Roadmap to a Circular Economy

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Director, Waste Management
Region of Peel
Region of Peel
<table>
<thead>
<tr>
<th>GENERATION</th>
<th>COLLECTION</th>
<th>TRANSFER, PROCESSING AND DISPOSAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>338,400 Curbside Households</td>
<td>Cart based collection (3rd party)</td>
<td>Peel Integrated Waste Management Facility (PIWMF)</td>
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<tr>
<td></td>
<td>- Weekly – Organics Cart</td>
<td>Recycling Markets</td>
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<td></td>
<td>- Bi-weekly – Blue Cart</td>
<td>Materials Recovery Facility</td>
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<tr>
<td></td>
<td>- Bi-weekly – Garbage</td>
<td>(3rd party operator)</td>
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<td>- Seasonal – Yard Waste</td>
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<td>98,700 Multi-Residential Households</td>
<td>Front-end and Cart-based collection (3rd party)</td>
<td>Peel Compost Curing Facility</td>
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<td>Caledon Composting Facility</td>
<td>3rd Party AD and Composting Facilities</td>
</tr>
<tr>
<td>Six Community Recycling Centres (CRCs)</td>
<td>Region forces</td>
<td>PIWMF – Waste Transfer Station</td>
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<td></td>
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<td>3rd Party Transfer Stations</td>
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Peel’s 2016 3Rs Diversion Rate
Blue Box Program Participation Rates

- City of Toronto: 2016/2017 data
- Durham Region: 2011 data
- Halton Region: 2015 data
- Region of Peel: 2016/2017 data
Green Bin Participation Rate

Green Bin Program Participation Rates

<table>
<thead>
<tr>
<th>Region</th>
<th>Year</th>
<th>Participation Rate</th>
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<tbody>
<tr>
<td>City of Toronto</td>
<td>2016/2017</td>
<td>90%</td>
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<tr>
<td>Durham Region</td>
<td>2011</td>
<td>70%</td>
</tr>
<tr>
<td>Halton Region</td>
<td>2015</td>
<td>60%</td>
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<tr>
<td>Region of Peel</td>
<td>2016/2017</td>
<td>50%</td>
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</tbody>
</table>
Peel Garbage Composition

Curbside

Multi-Residential

- Garbage: 42% (Curbside), 53% (Multi-Residential)
- Recyclable: 41% (Curbside), 48% (Multi-Residential)
- Compost: 15% (Curbside), 1% (Multi-Residential)
- Electronics: 1% (Curbside), 22% (Multi-Residential)
- Hazardous: 1% (Curbside), 1% (Multi-Residential)
Roadmap Goals and Objectives

• **Goals**
  – A circular economy with zero waste from residential sources in the Region of Peel; and
  – Zero greenhouse gas emissions from residential waste management.

• **Targets**
  – 75% 3R’s diversion by 2034

• **Objectives**
  – Minimize waste generation
  – Maximize the recovery of resources from our waste in a way that fosters the growth of the circular economy
  – Design and deliver waste management services that meet the needs of the customer in a cost-effective manner
Roadmap Actions

• The Roadmap includes a suite of actions which will increase Peel’s 3Rs diversion rate from 50% today to over 75%
  
  – New programs - 2%
  – New policies - 4%
  – Anaerobic digestion - 5%
  – Mixed waste processing - 20%
Programs

• Add diapers and pet waste to Green Bin organics program once Anaerobic Digestion facility is operational
• Textiles
• Carpets
• Mattresses
• Furniture
Policies

• Advocate for Extended Producer Responsibility

• Update our communications, education and outreach

• Update our approach to enforcement

• Consider volume based user fee for garbage

• Update Waste Collection By-Law and Design Standards

• Update metrics
Processing Capacity

• Construct an Anaerobic Digestion Facility

• Build Yard Waste Transfer and Processing Capacity

• Develop Mixed Waste Processing capacity

• Upgrade MRF
Mixed Waste Processing Infrastructure

• Predicted outcomes:
  – Recyclables = 10%
  – Organics fines = 35%
  – Low Carbon Fuel = 25%
  – Moisture Loss = 10%
  – Residue = 20%
• Capacity 250,000 tonnes per year
• Cost $250 million
We need:

- Breathable Air
- Drinkable Water
- Food
- Shelter
- Energy
- Healthy biosphere
- Civil Society
Sustainable Material Management and a Circular Economy

- Circular economy approach maximizes value and utility of resources by supporting multiple cycles of use, refurbishing, re-purposing and recycling.

* Image from Circular Economy Innovation Lab
Suggested Goals and Principles

• Conservation of resources, including energy

• Reduction of pollution, including GHGs

• New metrics to drive outcomes

• LCAs and scientific evidence should guide decisions

• Design for environment should be the objective
Plastics
Catastrophe Curve
Thank you

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