



***Contaminated Recyclables Audit Report
Public Works – Operations & Services
Waste Management and Forestry***

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Authored by Antonio Bianchi

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1.0 Management Summary

Audit Services has completed an audit of the Region's handling and processing of contaminated recyclables, as listed in the 2023 Audit Services Risk Based Work Plan under Sustainable Environment Area of Focus.

Our audit was conducted in accordance with the *International Standards for the Professional Practice of Internal Auditing*.

The main objectives of this engagement were to:

- Determine if agreements between the Region and Local Municipalities (LM) address how contaminated recyclables will be kept to a minimum.
- Determine the management reports available to identify where in the disposal process the contamination of recyclables occurs and how it is addressed.
- Identify the costs to the Region for contaminated recyclables.

The Region is unique in the delivery of its recycling program. It is a two-tiered system where the local municipalities are responsible for the collection of recyclables within their jurisdictions, and the Region is responsible for the processing of those recyclables. The Region receives recyclables at its Material Recovery Facility (MRF) in East Gwillimbury. The recyclables are then processed and prepared for sale in the local and international markets.

The audit results noted there are opportunities to develop and strengthen agreements with the local municipalities to help mitigate the financial risks associated with contaminated recyclables.

Strengths noted include ongoing periodic and ad hoc reporting from the Region to the local municipalities with respect to the delivery of the recyclables and contamination levels.

Contamination is anything placed in the blue box that is not on the accepted list is considered contamination. This includes plastic bags (e.g., grocery/retail bags, plastic bags full of recyclables or newspapers still in their plastic sleeve). Other items that should not go in the blue box include styrofoam, black plastic, take-out cups, and any food left in containers.

Contamination also occurs during collection if liquids are present and seep into the recycling compartment of a vehicle collecting recyclables. Liquids can also be spilled onto the MRF tipping floor and come into contact with recyclables rendering recyclables contaminated.

Contamination affects the market price of the recyclables and impacts the Region's recovery of costs associated with recyclables processing. The reporting provided assists the local municipalities in identifying where recyclables contamination is occurring so effects can be made to resolve or reduce its occurrences.

The Region and the local municipalities receive funding from the Resource Productivity and Recovery Authority (RPRRA), the mandated regulator for the Government of Ontario, to enforce the province's circular economy laws. Funding for the recycling program in York Region is paid two years in arrears as per the program. The Region received \$11.89 million in 2023 for the 2021 program, and, \$12.68 million in 2022 for the 2020 program. This funding is split 50% for the Region (\$5.95 million) and 50% to be shared amongst local municipalities. Funding is awarded based on blue box collection and processing costs.

In 2026 this funding will end, as responsibility for the collection and processing of recyclables will become the responsibility of the Producers.

The following opportunities to strengthen controls are noted below:

1. The need for written agreements with the local municipalities to provide clarity on roles, responsibilities, accountabilities, and remedies with regard to contaminated recyclables. Currently, costs incurred by the Region due to excessive recyclables contamination cannot be recovered.
Excessive contamination also impacts recyclables pricing in the market thus impacting recoveries/ revenues.
2. Providing York Region residents with 'one source of truth' online for items that can be recycled through curbside pickup versus disposal through the household hazardous waste facilities (HHHW). The Region and local municipalities currently have ten websites that provide similar information. An inconsistency or error on one website could affect what is or is not being categorized as a recyclable within that municipality.
3. Mitigating the negative impacts of contaminated recyclables in the garbage stream by partnering with the local municipalities to provide additional and ongoing education to residents.

Details of the above observations are noted under Section 4.0.

Should the reader have any questions or require a more detailed understanding of the risk assessment and sampling decisions made during this audit, please contact the Director, Audit Services.

Audit Services would like to thank Public Works – Waste Management and Forestry staff and management for their co-operation and assistance provided during the audit.

2.0 Introduction

In York Region the collection and processing of recyclables is accomplished through a two-tiered joint activity between the local municipalities and the Region. The local municipalities are responsible for the curbside pickup and delivery of the recyclables to the Region's designated facilities. Management of the MRF is under contract to the Region, with the current contract set to expire in July 2025. Management is currently working on a plan to coincide with the transition of the responsibility for recyclables collection to the Producers by the end of 2025.

Based on previous results of tipping floor audits, in 2018, the contract identified a recyclables contamination rate of 23%. Since then, two other sources of contamination have become apparent:

1. Contamination of recyclables due to liquid seeping between the organics and recyclables compartments for some collection vehicles, and,
2. Residue resulting from MRF recyclables processing to remove non-recyclable items such as plastic bags and rigid plastics.

The Region provides the local municipalities with periodic reports, to help them identify where processes are working well and where some additional efforts could be made to improve the quality of the recyclables being brought to the MRF.

These reports, which are available to the local municipalities include:

- Weekly truck lists for the southern municipalities for contamination coming from apartments.
- Tipping floor audits performed at the MRF for residential loads. These audits are completed by an outside contractor for the Region. The timing of the audits and their locations are planned by Public Works – Waste Management and Forestry
- Monthly contamination reports for rejected loads. These loads are rejected due to over compaction of recyclables. Over compaction makes it difficult and inefficient to separate by hand, thus impacting processing output.
- Annual Waste Management Reports that cover all aspects of waste management for the Region and upcoming events related to the waste management activity.
- Ad hoc reports that can be provided to the local municipalities upon request.

3.0 Objectives, Scope and Methodology

AUDIT OBJECTIVES

The main objectives of this engagement were to:

- Determine if agreements between the Region and the Local Municipalities address how contaminated recyclables will be kept to a minimum.

- Determine the management reports available to identify where in the disposal process the contamination of recyclables is occurring and being addressed.
- Identify the costs to the Region for contaminated recyclables.

AUDIT SCOPE

A review of any agreements with the local municipalities and management reporting relevant to the recycling process and the cost effect of contamination.

AUDIT METHODOLOGY

The audit objectives were accomplished through:

1. A detailed review of the agreements between the Region and Local Municipalities to determine how contamination of recyclables would be kept to a minimum.
2. A review of management reports made available to the Local Municipalities to assist in identifying where in the process the contamination was occurring.
3. A detailed review of revenues and costs associated with contaminated recyclables.

4.0 Detailed Observations

4.1 Cost of processing contaminated recyclables

In 2022, contamination of recyclables resulted in an estimated \$2.4 million in forgone revenue.

With the assistance of Public Works staff, we calculated that for the year 2022 the total forgone revenue (using average market rates for recyclables and costs incurred for handling & disposal of the contaminated recyclables) to be \$2.4 million. Based on our calculations, the contamination rate for recyclables resulted in a revenue loss comprised of \$1.476 million for product that could not be sold in the market and \$928,000 for handling and disposal equipment. This cost is in addition to the identified contamination rate of 23%. *(See Figure 1 at the end of this report for additional calculation details and notes)*

Market prices for recyclables are prone to fluctuations. For example, current prices for recyclables are lower than they were during the COVID-19 pandemic, thus the revenue loss would be less.

Sources of recyclables contamination in 2022 were identified (see Table 1) as coming from or resulting from:

Table 1

Source	Tonnes
During collection and transportation to the MRF	834
Mixed paper bales disposed due to organic contamination	1,832
Multi residential units	1,280
MRF residual	23,130
Over compacted materials	373
Total	27,449

The MRF residual tonnage of 23,130 tonnes, or 84% of total contamination included items that should not have been in the blue box, such as contaminated recyclables and non-recyclables items.

Recommendations

4.1.1 Management should calculate an acceptable level of contamination and work with the local municipalities to determine the potential recovery of processing costs or revenue losses being borne by the Region.

Management Response

4.1.1 In progress. Continue to work with local municipal partners through quarterly discussions at Strategic Waste Policy Committee meetings. Discussions will focus on waste audit data summarizing contamination levels and identifying problematic materials to guide ongoing communication and enforcement efforts to reduce contamination and better position them to transition. This work will be ongoing until Q4 2025.

Staff will consider adding terms in the MOU proposed in 4.2.1 to recover a portion of processing costs borne by the Region due to contamination in the green bin and garbage streams.

Furthermore, staff will explore opportunities to collaborate with the municipal sector to advocate for cost recovery of producer designated packaging contaminating other municipal streams, such as the green bin.

4.2 *Agreements on roles, responsibilities, accountabilities, and remedies*

There are no agreements in place to guide and monitor the goals, roles, and responsibilities in the delivery of the recyclables service, making it difficult to hold parties accountable when the goals of the service delivery are not being met.

Without agreements to formalize roles, responsibilities, accountabilities, and remedies, it becomes difficult to hold parties accountable. As a result, the activity may not achieve one or more of its goals. Accountabilities cannot be enforced through monetary penalties or chargebacks to recoup costs by affected parties.

For example, the costs associated with the Region's contract with the MRF services provider was based on historical tipping floor audits which calculated an average contamination rate. Should the contamination rate increase beyond the average contamination rate established, the Region incurs additional costs for disposal of the contaminated recyclables with no remedies to recover costs incurred or revenue lost.

In our review of revenues and costs associated with recyclables, we estimated that 53% of potential blue box revenue was lost due to contamination, valued at a market price of \$2.4 million. This is the potential revenue forgone by the Region, while also incurring additional processing costs.

Recommendations

4.2.1 Management should consider entering into an agreement with the local municipalities that considers, at a minimum, the sharing of the additional processing costs from excessive contamination.

Management Response

4.2.1 In progress: Staff will engage with the local municipalities on a Memorandum of Understanding (MOU) to develop a consistent list of acceptable items for each program as well as waste composition/audit program to monitor performance of producer responsibility programs. Regional staff will discuss concept of an MOU with the local municipalities throughout 2024 and determine if there is alignment to move forward with drafting an agreement by the end of Q4 2024.

4.3 *Amalgamating website information for recyclables into one source for information*

There are at least ten online sources of information that guide accepted recyclable items and how they are to be recycled in York Region.

The Region and each local municipality provide information online on the recyclability of different materials. The online presence is provided either through in-house or contracted sources. Providing the same or similar information in ten different formats can result in slight variations impacting the public's perception on the recyclability of a material and may increase the risk of receiving contaminated or non-recyclable materials at the MRF.

Providing the same information through ten sources also contains a cost component.

Based on discussion with management, when the responsibility is transferred, the Producers may create their own website with an expanded list of recyclables being collected.

Recommendation

4.3.1 Management should consider partnering with the local municipalities to amalgamate the various sources of recyclables information into 'one source of truth' to reduce the possibility of information discrepancies.

4.3.2 If the Producers are to provide their own website, management should consider removing recyclable material information from the Region's website when service delivery is transferred to the Producers or provide a link to the Producer's website for information.

Management Response

4.3.1 In Progress. When discussing the terms of the MOU referenced in 4.2.1, this may include specific lists of items that are acceptable in each waste collection program as deemed by the Region's waste processing/disposal requirements with commitment from the local municipalities to use these lists in communication to residents and other stakeholders to achieve the "one source of truth" principle which we support. Q4 2024.

4.3.2 In progress. Staff will ensure the Region's website(s) removes recyclable information and provides a link to the producer website once the program transitions. Staff will continue to monitor how producers communicate directly to residents on the blue box program after transition and will work with internal communications to provide support to residents in navigating the new producer led program. Staff will monitor throughout 2024 and initiate communications in Q4 2025 as required.

4.4 Potential impact to the Region as transition of recyclables collection to producers moves forward

Transfer of responsibilities for recyclables collection and processing to the Resource Productivity & Recovery Authority (RPRA) for 2026 may present challenges to reduce residual waste.

There is the potential for the Region to experience higher volumes of solid waste post 2025 thereby impacting the Region's waste diversion rates. The RPRA will hold the Producers of recyclable materials to a recyclables contamination rate of 4%.

Producers may enforce a strict measure of contamination and may not collect contaminated recyclables at curbside. Those materials may be left at the curb and subsequently find its way into the garbage stream. The garbage stream remains the responsibility of the Region to administer post transition, potentially increasing garbage volumes going to landfill or the Energy from Waste facility.

Recommendations

4.4.1 Management should consider additional and ongoing public education relating to the importance of proper sorting of recyclable materials.

Management Response

4.4.1 In progress: Staff will work with local municipal partners to help inform the public as we transition toward a producer led blue box program. As stated in 4.3.2. Staff will continue to monitor how producers will communicate directly to residents on the blue box program after transition and will work with internal communications to provide support to residents in navigating the new producer led program. Staff will consider additional and ongoing public education on sorting practices to help minimize leakage of producer packaging misplaced in municipal garbage and green bin programs. Staff will monitor throughout 2024 and initiate communications in Q4 2025 as required.

4.5 Other uncertainties for recyclables moving forward

Other uncertainties for the transition of recyclables collection and processing to the Producers.

Through discussion with management, we noted other uncertainties as we approach the transition of the collection of recyclables by the Producers for 2026. These uncertainties include:

1. Producers may not be picking up recyclables on main street Business Improvement Areas (BIAs). A potential scenario to move forward is for the local municipalities to collect recyclables in the BIAs and, under a Memorandum of

Understanding with the Region, and for the Region to continue to manage processing of recyclables.

2. The list of recyclables the Producers will be collecting will be expanded and has not yet been finalized. The inclusion of additional recyclables could reduce the amount of residual waste currently going into the garbage stream as it may now be recyclable.
3. Associated with #1 and #2, there may need to be adjustments to the MRF processing operations to accommodate the expanded list of recyclables being collected in the BIAs.

Recommendations

4.5.1 Management continue monitoring developments and impacts to the Region.

Management Response

4.5.1 In progress. Staff will continue to monitor and assess developments leading up to transition and determine post transition performance monitoring by Q4 2025.

End of report

Original Signed

Michelle Morris
Director, Audit Services

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Figure 1 – Detailed Calculations

	York Region Combined Jan to Dec 2022	
Blue Box Materials Collected & Average Prices	Comingled Blue Box	
	Tonnes	
Total Weight Collected	76,032	
	\$ Per tonne	
Average Basket of Goods Price for End Products	\$186	(1)
Average Price of Mixed Paper at the End Market	\$68	(2)
Sources of Contamination	Tonnes	
SSO Juice Contamination during Collection and Transportation	834	(3)
Mixed Paper Bales Disposed Due to Organic Contamination	1,832	(4)
Multi-residential Rejection	1,280	(5)
MRF Residue Tonnage	23,130	(6)
Over compacted Material Received (tonnes)	373	(7)
Revenue / Cost impact of contamination	\$	
Potential Revenue for Non-Contaminated Recyclables	\$14,141,952	(8)
Potential Revenue Loss Due to Contamination	(\$4,819,960)	(9)
Region's Cost of Contamination Handling & Disposal	(\$2,699,477)	(10)
Roll-off Bins Services	(\$21,000)	(11)
Total Potential Cost Due to Contamination	(\$7,540,437)	(9)+(10)+(11)
% Of Potential Recyclables Revenue Lost to Contamination	53.3%	
Expected contamination rate in the blue box stream	23%	(12)
Excess contamination weight in blue box stream beyond 23% expected rate (tonnes)	5,156	(13)
Forgone revenue - potential revenue loss due to excess contamination beyond expected rate (not a budget item)	(\$1,476,874)	(14)
Costs for handling and disposal of excess contamination	(\$907,511)	(15)
Costs for roll-off bins services	(\$21,000)	(11)
Total forgone revenue and additional costs due to excess contamination	(\$2,405,385)	(14)+(15)+(11)
% Of potential revenue lost to excess contamination	17.0%	(8)/(14+15+11)

Notes:

Tonnage and dollar data provided by Public Works - Waste Management & Forestry Operations

(1) Average price for the basket of end products recovered at York's MRF.

(2) Prone to market fluctuation, is an average for the year or year to date. Is part of the \$186 above but shown separately to calculate lost revenue due to paper bale contamination.

(3) Has been an ongoing issue first noted in 2018, related to collection vehicle design and ability to control organic leachate seepage from one compartment to another. Contaminated blue box material has to be removed from tip floor, weighed and managed as residual waste at Region's contracted Energy From Waste facilities.

(4) The organic leachate contaminated blue box material would negatively impact the entire MRF processing system, compromising the dry/clean materials thus affecting the MRF's processing efficiency and impacting marketability. Thus this impacts the Region's costs. It does not affect market prices, as prices are set by the market based on supply & demand.

(5) Rejection due to heavily contaminated blue box material collected from apartments and condominiums.

(6) Includes contaminants in the blue box, over compacted material, residual waste from processing.

(7) Over compaction occurs in the waste collection vehicle to optimize space and reduce travel to the MRF to off load. This weight is included in the weight shown under Note (6). Intent was to present all sources of contamination including over compacted material.

(8) Ideal environment, assumes there no contamination and all recyclables are recycled.

(9) Contaminated recyclables in the blue box stream that cannot be sold to end market, from items (3), (4), (5), (6).

(10) Additional cost for managing the unmarketable material as residual waste, cost is all inclusive based on Region's contracts for waste processing, transfer, haulage, excluding MRF processing cost.

(11) Cost to move and weigh organic contaminated material to derive the tonnage information in item (3). Costs are incurred because of contamination.

(12) Based on the historical inbound 3 stream curbside audit results. Costs are incurred because of contamination.

(13) Total weight of contaminants in the blue box, the over compacted material, and residual waste from processing beyond the 23% expected rate.

(14) Excess contaminated recyclables in the blue box stream beyond the expected rate that cannot be sold to end market, from items (3), (4), (5), (13). Revenue that could not be recognized as recyclables could not be sold.

(15) Additional cost for managing the unmarketable material beyond the expected rate as residual waste, cost is all inclusive based on Region's contracts for waste processing, transfer, haulage, excluding MRF processing cost.