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**TO:** GENERAL COMMITTEE

**SUBJECT:** CIRCULAR ECONOMY APPROACH – POLICIES AND 2021-2022 INITIATIVES

**WARD:** ALL

**PREPARED BY AND KEY CONTACT:** S. BRUNET, B.SC, MANAGER OF BUSINESS PERFORMANCE AND ENVIRONMENTAL SUSTAINABILITY

**SUBMITTED BY:** S. BRUNET, B.SC, MANAGER OF BUSINESS PERFORMANCE AND ENVIRONMENTAL SUSTAINABILITY

**GENERAL MANAGER APPROVAL:** A. MILLER, RPP, GENERAL MANAGER, INFRASTRUCTURE AND GROWTH MANAGEMENT

**CHIEF ADMINISTRATIVE OFFICER APPROVAL:** M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

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### **RECOMMENDED MOTION**

1. That the draft policies to support a Circular Economy Approach to Waste Management and attached as Appendix “B” to Staff Report BPE002-21, be approved.
2. That the Manager of Business Performance and Environmental Sustainability or designate be delegated the authority to amend or add to the policies for a Circular Economy Approach to Waste Management on an as needed basis, and report back to General Committee through a memorandum to advise of any changes and associated rationale.

### **PURPOSE**

3. The purpose of this Staff Report is to apprise Council of the Circular Economy Approach to Waste Management for the City of Barrie (City).
4. Draft policies are being proposed on which to base actions that influence waste generation rates. Based on the 4 Pillars of the Framework, identified to Council, these policies focus on the reuse of products and materials, recycling, consumption and food waste, and the recovery of energy and materials.
5. This Approach is based on 3 priorities:
  - The protection of natural assets;
  - The preservation of landfill space; and
  - Alignment and compliance with provincial Full Producer Responsibility Programs.

### **BACKGROUND**

6. Like all municipalities within Ontario, Barrie continues to generate more waste every year; both in quantity and complexity. The consequence of this increase in both quantity and complexity includes increasing litter, diminishing landfill capacity and negative impacts on natural assets.
7. In 2012, the City adopted the current Sustainable Waste Management Strategy (SWMS) to promote effective, efficient, and socially acceptable change in the City’s Waste Management System to assist with managing waste during a 20-year operational period.

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8. Under the guidance of the current Sustainable Waste Management Strategy, the City has established Waste Reduction and Diversion Programs that have enhanced efforts to divert waste from the City's Landfill Site (Appendix A).
  9. This Strategy has led to a current residential diversion rate of approximately 56.3% in 2019, from 45% in 2012.
  10. The continual change in packaging products and associated components deemed recyclable, has created customer confusion, and associated increasing contamination rates. Blue box contamination results in the landfilling of materials. Additionally, these changing materials cannot be managed in current recycling systems.
  11. Additionally, current recycling systems are not designed for this continual change in products and components creating an unsustainable model.
  12. Market instability and the environmental impacts of litter from 'waste leakage' calls for a new, more sustainable approach to waste management. Waste leakage refers to waste that escapes waste management systems only to turn up in the natural environment.
  13. In response to stagnating diversion rates and associated waste issues within Ontario, the Provincial Government introduced new legislation and policy changes.
  14. The Ministry's Made-in-Ontario Environment Plan proposes solutions for addressing a number of environmental issues, including reducing litter and waste while lowering greenhouse gas emissions with the intent to 'reduce litter and waste, protect the environment, drive innovation, performance and competitiveness, and stimulate economic growth and development'.
  15. The Waste Free Ontario Act and Strategy for a Waste-Free Ontario creates a framework for managing waste and the resources within them.
  16. The Resource Recovery and Circular Economy Act (RRCEA) supports a number of Provincial interests centered around reducing the generation of waste through the continued growth and development of the circular economy and by minimizing greenhouse gas emissions resulting from waste management activities.
  17. Similarly, public education and awareness, fostering fairness for consumers, and promoting competition in the provision of resource recovery and waste reduction services are paramount.
  18. Transitioning the responsibility for the Blue Box Program to producers is one step the Province is taking in supporting a Circular Economy. The draft Blue Box Program regulation, under the RRCEA, proposes to support the reduction in waste generation by stimulating innovation as a means of reducing costs for producers. Indirect benefits include a shift in realizing waste as a resource to be recovered, reused, and reintegrated back into the economy.
  19. The Food and Organic Waste Policy Statement was also issued under the RRCEA to support a Circular Economy focus with goals of zero waste and zero greenhouse gas emissions from the waste sector. The focus here is on the prevention, reduction and recovery of food and organic waste.
  20. A Circular Economy is "... one that is restorative and regenerative by design, and which aims to keep products, components and materials at the highest utility and value at all times, distinguishing between technical and biological cycles" – Ellen MacArthur Foundation (EMF).

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21. Basically, a Circular Economy is one where resources, materials, and nutrients are continually circulated within the economy such that their productive value is maximized for as long as possible through reuse, recycling, and remanufacturing strategies.
  22. With this Approach, waste is minimized, and resources are maximized by moving from a 'Take, Make, Dispose' economy to one with an economic focus on product longevity, renewability, and reuse and repair strategies that promote a zero waste society.
  23. This Approach is also aligned with Council's Strategic Priorities (2018-2022) include Building a Greener Barrie while mitigating and adapting to climate change; to support the creation of more stable and diverse jobs and to support small businesses.
  24. In May 2020, a Memo to Council described the Circular Economy Framework under which policy development was to be structured.
  25. The 4 Pillared Framework (Appendix B) is aligned with Federal, Provincial, and Municipal priorities and will guide the development of a Waste and Circular Economy Strategy with the following objectives:
    - Minimize waste generation;
    - Reduce reliance on raw materials by maximizing the recovery of resources from waste;
    - Develop and implement customer focused waste management programs and services;
    - Stimulate innovation; and
    - Support economic growth and competitiveness.

## **ANALYSIS**

26. Historically, an Integrated Waste Management System is focused on diversion rates, i.e., the percentage of total waste diverted from disposal. With the City's residential diversion rate at approximately 56.3%, the remaining 43.7%, or 24,182 tonnes, is disposed of at the Landfill Site annually.
27. During 2020, under COVID restrictions, the waste generation rate increased by 2.79%.
28. The current Landfill has been forecasted to provide disposal capacity until 2031, taking into account a modest population growth, established prior to the updated forecasted rates.
29. The current strategies may reduce the pressure on Landfill capacity potentially freeing up space for waste generated by growth, however, they do not create the resiliency required to manage through times of change or events like the pandemic.
30. The SWMS, through public consultation, identified guiding principles and goals that align with a Circular Economy approach including:
  - Maximizing resource recovery;
  - Cost effectiveness;
  - Pollution prevention;
  - Clean and healthy environment;
  - Socially responsible;
  - Optimization of municipal and public/private partnerships; and
  - Align with City and Provincial long-range plans.
31. In 2020, a realignment of resources created a Team charged with researching new waste initiatives, developing programs and policies, and data management. This Team is also charged with evaluating and incorporating, where feasible, Circular Economy principles. The overarching goal is to position the City to support a Circular Economy.

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32. During 2020, despite the challenges of COVID-19, Staff worked with a Consultant to develop a Framework and associated policies through which a strategy and associated action plan could be developed. In May, the Framework was communicated through a Memo to Council.
  33. Based on this Framework, proposed policies were established. The proposed policies for Council's consideration are appended in this Staff Report (Appendix B).
  34. In order to minimize waste generation and associated emissions, and to maximize Landfill life, the Strategy will encourage reuse, recycling, consume, and recovery actions in that order.
  35. One of the biggest obstacles to future waste reduction is the COVID19 pandemic that has resulted in the increased use of single use plastics effectively reversing current forward movements in reducing waste generation.
  36. Promoting a Circular Economy is about changing behaviours. Actions and consequences need to be linked in order to understand behavioural impacts to the environment. It is this behavioural change that will make waste and associated emissions reductions sustainable.
  37. Awareness, knowledge, and behavioural changes are key to creating a more resilient system. The proposed Circular Economy Policy Framework begins with overarching policies centred around education, outreach, participation, and collaboration with community groups, municipalities, and Circular Economy organizations to assist with the continual improvement to long term waste management planning.
  38. Further policies are structured under the pillars of the Circular Economy Framework.

#### **Reuse Pillar**

39. Policies under the **Reuse Pillar** will focus on fostering a reuse culture in which the value of goods, products, and resources are extended through local repair, upgrade, and resell initiatives as well as promoting transactional business models.
40. There are 3 priority areas of focus:
  - a) Leading by Example Through Circular Procurement is centred around internal stakeholder engagement with the goal to investigate the feasibility of Circular Economy procurement practices, policies, and reuse systems;
  - b) Strengthening the Community Sharing Economy with strategies is centred around identifying events and on-line platforms for swap, share and repair events, promoting innovation and experimentation with circular initiatives and support and the reduction and phase out of single-use plastics; and
  - c) Supporting the reduction and phase out of single-use plastics through promotion and education strategies and voluntary bans at City facilities and permitted events.
41. The first phase (2021-2022) will focus on internal and external stakeholder engagement with the goal to develop feasible Circular Economy systems, policies and practices associated with municipal procurement, municipal facilities, municipal permitted events and sharing platforms.

#### **Recycle Pillar**

42. Policies under the **Recycle Pillar** will direct and influence actions to maximize the capture of recyclable materials and reduce contamination levels that would otherwise compromise the recycling system model.

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43. There are 3 priority areas of focus:
- a) Advocacy and collaboration with respect to the policy and legislation that promote the capture of recyclables and the recyclability of materials and the transitioning of waste programs to an extended producer responsibility model;
  - b) Managing waste in public spaces to reduce litter and illegal dumping; and
  - c) Maximizing diversion opportunities at City owned facilities.
44. The first phase (2021-2022) will focus preparing for the transition of the remaining designated materials recycling systems and the current Blue Box Program to the provincially mandated extended producer responsibility model.

### **Consume Pillar**

45. The policies within the **Consume Pillar** will address food waste prevention and strengthening systems for food waste diversion. This is an important pillar as Barrie is subject to the 70% organics waste reduction and recovery target by 2023, as set in the provincial Food and Organics Waste Policy Statement. This Pillar addresses consumables in a circular economy where biological innovations are required to obtain the most value from materials. This Pillar also provides for alignment with the City's Strategic Development and Zero Emissions initiatives.
46. There are 2 priority areas of focus:
- a) To support local agriculture by encouraging community urban agricultural opportunities and support community food recovery programs; and
  - b) To strengthen communication and education focused on the reduction and rescue of food waste.
47. In the first phase (2021-2022), staff will participate in the Municipal Waste Association's Organics Action Committee and the Ontario Food Waste Collaborative to assist with and gain knowledge with respect to the development of new and the extension of existing programs. Information gained will also assist in the investigation into and feasibility of adding materials to the Green Bin Program through the new collection contract. Waste audits will be used for research and data collection initiatives in order to understand the gap, if any, that needs to be addressed.

### **Recover Pillar**

48. **The Recover Pillar**, being the last Pillar in the priority order, will address efforts that identify and maximize the economic value and energy benefits of waste while minimizing greenhouse gas emissions in the waste sector. This Pillar addresses non-consumables in a Circular Economy where technology is required to obtain the most value from materials.
49. There are 3 priority areas of focus:
- a) Recovering energy and realizing the value of resources through the minimization of GHG emissions and maximizing energy recovery opportunities from waste management activities;
  - b) Circular construction through the investigation and development of tools supporting low carbon development; and
  - c) Supporting reuse and recycling practices that support circular soil management.
50. The 2021-2022 year will focus on advocating for the update of regulations related to construction and demolition waste through municipal waste organizations and investigating the feasibility of including innovations for the reduction of Greenhouse Gas emissions as a deliverable in procurement documents for waste collection programs.

51. The success of this new approach to Waste Management and what it will mean to Barrie's residents requires its introduction through promotion and education campaigns. A fulsome Communications Plan will be developed for implementation in 2022.
52. To create sustainable, effective, and efficient solutions, the Circular Economy Approach must be aligned with the City's Zero Emissions initiative, the Official Plan directives and associated zoning considerations. Hence, the attached Policy and Actions Document will remain an active document allowing for a resilient approach to address the changing waste management landscape.

### **ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS**

53. The following environmental matters have been considered in the development of the recommendation:
  - a) Reduce greenhouse gas emissions by promoting the reduced use of materials and production processes;
  - b) Addressing landfill capacity with the future population growth of the City; and
  - c) Reduction and recovery of greenhouse gas emissions from waste collection, processing, and disposal activities.

### **ALTERNATIVES**

54. There are two alternatives available for consideration by General Committee:

**Alternative #1**      General Committee could maintain the status quo.

This Alternative is not recommended as the current patchwork approach without alignment of priorities has not provided for a sustained focus on waste management. This will create an inability to meet both environmental and nonenvironmental obligations will be at risk and will hamper the ability to build a greener Barrie.

**Alternative #2**      General Committee could approve partial sections of the Policy.

This Alternative is not recommended as the proposed Policy was structured based on historical obstacles and integrated approached to waste. Waste Management issues do not exist in isolation and synergies can be realized through this concerted approach.

### **FINANCIAL**

55. Financial expenditures with respect to external and additional internal resources may be required in subsequent years to continue a sustained approach to reducing and managing waste.

### **LINKAGE TO 2018–2022 STRATEGIC PLAN**

56. The recommendations included in this Staff Report support the following goals identified in the 2018-2022 Strategic Plan:
  - Fostering a Safe and Healthy City.
57. The proposed policies will continue to support a Circular Economy that minimizes waste generation and associated greenhouse gas emissions, minimizes food waste, and works towards increasing the life of the existing landfill and therefore delays costs for new disposal options.

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**Appendix "A"**

Under the guidance of the current Sustainable Waste Management Strategy, the City has established Waste Reduction and Diversion Programs that have enhanced efforts to divert waste from the City's Landfill Site.

**1. Curbside Diversion Programs:**

- Two (2) bag every-other week collection limit for single family residential;
- Unlimited Yard Waste Program;
- Two Stream Blue and Grey Box Recyclables both curbside and multi-residential;
- Green Bin weekly collection for single family residential and multi-residential; and
- Annual Battery Collection Program.

**2. Waste Management Facility Diversion Programs:**

- Yard Waste;
- Large Diameter Wood;
- Scrap Metal;
- Cardboard;
- Shingles Waste;
- Drywall Waste;
- Wood Waste;
- Rubble;
- Mattress Diversion;
- Textile Diversion;
- Two Stream Blue and Grey Box Recyclables;
- Organics;
- Tires;
- Municipal Hazardous or Special Waste (MSHW) Program; and
- Waste Electronics Electrical Equipment (WEEE) Program.

**3. Other Programs:**

- Public Space Bin Diversion Program.



Appendix “B”

Circular Economy Action Table

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|  <p><b>REUSE</b></p> <p><b>Objective</b><br/>Create and foster a culture of reuse</p> <p><b>Goal</b><br/>Extend the lifecycle of goods, products, and resources through local repair, upgrade and resell initiatives.</p> <p><b>Priority Areas</b><br/>Repair<br/>Share<br/>Behaviour</p> |  <p><b>RECYCLE</b></p> <p><b>Objective</b><br/>Ensure residents and businesses know about and are confident using recycling systems.</p> <p><b>Goal</b><br/>Maximize the recycling captured for processing.</p> <p><b>Priority Areas</b><br/>Blue Box<br/>Producer Responsibility<br/>Behaviour</p> |  <p><b>CONSUME</b></p> <p><b>Objective</b><br/>Rethink the role that food can play in supporting a circular economy.</p> <p><b>Goal</b><br/>Minimize food wastage from all sources.</p> <p><b>Priority Areas</b><br/>Food Production &amp; Consumption<br/>Food Diversion<br/>Behaviour</p> |  <p><b>RECOVER</b></p> <p><b>Objective</b><br/>Recover energy and materials after other efforts have been exhausted.</p> <p><b>Goal</b><br/>Identify the economic value of waste and maximize local energy benefit from waste streams.</p> <p><b>Priority Areas</b><br/>Residual Waste<br/>Water<br/>Behaviour</p> |
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**Connecting the Pillars: Overarching Circular Economy Policies and Actions**

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| <p><b>Proposed Policy 0.1</b></p> <p>It is the policy of the City of Barrie to educate its residents, businesses and staff about the Circular Economy and its strategies.</p>  |
| <p><b>Proposed Policy 0.2</b></p> <p>It is the policy of the City of Barrie to join and participate in the Circular Economy community to share and disseminate knowledge with other municipalities and organizations about Circular Economy practices and implementation strategies.</p> |
| <p><b>Proposed Policy 0.3</b></p> <p>It is the policy of the City of Barrie to take a proactive approach in long term planning of waste management activities and continuously improve efficiency of programs and infrastructure.</p>  |



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**Circular Economy Pillar: Reuse**

**Objective:** To create and foster a culture of reuse.

**Goal:** Extend the lifecycle of goods, products, and resources through local repair, upgrade and resell initiatives.

**Priority Areas:** Behaviour - Corporate Purchasing - leading by example through Circular procurement.  
Repair – Strengthening the community sharing economy.  
Share – Strengthening the community sharing economy.

**Priority Area 1 - Corporate Purchasing – Leading by Example Through Circular Procurement**

**Proposed Policy 1.1**

It is the policy of the City of Barrie to encourage municipal procurement practices that support a Circular Economy.

**Priority Area 2 – Repair & Share – Strengthening the Community Sharing Economy**

**Proposed Policy 2.1**

It is the policy of the City of Barrie to support initiatives that actively promote the Circular Economy through share, repair and reuse events and programs.

**Proposed Policy 2.2**

It is the policy of the City of Barrie, as part of business development, to incorporate Circular Economy strategies to inspire innovation and experimentation with circular initiatives.

**Proposed Policy 2.3**

It is the policy of the City of Barrie to promote activities that support a sharing economy and establish partnerships with internal and external stakeholders.

**Priority Area 3 – Corporate & Community Plastic Consumption – Regulating Single-Use Plastics**

**Proposed Policy 3.1**

It is the policy of the City of Barrie to support the reduction and phasing out of single-use plastic items.

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**Circular Economy Pillar: Recycle**

**Objective:** Ensure residents and businesses know about and are confident using recycling systems.  
**Goal:** Maximize the recycling captured for processing.  
**Priority Areas:** Producer Responsibility  
Diversion Programs  
Behaviour

**Priority Area 1 – Producer Responsibility – *Advocacy and Collaboration***

**Proposed Policy 1.1**

It is the policy of the City of Barrie to advocate for the strengthening of federal and provincial regulations related to the capture of recyclables and recyclability of materials.

**Proposed Policy 1.2**

It is the policy of the City of Barrie to transition waste programs to an extended producer responsibility model.

**Priority Area 2 – Public Space Waste Education & Communication – *Managing Waste in Public Spaces***

**Proposed Policy 2.1**

It is the policy of the City of Barrie to reduce street litter and illegal dumping in public spaces and to increase the diversion of these materials.

**Priority Area 3 – Municipal Facility Recycling – *Managing Waste at Municipal Facilities***

**Proposed Policy 3.1**

It is the policy of the City of Barrie to minimize waste generation and maximize waste diversion opportunities at all City-owned facilities.

**Proposed Policy 3.2**

It is the policy of the City of Barrie to maximize waste diversion opportunities for residents and the ICI sector.

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**Circular Economy Pillar: Consume**

**Objective:** Rethink the role that food can play in supporting a Circular Economy.  
**Goal:** Minimize food wastage from all sources.  
**Priority Areas:** Food Production & Consumption  
Food Diversion  
Behaviour

**Priority Area 1 – Food Production & Consumption – *Support Local Agriculture***

**Proposed Policy 1.1**

It is the policy of the City of Barrie to encourage community urban agricultural opportunities.

**Proposed Policy 1.2**

It is the policy of the City of Barrie to support a community food recovery program.

**Priority Area 2 – Food Diversion – *Strengthening Communication and Education to Reduce and Rescue Food Waste***

**Proposed Policy 2.1**

It is the policy of the City of Barrie to develop a food waste reduction strategy.

**Proposed Policy 2.2**

It is the policy of the City of Barrie to expand organics diversion opportunities in the City of Barrie.

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**Circular Economy Pillar: Recover**

**Objective:** Recover energy and materials after other efforts have been exhausted.  
**Goal:** Identify the economic value of waste and maximize local energy benefit from waste streams.  
**Priority Areas:** Residual Waste  
Water  
Behaviour

**Priority Area 1 – Long-Term Strategizing – *Recovering Energy and Realizing Value of Resources***

**Proposed Policy 1.1**

It is the policy of the City of Barrie to reduce water consumption, energy use, greenhouse gas (GHG) emissions, and transition to renewable energy for City operations and facilities.

**Proposed Policy 1.2**

It is the policy of the City of Barrie to minimize greenhouse gas emissions from waste management activities.

**Proposed Policy 1.3**

It is the policy of the City of Barrie to recover energy generated from waste disposal and waste processing.

**Priority Area 2 –Circular Construction – *Supporting Low Carbon Development***

**Proposed Policy 2.1**

It is the policy of the City of Barrie to encourage reuse and recycling of construction and demolition (C&D) waste.

**Priority Area 3 – Circular Soil Management – *Soil Reuse and Recycling Practices***

**Proposed Policy 3.1**

It is the policy of the City of Barrie to ensure soil from development or re-development is reused or recycled where possible.