COUNCIL REPORT

M&C No.	2019-206
Report Date	August 14, 2019
Meeting Date	October 07, 2019
Service Area	Transportation and Environment Services

His Worship Mayor Don Darling and Members of Common Council

SUBJECT: Modernization of Solid Waste Collection Service

OPEN OR CLOSED SESSION

This matter is to be discussed in open session of Common Council.

AUTHORIZATION

Primary Author	Commissioner/Dept. Head	City Manager
Jeff Hussey / Tom McGrath	***Mike Hugenholtz***	***John Collin***

RECOMMENDATION

It is recommended that this report be received and filed by Common Council.

EXECUTIVE SUMMARY

The City of Saint John provides Solid Waste Collection Service to 23,163 households citywide. This service currently includes curbside pickup for both compost and household refuse. The compost collection is semi-automated and the household refuse collection is completely manual.

The City's Solid Waste Service, as it exists today, poses a number of challenges that directly affect our work force, our service to our citizens, and our environmental stewardship. The existing daily tonnage being manually handled by our workforce exposes them to health and safety risks which may lead to an increase in workplace injuries. The current service does not encourage or make it convenient for citizens to divert their waste. Without waste diversion, the City is incurring higher tipping fees and the regional landfill site's life expectancy is being diminished.

The modernization of the City's Solid Waste Service will allow the city to move to an automated cart pick up service for regular household refuse, provide curbside recycling and bag tags for excess refuse. By moving to an automated pick up service, the City will be protecting the health and safety of their employees by limiting the manual material handling of household refuse as well as becoming a community that is taking responsibility for our environmental footprint. Adding curbside recycling and bag tags will encourage waste diversion and in turn

reduce the overall cost of this service's tipping fees. The implementation of bag tags for any additional refuse outside of the aforementioned services will give citizens the ability to deal with the rare occasions when they may need to put out excess refuse.

With this report provided to introduce the concept and for information, City staff will soon begin the deliberate process of seeking the necessary approvals from Council, including those required for the pilot project. Throughout, public consultation/input will also be collected.

PREVIOUS RESOLUTION

None

REPORT

The City of Saint John currently provides curbside pick for our Solid Waste Service in two streams, compost and regular refuse. The delivery of this service, as it exists today, is outlined below:

Existing Resources & Routes:

Resources

- 13 FTE's (1 x Foreman, 1 x Sub-Foreman, 11 x Skilled Workers)
- 11 Vehicles (1x Foreman Truck, 8 x 1-Man Packers, 2 x Rear Loader Trucks)

Routes

- approx. 23,163 household units serviced
- approx. 22,000 civic stops (accounting for multi-unit up to 4 tenement)
- 45 individual runs
    - 37 x bi-weekly routes (days)
    - 5 x weekly routes (days – "Old North" & Lower West)
    - 3 x weekly routes (nights – South Central Peninsula)
- 435 average stops per route

Existing By-Law Details:

- No bag limit
- Bag size must be greater than 80L *
- Container Size must be greater than 60L and/or less than 130L *

* Will have these updated during the by-law review

Existing Solid Waste Volumes:

- Bag Count Average
  - Bi-weekly = 3.71 bags/stop
  - Weekly = 2.64 bags/stop
- Tipping Fees
  - $1.3 million annually
- Industry Standard (tonne/day per man)
  - Industry guideline = maximum of 3.6 tonnes/day/man
  - Actual tonnage = on average greater than 5 tonnes/day/man

The existing process result in a number of challenges that directly affect our work force, our service to our citizens, and our region's environmental future. The existing daily tonnage being manually handled by our workforce exposes them to a number of injuries. Controls are currently in place to limit reassignment of our solid waste workforce to other duties post route completion. This leads to a loss of productive man-hours. In addition, the citizens presently have no limit as to the volume of solid waste they place at the curb for pickup. That, in conjunction with the existing Blue Bin Recycling Depot Program, does not promote a community that embraces waste diversion and is not aligned with other communities in the region or North America. Various issues hinder citizens from participating in recycling activities, most importantly, the proximity to Blue Bin Depots and the means to deliver their recycling to these depots, especially in the City's high-density areas. In addition, the City has an environmental responsibility to embark on a new path. Saint John is in the minority of communities that lack a robust and effective model for solid waste collection and diversion. We deliver approximately 11,000 tonnes of solid waste and 2,350 tonnes of compostable material to the land fill each year. Our current Blue Bin recycling system delivers another 3,900 tonnes per year. Currently, the City of Saint John is billed $108/tonne for solid waste delivered to the landfill. Compost is $28/tonne and recycled material is processed at no charge. We estimate that only 15-25% of Saint John households actively recycle. This level of participation and the present lack of bag limits leads to unnecessary tonnage being delivered to our Regional landfill facility.

In order to mitigate the aforementioned deficiencies, the City will invest in "Helping Hand" technology that would allow the City to implement a curbside solid waste cart collection system. This will be a phased in implementation across the entire City. It could be fully implemented within two to three years. This new collection service would be based on a 180L (48 Gal) cart to be issued to each civic address that receives curbside pickup service. Each resident would be limited to the volume of that cart per pickup (presently every 2 weeks, in

most areas). This cart size equates to approximately two average size garbage bags (60-70 Litre). It is estimated that there could be a 50% reduction in residential bag volumes, based on the average bag count noted above. Citizens would be given the opportunity to purchase “bag tags” if they require allowances for additional bags to be picked up. A “bag tag” system would be devised and implemented. It is note worthy that without the addition of bag tags there would be no incentive for citizens to divert their waste. The success of this new Solid Waste Model would be contingent on the participation of the City’s citizens engaging in waste diversion. It would be the intention of City staff to have the distribution and purchase of Bag Tags locally available throughout City neighborhoods. Areas presently receiving weekly pickup services would be areas of special interest and may require modified implementation plans, thus these areas would be the last areas of the City to receive this new collection service.

In order to promote an even more increased level of waste diversion and give every citizen an opportunity and the convenience to participate, City staff would introduce a new service, curbside recycling pickup. This service would involve citizens being issued two 80L (21 Gal) recycling totes for which they would be able to sort their recycling into two streams (paper/cardboard & plastic/metal). The city would pick up these materials at no charge. City Staff would investigate the appropriate mode and frequency of curbside recycling pick-up.

The new automated cart system and recycling service would be phased in over time. New solid waste equipment that has been ordered will arrive with this new technology (helping hand) to facilitate an automated cart dumping system. Two units are expected in the fall of 2019 and an additional two in late spring of 2020. Two of the existing pieces of equipment could be retrofitted with this technology over the following two years. The initial phase would target a small section of the population. Approximately 1000 households (2 routes) would be introduced to these new and revised services. Public engagement sessions would be held in advance and would educate citizens on the programs being presented. Continual communication with the participants of the pilot would ensure that the City is responding to any concerns or barriers that arise during this trial period. Data would be collected over a 2-3 month period and used to make any required modifications. These results would be communicated back to council and a recommendation on moving forward with full implementation would be presented at that time. After which, more routes would be converted as equipment with this new technology becomes available. Additional community engagement and education sessions would be held with other neighbourhoods as they are phased into this new model for Solid Waste.

The introduction of the automated curbside collection service and curbside recycling would give Staff the opportunity to possibly optimize collection routes and existing shift structure (optimizing the use of the City’s manpower and Fleet

resources). These important steps forward would promote the reduction of workplace injuries, build new efficiencies within the solid waste collection process, and provide the new service of curbside recycling for the City. This Modernization approach to the Solid Waste Service would promote waste diversion and growth in our community, allowing Saint John to reduce its burden on the regions landfill site.

In conjunction with these new and revised services, the existing Solid Waste By-Law would need to be modified. Changes would allow for the new model of collection and would regulate sizes and limits on carts and recycle totes, as well as a system for Bag Tags. Public engagement would be designed to educate citizens on the changes within the by-law. It would also explain any new efforts of enforcement that would protect our City streets and green spaces from unwanted refuse issues.

STRATEGIC ALIGNMENT

This report aligns with the City's strategic plan for valued service delivery, growth and prosperity and fiscal responsibility.

SERVICE AND FINANCIAL OUTCOMES

It is staffs intention to update Council on the details of the pilot program and citizen engagement strategy prior to seeking approval of these initiatives. City Staff will bring forward a report to Council later this year mapping out the communication strategy and pilot details.

As stated previously, the two major parts of the Modernization of the Solid Waste Service are the introduction of an automated refuse cart system and a curbside recycling service. With these changes comes a financial investment. Below are estimated costs associated with Phase one and then the estimated costs for full implementation.

Phase #1 (approx. 1000 households)

Carts (180L) = approx. $50/cart = $50,000
Recycle Totes (21 Gal) = $7.50/tote x 2 = $15,000
Recycle Tote Lids = $3.75/lid x 1000 = $3,750 *
* Recommended by FRSC to invest in one lid / Household
Cost of "Helping Hand" Mechanism = $62K/Truck = $124K **
**Additional expense for unbudgeted add-on over and above the fleet reserve

Phase #1 estimated total investment = $192,750

Full Implementation including Phase 1 (approx. 23,163 households)

Carts (180L) = approx. $50/cart = $1.16M
Recycle Totes (22 Gal) = $7.50/tote x 2 = $348K
Recycle Tote Lids = $3.75/lid x 23,163 Households = $87K *
*Recommended by FRSC to invest in one lid / Household
Cost of "Helping Hand" Mechanism = $62K/Truck = $620K **
**Additional expense for unbudgeted add-on over and above the fleet reserve

Full implementation estimated total investment = $2.2M

This new model of solid waste collection would also require investment in additional technology on our Solid Waste packers. The 'Helping Hand' technology is estimated to cost an additional $62,000 per vehicle, for a total of $620,000 for all ten vehicles.

Additional yearly cart and tote maintenance costs will be realized within the Solid Waste collection budget to account for replacements due to City caused damages. This is estimated to be approximately $160K/year, which represents 10% of the entire inventory.

Full implementation may also yield revenue and savings. The sale of Bag Tags (Our initial price estimate is $2 per bag) could generate revenue as some citizens may require additional allowances for extra refuse volumes. Savings may result from reduced tipping fees due to diverted tonnage from refuse to recycling. Saint John's neighboring communities (Rothesay, Quispamsis, & Hampton) are presently experiencing a rate of 30% diversion to compost. Saint John's average is approximately 21%. Rothesay & Quispamsis are seeing an additional 8% diversion since the implementation of their curbside recycling program. It should be noted that these areas currently do not put a limit on household refuse. We estimate that when this new model is implemented, Saint John could see an approximate 25% increase in existing tonnage of waste being diverted to recycling. We also anticipate an increase in diverted compost material of an additional 4%. Therefore City Staff estimates a 50% total increase is the present diversion rate as an obtainable target as Citizens increase their participation rates to coincide with the new model. This would bring the City's total waste diversion, as a percent of total tonnage, to 46%. Ontario presently has a 60% total diversion target rate. However, Ontario's total tonnage may include the disposal of electronics and returnables. These materials are not presently measured separately and are presumably mixed in with our total refuse. With a combined estimate of a 29% increase in diverted tonnage from the landfill,

tipping fees could reduce by about $29,526/month or $354,320 annually. In addition, the new cart collection model is expected to allow for route optimization and could potentially reduce the number of routes and allow for a decrease in the existing fleet. This could result in an additional estimated saving to the operating budget if fleet vehicles are eliminated. However, with the addition of curbside recycling, any optimization of the fleet may be repurposed to assist in the delivering of this new service.

Implementation of this new technology in our rural and suburban areas should have a smooth transition from the existing model to this more automated pickup service. However, the City's urban high-density areas, such as the South Central Peninsula, have significant considerations to ensure this technology can be utilized effectively in these areas. Some of the considerations that need to be addressed are dealing with on street parking, pick up locations for the refuse bins and storage of these bins by the residents. City staff would reach out to other municipalities with similar considerations that are utilizing this technology to determine business best practices.

Below is a summary of the estimated annual cost, potential budget savings and estimated revenues:

Summary of Annual Costs, Savings, & Revenues

Replacement Cost (Addition to Budget)

	Total Units	Estimated %	Cost	Total
Solid Waste Collection Cart - 180L (48 Gal)- On-Hand Supply	23,163	10%	$50.00	$115,815
Curb-Side Recycling Tote - 83L (22 Gal) (2 per Household)	46,326	10%	$7.50	$34,745
Curb-Side Recycling Tote Cover (1 per Household)	23,163	10%	$3.75	$8,686
		Total Estimated Costs/Year:		$159,246

Budget Savings

Estimated increase in existing diversion (29% change)

25% Solid Waste Reduction ($108/Tonne)	-$369,654
4% Compost Increase ($28/tonne)	$15,334
Recycling (No Charge)	$0
Total Estimated Savings/Year:	-$354,320
Total Annual Costs (surplus)	-$195,074

Estimated Revenue

	Total Units	Estimated Bags /Month / Household	Charge/Bag	Estimated Revenue
Bag Tags	23,163	1	$2.00	$555,912
	Total Annual Savings + Estimated Revenue:			$750,986

ATTACHMENTS