ES

Executive Summary

This section compiles key information from the community profiles (i.e., Chapter 2), provides an overview of the key trends observed through the benchmarking process (i.e., Chapters 3 - 5), and is designed to provide 'at a glance' information that will help NSWBI members write Council reports, briefing notes, and other reports. This section is presented in two parts:

PART 1 - OVERVIEW

Part 1 of the Executive Summary (ES) provides an overview of this year's key findings and how they compare to last year's results. This section highlights the most significant NSWBI changes and trends, providing an interpretation and discussion of the data. Communities may use this section in their Council reports as long as they do not include the names of the communities unless they receive permission from referenced communities.

One of the most notable changes this year is the transition to the new data analysis system, Power BI. While the underlying data collected are consistent with previous years, the use of Power BI has resulted in a markedly different visual presentation of the results. NSWBI members will notice changes in the number of years of data presented and how qualitative information, such as collection frequency, is conveyed. With Power BI communities are no longer limited to reviewing or comparing their data to other communities through viewing the report. Instead, the Power BI platform offers user functionality to enable communities to manipulate their data and generate graphics better meet their community's reporting needs.

Another change is that data from 2019 to 2022 are no longer presented in the report; only data from the current year are presented. The historical data can still be referenced and graphed by communities by accessing the Power BI website. Historical context and relevant notes and discussion about the data from 2019 to 2022 has also been kept to for member use.

Some elements from the old visual format could not be fully incorporated into Power BI for this year's reporting. The graphical outputs of Power BI should be reviewed annually by communities to improve the formats and enhancement the reports as part of continuous improvement. In future years, CIBI will continue to provide training and overviews for additional features in Power BI that will improve the ability for communities to understand and use their data.

By being upfront about these changes, we aim to help readers navigate the new format and understand the improvements made. This transparency ensures that the report remains a valuable resource for all stakeholders.

Part 1.1 - Key Takeaways from the 2024 NSWBI Results

The 2023 and 2024 key benchmarking findings show strong similarities. The 2023 NSWBI report (i.e., based on 2022 data) highlighted important findings related to waste reduction at the curb, the connection between audit data and customer behaviour, and the link between processing cost on residual rates at MRF facilities. The 2024 report (i.e., 2023 data) provides insights on the links between:

> audit data and changing customer behaviours, but with findings resulting from the implementation of the new KPM: Recoverables in the Garbage Stream;
> collection costs for organics at the curb related to facility processing cost at organics facilities; and
> processing cost and the effect on residual rates at MRF facilities.

These findings are presented in detail below.

Goal 3: Changing Consumer Behaviour

In 2023, changes were made to the waste audit category definitions to better group similar materials and enable members to better visualize the categories of wastes in their systems to compare with member communities. Further revisions were made in 2024 to improve material categorization, including revising material category names to enhance comparison. The addition of the "accepted" qualifier to recyclable materials (e.g., accepted fibre, accepted flexible plastics) aims to achieve this by allowing communities to report on materials that are collected in their local programs. The residual category was revised to mean "garbage" and the "other" category was expanded into "other organics" and "other locally divertible items". Previously some communities were only reporting unidentifiable material as residuals and reporting garbage under the other category.

Where there are significant portions of a material in a garbage stream, this could be an opportunity for a community to improve consumer programming (e.g., promotion and education or enforcement activities) or invest in infrastructure and programs to improve diversion.

However, as each province and territory moves to implement extended producer responsibility (EPR) for packaging and paper products (PPP), this will shift municipalities ability to affect the success of this recycling stream. EPR will shift operational responsibility for PPP collection and recycling to producers. In doing so, this will reduce the ability of municipalities to self-determine which materials are collected for recycling in their curbside collection systems, limit municipalities' ability to audit the content of materials collected and transported to a materials recovery facility (MRF), and limit the ability of municipalities to affect promotion and education to improve PPP recycling performance. As a result, municipalities will need other data and levers to be able to assess the success of recycling systems, as well as have the information they need to inform regulators when too many recyclable materials are ending up in their garbage stream.

As a result, the data from the new NSWBI KPM 'Recoverables in the Garbage Stream (discussed below), pre, during, and post EPR transition will become an increasingly important data point for municipalities seeking to reduce the disposal of recyclables.

Future municipal waste auditing of disposal streams should continue to be conducted to capture recoverables in the garbage streams as an indicator of consumer behaviour.
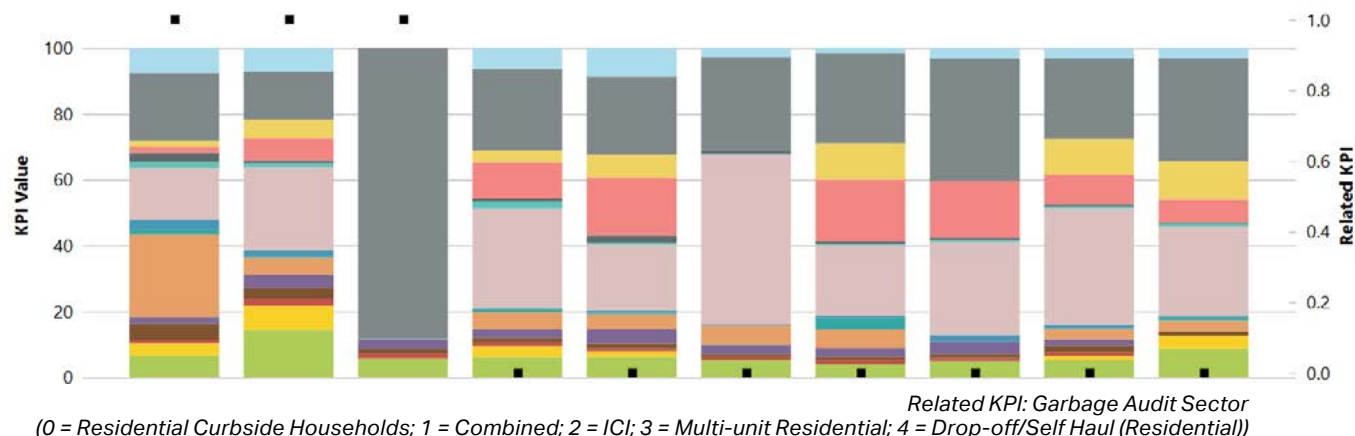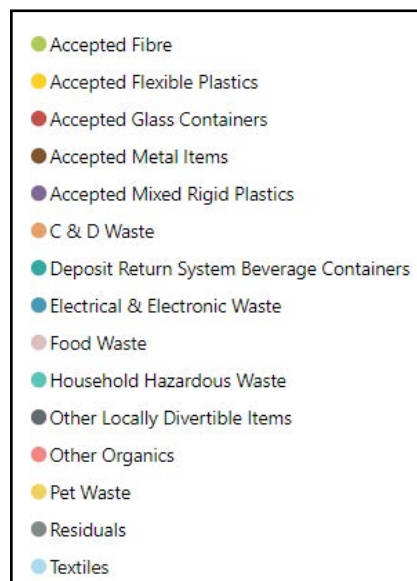
Related KPI: Garbage Audit Sector
(0 = Residential Curbside Households; 1 = Combined; 2 = ICI; 3 = Multi-unit Residential; 4 = Drop-off/Self Haul (Residential))

Figure ES-1: Garbage Composition from Audits (%)

Legend:
- Accepted Fibre
- Accepted Flexible Plastics
- Accepted Glass Containers
- Accepted Metal Items
- Accepted Mixed Rigid Plastics
- C & D Waste
- Deposit Return System Beverage Containers
- Electrical & Electronic Waste
- Food Waste
- Household Hazardous Waste
- Other Locally Divertible Items
- Other Organics
- Pet Waste
- Residuals
- Textiles

Garbage Composition from Audits

ES Figure 1 shows the results of communities' most recent waste audits. These findings suggest the following trends across most communities:

> There is a significant amount of organic waste (food waste & other organics) that could be diverted.
> There are significant quantities of other potentially divertible materials in the waste stream including household hazardous waste (HHW), fibre, glass, and beverage containers under deposit return systems.

However, caution should be used when interpreting this data. Waste audit methodologies vary by community and therefore waste audits can be hard to compare. Seven of the member communities conducted garbage audits in 2023. Details such as the season the audit was conducted in, the service sector the audit was performed in and the audit standard method used were some of the most notable differences between audits. These differences could have an effect of the data interpretation. For example, one community conducted their 2023 audit during the winter and reported organics quantities for food waste. Unsurprisingly, its audit findings did not report other organics waste, such as yard waste, in their audit. In another example, one community includes organic waste in the 'other' category and as a consequence its waste audit results are difficult to compare. Standardization of waste auditing practices for residential waste streams would enable better apples-to-apples comparisons across NSWBI communities.
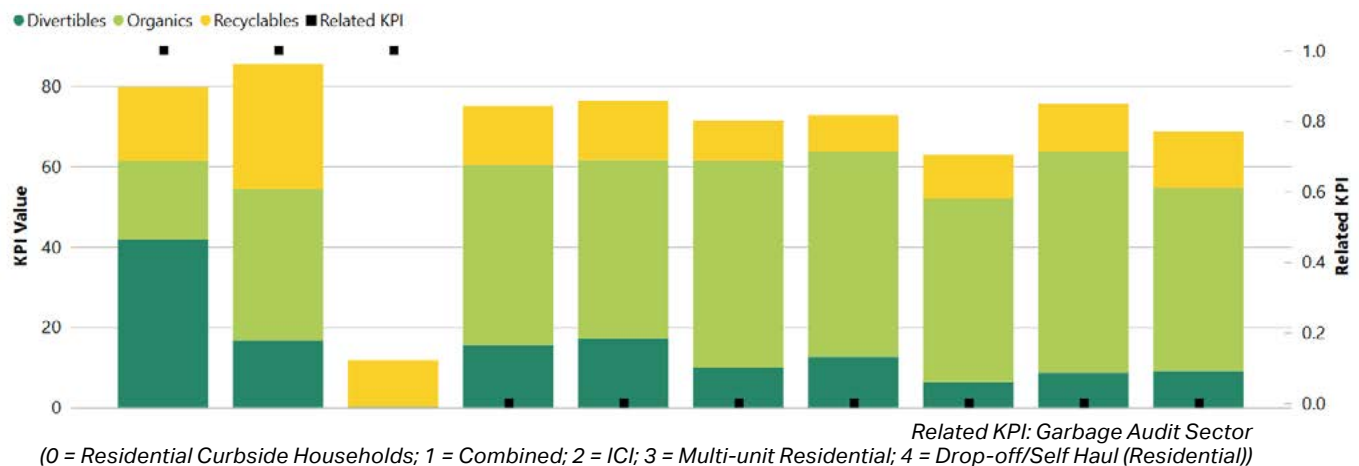
Related KPI: Garbage Audit Sector
(0 = Residential Curbside Households; 1 = Combined; 2 = ICI; 3 = Multi-unit Residential; 4 = Drop-off/Self Haul (Residential))

Figure ES-2: Recoverables in the Garbage Stream (%)

Recoverables in the Garbage Stream

This year NSWBI communities established a new KPM 'Recoverables in the Garbage Stream'. Through this KPM, municipalities are seeking to understand garbage audit data and the 'successes' of local recycling and organics diversion systems.

For this KPM, the divertible material category represents materials that remain in the garbage stream that could be locally diverted through existing collection systems (i.e., whether through EPR or other local collection programs). The divertible items vary between municipalities by the programs offered.

For 2024, the waste categories have been grouped into three buckets organics, recyclables, and other divertibles.

> The organics category includes food waste, pet waste, and other organics materials.

> The recyclables category includes accepted mixed rigid plastics, accepted flexible plastics, accepted fibre (paper), accepted glass containers, and accepted metal items.

> The other divertibles category includes deposit return system beverage containers, HHW/HSP, electrical and electronic waste, construction and demolition (C&D) waste, textiles, and other locally divertible items.

> For 2025, this KPM will expand to include potentially divertible materials. Potentially divertible items are those materials that are divertible by at least one NSWBI community. For example, if at least one community has a program to collect and divert pet waste from the garbage stream, then that material is "potentially divertible" by all communities even if local programming does not target that material.
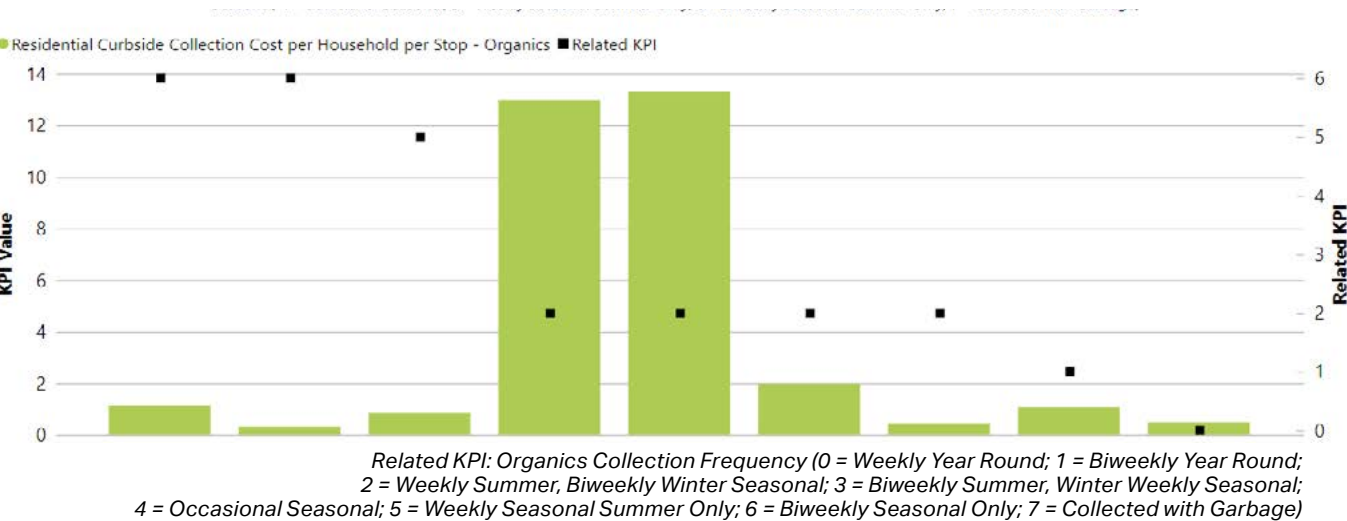
Related KPI: Organics Collection Frequency (0 = Weekly Year Round; 1 = Biweekly Year Round; 2 = Weekly Summer, Biweekly Winter Seasonal; 3 = Biweekly Summer, Winter Weekly Seasonal; 4 = Occasional Seasonal; 5 = Weekly Seasonal Summer Only; 6 = Biweekly Seasonal Only; 7 = Collected with Garbage)

Figure ES-3: Residential Curbside Collection Cost per Household per Stop - Organics

Goal 1: Be Financially Sustainable

Residential Curbside Collection Cost per Household per Stop - Organics

The cost per stop is pertinent information for communities. As more people immigrate to Canada or across Canada into NSWBI communities, they might not be familiar with the way local waste management programs operate. As a result, this could negatively affect a community's sorting efficiency at the curb and require increased education and enforcement. In addition, other factors that influence the cost per stop is pick-up location density (i.e. travel time between pick-ups), staffing, and collection equipment capital and operational costs.

For now, community results for this KPM results are holding relatively steady, with minor changes being seen in some communities relating to how their programs are operating and whether new improvements have been implemented. Some communities had increases in cost due to the migration of curbside pilot programs into full curbside collection programs. Other communities have moved from voluntary to mandatory curbside programs.

The cost per stop for organics programs showed the highest variability between communities compare to garbage and recycling although this variability is consistent with the previous year results. In 2022, the cost ranged from $0.15 to $2.51 per stop, whereas in 2023, the cost ranged from $0.32 to $2.39 per stop.

For those communities who reported higher costs per stop this year, this was due to either new collection costs (i.e., new private collection contracts) or for new program implementation (i.e voluntary to mandatory collection, or new collection program). For those who had lower costs in 2023, we saw slightly lower collection costs combined with an increase in number of serviced households or that routes were optimized.

● Processing Cost per Tonne Accepted Material at Organics Facility ■ Related KPI

Figure ES-4: Processing Cost per Tonne Accepted Material at Organics Facility

Processing Cost per Tonne Accepted Material at Organics Facility

How does the cost per household per stop correlate to factors, such as the performance of organic processing facilities? Are we seeing lower or higher costs at organics facilities?

The definition of cost for this KPM includes the total cost associated with processing of organics at all municipally owned or operated composting facilities, and the total value of processing contracts for privately operated compost facilities. This includes the costs of:

> staff, such as facility managers, equipment operators, weighbridge staff;
> equipment lease or purchases;
> equipment, site and building operations and maintenance including fuel, utilities, and maintenance; and
> minor capital such as safety improvements and equipment upgrades.

Overall, the costs reported for this KPM showed a significant increase compared to 2022. In 2022, the cost ranged from $10.00 to $195.09/tonne of organic material processed. In 2023, the cost ranged from $6.77 to $463.38/tonne of organic material processed.

The community with the highest cost in 2023 changed their process from food and yard waste compositing to yard waste composting only, and as a result it saw a large decrease in the tonnages brought to the facility combined with an increase in operations costs.

Another community with high costs opened a new indoor organics processing facility in 2023, which increased their processing costs compared to 2022 by 40 times.

In addition to the cost increases due to changes in programming, communities are also generally reporting higher costs for operations. Operations cost could be a results staffing changes and higher costs of fuel.
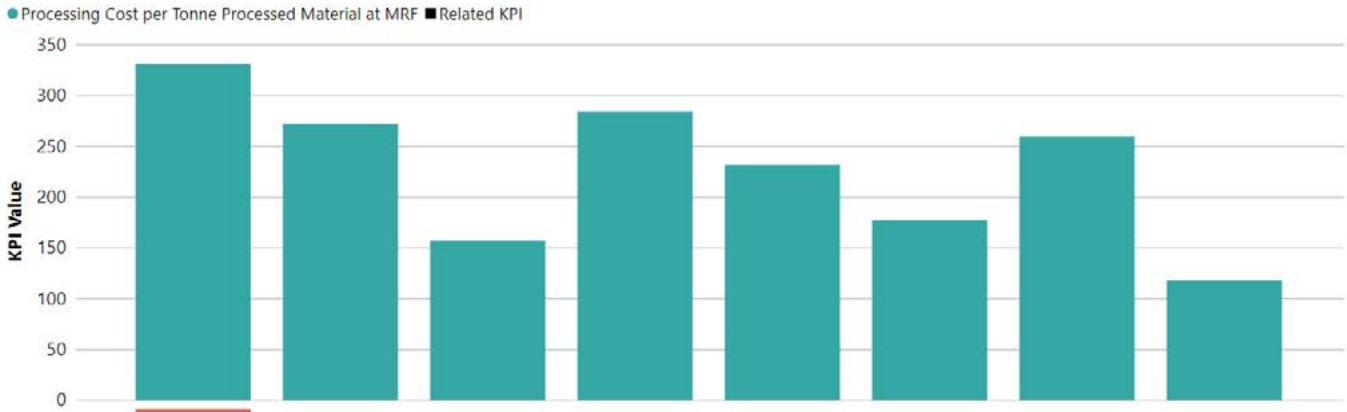
Figure ES-5: Processing Cost per Tonne Processed Material at MRF

Goals 1 and 6: Be Financially Sustainable and Run Efficient Systems

Future NSWBI reporting on KPM Processing Cost per Material at MRF (Figure ES-5), will be highly dependent on EPR rollout, and the roles that our member communities play in EPR systems. As PROs become responsible for designing and operating systems to collect and recycle residential PPP, the role of municipalities as a collection service provider and MRF owner/operator is not guaranteed. Municipalities may not participate in future residential PPP systems and may divest themselves of MRFs. Municipalities may also choose to pivot to repurpose their MRFs from managing residential PPP to offer recycling services to their ICI sector, or for items other than PPP (e.g., durable plastic goods, books, and other non-PPP household recyclable materials).

MRF Processing Costs and Residual Rates

For KPM Processing Cost per Material at MRF (Figure ES-5) the MRF processing cost is the total value of the contract for contracted MRFs, which includes staff, equipment lease or purchase, maintenance, and minor capital. Large capital improvements are not included in the processing costs.

For 2023, municipal costs ranged from $156 per tonne to $272 per tonne with a median cost of $231 per tonne. There does not appear to be a noticeable change in the results reported for this KPM over the past several years.

In 2023, nearly every community saw an increase in processing per tonne. However, one community saw a significant decrease, which can be correlated with modifications and capital upgrades made to their MRF facility in 2022. As a result of these upgrades, in 2023 they experienced the lowest processing costs they've had over the last 5 data years.
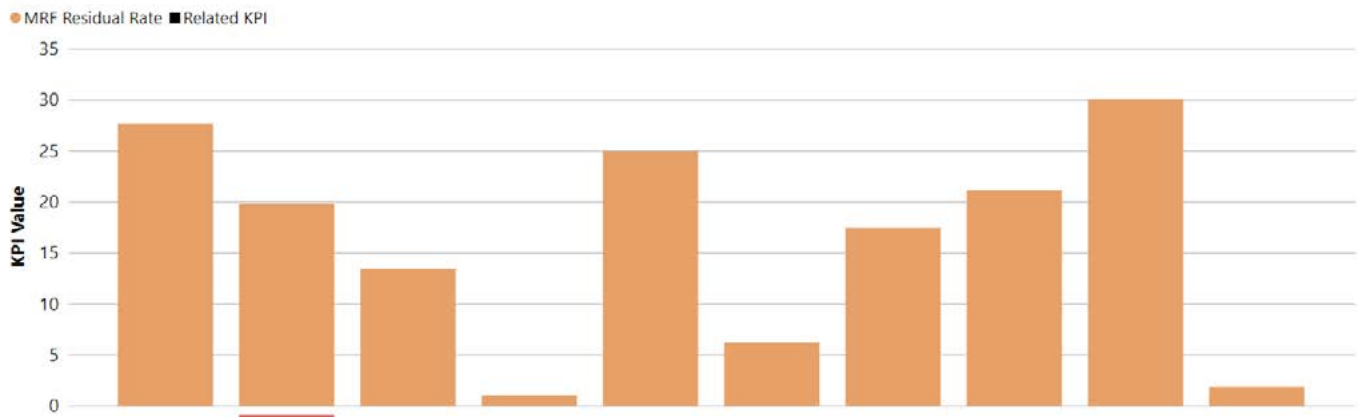
Figure ES-6: MRF Residual Rates

How do these results help inform communities? When the cost per tonne is high, it can be important to consider how contamination of the recycling stream is affecting processing cost. For example, high rates of contamination can decrease processing efficiency, increase the costs due to lower throughput and cost for residuals disposal, and decrease the value of the recyclables being sold to an end-markets.

When the results reported for KPMs Processing Cost per Material at MRF (Figure ES-5) and KPM MRF Residual Rates (Figure ES-6) are compared, it shows that communities with higher residual rates tend to have having higher MRF processing costs. This might be an indication that communities with higher costs may want to consider improving consumer education to better use the recycling collection system or consider whether investment in infrastructure upgrades for the facility are needed.

However, given that most communities are amidst a transition to EPR for residential PPP, communities may also want to avoid investing in assets that could become stranded during that transition.

The community that saw the largest reduction in processing cost per tonne in 2023 also saw a 47% decrease in their residual rates in 2023, which was the lowest residual rates reported in their last 5 years of data. In addition, while their processing costs were lower, and they also reported a higher tonnage of material throughput.

From these results, we can infer that capital upgrades to systems that increase capacity and efficiency have a cost benefit and improve processing capabilities for a community. As facilities age, the efficiency may decline.

Part 1.2 – Future Planning

The outlook for NSWBI 2025 includes the completed integration with the CIBI for reporting format, terminology, and QAQC procedures.

At the Annual Summary Workshop, communities raised important suggestions for improvement in Power BI utility that will be followed up with. These suggestions include:

> improving the glossary and definitions, including summary information for each KPM's calculations, and further developing the 'potentially divertible' category for the new 'Recoverables in the Garbage Stream' KPM, and

> improving the C&D and ICI tables, including shifting reporting from disposal to diversion opportunities.

Workshops will be coordinated to discuss these and other issues raised by the members.