

**To:** Warden and Members of County Council

**From:** Director of Public Works

## 2021 Annual Waste Management Reports

### RECOMMENDATION

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1. That County Council receive Report No. PW 2022-10 entitled “2021 Annual Waste Management Reports” as information.

### REPORT HIGHLIGHTS

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- This report summarizes the annual performance of Oxford County’s waste management facilities and programs in 2021.
- Oxford County’s waste management facilities and programs provided effective services in 2021 and operated in general compliance with all applicable legislation.
- Based on the County’s current waste diversion activities, the County achieved an overall landfill waste diversion rate (of residential and ICI waste material handled by Oxford County) of approximately 43% in 2021 and has an estimated remaining landfill service life of approximately 29 to 34 years.
- 2021 waste diversion achievements include the collection of 18,800 tonnes of leaf, brush and yard waste material, 8,570 tonnes of residential curbside Blue Box material, 11 tonnes of recycled bulky expanded polystyrene (Styrofoam) material and 5 tonnes of film plastic material. Of note, the County-wide recycling collection tonnage per household (157 kg/hh) increased 7% over 2020 while the amount of waste material landfilled decreased by 19%.
- Curbside garbage audit undertaken in 2021 showed that 60% of residential garbage by weight consists of organic material (avoidable/unavoidable food waste, tissue and paper towels, pet waste, and leaf and yard waste) and 10% by weight consists of recyclable (Blue Box) material.

### Implementation Points

The “2021 Annual Waste Management Reports” will be submitted to the Ministry of Environment, Conservation and Parks (MECP) in accordance with regulatory requirements and also posted on the County’s website for public access.

## Financial Impact







There are no financial impacts as a result of this report. Any required actions that will result in expenditures have been accounted for in the 2022 Operating or Capital Budget for Waste Management.

## Communications

The 2021 Waste Management Annual Reports will be available for public viewing on the County's website on March 24, 2022, at [www.oxfordcounty.ca/wasteline](http://www.oxfordcounty.ca/wasteline). This Council report will also be circulated to Area Municipalities and Zero Waste Oxford.

The County communicates the performance of key Public Works systems (Water, Wastewater, and Waste Management) annually to the public through an annual social media campaign after the last performance report has been submitted to Council.

## Strategic Plan (2020-2022)

					
<b>WORKS WELL TOGETHER</b>	<b>WELL CONNECTED</b>	<b>SHAPES THE FUTURE</b>	<b>INFORMS &amp; ENGAGES</b>	<b>PERFORMS &amp; DELIVERS</b>	<b>POSITIVE IMPACT</b>
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## DISCUSSION

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### Background

In accordance with regulatory requirements, the 2021 Annual Waste Management Reports, prepared for submission to the MECP, provide performance data on Oxford County's waste management facilities, operations, and programs. The regulatory reporting requirements are conditions outlined in the facilities' Environmental Compliance Approvals (ECA), Certificates of Approval (C of A), or as identified by government legislation for the particular waste management programs. The pertinent regulatory requirement is referenced in each Annual Waste Management Report.

The annual reports generally include items such as:

- Received and/or processed material;
- Mapping of waste management facilities;
- Facility equipment and staffing;
- Summary of operational activities and services;
- Operational changes from previous years;
- Compliance issues and corrective actions taken;
- Complaints received and corrective actions taken;
- Monitoring data and analysis; and
- Required actions to ensure environmental compliance.

In addition to regulatory reporting requirements, staff provides County Council with annual Blue Box performance monitoring results for all County-funded Blue Box Programs as per Municipal Datacall Best Practices (BP).

In 2021, a curbside waste (black bag) audit was undertaken to characterize residential waste generated from the County's curbside collection program and disposed as landfill material. The composition of the residential garbage stream is presented in this report and the detailed audit results will be further utilized to inform the organics resource recovery technologies (ORRT) feasibility study identified in the 2022 Business Plan and Budget.

## **Comments**

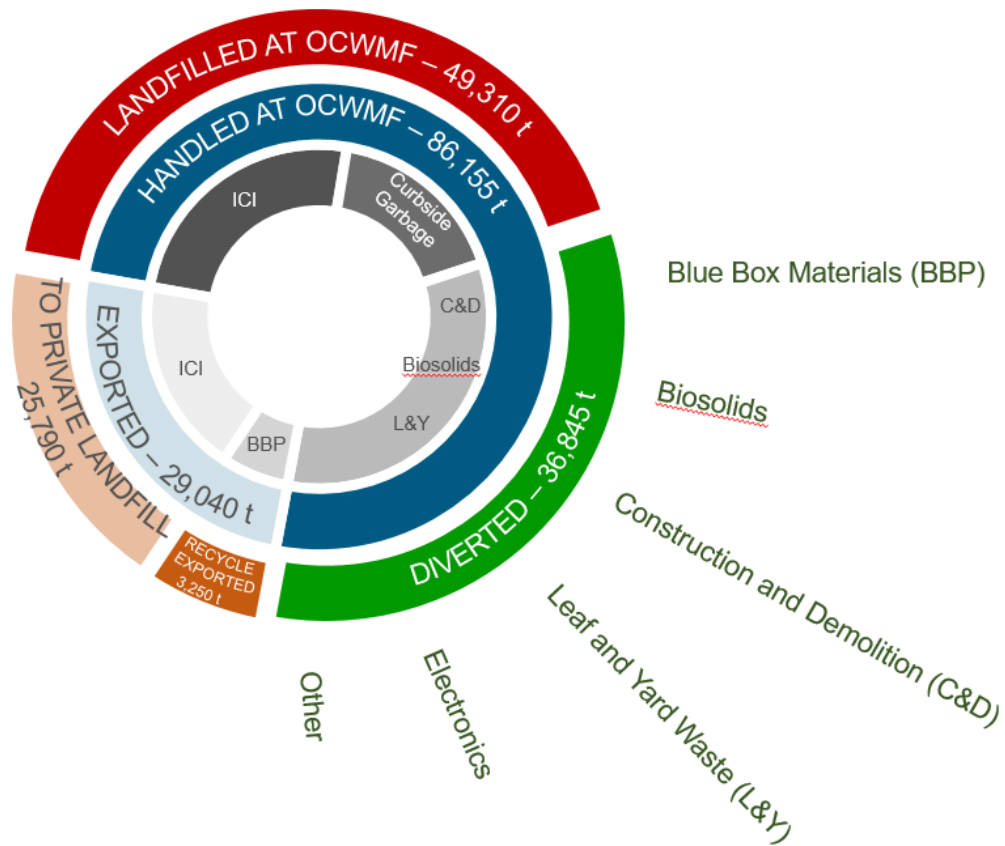
### **Summary of County-Wide Waste Generation**

Approximately 115,100 tonnes of waste (a decrease of 7,500 tonnes over 2020) was generated in Oxford County in 2021. Of the total amount of waste generated, 86,100 tonnes (a decrease of 10,500 tonnes over 2020) was processed at the Oxford County Waste Management Facility (OCWMF). The decrease in 2021 waste is attributed to 2020 quantities being higher than normal as a result of COVID impacts and special one-time projects (i.e. Tavistock Lagoon biosolids disposal).

About 29,000 tonnes of waste was exported out-of-County (without direct handling at the OCWMF). This includes an estimated 25,800 tonnes of waste from the Industrial, Institutional, and Commercial (IC&I) sector, disposed of by private haulers, and 3,200 tonnes of Blue Box material from the City of Woodstock's curbside collection program exported directly to an out-of-County processing facility.

The waste quantity generated by the IC&I sector and exported out-of-County is calculated based on the results of the County's 2017 curbside waste audit with annual increases applied. Overall, approximately 25% of the total waste generated is being exported out of County.

A summary of County-wide waste generation in 2021 is depicted in Figure 1.



Note: Difference in tonnage due to rounding

Figure 1: 2021 County-wide Waste Generation

### 2021 Annual Waste Management Reports

The annual reports are listed and linked below, followed by a summary section for each.

- [Oxford County Waste Management Facility, Salford 2021 Operations, and Monitoring Report](#)
- [2021 Annual Report Landfill Gas Collection and Flaring System, Oxford County Waste Management Facility](#)
- [Holbrook Landfill 2021 Water Monitoring Report](#)
- [Closed Landfill Sites Due Diligence Monitoring Report](#)
- [Oxford County Permanent Household Hazardous Waste Depot Annual Report 2021](#)
- [Oxford County 2021 Leaf and Yard Waste System Annual Report](#)
- [Oxford County 2021 Year-End Blue Box Waste Management System Annual Report](#)

*Oxford County Waste Management Facility, Salford – 2021 Operations and Monitoring Report*

- Approximately 86,100 tonnes of waste was handled at the site with approximately 36,800 tonnes being diverted and recovered as material resources. Overall resource recovery material brought to the OCWMF in 2021 increased by 3% and landfilled material decreased by 19%.
- The total trips by all vehicles using the facility averaged about 3,457 per month in 2021, a decrease of 5% from 2020.
- The film plastic drop-off program generated 5 tonnes of material in 2021 compared to 1 tonne collected in the program's inaugural year (2020). An additional drop off depot was opened in September 2021 by the Township of South-West Oxford at the Beachville Firehall.
- The bulky Expanded Polystyrene (Styrofoam) drop-off program generated 11 tonnes of recycled packaging material for reuse in product manufacturing, representing a 120% increase over 2020 tonnages.
- The remaining landfill site service life in 2021 is calculated to be approximately 29 to 34 years based on the current landfilling rate and waste diversion rate (approximately 43%).
- Two odour complaints were received in 2021 from nearby residents. The first complaint was a result of operational activities and was immediately resolved. The second complaint was determined to be from other sources unrelated to waste management operational activities.
- There were no influences of leachate in the groundwater at the site boundaries.
- In March 2021, leachate impacts were identified in onsite stormwater retention ponds as a result of leachate seepage from the landfill area. The occurrence was immediately reported to the MECP and did not result in any adverse environmental impacts from offsite stormwater discharge. Remedial measures were undertaken to repair the leachate seepage and impacted stormwater was pumped to the leachate collection system.
- Private well monitoring showed no landfill influence.

*2021 Annual Report Landfill Gas Collection and Flaring System (LGCFS), Oxford County Waste Management Facility*

- The LGCFS, located at the OCWMF, operated as intended in 2021 and successfully controlled emissions.
- The flare ran at an average of 120 cubic feet of gas volume per minute in 2021, reflecting no change from 2020.
- The average methane concentration by volume was 42% in 2021, which remained unchanged from 2020.
- Current volumes and concentrations of methane gas continue to remain low.

*Holbrook Landfill (Closed) 2021 Water Monitoring Report*

- The site has been closed since 1986.
- There was no clear indication of leachate influence in the deeper groundwater system at the property boundaries in 2021.
- No methane was detected in 2021.
- Private well monitoring showed no landfill influence.

### *Closed Landfill Sites Monitoring Program*

- With the recently completed inventories of Oxford's closed landfill sites, monitoring programs were established at the Lakeside, Embro and Thamesford closed landfill sites in 2021 as per best practices.
- Landfill gas, surface water, groundwater, and private well monitoring results indicated no negative landfill influence at these sites.
- In 2022, similar monitoring programs will be undertaken at the Blandford-Blenheim and Norwich closed landfill sites.

### *Oxford County Permanent Household Hazardous Waste (HHW) Depot Annual Report 2021*

- The depot was open 306 days, an increase of 20% from 2020.
- The depot serviced approximately 5,300 vehicles, an 11% decrease over 2020.
- The depot received approximately 148 tonnes of HHW, a decrease of 20% over 2020.
- No operational complaints, concerns, or adverse impacts on the environment were observed.
- The City of Woodstock's Enviro Depot was open 144 days in 2021; the HHW Depot serviced 5,854 vehicles (compared to 2,258 vehicles in 2020) and collected 88 tonnes of HHW (increase of 16% from 2020).

### *Oxford County 2021 Brush, Leaf, and Yard Waste System Annual Report*

The Brush, Leaf, and Yard Waste program consists of 11 drop-off depots operated by the Area Municipalities, with contracted services for centralized hauling of the collected material to the County's Compost Facility for processing. These depots are free to County residents and have operating hours that vary from municipality to municipality. The County funded all program costs in 2021 and generated the following results:

- Over 18,800 tonnes of material was received representing a 6% decrease over 2020 and approximately 9,500 tonnes of finished compost was sold to the end market in 2021.
- A total of 462 composters and 318 green cones were sold to residents, an increase of 18% over 2020.
- Home composters and green cones are sold throughout the County at a subsidized rate of \$10 and \$54 each, respectively.

Oxford County continues to undertake backyard composting program education and outreach to help reduce the number of organics currently black bagged/landfilled.

### *Oxford County 2021 Year-End Blue Box Waste Management System Annual Report*

- Oxford County Waste Management provided curbside collection to all eight Area Municipalities in Oxford County. Curbside collection was performed by contracted services for six of the Area Municipalities and by Area Municipal staff in the City of Woodstock and the Township of South-West Oxford under contract with the County.

- Collection of garbage and recycling is offered to all households, including some multi-residential and commercial properties, provided they meet program requirements.
- Collection of Blue Box material is currently single stream weekly in the County collection area and two-stream bi-weekly in the City of Woodstock. The Township of South-West Oxford continues on a six-business day collection of garbage and single-stream recycling. Alternative residential drop-off depot locations for Blue Box material are located at 955 James Street, Woodstock and the OCWMF (384060 Salford Road).
- The residential diversion rate (from curbside, depots, brush, leaf and yard waste depots, Waste Management Facility) is estimated to be 57% and will be confirmed when the 2021 Datacall is verified in November 2022. The residential diversion rate has plateaued in recent years ranging between 57-59%.
- 8,570 tonnes of residential curbside Blue Box material was collected (6% increase from 2020). Following the removal of contaminated material (residual waste) during processing, approximately 7,800 tonnes of processed material was sent to recycling end markets.
- The contamination rate of the 2021 County/SWOX recycling program is estimated at 10% based on an internal audit conducted by the County's recycling processor and is competitive to other comparative municipal single-stream recycling programs. The contamination rate for the two-stream recycling program in Woodstock was estimated at 12% based on tonnage data provided by the City's recycling processing contractor.
- The recycling collection tonnage per household (hh) for 2021 was 157 kg/hh for the entire County, representing a 7% increase over 2020.

### Advancing to Zero Waste

A feasibility study of organics resource recovery technologies (ORRT) is included in the 2022 Oxford County Business Plan and Budget with the objective of identifying a preferred alternative for potential implementation of a County-wide organic waste diversion program. In support of this undertaking, a curbside residential garbage (black bag) audit was completed in 2021 by AET Group Inc.

The black bag audit was completed in Spring 2021, and consisted of 240 single-family households from 24 sampling areas (rural/urban) throughout the County over a two week period. The County-wide residential garbage composition determined through the waste characterization audit is shown in Figure 2 below, and is derived from an estimated quantity of 346 kg/hh/year.



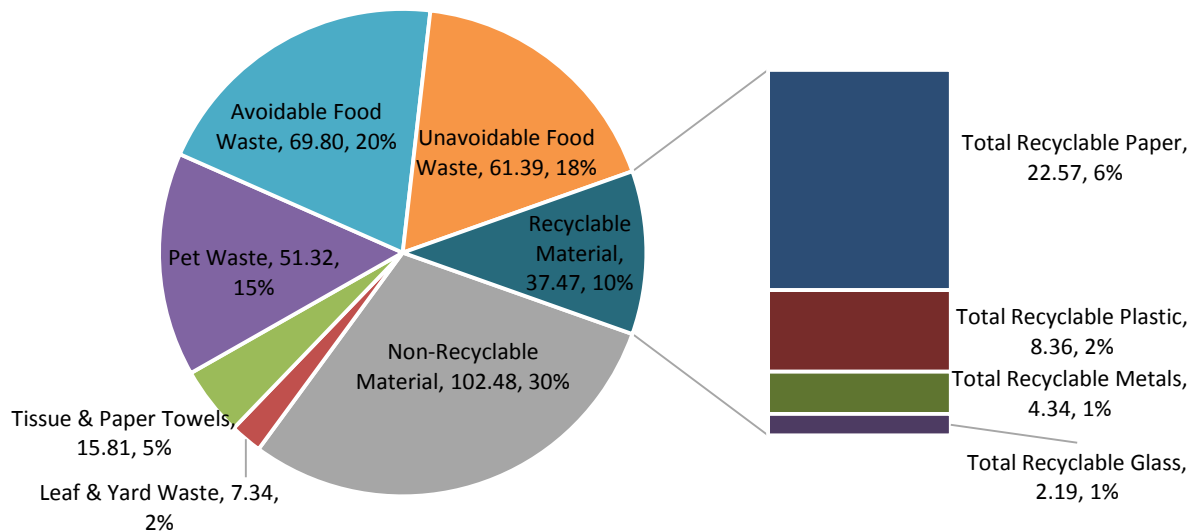


Figure 2: 2021 Garbage Waste Stream Composition

The key findings of the single family residential garbage stream composition include the following:

- Average curbside garbage stream generation (rural/urban combined) is 6.63 kilograms/household/week (kg/hh/wk).
- Average rural curbside garbage stream generation is 3.32 kg/hh/wk.
- Average urban/village curbside garbage stream generation is 7.63 kg/hh/wk.
- Organics makes up almost 60% of the garbage stream by weight consisting of avoidable/unavoidable food waste, tissue and paper towels, pet waste, and leaf and yard waste.
- Recyclables (Blue Box material) makes up 10% of the garbage stream by weight.

The 2021 black bag audit provides a substantial update to the original 2017 baseline audit (Report No. PW 2017-42) that was completed in support of the County's Zero Waste Plan and waste resource recovery activities. The 2021 audit provides a detailed breakdown of specific material types found in residential garbage set outs and will be utilized in the ORRT feasibility study to determine the viability of a potential County-wide organic waste diversion program. The audit results will also be used to enhance public promotion on current waste diversion programs with greater focus on specific materials found in the residential garbage stream.



## **Conclusions**

The 2021 Annual Waste Management Reports demonstrate that Oxford County's waste management programs and facilities continue to perform well and are in compliance with regulatory requirements.

Implementation of a County-wide organics diversion program will provide an opportunity for resource recovery and would have an immediate impact on reducing waste quantities to further extend the life of the County's landfill area.

## **SIGNATURES**

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### **Report Author:**

Original signed by

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Supervisor of Waste Management

### **Departmental Approval:**

Original signed by

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David Simpson, P.Eng., PMP  
Director of Public Works

### **Approved for submission:**

Original signed by

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Gordon Hough on behalf of Michael Duben, B.A., LL.B.  
Acting Chief Administrative Officer