

City of Spruce Grove's Waste Management Program Proposed Changes

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Introduction:

Over the past decade the City of Spruce Grove's (the City) diversion rates have remained between 35% and 40%. More recently the City has experienced external pressures on the recycling stream that may further impact the overall diversion rate. Addressing this stagnation in diversion has become a priority for City Administration. As a result, City Administration is proposing four changes to the waste program to address these concerns for spring 2019.

The four proposed changes are:

1. Curbside collection service to bi-weekly garbage collection and bi-weekly winter organics collection
2. Discontinuation of Christmas Tree collection program
3. Discontinuation of Free-Cycle and Large-Item Pickup collection programs
4. Implementation of a city-wide plastic retail bag ban and polystyrene serving tray ban

The four proposed changes will be detailed throughout this report. Each proposed change will include background on the issue, the proposed solutions to address the issue and recommendations for consideration by City Council.

Proposed Change #1: Curbside Collection Service to Bi-Weekly Garbage Collection and Bi-weekly Winter Organics Collection

Background:

The City's landfill diversion rates have stagnated when compared to other communities in the Capital Region who have already moved from weekly to bi-weekly garbage collection. Bi-weekly garbage collection has proven to be an effective strategy to increase diversion rates. It encourages greater recycling and organics participation by restricting the volume of garbage allowed to be placed at the curb.

The City's curbside collection contract has been extended to expire in the spring of 2019, this is in line with Stony Plain's collection contract. This adjustment was done in support of the Inter-municipal Community Collaboration (ICC) Waste Sub-Committee initiative which explores service harmonization within the tri-region in an effort to find efficiencies in solid waste management.

Analysis:

Regional Comparison:

The City, working with the Capital Region Waste Minimization Advisory Committee – Technical Committee, was able to compile data from across the Capital Region on waste programming and waste diversion, presented in Table 1.

Table 1: Regional Comparison of Waste Service Levels

Municipality	Service Level	Diversion Rate*	Monthly Utility Rate per household**
City of Spruce Grove	Weekly Garbage, Weekly Recycling, Weekly Organics (summer), Monthly Organics (winter)	40%	\$28.50
Town of Stony Plain	Bi-Weekly Garbage, Weekly Recycling, Weekly Organics (summer), Bi-Weekly Organics (winter)	58%	\$27.82
City of St. Albert	Bi-Weekly Garbage, Weekly Recycling, Weekly Organics (summer), Bi-Weekly Organics (winter)	64%	\$29.71
City of Leduc	Bi-Weekly Garbage, Weekly Recycling, Weekly Organics (summer), Bi-Weekly Organics (winter)	50%	\$22.50
Strathcona County	Bi-Weekly Garbage, Weekly Recycling, Weekly Organics (summer), Bi-Weekly Organics (winter)	60%	\$25.15
City of Fort Saskatchewan***	Weekly Garbage, Weekly Recycling	22%	26.92

*Methodology for calculating diversion rate is not consistent across the region. Some municipalities include recycle station numbers, while others only capture data from their curbside program. Some municipalities include residual numbers from the recycling/compost streams, while others use the capture rate from point of collection. Consistent regional methodology is currently being discussed.

**Monthly utility rate is based on the average single family household, however not all programs are equal in terms of service levels (ie. automated/manual collection, organics service, weekly/biweekly waste)

***Fort Saskatchewan has launched their full cart collection program (black waste cart and green organics cart) as of May 2018.

Bi-Weekly Collection Frequency:

Through regional comparisons and a review of collection schedules from across Canada it has been suggested that moving to bi-weekly collection for both garbage and recycling could decrease the amount of waste going to landfill, Greenhouse Gas (GHG) emissions produced through collection and wear and tear on City roads. However, it is difficult to fully quantify the GHG and wear and tear savings as there is no fuel and mileage data collected from the contractor. It is speculated that if the number of times the waste is collected decreases by 50% that it will translate directly into GHG emission reductions of 50%.

Bi-weekly collection of garbage is shown to incentivize residents to use the recycling and organics streams to dispose of waste instead of the garbage stream. Encouraging residents to dispose of waste through the recycling and organics streams has the potential to increase the City's overall waste diversion. As shown in the Table 1. communities collecting garbage every second week are seeing diversion rates between 50% and 65%, where Spruce Grove's diversion has remained between 35% – 40% in the last few years. Reducing residential waste to landfill also supports Goal 5 of Priority Area #3 of the City's Environmental Sustainability Action Plan.

In 2016 the City contracted S-Cubed Environmental to conduct a Curbside Waste Audit and provide recommendations on how to increase diversion. One of the top recommendations from the report is to switch from weekly to bi-weekly garbage collection. The City has also conducted several outreach and survey events over the past two years, where residents were asked "what are the main reasons for not diverting waste?" The survey results show that 46% of residents list "convenience" as the main reason for not diverting organics from the landfill. Residents state that it is more convenient to put their food scraps in the black garbage cart compared to properly diverting to the green organics cart. Currently organics make up approximately 56% of the total waste stream. Increasing the organics cart collection and decreasing the garbage cart collection will shift the convenience from the black garbage cart to the green organics cart (S-Cubed Environmental, 2016).

Bi-weekly collection of recycling is suggested by some as a "best practice" given that recycling products are clean and inert. This means they are able to be stored for a longer period of time with little to no odor. Collecting these products every week provides a convenient service to residents and aligns with regional service levels, but it also increases the service cost, fuel usage, GHG emissions and wear and tear on the roads.

Proposed Solutions:

The following two options are to be considered because they will align the City with its regional counterparts and/or are examples of "best practices" in the waste collection field:

1. Bi-weekly garbage collection, weekly recycling collection, weekly organics collection (summer) & bi-weekly organics collection (winter).
2. Bi-weekly garbage collection, bi-weekly recycling collection, weekly organics collection (summer) & bi-weekly organics collection (winter).

Impacts to Residents:

Changes to the curbside solid waste management program are likely to elicit strong emotional feedback from residents as many will view the move to bi-weekly garbage collection as a service reduction. Residents who have not developed waste diversion habits facilitated through the blue bag or organics programs will likely be upset when the amounts they can typically send to the landfill are halved.

A comprehensive communication plan will be developed and launched at least six months prior to the change to raise awareness of the changes and explain why it is being implemented. The communication plan will clearly outline the need for a behavior change on the resident's level, but that these changes are also being made to control utility rates for solid waste into the future.

Financial Considerations:

Administration has looked at both current and future estimated costs for the curbside solid waste program and no reduced costs are to be anticipated with the proposed changes. Any reduction in garbage collection costs by moving to a bi-weekly service could be offset by increased costs for recycling and organics collection or disposal.

It is prudent to state that given the City's current exposure to cost increases related to collection, a potential increase in the overall solid waste expenses could occur during the next contract period. With a more efficient collection level (bi-weekly), the expectation is that there may not be any increase in rates, but the potential of a rate decrease is low. This can only be confirmed through the tendering process at the end of 2018.

The communication campaign required for this proposed change is estimated at \$14,000. The campaign will include a six month lead up period as well as on-going communication once the change has occurred.

Recommendations:

City Administration recommends that the City of Spruce Grove move to bi-weekly garbage collection, weekly recycling collection, weekly organics collection (summer) & bi-weekly organics collection (winter) in spring 2019 when the current waste contract renews. This option is believed to produce less GHG emissions, less wear on City roads and alleys, will control costs when compared to a weekly service and will increase diversion to be consistent with the region while also aligning service levels.

Proposed Change #2: Discontinuation of Christmas Tree Collection Program

Background:

The City currently collects natural pine, spruce and fir Christmas trees in mid-January during the regular curbside collection cycle. The trees are collected by the solid waste contractor as part of the curbside waste collection contract and costs to the City are accounted for within the monthly organics collection rate (calculated by dwelling).

Analysis:

There are several issues with the ongoing operation of this program:

- 1) The costs of operating the program are not readily discernable as this is essentially an "add-on" to the current tendering process for curbside organic collection. Potential vendors need to estimate participation rates and costs with little data before pricing their bid. This uncertainty is likely to produce higher bids.
- 2) The City cannot calculate what portion of the monthly per dwelling rate for organics collection is attributable to "Annual Christmas Tree Collection" as provided for in the contract. This leaves Administration unable to analyze value for service.
- 3) It is estimated that natural Christmas trees are purchased and used by less than 10% of residents and yet the costs for the collection program are borne by all residents with a utility service account.

4) Residents who purchase and transport a natural Christmas tree to their home should also be able to take the tree to the Eco Centre for free disposal.

5) Administrative costs to the City are incurred for communications about the program and for calls related to missed-tree collection or other service related information.

6) The Eco Centre has the capacity to collect and process Christmas trees for residents so the curbside program is duplicating an existing service. Residents are not charged for Christmas tree disposal at the Eco Centre.

7) The solid waste collection contractor uses a separate rear-load truck to collect Christmas trees during the designated collection week. This additional collection cycle increases the service cost, fuel usage, GHG emissions and wear and tear on the roads.

Proposed Solutions:

Encourage residents to dispose of their natural Christmas trees at the Eco Centre and discontinue the curbside collection of Christmas trees.

Impacts to Residents:

The collection of Christmas trees as part of the curbside solid waste program should be viewed as a convenience for those who currently use the service. As the number of residents who use this service is relatively low the overall impact will be limited to those residents.

Financial Considerations:

While the current costs cannot be accurately estimated from the per-dwelling rate we receive through the tendering process, we know there is a cost to the service and future collection contracts will naturally reflect this change.

Recommendations:

It is recommended that the City discontinue the annual collection of Christmas Trees as part of the curbside waste collection program. Residents will be encouraged to dispose of natural Christmas Trees at the Eco-Centre.

Proposed Change #3: Discontinuation of the Large Item and Free-Cycle Collection Programs

Background:

The large item pickup program has been operated in its current format since 2007. The program was designed to provide an annual opportunity for residents to dispose of waste items not normally collected as part of the curbside program. Such items would include appliances, mattresses and small amounts of renovation materials such as drywall, sinks or toilets.

The City implemented a free-cycle program in 2011 as an extension of the large item pickup program with the idea that potentially reusable items could be placed at the curb a week before the large item pickup. Individuals are encouraged to take items for reuse prior to collection during the large item collection date.

Analysis:

There are ongoing issues with the operation of the large item pickup program. The practice of collecting, hauling and disposing large items from individual residences is an attempt to bring parts of the Eco Centre service to the resident's door as a matter of convenience. The program does not promote recycling and does not encourage residents to be responsible consumers or to become familiar with using the Eco Centre.

The annual free-cycle program is useful but does not work well when the exchange of goods is completed on a boulevard and is limited to once per year. There are now much more efficient and effective online methods for residents to buy, sell, trade and donate merchandise.

Neither program is particularly efficient or effective when viewed from either a waste management or waste reduction perspective. The following is a list of some specific operational issues experienced with these programs:

- 1) The costs of operating the large item program is not readily discernable as this is essentially an "add-on" to the current tendering process for curbside solid waste collection. Potential vendors need to estimate volumes and their costs with little data before pricing their bid and this uncertainty likely leads to a higher bid.
- 2) The program duplicates waste disposal programs offered year-round at the Eco Centre and through private waste contractors that are designed to offer disposal options and services not available through the curbside waste collection program.
- 3) Large items are often placed at the curb prior to the beginning of the free-cycle period and remain there two weeks later when they are not picked up for re-use or during the large item program because the item was not eligible for collection.
- 4) Large items are consistently placed in a manner that prevents automated collection from accessing the waste carts.
- 5) Large items are stored on properties or in alleys for long period of time prior to the collection date to avoid disposal fees. This can cause properties and alleys to look unsightly.
- 6) Items not collected during free-cycle or large item cycles are left at the curb with residents refusing to accept ownership or responsibility for the item. Some items not collected are subsequently dumped in alleys to avoid disposal costs.
- 7) Residents have had property taken that was not specifically set-out for the free-cycle program.
- 8) Communication requirements for both programs are high as the City has to explain the program repeatedly with respect to what is and is not allowed to be placed for collection and the allowable volumes.
- 9) The solid waste collection contractor uses separate vehicles to collect large item waste during the designated collection week. This additional collection traffic increases the service cost, fuel usage, GHG emissions and wear and tear on the roads. These impacts are exacerbated when repeat passes are required to deal with residents who claim that items were missed or when multiple vehicles are required to allow for separate waste types.

Proposed Solutions:

There are a multitude of options available for residents who wish to dispose of items that cannot be placed at the curb or items that could be re-used or otherwise directed away from a landfill. The Eco Centre accepts many waste streams including household hazardous wastes, tires, appliances, and e-waste.

Re-use options for common household items are available by donation to local thrift stores and not-for-profits, or a for-profit recycler such as Value Village. Architectural and building supply salvage businesses are available to buy and sell demolition and renovation materials. Numerous online sites cater to product exchange, used items sales or free-item giveaway listings. Kijiji is a popular site to sell, give away or buy used items, there are also numerous social media based sites that cater to product exchange, sales and giveaways. Also, garage and yard sale programs supported by the City still remain a popular seasonal way to sell unwanted household items.

Impacts to Residents:

The impact of discontinuing these programs will be reduced as residents can be given plenty of advance notice. Efforts should be taken to educate and inform residents of the wide variety of recycling opportunities available to them online, within the community and regionally. As pointed out previously these programs are currently provided only once annually it is very likely that many residents are already repurposing, recycling, or disposing of wastes by many other means throughout the year. The overall impact to residents given the amount of available alternatives should be minimal.

Financial Considerations:

The costs for the large item pickup program are within the solid waste collection price charged per dwelling. It is assumed that future collection and disposal tender pricing will account for the service change and ultimately reduce costs for the City.

Recommendations:

It is recommended that the City discontinue the annual free-cycle and large item pickup programs following the scheduled 2018 events.

Proposed Change #4: Implementation of a City-wide Plastic Retail Bag Ban and Polystyrene Serving Tray Ban

Background:

The North American recycling industry relies heavily on foreign markets for recycling materials. This is particularly true for plastic and mixed paper recyclables that are sent to China. In 2016/17, China initiated the Green Fence & National Sword controls on imports to focus on the quality of products (Recycling Council of Alberta, 2017). This means that they have instituted a threshold for imports to have less than 0.5% contamination¹ in these recycling streams. For perspective, a clean, high quality mixed plastic or paper stream would have 3-5% contamination (GFL, 2018).

¹ Contamination in the recycling stream includes products that are not recyclable, such as: food left in containers, coffee stained paper, Styrofoam, plastic film, etc. The definition is constantly changing and Chinese inspectors have the authority to become more stringent of this definition over time.

This does not mean that there is a complete ban, but that there is pressure on North American recycling facilities to produce a cleaner, homogenous stream of recycling. This can be difficult to achieve given most programs provide single stream, blue bag collection.

The blue bag material that is collected in Spruce Grove is currently contracted with GFL Environmental Inc.(GFL) for recycle processing. GFL's material recovery facility (MRF) is on the west end of Edmonton, where they sort and separate all of the materials into appropriate streams for recycle markets. Typically this MRF has a reliable output rate of less than 5% contamination; however with the new controls put in place from China, they have had to meet stricter demands.

Two of the main contaminants of concern for the GFL MRF are plastic films and polystyrene. These materials, given their weight, are not easily sorted in the automated processing lines and result in contamination of the paper recycling stream (GFL, 2018).

Analysis:

Chinese Market Restriction Issues:

- By 2024 China is aiming to derive a high quantity of recycled material feedstock domestically, thereby limiting the amount of material accepted from North America.
- Currently GFL's Edmonton location has passed an inspection by the Chinese Government on one of its three processing lines. This makes them the first co-mingled MRF in North America to pass this inspection to their and the Chinese inspector's knowledge. However, this has come at a cost:
 - o In order to achieve <0.5% contamination GFL has had to lower production by 40%
 - o Approximately 40% of what the MRF receives monthly is being stockpiled because they are not able to process it in time
 - o GFL is currently stockpiling approximately 700 tonnes of material monthly (GFL, 2018)

Steps Taken to Address the Restrictions:

GFL:

- GFL is proposing an education campaign be implemented by each municipality to clean up the recycling stream at the curb – this means removing any problem materials such as: plastic film, plastic bags, polystyrene, tin pie plates and low grade (flexible) mixed plastics from the recycling stream.
- Potential rejection of blue bags at the curb that contain contamination.
- Upgrades to the facility so that all three processing lines will pass inspection. This is estimated to come at a cost of \$2,000,000.00. This cost could be passed onto the municipalities at an additional \$20.00/tonne for four years. This is a last resort and GFL feels that intensive education is the first and logical step.
- GFL is also looking globally for other markets. India has similar capabilities, but the transportation costs are higher and they are also beginning to impose similar restrictions. Ideally markets will open domestically and if this is the case, GFL has to be prepared to be loyal to these domestic markets regardless of the price. However, domestic markets have always historically demanded very high purity rates similar to what China is now imposing (GFL, 2018).

Regionally:

- Supporting Extended Producer Responsibility (EPR)²: Several municipalities, Spruce Grove included, have written letters to support the City of Calgary's AUMA resolution to implement EPR in Alberta. Having EPR will not solve the problem, but will allow for more financial support from producers/manufactures to properly process recyclables to meet the restrictions. EPR also has the potential to encourage producers to develop products and packaging that is more readily accepted by the recycling markets.
- A few regional and national municipalities are currently in the process of deciding on implementing a plastic retail bag ban. If this is put forward they are looking for support from other regional municipalities to do the same. GFL supports this initiative as one of the main contaminants in the recycling stream is plastic retail bag.

Plastic Retail Bag and Polystyrene Serving Tray Ban:

In 2010 Alberta Environment signed a memorandum of understanding for a voluntary strategy to reduce plastic bag distribution with the three major Alberta Retailers Associations by 50% by 2013 from a 2008 baseline (Alberta Environment and Parks, 2010). The memorandum included specific targets and reporting requirements as well as education and outreach goals. It was hoped that this voluntary provincial initiative would produce the same or better results than various municipal bylaws in the long term.

The final report of this voluntary strategy was only released recently and unfortunately, the voluntary strategy did not meet the initial goal of 50% reduction in plastic bag use. The report indicated the first few years of data from the program showed promise but by the fourth year the reduction levels had stalled at about 20% (Retail Council of Canada, 2016). The final recommendations of the report indicated that:

“Overall, we believe that retailers, waste management operators, municipalities and the provincial government need to have a more in-depth discussion reconsidering the management of plastic bags in the waste stream in Alberta.”

In the fall of 2016 the City conducted a residential waste audit that indicated that non-rigid plastic (primarily plastic film) made up 4% of the recycling stream and 2% of the garbage stream by weight; and polystyrene was recorded at 0.2% of the recycling stream and 1% of the garbage stream, by weight. Considering the weight of a plastic bags and polystyrene, this could potentially amount to a large volume (S-Cubed Environmental, 2016).

In review of the analytics from the Trim Your Trash app, Plastic bags rank number one as the most searched item for proper disposal, with styrene products being the fourth most commonly searched item. This data shows that there is a lot of misunderstanding around proper disposal of these products.

With the new restrictions from China, it is even more difficult to recycle these two products and they are causing processing delays at the GFL MRF, risking the ability to recycle an entire shipment of recyclable materials. If a shipment is found to be contaminated with plastic or polystyrene (mixed in with paper products because of their weight), that shipment is turned back to Canada for landfilling. This is not only

² Extended Producer Responsibility: is a policy approach that places the responsibility for the processing and treatment of post-consumer waste on the producers.

an impact to the environment by landfilling mostly recyclable products, the emissions and cost for shipping that material across the Pacific Ocean is quite high.

Proposed Solutions:

Aside from increased education on how to properly sort recyclables from garbage, Administration feels that removing the materials that are causing the most issues from the waste stream all together would be the most effective way at ensuring residents have access to a sustainable recycling system. Plastic retail bags and polystyrene have been known for years to cause environmental issues, from not being able to break down in nature, to polluting the oceans and now to limiting the amount of materials that can be recycled.

Administration is proposing that the City put forward a By-law for a ban on plastic retail bags and polystyrene serving trays. The ban would ideally become effective in spring 2019 to potentially align with the previously discussed service level changes for curbside collection.

Similar plastic retail bag bans have been implemented in various municipalities across Canada, with Montreal, Victoria and Vancouver implementing the bans more recently. Within the Capital Region there has been discussion to implement bans, specifically in Edmonton and St. Albert. The Capital Region Waste Minimization Advisory Committee is also looking to have discussion as a group to potentially move towards implementing a ban like this across the region. Having regional and widespread bans on the plastics and polystyrene will allow for better protection of the natural environment and the recycling industry. As a result of several municipalities already implementing bans, there are plenty of examples of communication plans, By-laws, roll-out and implementation plan that can be referenced.

Impacts to Residents:

Implementing a plastic retail bag ban and polystyrene serving tray ban will have the most impact on local retail outlets and restaurants. This ban will require extensive public participation and will have to be communicated to residents and store owners in advance of the effective date to allow for retail outlets and restaurant to use up the remainder of their plastic bags and polystyrene serving tray stock.

The advantage to implementing this ban now is that there are several available options for serving trays that are compostable or recyclable. These trays are being used already in the industry and the switch should be relatively easy for most restaurants. With regards to plastic retail bags, it will fall mainly on the consumer to carry their own reusable bags while they shop. This is a behaviour expressed by many consumers already and should be a relatively easy transition.

Financial Considerations:

The main financial impact to the City will be associated with the increased education around proper waste diversion and the implementation of a plastic retail bag and polystyrene serving tray ban. It is anticipated that a communications budget of \$10,000 would be required.

Recommendations:

City Administration recommends that the City of Spruce Grove take steps towards preparing a City By-law banning the use of single-use plastic retail bags and polystyrene serving trays, with the goal of a By-law, if approved, coming into effect in spring 2019.

Conclusion:

Even though there are currently significant market restrictions, City waste management programs should stress the importance of the recycling and organics streams to residents over landfilling waste. Recycling and organics have proven to reduce emission and save energy and resources.

Residents will continue to demand their municipalities offer these effective diversion programs, and municipalities should take measures to ensure their residents have the ability to reduce their impact on the environment. As a result, Administration is proposing that in order to increase diversion while still allowing for effective use of the City's recycling and organic streams, that the City move to bi-weekly garbage collection, remove extra curbside collections services and place a ban on plastic retail bags and polystyrene serving trays in the spring of 2019.

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