City of Hamilton Strategy to Reduce Single-Use Plastics

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Executive Summary

In response to Council direction, staff have developed the following strategy to directly reduce the generation of single-use plastic products through City of Hamilton (City) operations and to provide guidance on how the generation of single-use plastics can be reduced by residents and businesses. This strategy includes why it's necessary for this policy to be implemented for Hamilton to be an environmentally responsible organization as well as information on what alternatives to single-use plastics are available and feasible. This strategy also supports the proposed federal management approach on single-use plastics released as a discussion paper on October 7, 2020.

How the City will accomplish the goal of reducing the amount of single-use plastics generated is defined in this strategy through 14 action items which fall under four Strategic Pillars.

Background

The Impact of Single-Use Plastics

The Science Assessment of Plastic Pollution (released jointly by Environment and Climate Change Canada and Health Canada on October 7, 2020), states that "Since the 1950s, the production and use of plastics has been increasing faster than that of any other material". The increased production of plastic products gave rise to single-use plastic items gaining popularity. This was because of their convenience as these items could be used once and thrown away without having to be washed for reuse. However, despite the popularity of plastics and some of their benefits, plastic products that are designed as single-use plastics (SUPs) have in most cases, negatives that outweigh their benefits. The term "single-use plastic product" was defined by the European Union in May, 2019 as "a product that is made wholly or partly from plastic and that is not conceived, designed or placed on the market to accomplish, within its life span, multiple trips or rotations by being returned to the producer for refill or re-used for the same purpose for which it was conceived." Hamilton's strategy to reduce SUPs has adopted this same definition.

There are two significant problems associated with SUPs. First, the vast majority of these products are not able to be recycled due to their composition and design and therefore cannot be included in blue box programs resulting in them being landfilled. Often these products are produced in a way that combines different materials that cannot be separated to allow products to be recycled (coffee cups are mainly paper-based but also have a thin plastic liner), are so small and light that they cannot be captured through current separation technologies or, are of such low quality of plastic that there is no end market for them (polystyrene take-out containers contaminated with food), or any combination of these.

The second significant problem with single-use plastics is that when they are littered, they result in negative impacts on the environment. The Province's discussion paper on "Reducing Litter and Waste in Our Communities" (2019) states that almost 10,000

tonnes of plastic debris ends up in the Great Lakes each year and more than 80% of litter collected during volunteer clean ups along Great Lakes' shorelines is plastic. Included in the federal "Strategy on Zero Plastic Waste" (2018) are the devastating impacts of SUPs littered in the environment as they pollute waterways, harm wildlife and damage habitat and fisheries.

Because of the negative impacts related to SUPs, these products have received increasing media attention in recent years, prompting individuals, businesses and legislators to begin looking for ways to reduce or eliminate them as much as possible.

Council Motion

In May 2019, in acknowledgement of the environmental impacts of plastic pollution, restrictions on what the City can accept in the blue box program, low waste diversion rates, actions by other municipalities along with other contributing factors, City Council directed staff to report back to the Public Works Committee with information on the feasibility of the City creating a Zero Plastic Waste Plan. Council direction for the plan was:

- That it quantifies SUPs that never were or are no longer acceptable in the blue box program
- That it identifies reusable or compostable alternatives to single-use plastics
- That it includes regulatory options for the City to reduce or eliminate single-use plastics
- It includes any costs or savings to implementing a plan

In addition to the items listed above, this strategy includes a list of actions for the City to either investigate and/or implement to reduce the amount of SUPs generated through City operations.

Single-Use Plastics and Alternatives

There are many examples of SUPs that are used in Hamilton and examples of the most common SUPs can be found in Table 1 along with their status as it pertains to Hamilton's blue box program. The majority of SUPs are not recyclable and need to be disposed of in the garbage in Hamilton and other jurisdictions. There are three items listed in Table 1 that were previously accepted in Hamilton's blue box program but no longer are due to reduced end markets for these products and/or contamination issues associated with them.

Table 1: Status of Common SUPs in Hamilton's Blue Box Program

Single-Use Plastic Product	Currently Accepted in Hamilton's Blue Box Program?	Previously Accepted in Hamilton's Blue Box Program?
Beverage bottles	Yes	Yes
Beverage bottle lids	No	Yes
Coffee cups	No – accepted in green bin	No
Coffee cup lids	No	Yes
Coffee pods	No	No
Plastics cups and plates	Yes	Yes
Plastic straws	No	No
Plastic takeout trays	Yes	Yes
Plastic utensils	No	No
Polystyrene takeout trays, plates & cups	No	Yes

All the products listed in table 1, other than plastic and polystyrene takeout trays, have reusable alternatives available to the public. Reusable coffee pods and mugs, straws, water bottles, plates and utensils are commonly sold and some in convenient travel options. However, due to the convenience of disposable SUPs, they are still more popular than the reusable options. In response to the impact SUPs are having on the environment, and to maintain the convenience of throwaway options, compostable alternatives to SUPs are increasing in popularity and availability. Compostable single-use products are marketed as having a decreased environmental impact by having the ability to biodegrade in the natural environment. Figure 1 includes examples of some popular alternatives. Although these products are marketed as having reduced environmental impacts, associated negatives of pressed paper and PLA products include that they don't biodegrade the same as products currently accepted in Hamilton's green bin program (such as food waste and paper towels). Pressed paper and PLA based plastics take considerably longer to decompose, even in ideal environments produced in commercial compost facilities. Other issues with this type of material include utilizing agricultural space to produce plastics versus food and that its similarity to petrol-based plastics can result in contamination of the recycling process as it can be easily confused with traditional plastics.

	
Fibre-based products – these are paper-based (pressed or non-pressed paper) or made from unprocessed fibre material such as bamboo	Bioplastics – these include polylactic acid (PLA) which is a vegetable based plastic material very similar to petrol-based plastics usually made of corn starch, tapioca root or sugarcane

Figure 1: Examples of available Compostable Products

These alternative products are often branded with a compostable certification. Compostable certifications, such as BPI (Biodegradable Products Institute), rely on test methods that are generally not consistent with the process of municipal compost facilities. To be certified as compostable, a product must break down significantly in 84 days and this is usually done in a lab environment under ideal conditions. Currently, there are no provincial standards in Ontario for what can be branded as compostable in a retail setting.

Testing of Single-Use Plastics Alternatives

City staff conducted tests at Hamilton's Central Composting Facility (CCF) to determine whether products certified or marketed as compostable alternatives to SUPs can be processed fully. To date, staff have completed two separate tests following the Compost Council of Canada protocol; the first from August to September 2019 and the second from January to February 2020. The same products were included in each test and included bamboo alternatives (such as spoons and bowls), PLA cups and classic white paper plates. A total of 19 alternative products were tested. During the test, 74% (14) of the products tested were removed during the screening process and all products removed during the screening process ended up in landfill. Even though five products were not screened out, due to their small size (such as PLAs) they were designated as problematic by City staff because these products have the potential to contaminate the compost and put it at risk of not passing quality testing because they break down into what could be considered foreign matter/sharps. The current limit of this material in compost is 0.5% based on Ontario compost standards.

Table 2: Results of Product Testing

Product	Accepted in Green Bin?	Screened Out?	Problematic or Non-Problematic
Bamboo Bandage	No	No	Problematic
Bamboo Bowls	Yes	Yes	No
Bamboo Skewers (Type 1)	Yes	Yes	No
Bamboo Skewers (Type 2)	Yes	Yes	No
Bamboo Spoons	Yes	Yes	No
Chopsticks	Yes	Yes	No
Compostable Coffee Pod	No	No	Problematic
Compostable Food Wrap	No	No	Problematic
Coral Forks	No	No	Problematic
Fiber-Based Cutlery	Yes	Yes	No
Paper Clamshell Take Out Container	Yes	Yes	No
Paper Cup	No	Yes	Problematic
Paper French Fry Boat	Yes	Yes	No
Paper Plates	Yes	Yes	No
Paper Straws	Yes	Yes	No
Paper Water Cooler Cup	Yes	Yes	No
PLA Cups	No	Yes	Problematic
PLA Straws	No	No	Problematic
Plant Based Bag	Yes	Yes	Problematic

Although the products removed during screening ended up in landfill, some of this material could be reintroduced to the compost process. The products that could be reintroduced into the process are categorized as non-problematic because when they are included in phases one and two, they can provide some benefit to the compost by increasing carbon levels, transferring bacteria and adding structure to the composting mass. Examples of these products include bamboo spoons and bowls and paper straws. The case for these materials not being problematic is strengthened by the fact that they will not contribute to contamination of the compost if they do make their way through the screening process.

The test results at the CCF concluded that plant-based plastics cannot be composted in Hamilton and other compostable products that are alternatives to SUPs will benefit the composting process but will eventually end up in landfill. The results also confirmed that the benefits of most products marketed and/or labelled as compostable alternatives

to SUPs are limited. These single-use products come with additional negatives and are in most cases detrimental to the composting process used by the City. These results are consistent with sorting direction from other municipalities as Toronto, Peel Region, Halton Region and Waterloo Region (to name a few) do not allow for compostable items such as cutlery to be placed in their green bin programs. Any alternatives to SUPs that are recommended through this strategy will be deemed at minimum, to be non-problematic to Hamilton's CCF's composting process.

Federal Discussion Paper on Management Approach

On October 7, 2020, the federal government released the discussion paper "A proposed integrated management approach to plastic products to prevent waste and pollution" which builds on previous actions of the federal government on SUPs including signing the Oceans Plastics Charter (June, 2018), developing the Canada-Wide Strategy on Zero Plastic Waste (Phase 2 released in July, 2020) and the Science Assessment of Plastic Pollution (October, 2020). This discussion paper outlines the approach the federal government is proposing to take to support the reduction of SUPs. This approach includes the following objectives: eliminating certain sources of plastic pollution; strengthening domestic end-markets for recycled plastics; improving the value recovery of plastic products and packaging; and, supporting innovation and the scaling up of new technologies. There are three tools proposed in the discussion paper to accomplish these objectives:

- Bans and/or restrictions on certain SUPs
- Performance standards to reduce or eliminate environmental impact and stimulate demand for recycled plastics
- End-of-life responsibility of SUPs through extended producer responsibility

These tools will be formalized in regulations planned to be in effect by the end of 2021. Along with naming the tools above, the discussion paper includes high-level details of what will be included under each. For the Federal ban, this includes naming six items proposed to be included and the criteria for how these items were selected. The proposed items are listed in table 3.

Table 3: Federal SUP Ban

Items Proposed in the Federal SUP Ban
• Grocery/take-out bags
• Plastic straws
• Plastic stir sticks
• Plastic cutlery
• Beverage six-pack rings
• Food packaging and service ware made from plastic that is difficult to recycle (including foamed plastics, black plastic, PCC, oxo-degradable plastic and multiple/composite materials that have one or more plastics)

Performance standards include determining a minimum percentage of recycled content for plastic products (possibly by sector, material or resin type), establishing rules for measuring and reporting on the recycled content in materials and developing technical guidelines to formalize standards that need to be followed when meeting performance standards. End-of-life responsibility includes increasing collection and recycling rates, minimizing material sent to landfills and establishing conditions for innovation to create a circular economy for plastics.

Hamilton's Strategy to Reduce Single-Use Plastics

Objectives

The primary objective of Hamilton's Strategy to Reduce Single-Use Plastics (SUPs) is to decrease the use and disposal of SUPs within City operations and on City property. This will be achieved by cultivating a shift in the behavior of City staff, residents, businesses and event organizers through an approved list of action items. This strategy will prioritize the first two Rs in the 3Rs hierarchy; reduction and reuse for example reusable water bottles and coffee mugs; before providing appropriate compostable alternatives to SUPs and actions that promote recycling of SUPs.

The second objective of the strategy will be to provide promotion and education materials to businesses and residents to encourage a switch to reusable alternatives. Care has been given in drafting this strategy to ensure no duplication with the proposed actions in the federal government's discussion paper. An example of this is the omission of any action on the SUPs proposed to be included in a federal ban as seen in Table 2 above.

Scope

Council's original direction in the motion from 2019 was "That staff report back to the Public Works Committee with information on the feasibility of the City creating a Zero Plastic Waste Plan". After investigation and consultation with Legal Services, staff have determined that although a "Zero Plastic Waste Plan" may not be feasible at the Municipal level, a strategy to reduce SUPs is. The scope of this strategy focuses on how City operations can reduce the generation of SUPs while providing guidance to how local businesses and residents can reduce their dependence on these products without creating actual requirements. There are several reasons for these limitations in scope. First, Legal Services was consulted on the implications of implementing a City-wide ban on SUPs and concerns raised included whether a plastic ban is within the jurisdiction of a municipality. A City-implemented ban would require approval from Ontario's Ministry of Environment, Conservation and Parks. Enacting a City-wide ban would also require stakeholder consultation and if passed, will almost surely be challenged, requiring legal resources to defend the City's position. Because of the jurisdictional limitations, the strategy will focus on promoting voluntary reduction efforts to help reduce SUPs generated by residents and at businesses in the City.

The second reason for why an outright ban on SUPs across the City is out of scope is the pending regulations described in the federal discussion paper. Any bans included in federal regulations would over rule those implemented by the City.

This strategy defines work that staff will be carried out to reduce the amount of SUPs that the City generates. This work includes 14 action items under four Strategic Pillars as seen in Table 4 and described in detail below.

Table 4: Strategic Pillars and Action Items

Strategic Pillar	Action Items
1. Promotion and Education	• Use current education tools such as the annual waste guide to educate on reducing SUPs • Expand education efforts on SUPs to include in-person activities and virtual tools • Create educational material for businesses on reducing SUPs
2. City Infrastructure	• Replace drinking fountains in City parks with stations that permit the filling of water bottles • Investigate installing outdoor water fill stations at City-owned golf courses • Continue to install water fill stations in arenas, municipal service centres and other City buildings
3. Bans on SUPs in City Facilities	• Update Public Health policies to require compostable single-use items over SUPs • Investigate feasibility of requiring all events receiving City waste services to have water fill stations and banning the sale of water bottles • Require operators of concession stands, cafes etc. on City property to use City-approved compostable alternatives to SUPs • Develop a policy to ban single-use coffee cups and water bottles at organized events in City buildings • Require office kitchenettes to be supplied with reusable glassware • Investigate banning the sale of water bottles in facilities with water fill stations

4. Financial Incentives and Fees	• Determine best approach to reducing the sale of single-use coffee cups at City facilities (fees or incentives) and implement • Investigate enforcement options for operators that do not comply with fees and incentives

Strategic Pillar 1 – Promotion and Education

Actions

1. The reduction of SUPs will continue to be promoted in annual recycling and waste guides and will be expanded to include the City's website. This messaging was first included in the 2020/2021 Waste Guide; however, there will be an increased focus on the reduction of SUPs in future waste guides. The City's website will also include a page dedicated to promoting the reduction of SUPs. This action item will attempt to make Hamilton residents more aware of the problems surrounding SUPs, why they should attempt to reduce their use of them and how to achieve this. This action item will also take advantage of an existing, familiar medium to communicate these messages and removing additional costs to the City in the process.
2. Education efforts will be expanded to include promoting the reduction of SUPs at community events and other engagement opportunities. Community Outreach staff currently share tips for reducing SUPs with grade school classes who tour the education room at the CCF. Much like action item 1 under this Strategic Pillar, this action utilizes existing programming to provide awareness to remove additional costs to the City. If moving forward, education takes place with virtual tools such as educational videos, then these will be updated to include information on replacing SUPs with reusable or compostable options based on readily available options and their compatibility with the process at the CCF.
3. Produce informational material to help businesses reduce SUPs. This action will include providing guidance to restaurants and food trucks on reducing the generation of certain SUPs including single-use coffee cups and/or single-use water bottles. This could provide information on the most effective methods to reduce single-use coffee cups through incentives or fees and allowing patrons to have reusable water bottles filled.

Strategic Pillar 2 – City Infrastructure

Actions

1. Parks and Cemeteries will continue to replace aged water fountains with multi-functional water stations with the ability to fill reusable water bottles. City parks are well used by the community, including the use for public events and sports tournaments. Providing visitors to parks with the ability to fill reusable water bottles will encourage the use of reusable water bottles and reduce the use of single-use plastic water bottles.

2. Investigate the feasibility of installing a water bottle fill station(s) at City's Municipal Golf Courses. If these were installed, City staff would promote the water bottle fill stations to patrons through signage and its website. Providing user of golf courses and recreational facilities with an easily accessible way to fill their water bottles has the potential to reduce the amount of single-use water bottles disposed of at these locations. In 2019, a total of 1,630 water bottles were sold at Kings Forest Gold Course between the lounge and beverage carts. The cost of installing outdoor water bottle fill stations is between $25,000 and $30,000, with potential additional costs depending on the distance from existing water lines. In addition to this capital cost, there is also an annual operating cost of approximately $5,000 for opening and closing the fill station and any other associated operating costs such as maintenance, graffiti and water. If any of these water-fill stations are installed the capital costs will be covered through funds in existing budgets.
3. Continue to install water bottle fill stations in arenas, Municipal Service Centres and other City buildings. These water bottle fill stations have already been installed in numerous City buildings. This action will evaluate moving forward with this throughout all locations/buildings included in the scope if they don't already have these stations installed (included as Appendix "A").

Strategic Pillar 3 – Single-use Plastic Bans in City Facilities and on City Property Actions

Although the federal government is proposing a list of SUPs to include in a ban, this strategy is proposing to ban SUPs that are not currently being contemplated for inclusion in the federal plan but are still considered problematic. The items that will be included in the ban for City operations are: hot and cold beverage cups and lids (most notably single-use coffee cups) and single-use water bottles.

1. Update Public Health "Requirements for Food Vendors at Special Events" to indicate that compostable single-use products are required over plastic where possible, and to provide a list of acceptable compostable single-use products until such time that a federal ban is enacted. Public Health requirements for food vendors at special events currently include that "Only disposable eating utensils (examples: plastic knives, forks, spoons, paper plates and cups) shall be provided to customers." This can be updated to include that these disposable utensils must be of a type approved by the City.
2. To support enforcement through action item 2 under Strategic Pillar 3, investigate the requirement for all events on City property requesting waste diversion services from the City to provide water fill stations to patrons and require that no vendor at the event sells single-use water bottles to patrons. This investigation will include coordination with the Special Events Advisory Team and through the application process to hold events on City property.
3. Require that operators of all concession stands, cafeterias, cafes/coffee shops etc. on City property included in Appendix "A", be required to use compostable alternatives to SUPs approved by the City where reusable options, or elimination of

products is not possible. If the federal government establishes a standard for how "compostable" is defined, then this standard will replace any standard established by the City.

5. Develop a policy to ban the use of single-use coffee cups and water bottles at staff organized meetings and other gatherings on City property (including staff meetings and Advisory Committee meetings). Encourage outside staff or other visitors to bring reusable mugs if coffee is being provided.
6. Require offices that have kitchenette infrastructure to be supplied with reusable glassware and water jugs for meetings that include outside staff.
7. Investigate the ban of single-use water bottles at all City facilities that are equipped with water fill stations.

Strategic Pillar 4 – Financial Incentives and Fees

Actions

1. Investigate different incentives, either fees or savings, to promote the use of reusable alternatives to single-use coffee cups at concession stands, cafes etc. located within City buildings. This will include staff investigating what approach and dollar figure is most effective in changing the behaviour of residents/patrons resulting in an increased use of reusable items. Potential approaches include either a fee for using a single-use coffee cup or an incentive for bringing a reusable coffee mug. This investigation will most likely include piloting the potential approaches at selected City-owned or operated buildings and is necessary as the most difficult aspect of implementing a fee or incentive is determining what an appropriate dollar figure is. The value cannot be so low that it is considered insignificant but cannot be so high that it is considered unreasonable. The most effective way to determine an appropriate cost is to test different values. Once action item 1 under this Strategic Pillar is complete, implementation of incentives or fees will proceed at 26 City buildings and facilities (listed in Appendix "A") and will include municipal service centres, arenas and community centres, parks, operational facilities, golf courses and one senior centre, but will not include contracted out, volunteer-run or seasonal concession stands. Additionally, the most appropriate method will also be implemented by vendors at events on City property.
2. Investigate enforcement mechanisms for operators and vendors at special events that do not provide the incentive or apply the fee when patrons use single-use hot/cold beverage cups at events or fail to provide event patrons with the ability to fill reusable water bottles through water fill stations. This action includes requiring events to either be held in parks equipped with water fill stations or for the organizer to secure a mobile water fill station approved by the City or both. This may include investigating what water fill options are necessary based on the size of the event being held.

Evaluation of the Strategy

Evaluating this strategy on an ongoing basis will be key in ensuring it meets its objectives and ultimately the strategy being successful. This evaluation will be carried out through waste audits, monitoring the sale of SUPs at City facilities and reporting on the progress of the strategy through different methods such as the Waste Management Advisory Committee and through the annual Clean and Green report.

Sales and Inventory Monitoring

Staff will monitor the procurement of SUPs targeted by the action items identified in this strategy to determine if there is any change in the demand and use of these materials.

Corporate Strategic Alignment

City of Hamilton Corporate Climate Change Strategy – This strategy supports Goals 1 and 5 of the City's Corporate Climate Change Strategy. Replacing outdated water fountains in City parks supports the action item to retrofit existing corporately owned assets to improve energy efficiency and reduce GHG emissions. While the water fountains themselves may not directly reduce GHG emissions, the reduced reliance on disposable water bottles will.

Clean and Green Strategy – The City's Clean & Green Hamilton Strategy encourages behaviour that supports a clean and green community. It provides context and guidance for the development of policies, programs and initiatives that promote and enhance cleanliness, aesthetics and environmental stewardship across Hamilton. This strategy demonstrates commitment to the purpose of the Clean & Green Strategy.

Public Opinion/Alignment with SWMMP

In support of updating its Solid Waste Management Master Plan, the City undertook a public opinion survey on waste from January 6 to February 7, 2020. One of the open-ended questions included in the survey was "Should the City explore options for reducing single-use items (i.e. plastic bags, plastic straws, plastic cutlery, plastic take-out containers and single use cups)?". Of the 3,923 responses to this question, 3,343 (85.2%) of respondents answered that they do believe that the City should explore options to reduce single-use plastics.

Conclusion

The 14 action items included in "The City of Hamilton's Strategy to Reduce to Single-Use Plastics" establish a clear path forward for how the City can potentially reduce the generation of single-use plastics while maintaining consistency with other City policies and not conflicting with the federal management approach proposed in the discussion paper. This strategy emphasizes the importance of reduction and reuse options prior to considering compostable alternatives, as these products can be problematic to Hamilton's processing system at the Central Composting Facility. In lieu of potentially pending bans on single-use plastics by the federal and provincial governments, this strategy maintains in its scope what the City can do within its own operations and providing appropriate guidance to businesses and residents.

City of Hamilton Buildings

Building Name	Type of City Operation	Type of SUP Generator
1. City Hall	Municipal service centre	Coffee shop
2. Lister Block	Municipal service centre	Coffee shop
3. Beverly Community Centre & Arena	Arena	Recreation-run concession stand
4. Carlisle Community Centre & Arena	Arena	Recreation-run concession stand
5. Chedoke Twin Pad Arena	Arena	Recreation-run concession stand
6. Dundas J.L. Grightmire Arena	Arena	Recreation-run concession stand
7. Glanbrook Arena and Auditorium	Arena	Recreation-run concession stand
8. Inch Park Arena	Arena	Recreation-run concession stand
9. Bill Friday Lawfield Arena	Arena	Recreation-run concession stand
10. Morgan Firestone Arena	Arena	Recreation-run concession stand
11. Dave Andreychuk Mountain Arena and Skating Center	Arena	Recreation-run concession stand
12. Pat Quinn Parkdale Arena	Arena	Recreation-run concession stand
13. Rosedale Arena	Arena	Recreation-run concession stand
14. Saltfleet Arena	Arena	Recreation-run concession stand
15. Stoney Creek Arena	Arena	Recreation-run concession stand
16. Valley Park Arena	Arena	Recreation-run concession stand
17. Harry Howell Arena	Arena	Recreation-run concession stand
18. Chedoke Golf Course	Golf course	Food service, restaurant & concession stand
19. King's Forest Golf Course	Golf course	Food service, restaurant & concession stand
20. Millgrove Community Park Concession	Park	Recreation-run concession stand
21. Dundas Driving Park	Park	Recreation-run concession stand
22. Joe Sam's Leisure Park	Park	Recreation-run concession stand

23. Bayfront Park Concession	Park	Recreation-run concession stand
24. Sackville Hill Seniors Centre	Seniors Center	Cafeteria
25. Wentworth Street Operations Center	City Operational Facility	Cafeteria
26. Mountain Transit Centre	City Operational Facility	Cafeteria