

Appendix C

Single-Use Plastics and Litter Reduction Strategies

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Background

For many years, society has been tackling the issue of litter disposed on roadsides, in parks, beaches and open spaces. For instance, Keep America Beautiful was founded in 1953 as one of the first organizations to tackle litter. It launched the “Crying Indian” public service announcement (PSA) in 1972 to highlight the impacts of litter; the PSA became one of the most successful commercials of all time.¹

Litter not only reduces an area’s aesthetic value; it also has an adverse effect on animal and marine life. In recent months, the effects of litter on marine life have become a mainstay in social media with whales washing ashore with plastic bags in their stomachs, birds with bottles caps, and turtles with straws in their noses. However, the issue of marine litter is not a new issue. The Great Pacific Garbage Patch, an area in the Pacific Ocean halfway between Hawaii and California, was first discussed in 1988 and was suggested to be an island of plastic waste the size of Texas.

Recent research on the significant ecological and human health impacts of plastics in our environment has galvanized support for action, with particular focus on single-use plastic bags, straws, cutlery, stir sticks and cups. In the United States, more than 240 local governments have passed laws that ban or charge a fee for disposable carryout bags since 2007² and a similar trend can be observed in Canada.

With the help of social media, the issue of litter and single-use plastics has gone mainstream and the public is demanding action. Governments, especially those situated along the coast or adjacent to water bodies like the Great Lakes, are considering (and in some cases) enacting policy measures and programs to tackle this problem – a problem that is ubiquitous, visible and growing as a result of convenience-oriented consumerism.

In Ontario, the provincial government raised the prospect of addressing single-use plastics in its *Discussion paper on reducing litter and waste in our communities*³ and emphasized the need for consistent, coordinated action between all levels of government. On June 7, 2019, the Ontario government appointed a Special Advisor on Recycling and Plastic Waste, Mr. David Lindsay, who has been tasked with preparing a report by the end of July with the following key objectives:

- Standardization across the province of what can be recycled in offices, parks, public spaces and homes;
- Improve diversion rates and increase what materials can be recycled;
- Reduce litter and waste in communities and parks;
- Improve Ontario’s Blue Box Program by requiring producers to pay for the recycling of the products they produce, through achieving producer responsibility;
- Maintain or improve frequency of Blue Box collection; and
- When increasing diversion in the residential sector, consider how these policies can also enable diversion in the institutional, commercial and industrial sector.

At the federal level, the Canadian Government announced in June 2019 a plan to ban all harmful single-use plastics as early as 2021. While light on details, the plan is expected to target a similar list to that imposed by the European Union (EU) in its newly approved law which bans the following materials by 2021⁴:

- Straws
- Plastic bags
- Cotton swabs
- Plastic balloon sticks
- Drink stir sticks
- Oxo-degradable plastics and food containers
- Expanded polystyrene cups
- Single-use plastic cutlery (forks, knives, spoons and chopsticks)

In addition to government action, industry has been increasing efforts to curb plastic waste and to build a circular flow of materials. These circular initiatives are motivated by the need to maintain a steady and sustainable supply of materials in an increasingly resource-constrained world, by consumer demand for products and packaging with a smaller environmental footprint and to get ahead of government regulation (i.e. avoid material bans, packaging taxes). Summarized in the table below are responses by both government and industry.

Government & Industry Responses

Table 1: Summary of government and industry responses to curb plastic waste and support a circular flow of materials

Government	Industry
Government of Canada's Ocean Plastic Charter Adopted in June 2019 by Canada, France, Germany, Italy, the United Kingdom, and the European Union.⁵ Through a series of non-binding measures, the Charter lays the groundwork to ensure plastics are designed for reuse and recycling, have adequate infrastructure and systems for collection and management, strengthen education and encourage sustainable lifestyles, support and promote research, innovation and new technologies, and encourage coastal and shoreline action through targeted clean-ups and awareness campaigns.	Ellen MacArthur Foundation – The New Plastics Economy Aims to bring together key stakeholders (companies, cities, philanthropists, governments, academics, students, NGOs, and citizens) to rethink and redesign the future of plastics, starting with packaging.⁶ Initiated the launch of the Global Commitment which mobilized 400+ signatories to start building a circular economy for plastic, including companies representing 20% of all plastic packaging produced globally (e.g. Danone, H&M Group, L'Oréal, PepsiCo, The Coca-Cola Company, and Unilever).⁷
Ontario Made-in-Ontario Environment Plan Released November 2018, the Made-in-Ontario Environment Plan⁸ outlines how the provincial government intends to: • Help protect Ontario's air, land and water	The Recycling Partnership A US-based non-profit organization¹⁰ that leverages funding from 45 different brand owners and retailers to grow curbside recycling through public-private partnerships in the US. The

Government	Industry
• Address litter and reduce waste • Support Ontarians to continue doing their share to reduce greenhouse gas emissions • Help communities and families prepare for climate change.⁹	Recycling Partnership focuses on providing grants for municipalities to deploy single-stream carts and education programs to tackle contamination and recycling issues.
Ontario Discussion paper on Reducing Litter and Waste In Our Communities Released in March 2019, the discussion paper¹¹ sets out goals, actions and performance measures and outlines how the government intends to decrease the amount of waste going to landfill and increase the province's overall diversion rate. It includes eight areas for action: 1. Prevent and reduce litter in our neighbourhoods and parks 2. Increase opportunities for Ontarians to reduce and divert waste at home, at work and on the go 3. Make producers responsible for the waste generated from their products and packaging 4. Reduce and divert food and organic waste from households and businesses 5. Reduce plastic waste going into landfills and waterways 6. Provide clear rules for compostable products and packaging 7. Recover the value of resources in waste 8. Support competitive and sustainable end-markets for Ontario's waste	CPIA Commitment to recycle 100% of plastics by 2040 The Canadian Plastics Industry Association (CPIA) and the Chemistry Industry Association of Canada (CIAC) announced waste reduction targets in June 2018¹²: • A new aspirational goal of 100 per cent of plastics packaging being reused, recycled, or recovered by 2040. • An aggressive interim goal of 100 per cent of plastics packaging being recyclable or recoverable by 2030. Similar targets to Plastics Europe and the American Chemistry Council.
EU Single-Use Plastics Directive In March 2019, the EU agreed to measures intended to directly tackle marine litter, including: • A ban on selected single-use products made of plastic for which alternatives exist	Loop (Terra Cycle Program) Loop is a global circular shopping platform that provides consumers with reusable containers for many household items. There are 81 products ranging from food to laundry detergent that can

Government	Industry
on the market: cotton bud sticks, cutlery, plates, straws, stirrers, sticks for balloons, as well as cups, food and beverage containers made of expanded polystyrene and on all products made of oxo-degradable plastic. - Measures to reduce consumption of food containers and beverage cups made of plastic and specific marking and labelling of certain products. - Extended Producer Responsibility schemes covering the cost to clean-up litter, applied to products such as tobacco filters and fishing gear. A 90% separate collection target for plastic bottles by 2029 (77% by 2025) and the introduction of design requirements to connect caps to bottles, as well as target to incorporate 25% of recycled plastic in PET bottles by 2025 and 30% in all plastic bottles by 2030.¹³	be purchased through Loop.¹⁴
Municipal Bans on Single-Use Plastics Several municipal level governments are taking action or responding with plans to take action to address single-use plastics. Table 2 provides a summary of municipalities and their actions including Newfoundland and Labrador, Prince Edward Island, Montreal, Vancouver, Tofino (British Columbia), Los Angeles (California, US).	Alliance to End Plastic Waste Not-for-profit organization¹⁵ that includes companies along the plastics value chain (companies that make, use, sell, process, collect, and recycle plastics). Membership represents global companies from around the world. The Alliance partners with the finance community, government and civil society, and has committed over \$1.0 billion over the next five years to help end plastic waste in the environment through Infrastructure development, investment in new technologies, education/engagement and targeted clean-ups.¹⁶

As litter can be generated from a variety of sources and has several underlying causes, it is not a straightforward problem to tackle. There is not yet consensus on the most effective approach for dealing with it. However, it is becoming clear that no one measure will solve the problem but rather a

complementary suite of approaches is needed to achieve measurable reduction while avoiding unintended consequences.

Current Issues

Litter consists of a wide range of materials that are improperly managed. These materials include:

- Cigarette butts
- Single-use plastics / take-out containers
- Beverage containers
- Coffee cups
- Tires

These materials tend to be consumed away from homes and are often disposed incorrectly (i.e. on streets, parks, beaches, etc.) due to limited or inconvenient access to bins. However, litter can also be generated from other sources including:

- Overflowing waste and recycling bins
- Tipped over garbage and recycling bins
- Improper practices at disposal sites (e.g. ineffective containment at landfills)
- Improper practices at recycling facilities

In many cases, an infrastructure deficiency is a contributing factor to the problem. Understanding why materials are entering the environment is the first step to formulating a plan to reduce litter. York Region and its local municipal partners could consider the following strategies to identify the root causes of litter within the Region:

1. Engage waste collectors in providing feedback on overflowing waste bins to identify where more infrastructure is needed.
2. Gather information from bylaw enforcement staff and roads crews (Public Works) to identify litter 'hotspots' and possible causes (e.g. nearby multi-residential building with deficient recycling program).
3. Initiate a hotline/online reporting through the Region or local municipal partner websites or app for members of the public to use to report litter 'hotspots'. For example, the Environmental Protection Authority Victoria in Australia has developed an app for residents to report litter¹⁷. Similar apps for reporting crime¹⁸ and potholes¹⁹ have been developed by Ontario municipalities and can be customized or developed for reporting litter. Send bylaw officers to investigate.
4. Track number of days and areas with tipped over bins due to windy days.

Avoiding Unintended Consequences

Policy measures aimed at reducing the use of a specific material or package may inadvertently lead to the increased consumption of an alternative that is also problematic. This phenomenon is known as substitute effects. For instance, Portland, Oregon reported a 491% increase in use of paper bags after their ban of bags thinner than 4 mils (0.10 mm or 0.004 inches) came into effect in 2011. As stated in Vancouver's Single-Use Item Reduction Strategy By-law Consultation Update, while paper

bags are compostable in the right conditions, even when littered, their carbon footprint is four times higher than plastic bags.²⁰

Reusable bags, another substitute to single-use plastic bags, require more resources to make and manage and typically are disposed in residual waste stream i.e., landfill or EFW facility at end-of-life. According to a study by the Danish government, an organic cotton bag needs to be reused 20,000 times, equivalent to using the same bag everyday (365 days) for approx. 55 years, before it can be considered environmentally superior to plastic carryout bags when environmental impacts including greenhouse gas emissions, water consumption, damage to ecosystems and air pollution are taken into account.²¹ A study published this year in the Journal of Environmental Economics and Management found that the purchase of small trash bags increases by 120% following the ban of disposable carryout bags which are made of thicker plastic.²² These findings are not necessarily intuitive to the general public but must be considered during policymaking.

Even if a substitute is environmentally preferable, it can still find its way into the environment if infrastructure deficiencies are not addressed. Paper straws are an example. If infrastructure deficiencies exist, like lack of garbage bins or overflowing bins, the proliferation of plastic straws in the environment will simply be replaced by paper straws, which in some cases are designed with wet-strength properties to prevent them from disintegrating in a beverage. That same property means some straws may take 6 months to break down in rivers and streams.

Approach

An online review of regulatory measures from other jurisdictions as well as voluntary initiatives undertaken by industry was conducted. The findings are categorized along the following spectrum. Measures on the far left require the least amount of effort on behalf of York Region and its local municipal partners and are easiest to implement. Measures to the right require more effort to design, implement, and enforce:



Material Bans

Description: In response to growing concerns regarding single-use plastic waste, several jurisdictions have banned the sale of targeted materials. Material bans prevent the sale of these products requiring retailers and consumers to find alternatives. Enforcement is typically complaint-driven and escalating fines are often used to encourage compliance. In some cases, a grace period will be given to businesses to get used to the new policy before fines/sanctions take effect.

Summarized in the table below are examples of communities that have implemented or are considering a material ban focusing on single-use plastics:

Table 2: Select Material Ban Policies

Jurisdiction	Targeted Material(s)	Policy Details
Newfoundland & Labrador	Plastic bags	Provincial government amended the Environmental Protection Act to allow regulations to be drafted that will ban the distribution of retail plastic bags. The regulations are expected to address how long businesses and industry will need to adjust to the change; what types of alternatives people will have available instead of the plastic retail bags; whether to require a fee on alternatives to limit their overconsumption; and which exceptions will apply. To date no regulations have been posted nor has a timeline been introduced. ²³
Prince Edward Island	Plastic bags	Act prohibits a business from providing plastic checkout bags to customers. • Took effect July 1, 2019 • No biodegradable or compostable checkout bags • Paper bags are an option (min. charge of \$0.15 per bag) or reusable checkout bags (min. charge of \$1.00 per bag) • Limited exemptions include bags used to protect prepared foods, loose items, food safety, medications, dry cleaning or some bulk items²⁴
Montreal	Plastic bags	Took effect January 1, 2018. Bylaw prohibits retailers from providing the following bags: • Conventional plastic shopping bags (a thickness of less than 50 microns) • Oxo-degradable, oxo-fragmentable, biodegradable shopping bags, regardless of thickness²⁵
Vancouver	Foam cups Foam containers Plastic straws	Council adopted a by-law to ban foam cups and foam containers in April 2019. Set to begin Jan 1, 2020. By Nov 2019, staff will present by-law requirements for plastic straws, plastic and paper shopping bags, disposable cups, and utensils to Council. If approved, a ban on unnecessary use of plastic straws will begin April 2020 (with exemptions - accessibility, health care facilities). ²⁶
Tofino, British Columbia	Plastic bags Plastic straws	• No plastic bags or plastic straws may be sold or provided by businesses (exemptions apply) • Prohibits “Biodegradable” or “Compostable” plastic bags and straws as they do not adequately decompose in a landfill or the environment • Includes fee on paper and reusable bags (25 cents and \$2 respectively) to prevent negative substitute effects • Bylaw Exemptions: Single-use plastic bags can be used to package loose bulk items; contain or wrap fresh or frozen meat, poultry or fish; wrap flowers; protect baked goods and non-packaged foods; contain prescription drugs; contain large items that cannot easily fit into a reusable bag. • Permits voluntary plastic bag take-back program. Customers may bring back a disposable bag to a business so that it may be reused by other customers.²⁷

Los Angeles, California, US	Plastic bags	Ban on plastic bags took effect in 2013
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Opportunity: A complementary suite of policy tools are needed to minimize substitute effects. A ban alone is insufficient and can be harmful. Tofino staff conducted rigorous consultation with local businesses and stakeholders and carefully considered the lifecycle impacts of their policy choices to minimize negative substitute effects. Tofino staff is recommending combining the ban on single-use plastic bags with a fee on paper and reusable bags (25 cents and \$2 respectively) and investing in education and engagement²⁸. Combining a ban and a fee has become common practice.

Research has shown that communities with plastic bag bans often see a dramatic increase in the sale of small, kitchen-sized garbage bags as people still require liners for their garbage bins.²⁹ These bags are typically made of thicker plastic than carryout bags potentially adding to the amount of plastics in landfills.

Material bans are an extreme policy measure that in the case of single-use plastics will not have a measurable impact on overall waste reduction. However, these items are highly visible and oftentimes used daily by consumers. Banning them sends a strong signal to consumers that their consumption habits are not sustainable. This may have beneficial effects on other lifestyle choices.

By-Request Bylaws

Rather than an outright ban, some jurisdictions have opted for by-request bylaws whereby businesses are only permitted to provide single-use items like plastic bags or straws if the customer asks for one.

Los Angeles, as an example, passed a 'Plastic Straws on Request' ordinance which took effect in April 2019. It requires sit-down restaurants and fast food chains to withhold plastic beverage straws unless a customer requests them. Initially, it affects businesses with more than 26 employees but will expand to include all restaurants by October 1, 2019. The new rules will be enforced using a "complaint-driven" approach with written notices issued for the first and second violations, followed by \$25 fines per day, capped at \$300 per year.³⁰ This policy builds upon the State of California's law that prohibits full-service, dine-in restaurants from offering plastic straws to customers unless they are requested.

In Canada, the City of Toronto has put forth "by-request" bylaws as a possible policy option in their public consultation on single-use and takeaway items.³¹ Vancouver, however, considered a by-request bylaw for straws but opted not to go this route. After consultation and feedback, City staff concluded that a by-request bylaw was impractical and may not sufficiently address plastic straw litter.³²

Opportunity: By-request bylaws are fairly straight-forward to implement compared to other policy options and can serve to normalize more sustainable consumption practices with less regulatory burden. A by-request bylaw for single-use plastics could be used to prepare residents and businesses for an outright ban of the same materials at a later date.

Disposal Bans

Description: Disposal bans, also sometimes referred to as landfill bans, are aimed at banning a specific material at a site of disposal. Typically, a disposal ban will target hazardous wastes, organic materials and some recyclable materials. It requires waste service providers to ensure targeted materials are effectively recycled or diverted. In its public consultation, the City of Toronto framed a disposal ban slightly differently. An option was put forth where loads containing single-use and takeaway items exceeding a stated threshold would be charged an additional fee.³³

Jurisdictions with disposal bans include:

- Nova Scotia (recyclable and organic materials)
- Metro Vancouver (recyclable materials, organics materials, hazardous waste, WEEE)
- Nanaimo (C&D waste, recyclable materials, organic materials)

As an example, Metro Vancouver first introduced a disposal ban on corrugated cardboard in 1997 and expanded its list of banned materials to include food scraps and clean wood in 2015. Most recently, they introduced a ban on expanded polystyrene packaging in July 2018. The disposal ban is enforced at Metro Vancouver and City of Vancouver disposal facilities, where each load is inspected by staff for banned materials. Surcharges are applied if banned materials are found within the load³⁴.

Opportunity: Disposal bans can be very effective at keeping designated items out of landfill and promoting new channels for recycling and diversion. Municipalities considering disposal bans should, however, prepare for the possibility that illegal dumping may increase for designated materials immediately after the policy is launched. Incidents of illegal dumping will typically decline over the longer term but allocating resources for enforcement and cleanup may be necessary in the short term.

Mandated Targets

Description: Jurisdictions with Extended Producer Responsibility (EPR) programs typically mandate recycling and/or recovery targets for obligated materials. In Ontario, a recycling target of 60%³⁵ was set for all household printed paper and packaging (PPP) materials. The EU Commission, as part of their Waste Directive took a further step by setting material specific targets for paper, plastics, metals, and glass.

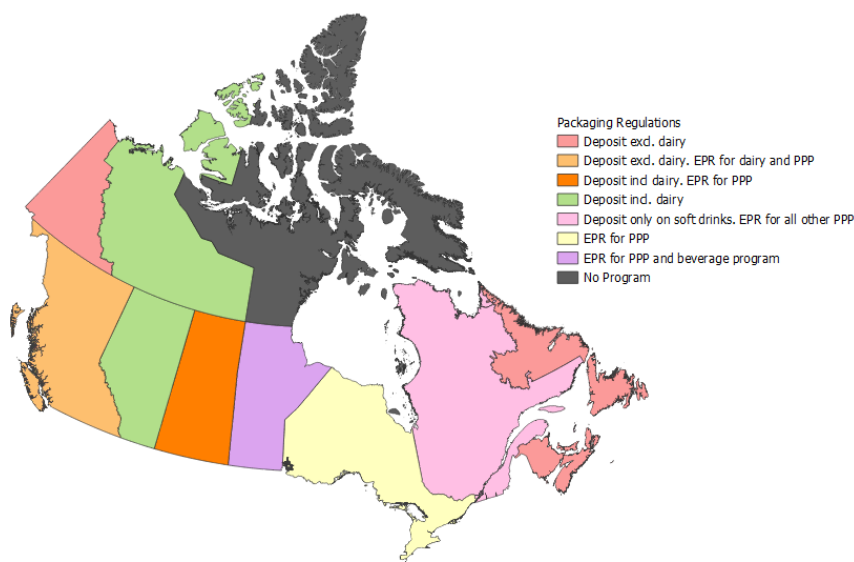
In 2018, the EU Commission introduced new rules on single-use plastics that set a target specifically for plastic bottles requiring a 90% collection rate by 2029. It also requires the recovery of bottle caps (i.e. tethered caps).

Opportunity: Typically, mandated targets are not set by local governments. York Region and its local municipal partners can influence targets at the provincial level by staying engaged in the consultation on transition to Individual Producer Responsibility (IPR) currently underway and by submitting comments. Setting targets independently of this process may be excessively complicated to oversee and enforce.

Government-Mandated Take-Back Programs

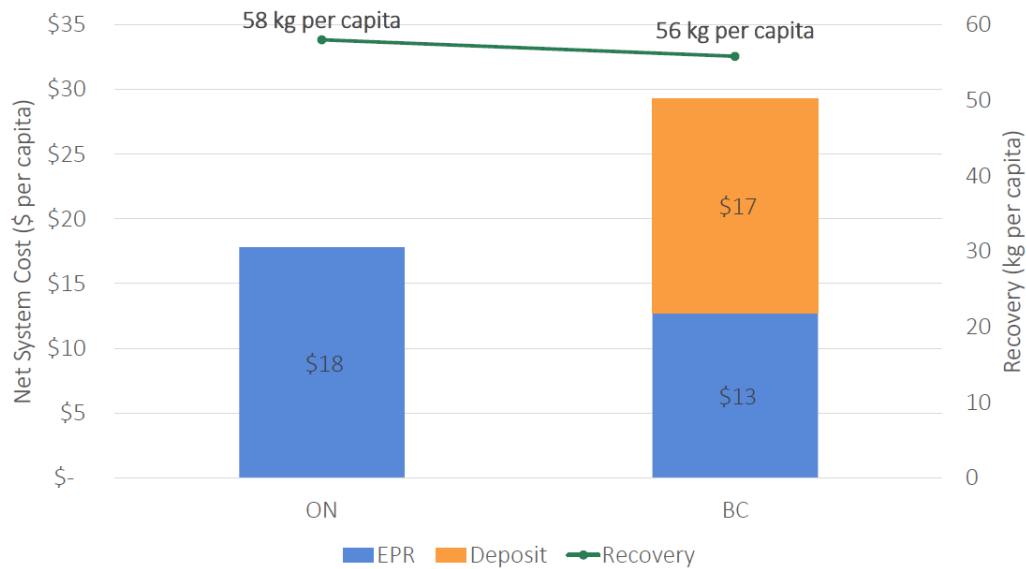
Description: Some jurisdictions have mandated take-back programs for materials to combat litter and increase recycling and diversion. While there are mandated programs for a wide range of materials including Waste Electrical and Electronic Equipment (WEEE), batteries, tires, etc., the most common mandated take-back program for plastics are beverage deposit-return programs. In Canada, 8 out of the 10 provinces and 2 territories have beverage deposit programs. However, the types of beverage containers covered under these deposit programs vary. Figure 1 illustrates the variations in the materials covered.

Figure 1: Canadian Packaging Regulations – Beverage Deposit Programs



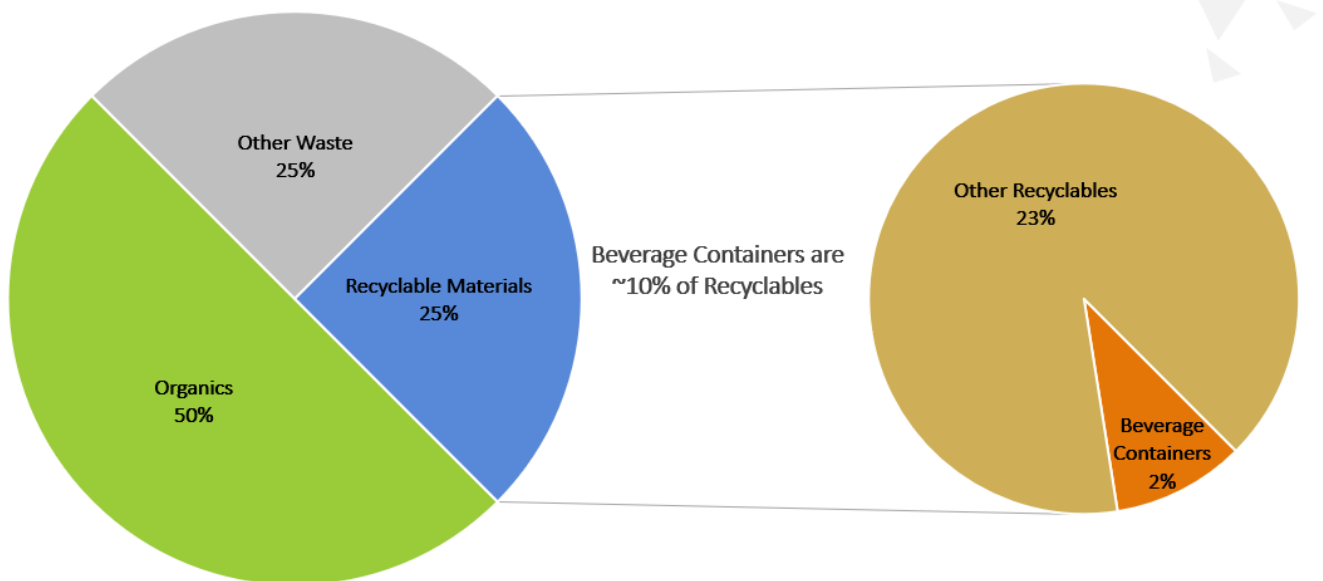
While deposit programs can achieve 80%+ recovery rates, they typically target a smaller range of materials and the cost to operate these programs is routinely higher than curbside Blue Box programs funded through an Extended Producer Responsibility (EPR) model. In BC, for instance, the combined cost to run its EPR program and its beverage container deposit program is approximately \$27 per capita. For that cost, British Columbia recovered 56 kg of material per capita in 2017. In Ontario, the EPR program for Blue Box recyclables recovered 58 kg of material per capita in 2017 at a significantly lower cost – \$18 per capita.

Figure 2: Diversion Impacts (British Columbia vs. Ontario)



Furthermore, beverage containers only represent 2% of total waste generated. While it's true that beverage containers (plastic bottles and beverage cans) made up nearly 20% of litter collected in recent York Region cleanups, they represent a small overall share of waste generated by society.

Figure 3: Average Waste Composition of Household Waste



Opportunity: The Region and its local municipal partners should advocate for waste diversion policies and legislation that target a broader range of materials that include beverage containers, but should not focus solely on beverage containers. The advocacy strategy should be outcome-focused enabling producers to determine their own approach for meeting the Region's and overall Provincial goals and targets, which may include beverage deposits. Currently, it is not recommended for York Region and its local municipal partners to start a local level beverage deposit program due to logistical challenges and increased operating costs. Additional considerations must also be given to how a deposit program would fit into the changing landscape of producer responsibility in Ontario.

As shown on the map in Figure 1, a deposit-return program for beverage containers in York Region would add to the patchwork of programs across the country which is contrary to the direction advocated by many industry experts who are calling for harmonization for the benefit of both producers of packaging and consumers. York Region and its local municipal partners should advocate for harmonization of programs and materials collected across the province.

Industry-Led Programs & Strategies

Voluntary Take-Back Programs

Description: Several organizations and industries have taken the lead and voluntarily take back their materials to meet growing public and government pressures. Most take-back programs focus on creating a circular flow of materials through recycling, like the Nespresso capsule recycling program and the voluntary take-back of plastic bags at grocery stores.

More recently, innovative programs that focus on waste reduction through reuse have emerged. Loop, a program operated by Terracycle, provides consumers with reusable containers for many household items delivered through the mail. This program demonstrates the extent multi-national companies are willing to go to satisfy consumer demand for more sustainable packaging options.

Reduction Strategies

Description: There is a growing trend among businesses to voluntarily reduce or in some cases eliminate packaging waste within their operations. Examples include:

- **Bulk Barn** has initiated a Reusable Container Program where customers can bring their own reusable containers to purchase products.³⁶
- **Tivoli Gardens (Denmark)** is an amusement park that sells certain beverage in reusable plastic cups that carry a deposit. Customers can return cups to reverse vending machines to redeem their deposit.³⁷
- **Ekoplaza (Netherlands)** is the first grocery store to provide a “plastic-free” aisle. Over 700 products are available without plastic.³⁸
- **LUSH Cosmetics** has eliminated all packaging for almost 35% of their products; referring to them as “naked”. A campaign was launched to promote this initiative.³⁹
- **A&W Canada** launched its “Change is good” campaign announcing they will stop providing plastic straws at all of its stores.⁴⁰
- **Lester B. Pearson International Airport** provides travelers with refillable water stations after security screening to encourage travelers to bring refillable bottles instead of bottled water.

Opportunity: Supporting local businesses in initiating take-back programs and implementing reduction strategies is a low-risk strategy that can have a measurable impact on waste reduction if a number of businesses are on board and there is significant uptake by consumers. York Region and its local municipal partners can support these efforts and demonstrate environmental stewardship by working with businesses in the following ways:

- Address and overcome health and safety concerns that can be a real or perceived barrier to launch reuse programs.
- Offer subsidies for local businesses to purchase hydration stations, cigarette recycling receptacles, and other infrastructure that reduces the use of single-use items commonly found as litter. The Region should also consider undertaking these initiatives at all municipal buildings.
- Support Promotion & Education by acting as a hub of information for residents and visitors to learn about voluntary take-back programs and provide recognition to businesses for their waste reduction efforts.
- Engage and partner with local environmental groups to undertake an education campaign on reducing single-use packaging and work with businesses to overcome barriers to adopting zero waste initiatives.
- Connect local businesses to find opportunities for cooperation and learnings through economic development groups and other forums for social and business innovation. Develop guidance document for businesses on how packaging alternatives are managed within York Region, similar to PAC's Sustainability Checklist⁴¹, with a focus on recycling vs. compostability.

Operational Tools (Bagging Recyclables)

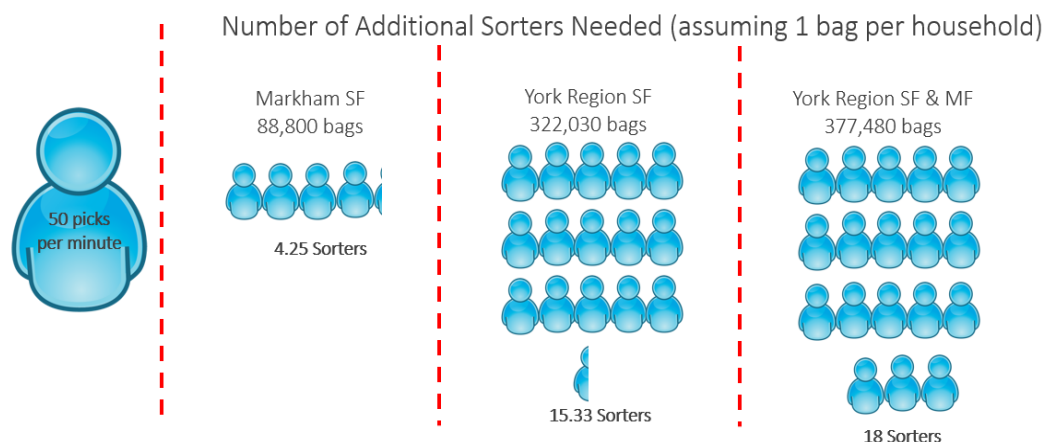
Description: In recent years, York Region and its local municipal partners have seen an increase in litter due to tipped over recycling bins on windy collection days. As extreme weather events are on the rise, it is expected this trend will continue in coming years. The City of Markham has proposed to address this issue by requiring residents to bag their recyclables; placing recyclables in a clear bag before putting it into their recycling bins. These bags will then be delivered to the York Region MRF, where the bags will be ripped open using a bag-breaker prior to sorting the recyclables. If approved, it is anticipated that all local municipal partners will move to this collection process.

Bagged recyclables typically have a minimal impact on collection operations; however, it has a significant negative impact on and processing operations. Plastic film is a difficult material to manage within MRFs, creating a wide range of sorting challenges. Its lightweight and flexible properties increase maintenance costs as it wraps around screens and disks, reducing the effectiveness of sorting equipment and increasing downtime. Additionally, it acts more like paper (a flat, 2-dimensional material), more so than containers (round, 3-dimensional material) where the rest of the plastics are sorted. This results in increased contamination of fibre materials reducing the revenue of these high-volume materials. Furthermore, bagged recyclables often include organics and other residue that is not recyclable. For example, in 2018 the Region conducted a curbside audit of the blue box program and found Markham's average contamination rate was 31 per cent with approximately 20 per cent of this contamination representing bagged materials that included garbage, recycling and organics. These impacts are in addition to the capital cost associated with installing a bag-breaker to rip open bags, equipment to capture film (overhead vacuums) and the increase in manual labour required to collect the plastic film used, as there is no effective piece of equipment in the market today to sort plastic film.

York Region conducted a detailed study in 2014 to quantify impacts of allowing residents to bag their recyclables. The key conclusion from this study identified it would be cost-prohibitive, with an

estimated net cost of \$8,400,000 over a 10 year period, to provide residents with the option to use bag as a supplement to the existing blue box container. The study was comprehensive and thorough including analysis on the benefits and costs associated with collections, litter, processing as a result of installing bag breakers and conducting a sensitivity analysis. While a significant undertaking would be required to update these findings to today's current prices and market conditions, a high level snapshot analysis is provided below which focuses on the impact to manual labour required to sort incoming recyclable materials captured in plastic bags at the MRF. Figure 4 illustrates the increase in manual labour required at the MRF, if all residents in York Region bagged their recyclable materials. Based on 2019 pricings, the additional 18 staff noted in Figure 4 would cost the Region an additional \$900,000 annually.

Figure 4: Impact to Material Recovery Facility manual operations to manage bagged recyclables



Opportunity: York Region and its local municipal partners have several options in minimizing litter due to windy collection days. These options include:

- Allowing residents to use lids for their recycling boxes⁴²;
- Allowing residents to use larger bins with lids (Richmond Hill already provides this option to residents); or,
- Moving to a cart-based program.

As these options will have financial impacts, capital and operational, it is important for York Region and its local municipal partners to assess these impacts on collection operations and determine their effectiveness at reducing litter on windy days.



Recommendations/Takeaways

Given the level of uncertainty at the provincial and federal level with respect to the banning of single-use plastics and transition to full producer responsibility, it may be prudent for immediate next steps to focus on:

1. Demonstrate local level Environmental Stewardship through green procurement options and reduction of single-use plastics within municipal buildings. Provide and incentivize staff and visitors with options to use reusable containers over single-use packaging (e.g. refillable water stations, discounts at cafeteria for using reusable mugs, etc.)
2. Actively participate and align policies with neighbouring municipalities (e.g. City of Toronto) to tackle single-use items to maximize opportunities for harmonization and consistent policymaking. The City of Toronto has undertaken extensive consultation regarding its single-use plastic reduction strategy⁴³.
3. Supporting businesses and community groups on waste reduction initiatives.
4. Conducting research to better understand the underlying causes of litter in York Region specifically.
5. Investing in infrastructure improvements to address those causes, where appropriate, and monitoring impact.
6. Actively monitoring the impacts of policies implemented in other jurisdictions to gain insight and ensure policies being considered are designed to minimize substitute effects and do not sacrifice upstream environmental benefits.
7. Continuing to consult with businesses and other stakeholders to understand the potential impact of the mandated policy options discussed above to inform policymaking.
8. Develop positions and advocacy strategies related to mandatory take-back programs, disposal bans, material targets, by-request bylaws, and materials bans. These policies represent a wide range of tools for York Region to utilize in minimizing the use and disposal of single-use materials.

These steps would pave the way for more extreme strategies like material bans and prepare the Region for successful adoption of mandates imposed by the provincial and/or federal government. That being said, York Region and its local municipal partners may be pushed to take more dramatic action, more quickly. In that case, consider moving forward with lower risk policies like by-request bylaws to prepare the community for more dramatic measures in the future.

¹ <https://www.chicagotribune.com/opinion/commentary/ct-perspec-indian-crying-environment-ads-pollution-1123-20171113-story.html>

² https://www.sciencedirect.com/science/article/pii/S0095069618305291?utm_source=npr_newsletter&utm_medium=email&utm_content=20190408&utm_campaign=money&utm_term=nprnews

³ https://prod-environmental-registry.s3.amazonaws.com/2019-03/Reducing%20Litter%20and%20Waste%20in%20Our%20Communities%20Discussion%20Paper_0.pdf

⁴ <http://www.europarl.europa.eu/news/en/press-room/20190321IPR32111/parliament-seals-ban-on-throwaway-plastics-by-2021>

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