

## EXECUTIVE SUMMARY

Oxford County contracted AET Group Inc. (AET) to conduct a Waste Management Facility (Landfill) and Single Family Residential Curbside waste composition study to report on the current waste disposal situation occurring in the non-hazardous industrial, commercial, institutional (ICI), and residential sectors of Oxford County. This included a two week sampling period of 240 households for Single Family Residential Curbside auditing, a three week sampling period of 75 inbound Waste Management Facility landfill loads for physical auditing, and a three week sampling period of 222 inbound Waste Management Facility material loads for visual volumetric auditing.

**Single Family Residential Curbside** – the collection and sorting of garbage and recycling (co-mingled stream) from 24 sample areas of ten households each. Each sample area was distinguished as either urban/village or rural depending on the dispersal of homes and use of land within the immediate sampling area. Curbside set-out data (e.g. participation, number & fullness of items set out) and waste stream composition data was analyzed for each sample area.

**Inbound Waste Management Facility (Physical Auditing)** - the collection, sub-sampling, and sorting of inbound landfill material (75 samples) from 5 pre-determined material sources (Mixed Solid Waste, Non-Hazardous Solid Industrial, Demolition, Residual Domestic Waste, and C&D Residual). Each sample was approximately 100 kg with the number of samples taken closely proportional to each source's actual contribution to inbound material by percentage of inbound source types from 2016. The data provided information on the types and amounts of materials inbound and composition by material stream.

**Inbound Waste Management Facility (Visual Volumetric Auditing)** – Visual volumetric auditing of inbound landfill material (222 samples) over the course of three weeks. All load types with exception of residential curbside loads were assessed. Inbound material samples were converted from volumetric composition to weight equivalents using the net weights of each load, the size and fullness of each truck, and bulk up to date density conversion factors for each material type. The visual audits were undertaken to supplement the detailed data obtained from the physical audits described above.

### Single Family Residential Curbside Audit Key Findings

- Overall curbside (Blue Box) diversion rate was calculated to be 32.70%
- Capture rate for curbside recyclable materials was 78.79%
- For comparative purposes, the Continuous Improvement Fund commissioned a series of curbside waste audits across 7 municipalities in Ontario in 2012/13<sup>1</sup>. Two of these

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<sup>1</sup> CIF Project 711, Ontario Single Family Curbside Audits 2012/13, AET Group Inc., April 2014.

municipalities were classified as “Rural Regional”, like Oxford. Curbside blue box diversion rates in these two municipalities were 31.24% and 36.40% respectively.

#### Curbside Set out & Participation Results:

- Garbage (combined urban/village & rural) – Participation rate of 40.79% (proportion of households that have garbage set out on any given week) for the garbage stream. The average number of full container equivalents per household with a set out was 1.46.
- *Garbage (Rural areas)* – Participation rate of 35.00% for the garbage steam. The average number of full container equivalents per household with a set out was 1.48.
- *Garbage (Urban/Village) areas* – Participation rate of 42.74% for the garbage stream. The average number of full container equivalents per household with a set out was 1.45.
- *Recycling (Combined urban/village & rural)* – Participation rate of 57.18% for the recycling stream. The average number of full container equivalents per household with a set out was 1.94
- *Recycling (Rural areas)* – Participation rate of 49.17% for the recycling stream. The average number of full container equivalents per household with a set out was 2.09.
- *Recycling (Urban/Village areas)* – Participation rate of 60.40% for the recycling stream. The average number of full container equivalents per household with a set out was 1.88.

#### Curbside Garbage Stream Composition:

- Estimated average curbside garbage stream generation rate of a single family household is 5.54 kg/hh/wk. The average for rural households was 3.07 kg/hh/wk, while urban/village areas was 6.29 kg/hh/wk.
- Organics was the largest component of the garbage stream at 2.60 kg/hh/wk or 46.90%. This category consisted of backyard compostable food waste, non-backyard compostable food waste, and pet waste (does not include leaf/yard waste). Backyard compostable food waste contributes 1.33 kg/hh/wk or 23.99% of the total combined garbage stream.
- Curbside Recyclable materials contribute to 0.75 kg/hh/wk or 13.58% of the garbage stream.

#### Curbside Recycling Stream Composition:

- Estimated average curbside recycling stream generation rate by a single family household is 3.01 kg/hh/wk. The average for rural households was 2.34 kg/hh/wk while urban/village areas was 3.21 kg/hh/wk.
- The curbside recycling stream had a contamination rate of 7.08%.

#### **Inbound Waste Management Facility Landfill Audit (Physical Auditing)**

Data collected and analyzed is based on the inbound collection and physical sorting of material sampled over the three-week study period. Landfill audits did not include any residential curbside waste.

#### *Mixed Solid Waste (MSW)*

- Of the 75 samples taken during the sampling period, 42 (56%) were of the MSW loads, representing 162,707 kg (163 MT) of inbound material.
- Approximately 20.84% of the inbound Mixed Solid Waste loads consisted of common divertible materials (18.96% Blue Box Recyclables, 1.28% HHW & Electronics, and 0.60% Leaf & Yard Waste).
- Wood contributes to approximately 9.17% of MSW waste (3.46% clean, 5.71% treated/painted).
- Food waste contributes to approximately 17.76% of MSW waste.

#### *Non-Hazardous Solid Industrial*

- Of the 75 samples taken during the sampling period, 14 (18.67%) were from Non-Hazardous Solid Industrial loads, representing 37,570 kg (38 MT) of inbound material.
- Approximately 18.01% of the inbound Non-Hazardous Solid Industrial waste consisted of common divertible materials (17.41% Blue Box Recyclables, 0.60% HHW & Electronics).
- Food waste contributes to approximately 4.30% of Non-hazardous solid industrial waste.

#### *Demolition*

- Of the 75 samples taken during the sampling period, 19 (25.33%) were of the Demolition loads, representing 36,949 kg (37 MT) of inbound material.

- Approximately 2.10% of the inbound Demolition waste consists of blue box recyclables.
- Approximately 9.34% of the inbound Demolition waste consists of rubble/soil.
- Wood contributes to approximately 54.38% of demolition waste (35.97% clean, 18.42% treated/painted).

*Overall (Combined MSW, Non-hazardous Industrial, Demolition)*

- Overall, the 75 samples analyzed were taken from loads totalling approximately 237,217 kg (237 MT) of inbound landfill material.
- Approximately 14.39% of the total landfilled material analyzed consists of Blue Box Recyclables.
- Wood contributes to approximately 18.93% of the landfilled material (11.50% clean, 7.44% treated/painted).

**Inbound Waste Management Facility (Visual Auditing)**

Over the course of the three-week study period, a visual volumetric composition audit was completed on 222 loads tipped at the landfill (residential curbside loads excluded). Volumes observed were converted to estimated weights using size/fullness of loads and standard volume density conversion factors. The top contributing materials observed, by load type, by weight are as follows:

*MSW*

- Clean Wood (3.90%) & Treated Wood (8.86%), Corrugated Cardboard (2.41%), Bagged/other materials (59.74%)

*Non-Hazardous Industrial*

- Fluff from Rieter Factory (43.64%), Rubble/soil (7.56%), Mixed Recyclable Paper (3.18%), Other (e.g. fiberglass, foam, automotive parts, bagged) 43.64%.

*Demolition*

- Treated & Clean Wood (26.96%), Rubble/soil (4.02%), Corrugated Cardboard (3.60%), Other (e.g. shingles, drywall, insulation, bagged) 53.10%.