


**Why Waste?**

# Updates:

1. 60% Waste Diversion Action Plan
2. Plastics & the Hefty® EnergyBag™ Pilot Project
3. Resource Recovery Strategy
4. EA for Proposed W12A Landfill Expansion
5. Community Energy Action Plan

Prepared for ACE – October 2, 2019

Jay Stanford, Director,  
Environment, Fleet & Solid Waste

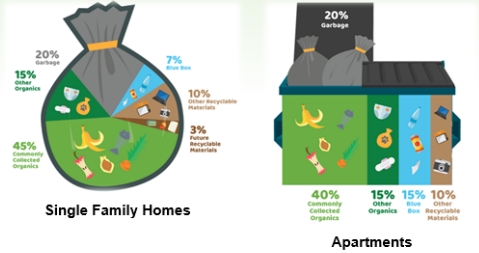


**Why Waste?** #1

- 21 actions
- split into 6 categories
- Operating \$6.5 million
- Capital \$15 million

## 60% Waste Diversion Action Plan


### What's in the garbage?





Waste Management Working Group:	July 13, 2018
Civic Works Committee:	July 17, 2018
Municipal Council:	July 24, 2018
Community Engagement:	July 25 – September 27, 2018

**Why Waste?** [getinvolved.london.ca](http://getinvolved.london.ca)




 <b>Status (subject to MYB deliberations)</b>	
Action	Brief Status – Tentative Timing
<b>Blue Box (Blue Cart) Programs</b>	
1. Increase capture of recyclables	<ul style="list-style-type: none"> <li>Provincial initiative; staff time</li> </ul>
<b>New (or Expanded) Recycling Programs &amp; Initiatives</b>	
2. Bulky Plastics	<ul style="list-style-type: none"> <li>Continuing pilot</li> <li>Currently no stable long term market for expansion</li> </ul>
3. Carpets	<ul style="list-style-type: none"> <li>Provincial initiative</li> </ul>
4. Ceramics	<ul style="list-style-type: none"> <li>Drop-off at EnviroDepots in Spring/Summer 2020; Consider Ban Fall 2020</li> </ul>
5. Clothing/Textiles	<ul style="list-style-type: none"> <li>Begin developing awareness strategy Winter 2019/2020</li> </ul>

 <b>Status (subject to MYB deliberations)</b>	
Action	Brief Status – Tentative Timing
<b>New (or Expanded) Recycling Programs &amp; Initiatives (cont.)</b>	
6. Small Metal	<ul style="list-style-type: none"> <li>Semi-annual collection Fall 2021 (coincide with other collection changes)</li> </ul>
7. Furniture	<ul style="list-style-type: none"> <li>Wooden furniture drop-off at W12A EnviroDepot starting Spring/Summer 2020; semi-annual collection 2021</li> </ul>
8. Mattresses	<ul style="list-style-type: none"> <li>Provincial initiative</li> </ul>
<b>Curbside Organics Management Program</b>	
9. Curbside Green Bin	<ul style="list-style-type: none"> <li>Staff working on design, operational and implementation details</li> </ul>
10. Implement bi-weekly garbage	

 **Status (subject to MYB deliberations)**

Action	Brief Status – Tentative Timing
<b>Multi-residential Organics Management Program</b>	
<b>11. Mixed Waste Processing Pilot</b>	<ul style="list-style-type: none"> <li>Fall 2020/Winter 2021 (depends on facility availability)</li> </ul>
<b>Other Organics Management Programs</b>	
<b>12. Food Waste Avoidance</b>	<ul style="list-style-type: none"> <li>Development underway, early 2020 roll-out</li> </ul>
<b>13. Home Composting</b>	<ul style="list-style-type: none"> <li>Subsidize composters, event sales beginning 2020</li> </ul>
<b>14. Community Composting</b>	<ul style="list-style-type: none"> <li>Provide financial support Winter/ Spring 2020</li> </ul>

 **Status (subject to MYB deliberations)**

Action	Brief Status – Tentative Timing
<b>Waste Reduction/Reuse</b>	
<b>15. New Coordinator Position</b>	<ul style="list-style-type: none"> <li>Summer 2020</li> </ul>
<b>16. Financial Support</b>	<ul style="list-style-type: none"> <li>Support for community initiatives beginning Fall 2020</li> </ul>
<b>17. Reduce Container Limit</b>	<ul style="list-style-type: none"> <li>Further examination Winter/Summer 2020 (after operational details for Green Bin are finalized)</li> </ul>
<b>18. Clear Bags</b>	
<b>19. User Pay</b>	
<b>20. Resident Incentives</b>	
<b>21. Additional Feedback</b>	<ul style="list-style-type: none"> <li>Additional reporting (including waste reduction) Summer 2020</li> </ul>

**Why Waste?** **How much food waste?**

Diversion/Recovery Opportunities	London % of Waste	Others (GB) % of Waste
Avoidable food waste	23%	8% - 11%
Unavoidable food waste	12%	6% - 9%
Other Organics, Pet waste	25%	15% - 20%
<b>All Organics</b>	<b>~60%</b>	<b>~30% - 40%</b>



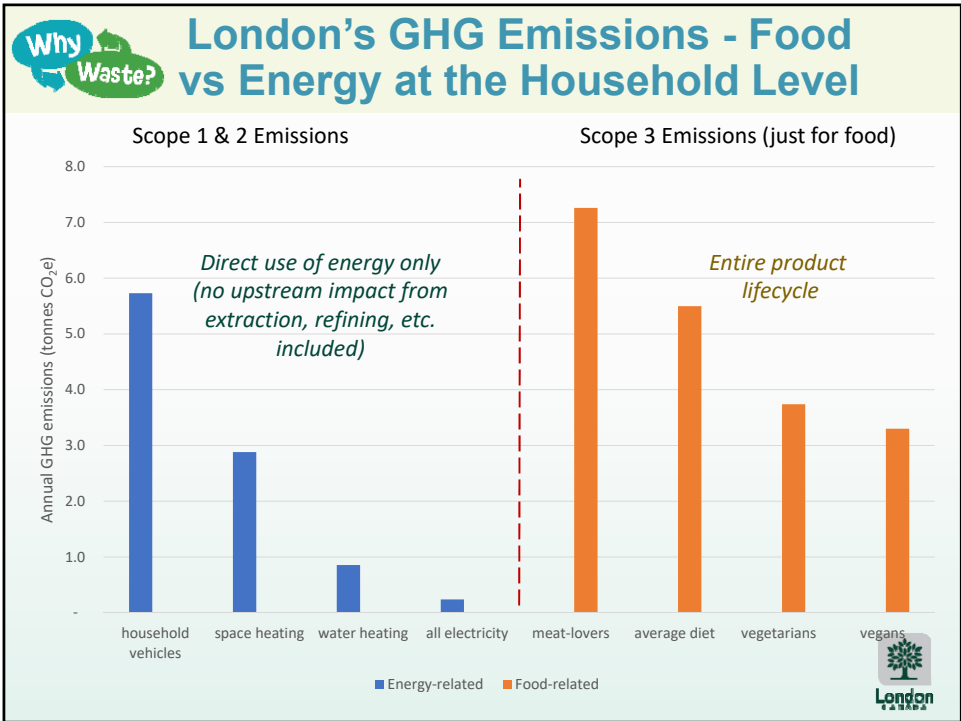
**Why Waste?**

## Value of Food Waste Avoidance



**Local Research (Western University), local Pilot Projects and experience in Canada, USA and Europe**





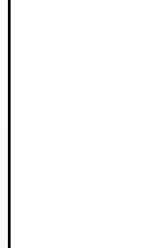
- **\$450 to \$600 per household (\$80 to \$100 million/year) in avoidable food**
- **10% reduction = \$8 to 10 million saved locally**




**Why Waste?**

## Green Bin Implementation Decisions

- Materials to collect
- Size(s) available
- Choices for residents
- Delivery
- Monitoring
- Replacement

				
<b>EXTRA LARGE</b>	<b>LARGE</b>	<b>MEDIUM</b>	<b>SMALL</b>	<b>COMPACT</b>
<b>360 litres</b>	<b>240 litres</b>	<b>120 litres</b>	<b>80 litres</b>	<b>46.5 litres</b>
Depth: 34.5" Width: 25" Height: 44.5"	Depth: 27.5" Width: 24.5" Height: 43"	Depth: 21.5" Width: 19" Height: 37.5"	Depth: 20" Width: 16" Height: 34.5"	Depth: 12" Width: 11" Height: 27"



**Why Waste?**

## Green Bin Implementation Decisions








- Single or co-collection vehicles
- Level of automation



**Why Waste?**

## Green Bin Implementation Decisions

### What goes in the green bin?

**Food Products**  
*(all consumable foods, raw or cooked)*

- Butter, margarine, grease, lard (solid)
- Cake, cookies and candy
- Coffee grounds, filters and tea bags
- Dairy products, eggs and shells
- Fruits and vegetables (raw or cooked)
- Herbs, spices and sauces
- Meat, fish and shellfish (including bones)
- Nuts and shells
- Pasta, bread, cereals, rice and grains

**Paper Products**

- Boxboard and cardboard (food-soiled)
- Facial tissue, napkins, paper towels
- Flour and sugar bags
- Kraft paper (e.g. meat wrap)
- Microwavable popcorn bags
- Muffin paper
- Newspaper (food-soiled)
- Paper cups and paper plates (food-soiled)
- Polycast containers (e.g. paper ice cream container)
- Shredded paper (small amounts)

**Animal Waste**

- Bird seed
- Cat litter
- Feathers/fur
- Pet bedding
- Pet food
- Pet waste

**Personal Hygiene Products**

- Diapers
- Hair
- Incontinence products
- Nail clippings
- Sanitary products
- Toothpicks

**Other Acceptable Items Include:**

- Houseplants including soil and flowers
- Sawdust from wood (not pressure treated, melamine, composite wood or particle board)
- Wooden craft sticks (uncoated)
- Wooden stir sticks

**Still don't know where it goes?**  
Try the Bindicator – York Region's online, easy-to-use waste directory [york.ca/bindicator](http://york.ca/bindicator)



**Why Waste?**

## Green Bin Implementation Decisions

### Choices: Aerobic Composting or Anaerobic Digestion (Biogas)










**Why Waste?**

# #2 London's Action on Plastics

**Act**  
**Inform**  
**Innovate**  
**Collaborate**  
**Commit**  
**(Be) Visible**

1. Reduce
2. Reuse
3. Recycle
4. Recover
5. Policies & Directions



**Why Waste?**

# Reduce / Reuse





**Why Waste?**

**London CLEAN & Green**

The London Free Press | NEWS | BUSINESS | LOCAL NEWS | FEATURED: FACE IT | VIDEOS | PHOTOS | SUBMIT A LETTER | SUBSCRIBE

**London Clean and Green advocates 'refusables' to cut a source of litter**

The City of London wants you to add a new word to your vocabulary: "Refusables."

JONATHAN JUHA Updated: April 16, 2019





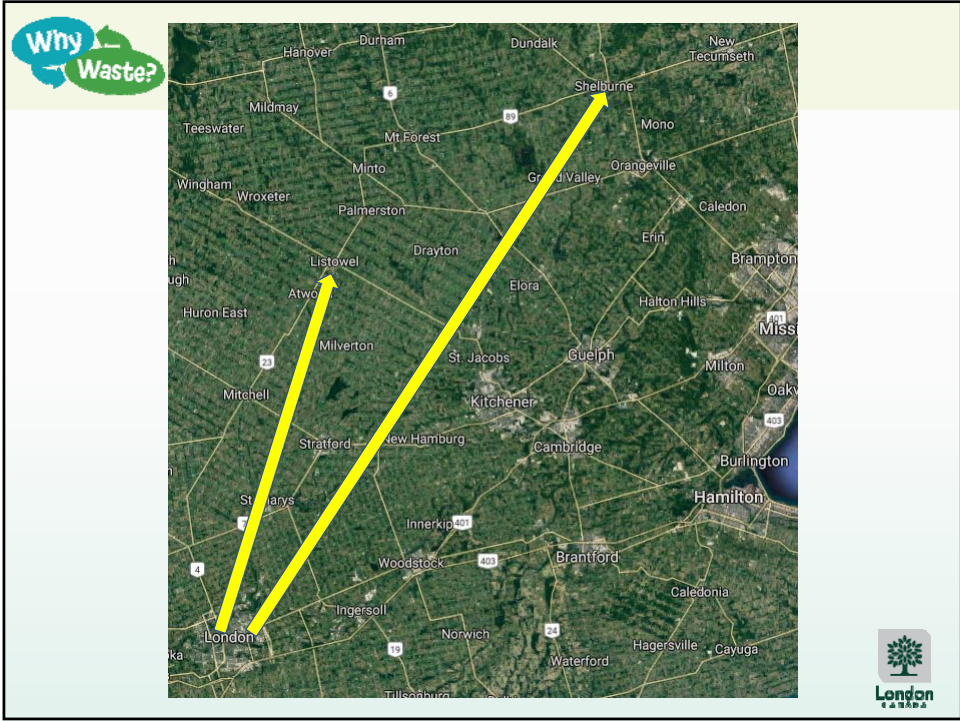
**ZERO WASTE WORKSHOPS AND TALKS**



**Why Waste?**

# Recycle



**Why Waste?**

## Plastics End Markets

**London's HDPE, Mixed plastics and plastic film EFS in Listowel, Ontario (backup - Green Line Polymers, USA)**



**About 1,200 tonnes from London**

**A PRIME REPLACEMENT**

- PP, PE, LDPE and HDPE repro for:
  - injection molding
  - extrusion
  - blow molding



**Why Waste?**

## Plastics End Markets

**PET - Ice River, Shelburne, Ontario (backup Plastrec, Joliette, Quebec)**

**About 2,100 tonnes from London**



*Support closed-loop recycling*

**Why Waste?**

## Plastics End Markets

**Not used by London at this time**

**Inbound Plastic**

- Pre-Picked 1-7 Mixed Plastic Bales
- Tubs and Lid Bales
- Post-Consumer PE Bales
- Post-Consumer PP Bales



**REVital POLYMERS**

**PYROWAVE™ CLOSING THE LOOP**

**INEOS STYROLUTION**

**London & S&B**

**Why Waste?**

# Recovery




**Why Waste?** **Hefty® EnergyBag™ Pilot**

**Purpose:** Divert more plastics from landfill

1. Reduce the amount of plastic being mismanaged (tossed on the ground)



**Materials to Collect: non-recycled and hard to recycle plastic items:**

<ul style="list-style-type: none"> <li>• juice and food pouches</li> <li>• chip and snack bags</li> <li>• meat and cheese bags</li> <li>• cereal and cake box pouches</li> <li>• tooth paste tubes</li> </ul>	<ul style="list-style-type: none"> <li>• candy wrappers</li> <li>• plastic dinnerware and utensils</li> <li>• frozen fruit/vegetable bags</li> <li>• pet food bags</li> <li>• straws and stirrers</li> </ul>
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**Why Waste?** **20,000 HH will be Invited**



- 13,000 curbside
- 1,000 units (8 to 10 buildings)
- 6,000 access to EnviroDepot



**Why Waste?** **End Markets to be Examined**

- composite plastic products
- energy
- fuels
- oils
- waxes
- feedstocks for making new plastics



**Why Waste?** **Recent Canadian Action**

The collage features two news articles. On the left, a CBC News article titled "From dumpster to diesel: How a pilot project in Whitby is turning plastic waste into fuel" includes a photo of a large pile of plastic waste. On the right, a The Chronicle Herald article titled "Chester firm aims to enable customers to convert to renewable synthetic fuel" includes a photo of a worker in a hard hat and safety vest in an industrial setting.

**Why Waste?**

# Policy & Directions

The image shows a tall, modern office building with a grid-like facade, situated in an urban environment with trees and a clear blue sky.

The logo for "London & Area" is located in the bottom right corner, featuring a stylized tree icon and the text "London & Area".

**Why Waste?**

# London Waste to Resources INNOVATION CENTRE

1. Research & Investigation
2. Training, Testing & Auditing
3. Resource & Waste Management Knowledge Exchange (MoUs)
4. Technology Demonstrations (MoUs)
5. Outreach & Engagement



RESOURCE RECOVERY PARTNERSHIP  
Advancing Resource Recovery In Canada

CONTACT US 905.941.2174

EVENTS REBO-RRES PARTNERS ABOUT US CONTACT-US



**RESOURCE RECOVERY PARTNERSHIP**  
A 21st century approach to driving a sustainable economy. Continuing the conversation.

Upcoming Events:  
September 19: Conference, Toronto, ON





**Why Waste?**

# Building Local Capacity (Community & Business)

London Environmental Network

Learn About our Members

**Green Economy London**

You want a sustainable future for your business and your community. We want that too.

Find out how you can join

Green Economy London

About Us | Program Details | News & Events | Get Involved | [Join Us!](#) | Member Login

**Why Waste?**

News Release

## Ontario Announces Next Steps to Improve Recycling and Tackle Plastic Waste

Improving the Blue Box Program Will Save Taxpayers Money and Help Divert More Waste from Landfills

August 15, 2019 10:10 A.M. | [Ministry of the Environment, Conservation and Parks](#)

### Government of Canada taking action to reduce plastic pollution

June 10, 2019  
Mont-Saint-Hilaire, Quebec

London  
ON CANADA



## Canadian Plastics Industry Association

CPIA establishes:

- 100% of plastics packaging being recyclable or recoverable by 2030
- 100% target for reuse, recycling & recovery of plastics packaging by 2040




## Council's NEW Direction on Plastics

b) Civic Administration **BE DIRECTED** to develop a more comprehensive plan to reducing and managing plastics in the residential sector including:

- i) addressing upcoming Federal and Provincial legislation, regulation, policies and scientific studies;
- ii) how senior government direction with producer responsibility will support local policies with respect to reduction, reuse, recycling and recovery of plastics; and
- iii) report back by early 2021



**Why Waste?** In summary. . . the “new”  
**Top 7 “actions” for plastics**  
**Act** in London are:

**Inform** **Embrace**  
**Innovate** **and**  
**Collaborate** **implement**  
**Commit** **EPR**  
**(Be) Visible**



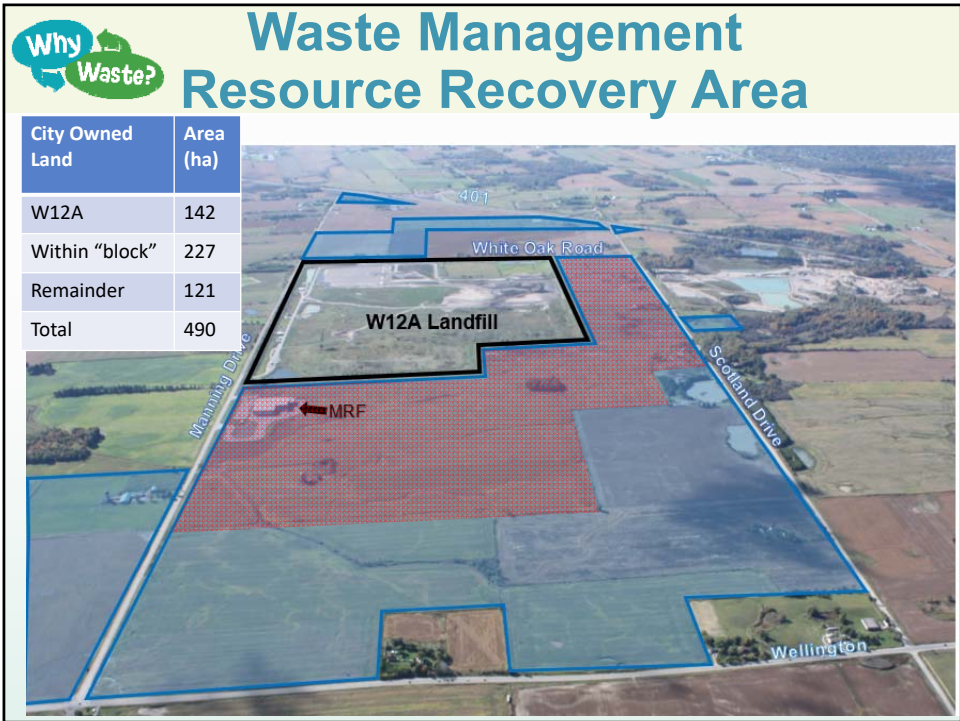
**Why Waste?** **#3** Resource Recovery Strategy  
& London Waste to  
Resources Innovation Centre



**Why Waste?** **Resource Recovery Strategy**

**Achievable with Tomorrow's Technologies?**


Residential Component PLUS other Sources	Diversion Rate Recovery Rate
Existing + Upcoming Diversion	45 - 60%
Mixed Waste Processing (MWP) and/or Mechanical/Biological Treatment (MBT) <ul style="list-style-type: none"> <li>• material and energy recovery</li> <li>• anaerobic digestion</li> </ul> Waste conversion technologies <ul style="list-style-type: none"> <li>• gasification, pyrolysis, other</li> </ul>	15% to 30%
<b>Total</b>	<b>75% to 90%</b>





**Institute for Chemicals and Fuels from Alternative Resources**  
Western University



**iocfar**



Western

**Department of Chemical and Biochemical Engineering (Faculty of Engineering)**

- 25,000 square feet of laboratory
- Small and large scale pilot plants
- Advanced analytical facilities
- Prototypes





**Why Waste?** **1. Research & Development**

- Hefty® EnergyBag™ pilot project
- Over 30 student research projects
- 2 PhD projects – food waste avoidance and landfill technology
- 1 PostDoc – resource recovery/WCT/disposal
- FCM Green Municipal Fund project




**Why Waste?** **Industrial Research Chair in Thermochemical Conversion of Biomass and Waste to Bioindustrial Resources**

- NSERC funded, 5 years, June 30, 2023
- Current value = +\$3.5 million
- Research Chair – Dr. Franco Berruti
- **Members:**

A&L Laboratories	Global Warming Prevention Technologies
Bella Biochar	Grain Farmers of Ontario
Canadian Plastics Industry Association	Ontario Federation of Agriculture
CHAR Technologies	Ontario Greenhouse Vegetable Growers
City of London	Titan Clean Energy Projects
Domtar Inc	Try Recycling



**Why Waste?**

## 2. Training, Testing & Auditing

- Products through the MRF
- Landfill operations
- Waste audits
- MRF training room



**Mixed Waste Processing and Mechanical/Biological Treatment (MBT)**






**Why Waste?**

### 3. Resource & Waste Management Knowledge Exchange (MoU - 1)

### 4. Technology Demonstrations (MoU - 2)

ICFAR/Western University	Feedstocks, waste conversion, products (biochars, bio-oils, fuel)
Canadian Plastics Industry Association	Feedstocks, products, resource recovery, conversion technologies
Try Recycling	Pre-processing, mixed waste, organic mixes
Green Shields Energy	Gas-phase Chemical (Hydrogen) Reduction
RediCan BioEnergy	Gasification
Tucker Engineering (inactive in London; however re-emerging)	Pyrolysis (demonstration)
Bio-Techfar (inactive in London)	Pyrolysis (demonstration)



**Why Waste?**

## Technology Site Visits



Gasification – Enkernem



Pyrolysis – Tucker Engineering (MoU)



Gasification – Blue Concord (MoU)



Gasification – Aries Clean Energy




Mechanical-Biological Treatment – OES

**Why Waste?** **5. Outreach & Engagement**

- Ontario Mixed Waste Processing Working Group
- 2 workshops (Canada-wide participation)
- 4 conferences (Resource Recovery Conference)
- Resource Recovery Partnership officially formed
- Canada-wide RRP webinars (2018-2019)
- September 19, 2019 6<sup>th</sup> annual Resource Recovery Partnership Conference (Toronto)




**Why Waste?** **#4 Environmental Assessment (EA) Process for the Proposed Expansion of the W12A Landfill**



**Two Phases:**

1. Develop ToR
2. EA Technical Studies & Report

**Why Waste?**

# Proposed Amended ToR


- City submitted Proposed ToR on October 12, 2018
- Submitted Proposed Amended ToR Feb 7, 2019
- **APPROVED** . . . July 30, 2019
- Update report to CWC, September 24, 2019

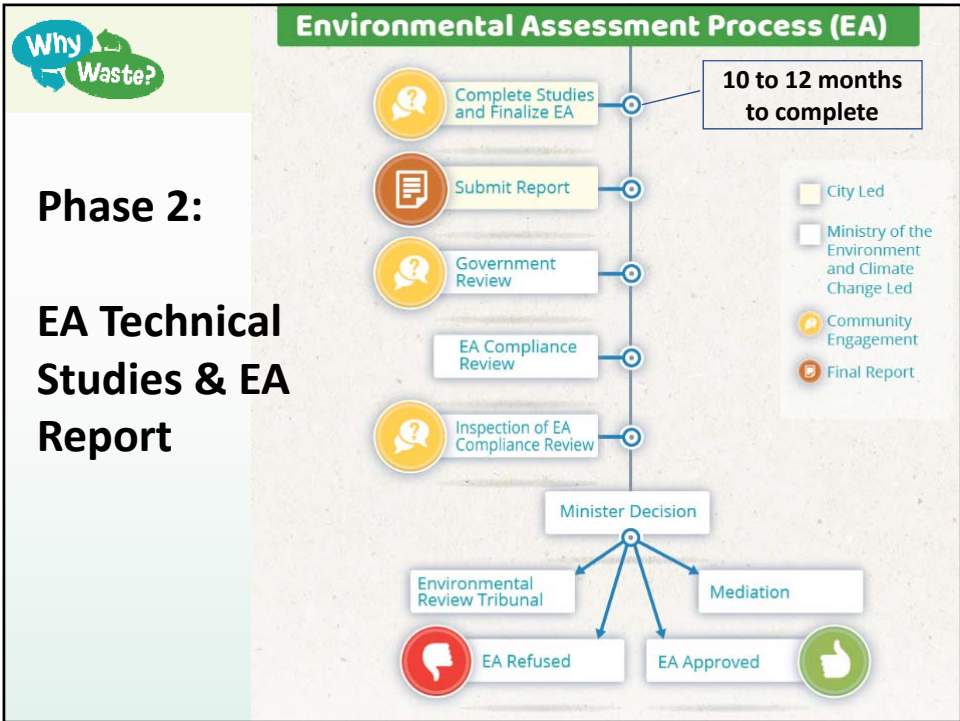
February 2019

Volume I


Proposed Amended Terms of Reference


Environmental Assessment of the Proposed W12A Landfill Expansion, City of London








 **#5 - London's Community Energy Action Plan (CEAP)**



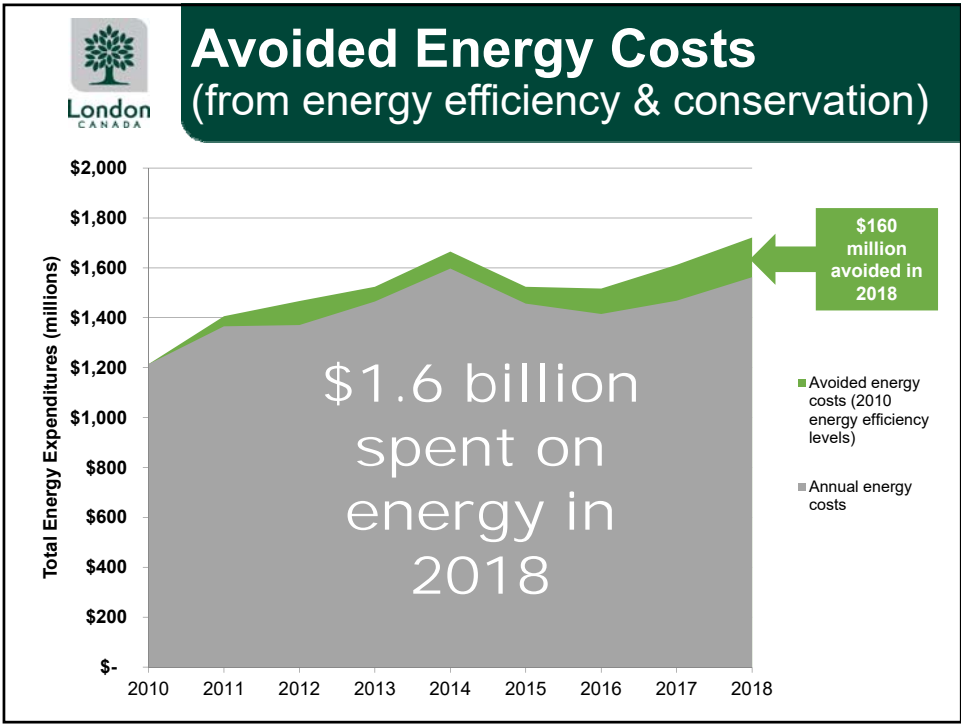
Moving from 2014 – 2018 (CEAP) to 2019 – 2023 (next CEAP being developed with the broader community, project to start in late Fall 2019)

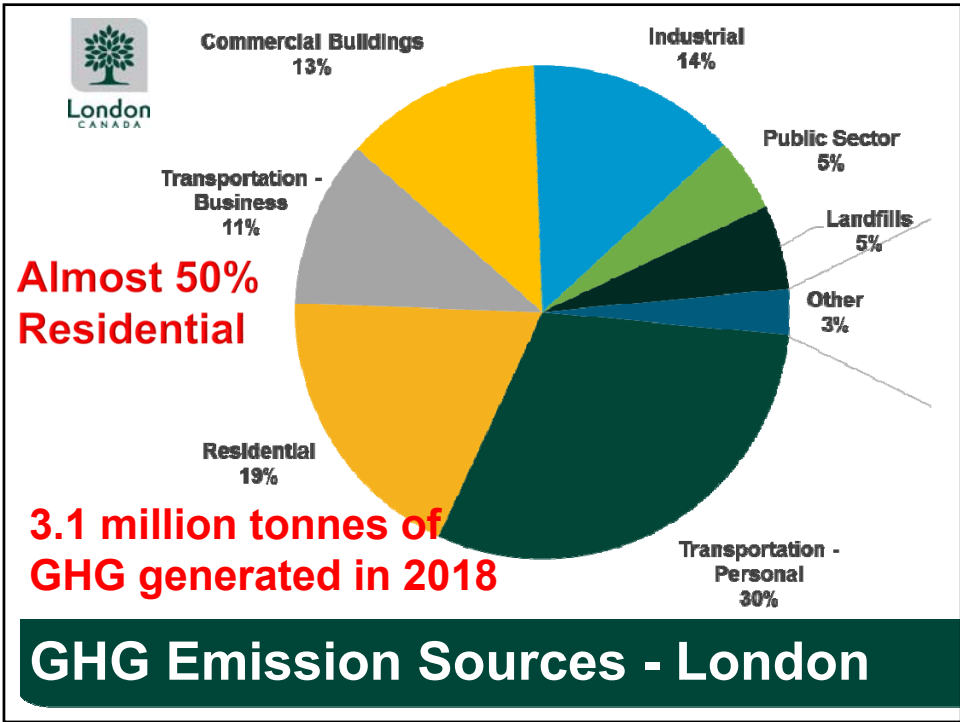





## Some Key Reports in 2019

Date	Title
April 2	2014-2018 Community Energy Action Plan (CEAP) – Final Update
April 2	Development of the Next 2019-2023 CEAP
April 16	Environmental Programs Annual Overview Update
April 23	Council – 2019-2023 Strategic Plan
April 23	Council – Declaration of Climate Emergency
<i>Oct/Nov</i>	<i>2018 Community Energy &amp; GHG Inventory</i>
<i>Oct/Nov</i>	<i>2019-2023 Corporate Energy Conservation and Demand Management (CDM) Plan</i>
<i>Oct/Nov</i>	<i>Update and Immediate Next Steps – Climate Emergency Declaration (including next CEAP steps)</i>





 <b>CEAP - Next Steps</b>	
Major Activity	Timeframe
Complete community engagement process, background documents and finalize internal discussions	Nov – Dec 2019
Launch a broader community engagement plan ( <i>Tentative – Dianne Saxe, Nov 19</i> )	Nov 2019 – June 2020
Discussions with London’s key energy stakeholders and community leaders	Dec 2019 – March 2020
Develop Draft 2019-2023 CEAP	June – July 2020
Submit Draft 2019-2023 CEAP to Civic Works Committee	Aug 2020