHMENTS

2017 Curbside Waste and Recycling – City Council Motions

Respectfully Submitted By,

Darrin Stephanson

Darrin Stephanson, Municipal Operations Manager

DS/bh

APPROVAL OF REPORT RECEIVED

COMMENTS RECEIVED

Josh Mickleborough

Josh Mickleborough, Director of Engineering Services

Myron Gulka-Tiechko

Matt Noble, City Manager (Acting)

Fraser Tolmie

Fraser Tolmie, Mayor

To be completed by the Clerk's Department only.

Presented to Regular Council or Executive Committee on _____.

No. _____ Resolution No. _____