



RECYCLEBC™

2024 Packaging and Paper Product (PPP) Collection Cost Study
Recycle BC

September 2024

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1 Executive Summary

The 2024 Packaging and Paper Product (PPP) cost study is the fourth cost study undertaken by Recycle BC. There were previous cost studies undertaken by Recycle BC in 2013, 2018, and 2020. The purpose of the costs studies is to canvass collection service providers (collectors) who operate in British Columbia (BC) under Recycle BC's Packaging and Paper Product (PPP) Stewardship Plan. Collectors were canvassed for operating costs and related information to be used by Recycle BC to establish market clearing prices for collectors.

The 2024 cost study was based on 2023 calendar year collection, promotion and education (P&E), and service administration (SA) costs from three (3) service provider types: local governments, private collectors, and direct service. These collectors manage collection programs that include curbside, multi-family, curbside and multi-family, and/or depot collection. For the purposes of this report direct service means the collection services directly provided by Recycle BC in the areas of the province of BC. The direct service data was provided by Recycle BC.

Data was collected from 87 unique collectors that submitted a total of 114 total questionnaires. In addition to submitted questionnaires, there was data from 16 direct service areas that was provided by Recycle BC. In the cost study, anomalies were removed for various reasons, resulting in a total of 120 collector data used in the analysis. Table 1 provides a summary of collectors that participated in 2024 cost study excluding anomalies for each cost category with a comparison to the 2020 cost study results.

Table 1. Summary of 2024 Cost Study Results

Cost Category	Number of Collection Programs ¹	Number of Anomalies	Weighted Average ²	4-Year Change % (2020 and 2024 cost studies) of cost/HH or cost/Tonne
Collection Cost				
Curbside Collection (Cost/Household (HH))	40	2	\$60.69	31%
Multi-family Collection (Cost/HH)	11	1	\$29.93	4%
Depot Collection (Cost/Tonne)	69	3	\$561.19	32%
Total Collection Cost	120	6		
Curbside/Multi-family P&E (Cost/HH) ³	26	2	\$2.07	76%
Curbside/Multi-family P&E (Cost/Tonne) ⁴	26	2	\$17.17	79%
Depot P&E (Cost/Tonne) ⁵	54	2	\$16.97	90%
All Collectors P&E (Cost/Tonne) ⁶	80	4	\$17.14	80%
Curbside/Multi-family Service Administration (Cost/HH) ⁷	27	1	\$3.81	-12%
Curbside/Multi-family Service Administration (Cost/Tonne) ⁸	27	1	\$31.48	-11%
Depot Service Administration (Cost/Tonne) ⁹	56	5	\$61.38	33%
All Collectors Service Administration (Cost/Tonne) ¹⁰	83	6	\$35.58	-2%

2 Cost Study Purpose

The Packaging and Paper Product (PPP) Stewardship Plan¹¹ supports PPP collection services by providing an opportunity for those involved in the collection of PPP (collectors) to provide services directly to their residents and customers¹² through a Services Agreement with Recycle BC.

¹ The number of collection program exclude anomalies.

² Weighted average calculations are based averages in relation to number of households or tonnage, as applicable.

³ This analysis includes curbside and multi-family collectors. The multi-family collectors provide curbside collection as well; therefore the curbside and multifamily P&E costs are assessed together. Direct service collectors are not included in this analysis.

⁴ This analysis includes curbside and multi-family collectors. Direct service collectors are not included in this analysis.

⁵ This analysis includes depot collectors.

⁶ This analysis includes curbside, multi-family, and depot collectors. Direct service collectors are not included in this analysis.

⁷ This analysis includes curbside and multi-family collectors. The multi-family collectors provide curbside collection as well; therefore the curbside and multifamily SA costs are assessed together. Direct service collectors are not included in this analysis.

⁸ This analysis includes curbside and multi-family collectors. Direct service collectors are not included in this analysis.

⁹ This analysis includes depot collectors.

¹⁰ This analysis includes curbside, multi-family, and depot collectors. Direct service collectors are not included in this analysis.

¹¹ The Packaging and Paper Product Stewardship Plan is available via the Recycle BC website at https://recyclebc.ca/stewards/regulation_and_stewardship_plan/.

¹² The financial incentive is offered for collection services. Collection services are distinct from post-collection services which include receiving PPP from collection vehicles, picking up PPP from Depots, consolidation and transfer where required, and processing and marketing of PPP.

In 2013, research into PPP collection costs was first completed to assist in the setting of market-clearing prices¹³. Setting appropriate market-clearing prices is important to drive effectiveness in the collection of PPP, reward efficient operators, and encourage efficiency among other operators.

The objective of the 2024 cost study is to identify the cost to deliver 2025 collection services as defined in the curbside, multi-family and depot statement of work ("Statement of Work"), compare the collection costs to those in 2019 identified in the 2020 cost study and to support Recycle BC's financial incentive review for 2025.

3 Study Methodology

3.1 Data Collection Methodology

In March 2024, local governments and private collectors received a letter from Recycle BC requesting their participation in the 2024 Cost Study. Following this initial invitation, Recycle BC sent a memorandum to participants to overview the cost study and introduce the third-party professional services firm engaged to facilitate the process. The third-party professional services firm, in collaboration with Recycle BC, developed two (2) sets of questionnaires, one for curbside/multi-family collectors and one for depot collectors. The questionnaires requested general information as well as data specific to either the curbside/multi-family or depot collector. The third-party professional services firm facilitated two (2) questionnaire training sessions to explain the purpose of the cost study, provide a walkthrough of the questionnaire, and present the cost study timelines. Participants received the questionnaire prior to the training sessions. The curbside/multi-family and depot sessions were held on April 29, 2024 and May 2, 2024, respectively. A collated document of frequently asked questions was also shared with participants shortly after the sessions.

From May to July 2024, e-mail correspondences and virtual meetings were conducted with participants to review the questionnaire template and answer data collection questions. Following the submission of the questionnaire, additional virtual meetings and e-mail correspondences were conducted to clarify/collect information in relation to incomplete data sets, unclear information, and anomalies.

A summary of the cost results from the data collection process is included in the **2023 Collection Cost Results** section.

3.2 Study Size

In the 2023 cost study, questionnaires were received from the following:

- Local governments representing 90 collection programs;
- Private collectors representing 24 collection programs; and
- Direct service programs representing 16 collection programs (provided by Recycle BC).

The following questionnaires were excluded in the analysis:

- 2 depot questionnaires were for satellite depots and therefore, excluded in the analysis.
- 2 depot questionnaires were a consolidation of multiple depots and therefore, excluded in the analysis.

In total, there were 126 questionnaires analyzed in the 2024 cost study as shown in Table 2.

¹³ A market-clearing price is a payment available to collection service providers (subject to executing an agreement to provide the collection service, complying with the collector qualification standard on a continuous basis, and reporting specified data on a defined schedule).

Collection Programs by Cost Category

Table 2. Collector Participation in Cost Study (incl. Direct Service, excl. Anomalies)

Cost Category	2020 Participation	2024 Participation
Collection Cost		
Curbside Collection	23	42
Multi-family Collection	8	12
Depot Collection	38	72
Total Collection Cost	69	126
Promotion and Education ¹⁴	66	84
Service Administration ¹⁵	66	89

3.3 Cost Category Definitions

Collection, Promotion and Education (P&E) and Service Administration (SA) costs were studied for three collection types: Curbside, Multi-family, and Depot.

Collection Cost

Collection costs include operating and capital amortization costs. The operating costs collected were actual 2023 expenditures. Participants were requested to identify collection costs from post-collection costs, and to only report collection costs in their questionnaire. Guidance was provided to the participants to distinguish collection costs from post-collection costs by Recycle BC and the third-party professional services firm via email or virtual meetings. For capital amortization costs, participants were requested to identify all capital assets used to provide PPP collection service within the amortization periods provided for various asset class within the questionnaire.

Excluded Collection Costs

For depot collectors, collection costs from satellite depots were not included in the cost study. Collectors were asked to provide costs as it relates to the core depot operations only. However, if there were costs related to handling of materials from the satellite depot at the principal Depot, these costs were included.

Promotion and Education (P&E) Cost

P&E includes labour and supply costs incurred to educate and promote the PPP Program to residents. The curbside auditing cost was collected in the Service Administration cost; however per further direction from Recycle BC, the cost was allocated to the Promotion Education cost. Costs related to contamination education and curbside auditing (e.g., contamination management) are included in promotion and education costs for all analysis perspective.

Service Administration Cost

Service Administration refers to any overhead costs incurred to manage the Recycle BC PPP program that are not covered in Collection nor Promotion & Education costs including but not limited to administration and support staff, director of waste management (or equivalent) and customer service (e.g., call centre).

¹⁴ All participants across collection types were requested to also provide Promotion and Education costs alongside their collection costs. The number of collectors that submitted promotion and education costs for the 2024 cost study was 84.

¹⁵ All participants across collection types were requested to also provide Service Administration costs alongside their collection costs. The number of collectors that submitted service administration costs for the 2024 cost study was 89.

3.4 Cost Allocations by Cost Category

The non-PPP percentage (non-PPP%) of reported costs were requested to calculate the Adjusted Net Residential PPP Cost. Where the non-PPP% was not provided by the participants, virtual meetings and e-mail correspondences were conducted to verify the non-PPP%. However, if the data was not available to the collector or if there was no response, it was assumed that the entire gross cost would be allocated to the PPP.

3.5 Cost Allocations by Material Type

For depot collectors, there was a section in the questionnaire that requested collectors to provide the allocation of PPP cost to material type. The total PPP collection costs would be allocated to mixed paper, mixed container, glass, flexible plastics, and expanded polystyrene.

For many collectors, this data isn't accurately tracked in their operations, so percentage estimates were used. Depending on the completeness of the allocation percentages provided by the collector, the third-party professional services firm applied workarounds to calculate the material specific cost/tonne. The following are the three categories of collectors based on data completeness.

- **Complete (23 Collectors)** – A collector who submitted all required allocation percentages.
- **Partial (21 Collectors)** – A collector who did not submit all required allocation percentages. Using the gross costs and the available allocation percentages, average allocation percentages by material type were calculated. The average allocation percentages were applied to the remaining costs. Furthermore, a collector who submitted an allocation percentage for single cost line item, this allocation percentage was applied to all costs.
- **Workaround (18 Collectors)** – A collector who submitted no allocation percentages. The average allocation percentage calculated from the complete and partial categories were applied to all costs for these collectors.

3.6 Capital Costs Amortization and Cost of Capital

Capital Cost Amortization

Capital assets were amortized based on the amortization periods shown in Table 3. Any capital assets purchased before the amortization period were considered fully amortized and therefore, excluded from collection costs. Amortization periods were confirmed with Recycle BC and consistent with prior year studies.

Table 3. Amortization Periods of Capital Assets

Capital Assets	Collection Type	Amortization Period (Year)
Purchase of Collection Vehicles	Curbside, Multi-family and Depot	7
Initial Purchase of Curbside Carts /Containers/Bags Provided to Residents	Curbside, Multi-family and Depot	10
Replacement, Maintenance, and Distribution Costs of Carts /Containers/Bags Provided to Residents	Curbside, Multi-family and Depot	10
Purchase of New Build of Initial Depot Facility	Depot	25
Purchase of Initial Depot Equipment / Major Renovations	Depot	Defined by Collector
Purchase of Minor Expansions / Retrofits	Depot	5
Purchase of Other Uncategorized Capital Assets	Curbside, Multi-family and Depot	Defined by Collector

Annual amortization expense was calculated by dividing the adjusted PPP allocation of the original purchase price by amortization period.

Cost of Capital

Cost of capital calculation:

- Net book value (NBV) as of January 1, 2024 was calculated by subtracting accumulated amortization up to end of 2023 from the adjusted PPP allocation of the original purchase price.
- Cost of capital was derived by applying historical interest rates¹⁶ of the purchase year to NBV.

¹⁶ Source for historical interest rates: [Canada Prime Rate Weekly Insights: Bank of Canada Interest Rates | YCharts](#) .

4 Data Integrity and Accuracy

4.1 Data Integrity

Participants were requested to provide actual costs incurred in 2023.

This report relies on information provided by the cost study participants, and the third-party professional services firm has not performed an independent review of this information. It does not constitute an audit conducted in accordance with generally accepted auditing standards, an examination or compilation of, or the performance of agreed upon procedures with respect to prospective financial information, an examination of or any other form of assurance with respect to internal controls, or other attestation or review services in accordance with standards or rules established by the CICA or other regulatory body.

It should be noted that enquiries were made with participants to confirm if the reported costs appeared to be anomalies based on other collectors of similar size and/or geography.

4.2 Data Accuracy

Participants were requested to either provide PPP-specific costs or provide the gross costs and provide the non-PPP% of the costs to calculate the adjusted PPP costs.

Where necessary, the third-party professional services firm followed-up with participating collectors with virtual meetings or e-mail correspondence to clarify the following.

- Annual contract costs;
- Non-PPP%;
- Asset purchased year;
- Amortization period (years);
- Cost drivers;
- Future planning costs; and
- Allocation of PPP cost to material type.

Data Assumptions

There were cases where the requested data was not provided by the collector. In these cases, the data was either not available to the collector or the collector did not respond to the follow-up request initiated by the third-party professional services firm. The data and the associated workarounds are listed in Table 4 below.

Table 4. Workarounds for Assumed Data

Data	Workaround
Non-PPP Percentage (Non-PPP%)	It was assumed that the gross cost is equal to the PPP cost. Therefore, the non-PPP% would be 0%. See 3.4 Cost Allocations by Cost Category.
Asset Purchased Year	It was assumed that the capital asset was purchased in 2023. Therefore, the Asset Purchased Year would be 2023.
Allocation of PPP Cost to Material Type	The allocation of PPP cost to material type was calculated based on calculated allocation percentages. Depending on the completeness of the allocation percentage data, the workarounds would use the available percentages. See Section 3.5 Cost Allocations by Material Type.

5 2024 Cost Study Results

5.1 Overall Results

In the 2024 Cost Study, the collection costs from 126 respondents (110 questionnaires + 16 direct service information provided by Recycle BC) were analyzed. The 2023 collection costs were compared with the 2017 and 2019 collection costs. It is worth noting that the collectors differ in the two costs study years from a number and respondents perspective; however, the costs shown in the Tables below are the available collection costs from the respective cost studies including direct service collectors and excluding anomalies.

Table 5. Collection Cost/Household for Curbside Collectors (incl. Direct Service, excl. Anomalies)

	2017	2019	2023	% Change (2019 to 2023)
Mean	\$47	\$51	\$69	36%
Median	\$45	\$54	\$67	25%
Weighted Average ¹⁷	\$43	\$46	\$61	31%
Count	10	21	40	

Table 6. Collection Cost/Household for Multi-family Collectors (incl. Direct Service, excl. Anomalies)

	2017	2019	2023	% Change (2019 to 2023)
Mean	\$32	\$34	\$31	-7%
Median	\$41	\$26	\$28	10%
Weighted Average ¹⁸	\$23	\$29	\$30	4%
Count	4	6	11	

Table 7. Collection Cost/Tonne for Depot Collectors (excl. Anomalies)

	2017	2019	2023	% Change (2019 to 2023)
Mean	\$304	\$865	\$880	2%
Median	\$320	\$655	\$737	12%
Weighted Average ¹⁹	\$301	\$427	\$561	32%
Count	10	36	69	

¹⁷ Weighted average calculations are based on number of households

¹⁸ Weighted average calculations are based on number of households

¹⁹ Weighted average calculations are based on tonnage

As shown in Figure 1, from 2017 to 2019, there were notable changes for Multi-family and Depot with percentage changes of 26% and 42%, respectively. From 2019 to 2023, there were notable changes for Curbside and Depot with percentage changes of 31% and 32%, respectively.

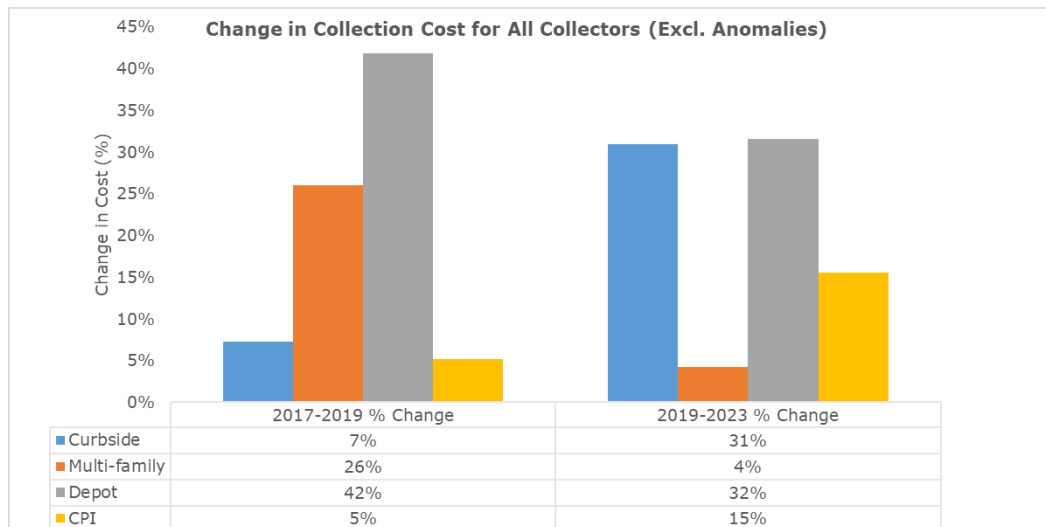


Figure 1. Change in Collection Cost for All Collectors (excl. Anomalies, incl. Direct Service)

Compared to the change in Consumer Price Index (CPI), the change in collection costs were inconsistent. The CPI used in this comparison is the British Columbia, All-items for December 2017²⁰, 2019²¹, and 2023²².

5.2 Curbside Collection

Costs from 40 curbside collectors (excluding 2 collectors), 27 questionnaires submitted by collectors (excluding 2 anomalies) and 13 direct services costs provided by Recycle BC, were received and analyzed in the 2024 cost study.

Diversion²³ in 2023 ranged from 42 kg/HH to 200 kg/HH as shown in Table 8. Diversion in 2019 ranged from 16 kg/HH to 193 kg/HH. For Table 8 and Figure 2, direct service collectors are not included in this analysis.

Table 8. 2023 Curbside Diversion (Tonnes/HH) (excl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	123	121
Median	124	124
Weighted Average	136	136
Min	42	42
Max	200	200
Count	29	27

²⁰ Retrieved from [Statistics Canada](#) on July 30, 2024.

²¹ Retrieved from [Statistics Canada](#) on July 30, 2024.

²² Retrieved from [Statistics Canada](#) on July 30, 2024.

²³ Diversion is defined as tonnage diverted from landfill calculated by dividing tonnage collected by the number of households.

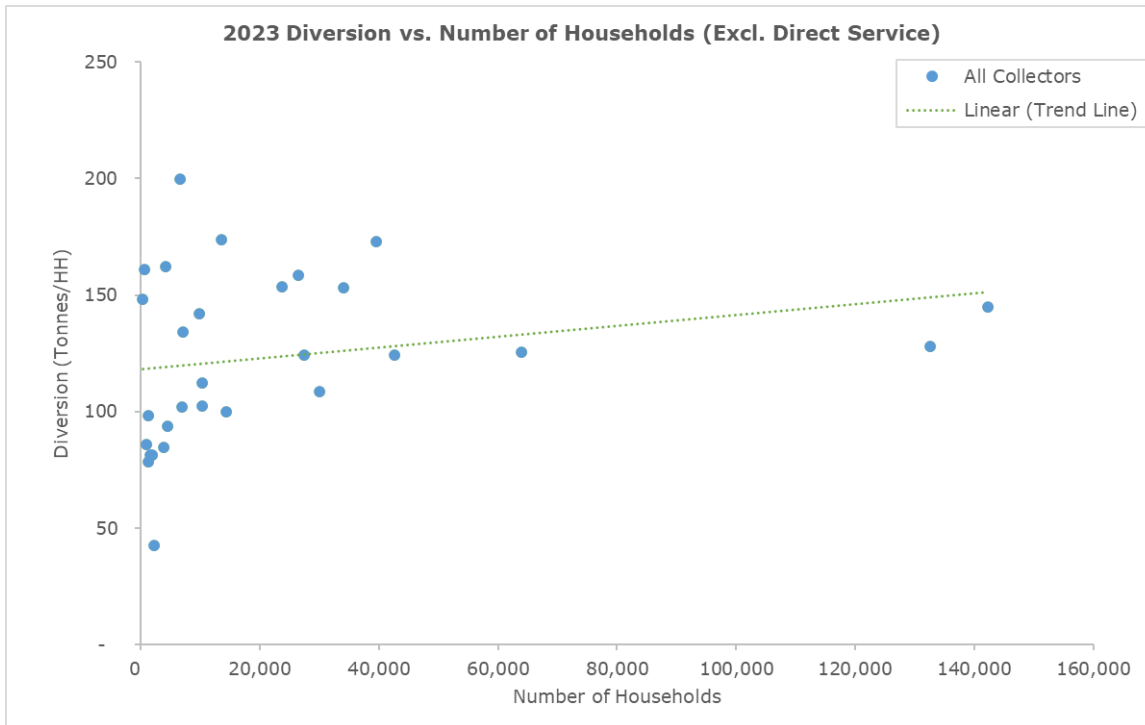


Figure 2. 2023 Curbside Diversion vs. Number of Households (all Collectors, excl. Direct Service)

Curbside Collection Cost Summary

The collection cost/HH for Curbside collectors in 2023 ranged from \$24.35 to \$117.63 as shown in Table 9. The collection cost/HH for Curbside collectors in 2019 ranged from \$20.65 to \$80.42. Two (2) anomalies were identified with costs greater than \$175/household and not used as representative sample costs.

Table 9. 2023 Curbside Collection Cost / Household (incl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	\$77.22	\$69.36
Median	\$68.34	\$66.80
Weighted Average	\$60.90	\$60.69
Min	\$24.35	\$24.35
Max	\$291.19	\$117.63
Count	42	40

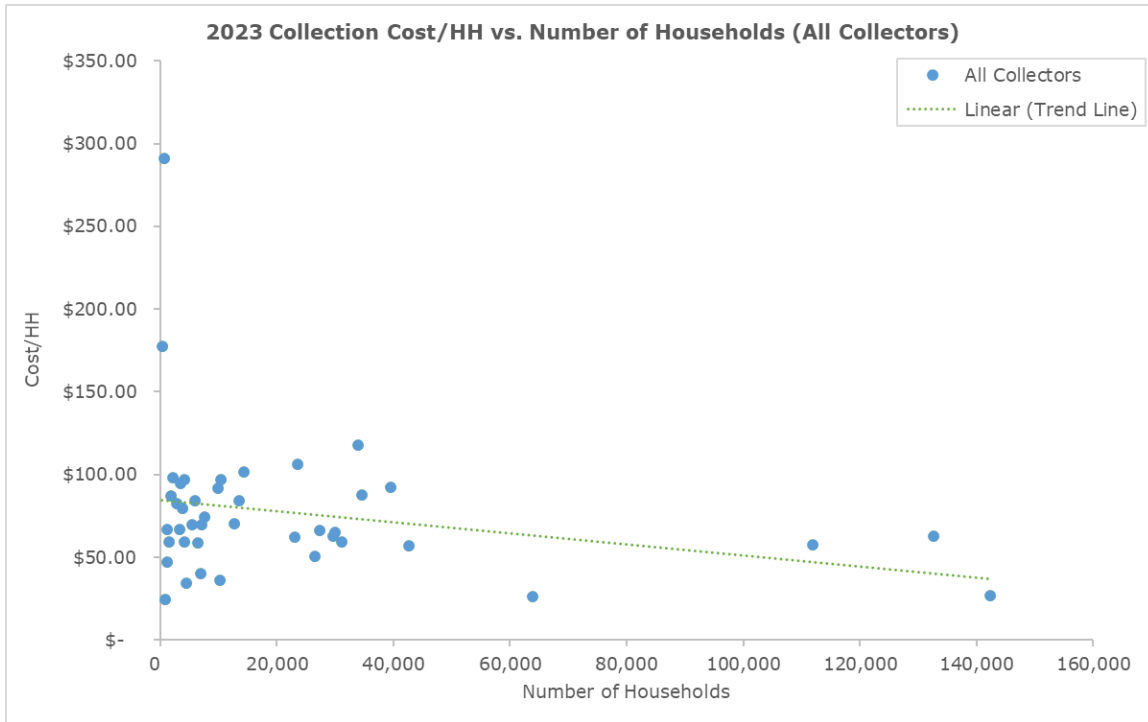


Figure 3. 2023 Curbside Collection Cost/Household vs. Number of Households (all Collectors, incl. Direct Service)

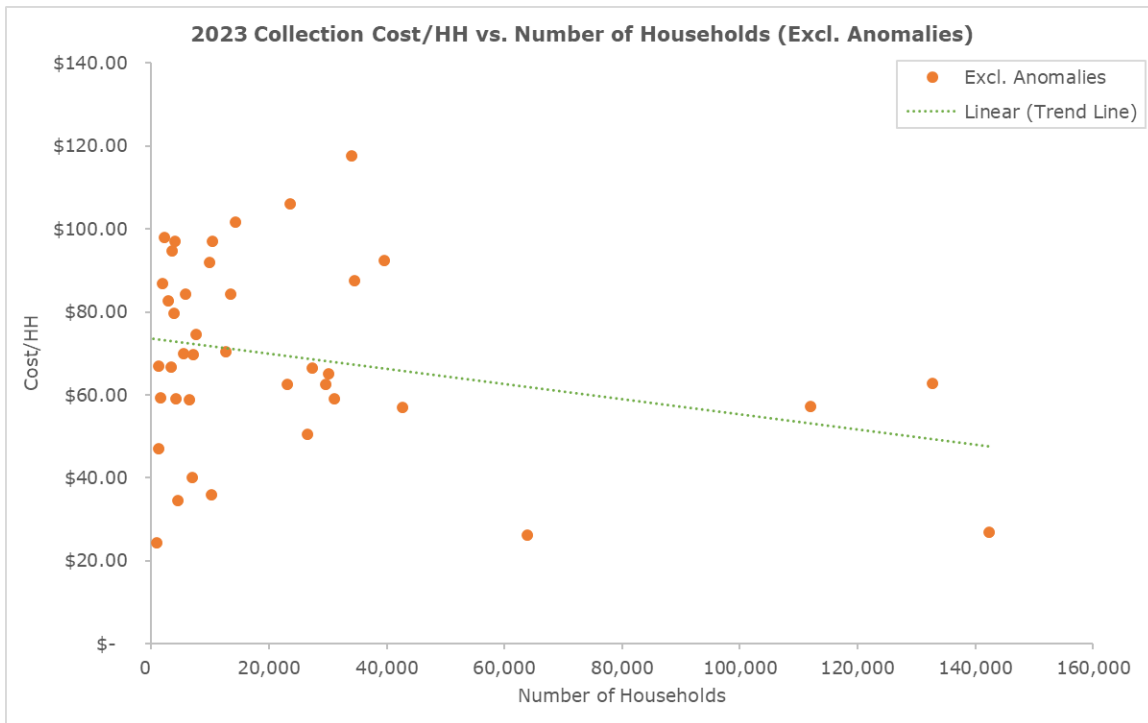


Figure 4. 2023 Curbside Collection Cost/Household vs. Number of Households (excl. Anomalies, incl. Direct Service)

As shown in Figure 4, the linear trend line for the cost/HH and number of households shows a negative correlation where cost/HH decreases as the number of households increases.

Curbside Collection Cost Breakdown

The following Tables show category breakdowns for curbside collection cost/HH. All data presented below exclude anomalies.

Collectors were categorized based on service provider type as shown in Table 10:

- LG (In-house): Local Government manages the collection program
- LG (Sub): Local Government contracts the collection program to a subcontractor
- DS: Direct Service

Table 10. 2023 Curbside Collection Cost/Household by Service Provider Type (excl. Anomalies, incl. Direct Service)

	LG (In-house)	LG (Sub)	DS
Mean	\$77.61	\$61.88	\$71.60
Median	\$79.59	\$58.15	\$69.87
Weighted Average	\$85.52	\$51.37	\$65.05
Count	11	16	13

Collectors were categorized based on number of streams as shown in Table 11:

- 1: Single-stream collection
- 2: Multi-stream collection
- 3: Multi-stream collection with glass

Table 11. 2023 Curbside Collection Cost/Household by Number of Streams (excl. Anomalies, incl. Direct Service)

	1	2	3
Mean	\$61.06	\$81.54	\$75.42
Median	\$65.17	\$84.27	\$70.16
Weighted Average	\$44.45	\$91.66	\$69.32
Count	19	5	16

Collectors were categorized based on number of streams and service provider type as shown in Table 12:

Table 12. 2023 Curbside Collection Cost/Household by Number of Streams by Service Provider Type (excl. Anomalies, incl. Direct Service)

Streams	1		2			3		
Service Provider	LG (In-house)	LG (Sub)	LG (In-house)	LG (Sub)	DS	LG (In-house)	LG (Sub)	DS
Mean	\$69.74	\$56.00	\$75.37	\$106.06	\$75.44	\$107.36	\$70.66	\$70.91
Median	\$67.00	\$48.74	\$75.37	\$106.06	\$75.44	\$107.36	\$62.69	\$69.87
Weighted Average	\$74.27	\$34.65	\$78.76	\$106.06	\$77.80	\$115.41	\$67.01	\$64.60
Count	19		5			16		

Collectors were categorized based on zone as shown in Table 13:

- A: Metro Vancouver / Fraser Valley
- B: Capital Regional District / Vancouver Island
- C: Okanagan / Kootenays
- D: Central Interior / North

Table 13. 2023 Curbside Collection Cost/Household by Zone (excl. Anomalies, excl. Direct Service)

	A	B	C	D
Mean	\$77.45	\$77.09	\$46.97	\$54.32
Median	\$84.19	\$67.00	\$35.91	\$56.67
Weighted Average	\$60.23	\$68.06	\$30.66	\$66.05
Count	11	7	5	<5 ²⁴

Change in Curbside Collection Cost

The following figures show the change in Curbside collection costs from 2017 to 2023.

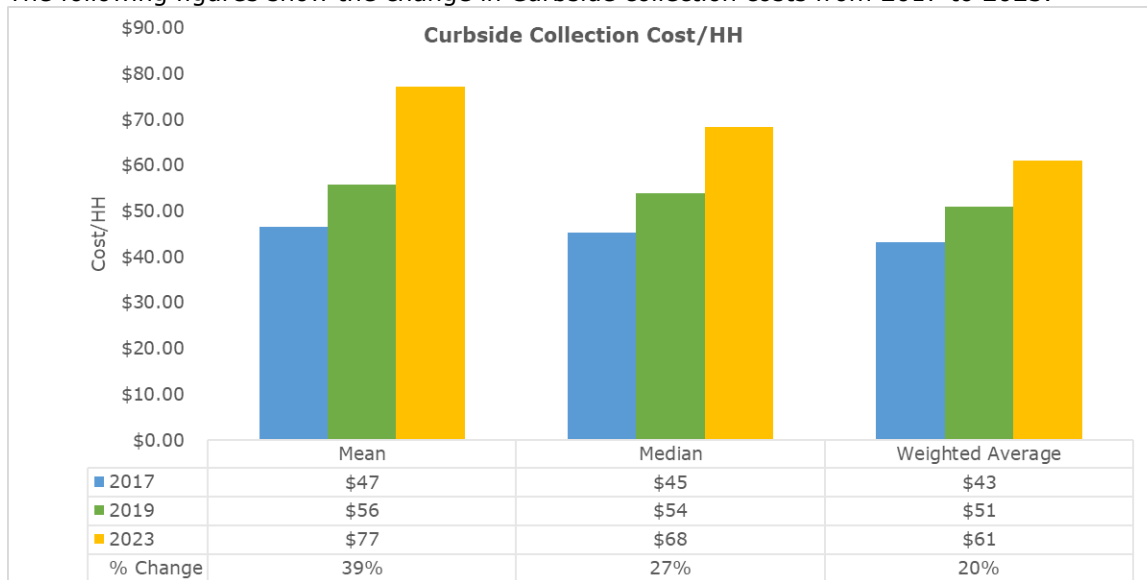


Figure 5. Change in Curbside Collection Cost/Household (all Collectors, incl. Direct Service)

²⁴ Note – For the purposes of this report, if there are counts lower than 5 for any analysis, it has been noted to keep the anonymity of the collectors. This has been applied throughout the report.

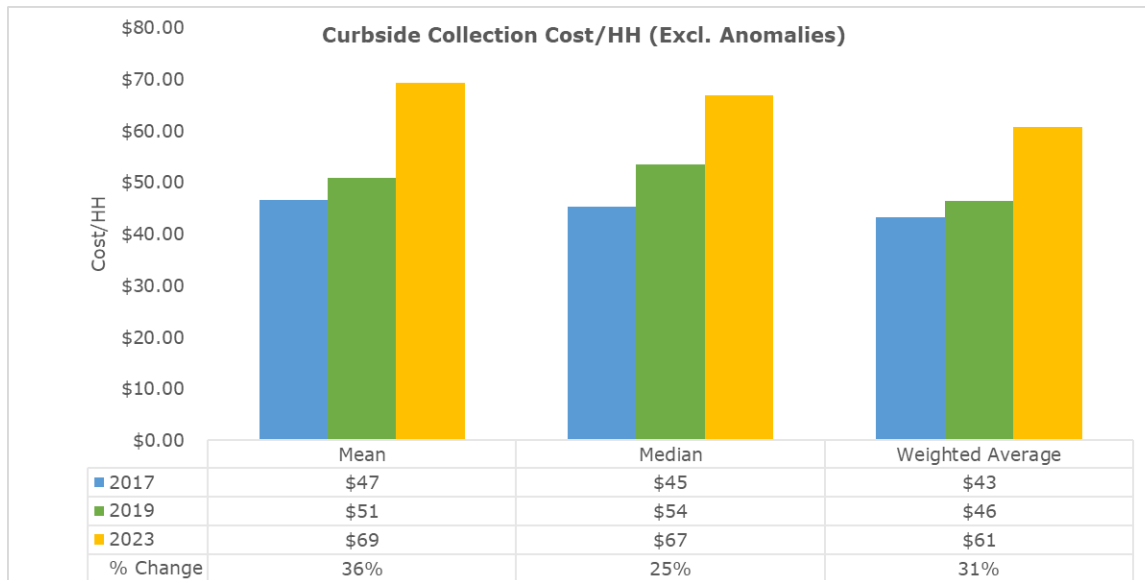


Figure 6. Change in Curbside Collection Cost/Household (excl. Anomalies, incl. Direct Service)

As shown in Figure 6, from 2019 to 2023, the weighted average of the curbside collection costs increased from \$46 to \$61 resulting in a percentage increase of 31%.

Cost Drivers

Participants were requested to provide significant cost drivers that have impacted operations from 2019 to 2023. Expected cost drivers that would impact future collection costs in 2025 were also requested. Common themes of cost drivers include:

Table 14. Significant Cost Drivers for Curbside Collectors

Cost Driver	No. of Collector Responses	Descriptions
Labour	8	<ul style="list-style-type: none"> Labour – Collective Agreements Union Contracts Recruit and retain staff
Rent, Utilities, Maintenance	6	<ul style="list-style-type: none"> New construction Container procurement Relocation Maintenance
Vehicles/Equipment	6	<ul style="list-style-type: none"> Fuel Vehicle purchases Vehicle/equipment maintenance
Contracts	6	<ul style="list-style-type: none"> Contract renewals
CPI	10	<ul style="list-style-type: none"> Inflationary increases
Other	7	<ul style="list-style-type: none"> Increased accessibility Contamination education costs Population growth

5.3 Multi-family Collection

Costs from 13 multi-family collectors (excluding 1 collector), 10 questionnaires submitted by collectors (excluding 1 anomaly) and 3 direct services costs were received and analyzed in the 2024 cost study. It should be noted that all collectors that provide multi-family collection also provide curbside collection.

Diversion in 2023 ranged from 40 kg/HH to 86 kg/HH as shown in Table 15. Diversion in 2019 ranged from 41 kg/HH to 97 kg/HH. For Table 15 and Figure 7, direct service collectors are not included in this analysis.

Table 15. 2023 Multi-family Diversion (Tonnes/HH) (excl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	59	56
Median	49	48
Weighted Average	56	54
Min	40	40
Max	86	86
Count	9	8

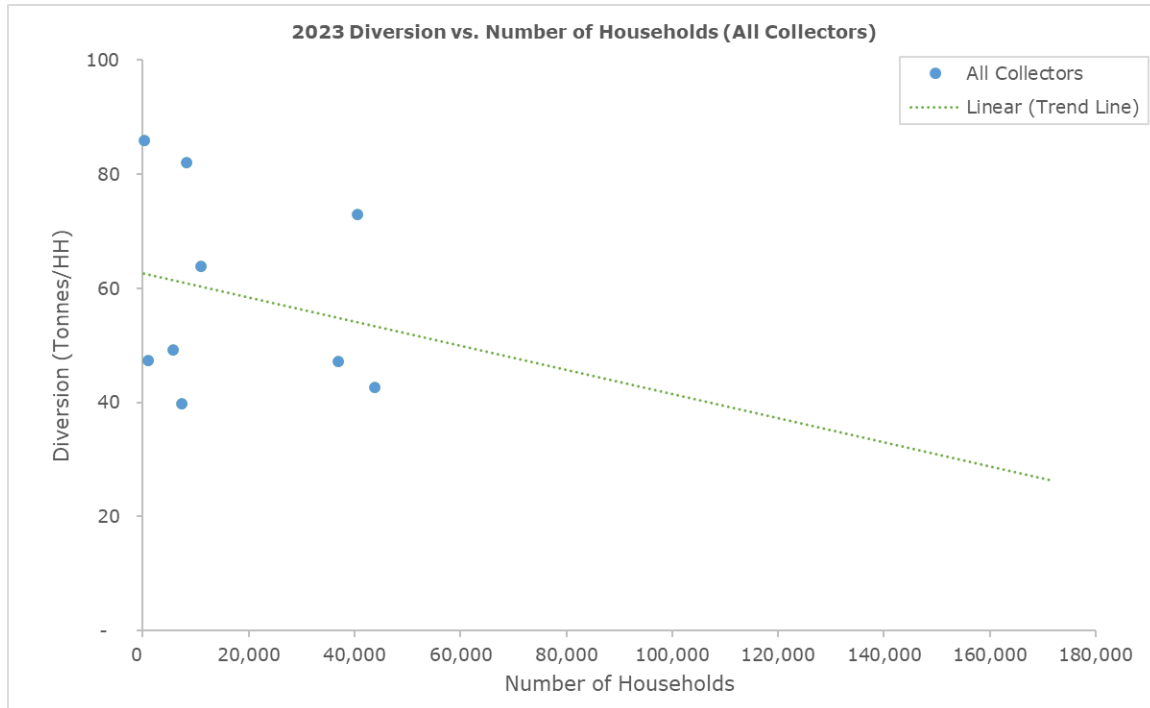


Figure 7. 2023 Multi-family Diversion vs. Number of Households (all Collectors, excl. Direct Service)

Multi-family Collection Cost Summary

The collection cost/HH for multi-family collectors in 2023 ranged from \$14.42 to \$44.29 as shown in Table 16. The collection cost/HH for Multi-family collectors in 2019 ranged from \$13.96 to \$79.98. One (1) anomaly was identified with costs greater than \$60/household and not used as representative sample costs.

Table 16. 2023 Multi-family Collection Cost/Household (incl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	\$36.87	\$31.28
Median	\$30.82	\$28.16
Weighted Average	\$31.49	\$29.93
Min	\$14.42	\$14.42
Max	\$98.45	\$44.29
Count	12	11

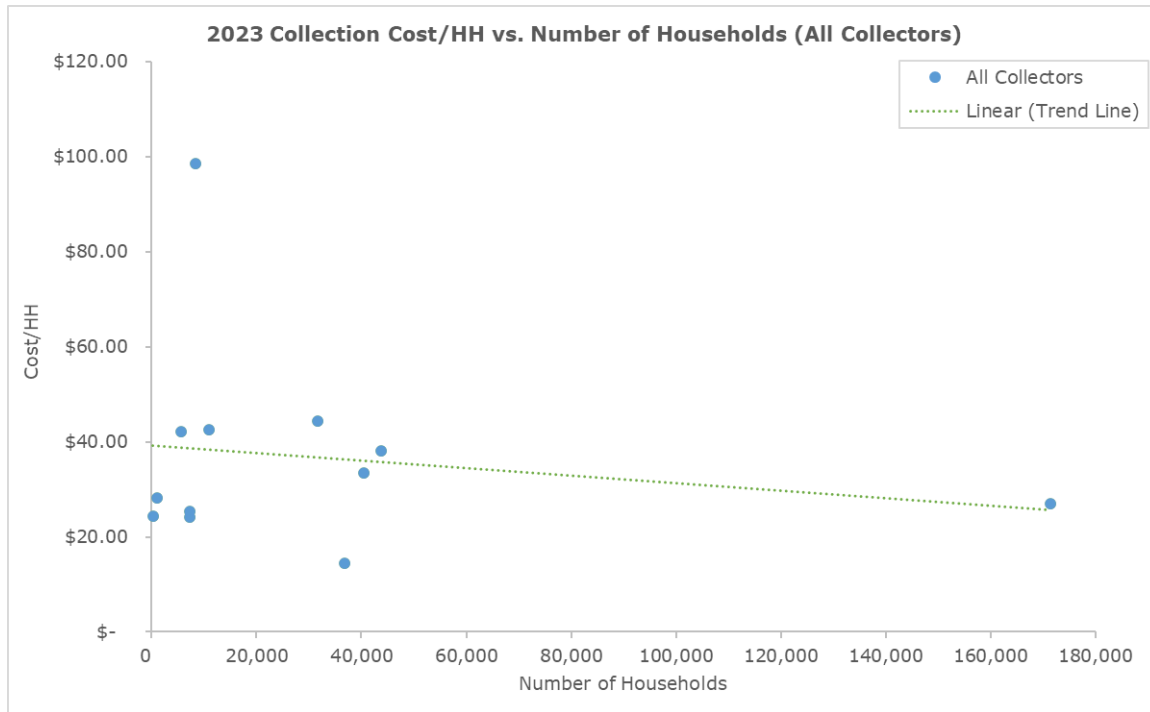


Figure 8. 2023 Multi-family Collection Cost/Household vs. Number of Households (all Collectors, incl. Direct Service)

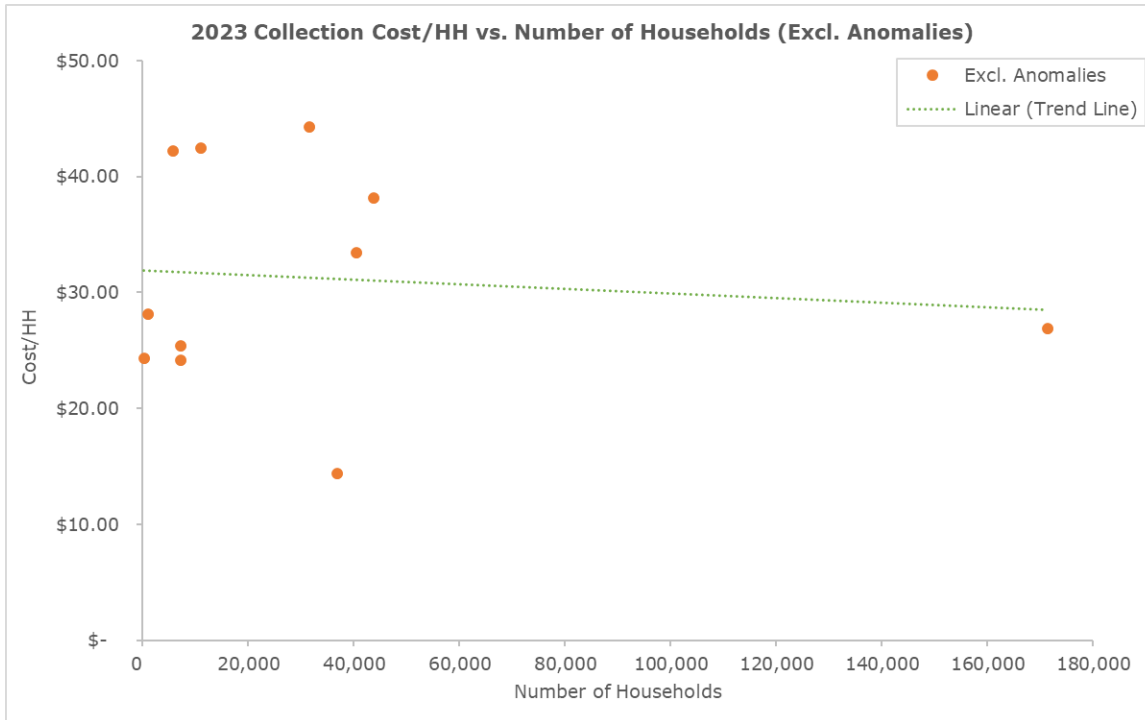


Figure 9. 2023 Multi-family Collection Cost/Household vs. Number of Households (excl. Anomalies, incl. Direct Service)

As shown in Figure 9, the linear trend line for the cost/HH and number of households shows a negative correlation where cost/HH decreases as the number of households increases.

Multi-family Collection Cost Breakdown

The following tables show category breakdowns for multi-family collection cost/HH. All data presented below exclude anomalies.

Collectors were categorized based on service provider type as shown in Table 17:

- LG (In-house): Local Government manages the collection program
- LG (Sub): Local Government contracts the collection program to a subcontractor
- DS: Direct Service

Table 17. 2023 Multi-family Collection Cost/Household by Service Provider Type (excl. Anomalies, incl. Direct Service)

	LG (In-house)	LG (Sub)	DS
Mean	\$35.62	\$26.22	\$32.22
Median	\$37.84	\$26.17	\$26.92
Weighted Average	\$36.02	\$27.06	\$29.48
Count	<5	<5	<5

Collectors were categorized based on number of streams as shown in Table 18:

- 1: Single-stream collection
- 2: Multi-stream collection
- 3: Multi-stream collection with glass

Table 18. 2023 Multi-family Collection Cost/Household by Number of Streams (excl. Anomalies, incl. Direct Service)

	1	2	3
Weighted Average	\$21.45	\$42.20	\$31.32

Note – The information in Table 18 has been presented differently to preserve the anonymity of collectors.

Collectors were categorized based on number of streams and service provider type as shown in Table 19:

Table 19. 2023 Multi-family Collection Cost/Household by Number of Streams by Service Provider Type (excl. Anomalies, incl. Direct Service)

Streams	1		2	3		
Service Provider	LG (In-house)	LG (Sub)	LG (In-house)	LG (In-house)	LG (Sub)	DS
Weighted Average	\$42.06	\$16.30	\$42.20	\$33.48	\$38.15	\$29.48

Note – The information in Table 19 has been presented differently to preserve the anonymity of collectors.

Collectors were categorized based on zone as shown in Table 20:

- A: Metro Vancouver / Fraser Valley
- B: Capital Regional District / Vancouver Island
- C: Okanagan / Kootenays
- D: Central Interior / North

Table 20. 2023 Multi-family Collection Cost/Household by Zone (excl. Anomalies, excl. Direct Service)

	A	B	C	D
Mean	\$32.06	\$-	\$26.17	\$33.41
Median	\$35.81	\$-	\$26.17	\$33.41
Weighted Average	\$29.94	\$-	\$24.65	\$42.06
Count	<5	0	<5	<5

Change in Multi-family Collection Cost

The following figures show the change in multi-family collection costs from 2017 to 2023.

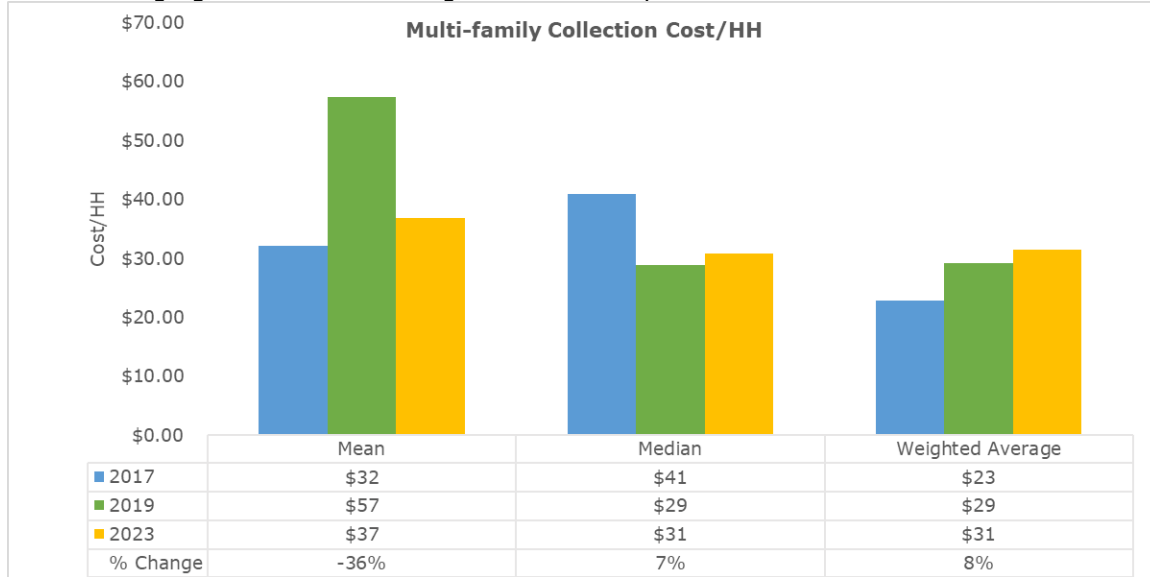


Figure 10. Change in Multi-family Collection Cost/Household (all Collectors, incl. Direct Service)

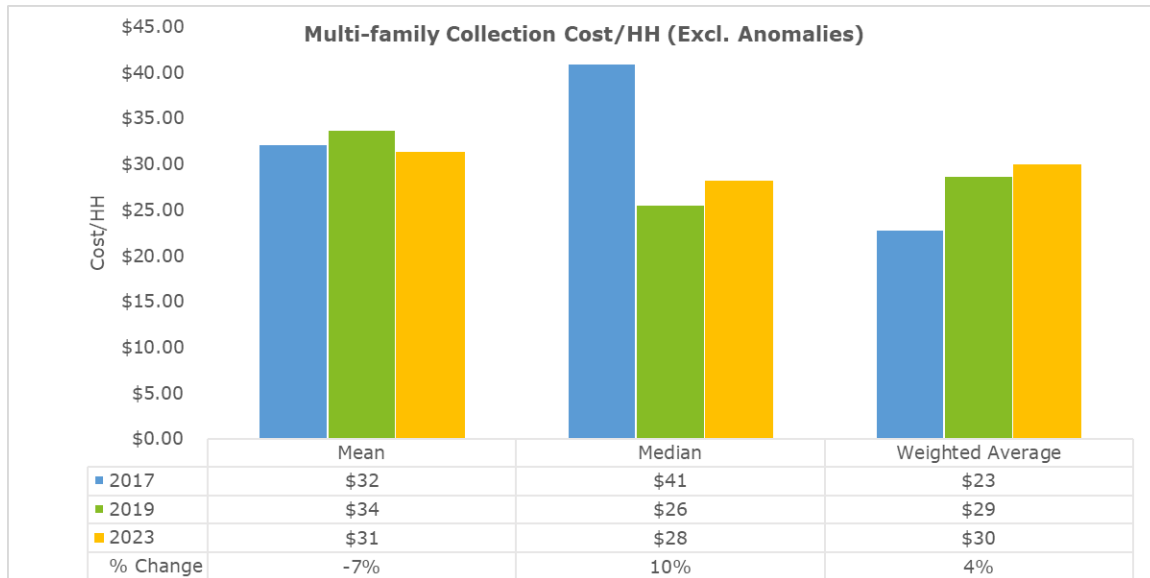


Figure 11. Change in Multi-family Collection Cost/Household (excl. Anomalies, incl. Direct Service)

As shown in Figure 11, from 2019 to 2023, the weighted average of the curbside collection costs increased from \$29 to \$30 resulting in a percentage increase of 4%.

Cost Drivers

Participants were requested to provide significant cost drivers that have impacted operations from 2019 to 2023. Expected cost drivers that would impact future collection costs in 2025 were also requested. Common themes of cost drivers include:

Table 21. Significant Cost Drivers for Multi-family Collectors

Cost Driver	No. of Collector Responses	Descriptions
Labour	3	<ul style="list-style-type: none">• Labour
Vehicles/Equipment	3	<ul style="list-style-type: none">• Fuel
CPI	4	<ul style="list-style-type: none">• Inflationary increases
Other	3	<ul style="list-style-type: none">• Population growth

5.4 Depot Collection

Costs from 69 questionnaires submitted by depot collectors (excluding 3 anomalies), were received, and analyzed in the 2024 cost study.

Depot Collection Cost Summary

The collection cost/tonne for depot collectors in 2023 ranged from \$179.68 to \$2,697.82 as shown in Table 22. The collection cost/tonne for depot collectors in 2019 ranged from \$161.39 to \$2,803.27. Three (3) anomalies were identified with costs greater than \$3,000/household and not used as representative sample costs.

Table 22. 2023 Depot Collection Cost / Tonne

	All Collectors	Excluding Anomalies
Mean	\$1,005.17	\$879.81
Median	\$756.08	\$736.57
Weighted Average	\$600.63	\$561.19
Min	\$179.68	\$179.68
Max	\$4,109.65	\$2,696.82
Count	72	69

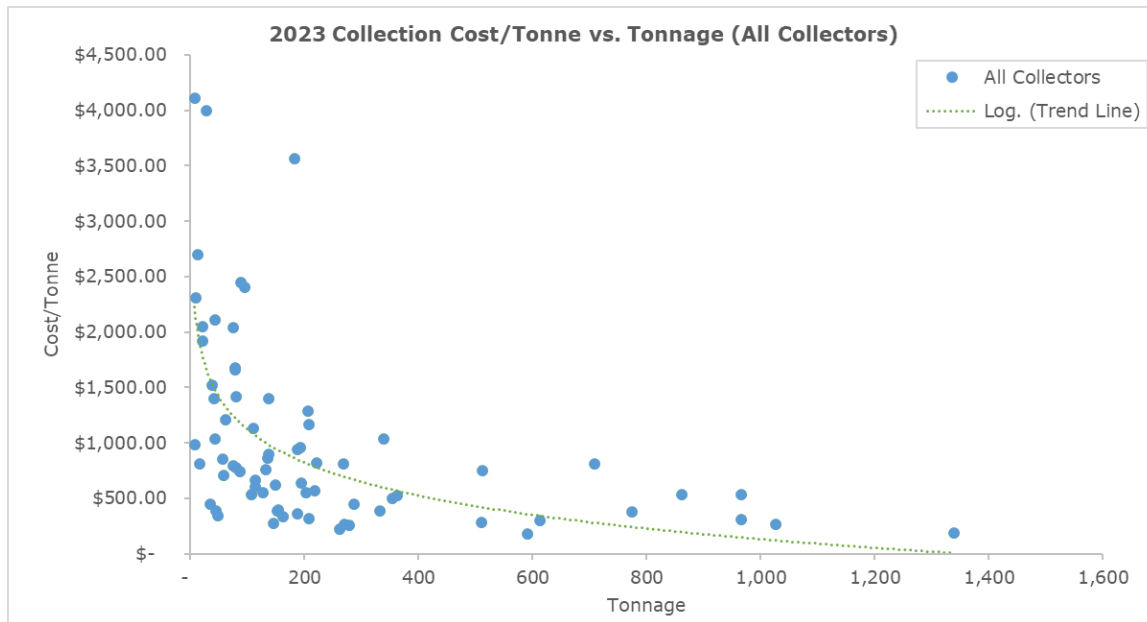


Figure 12. 2023 Depot Collection Cost/Tonne vs. Tonnage Collected (all Collectors)

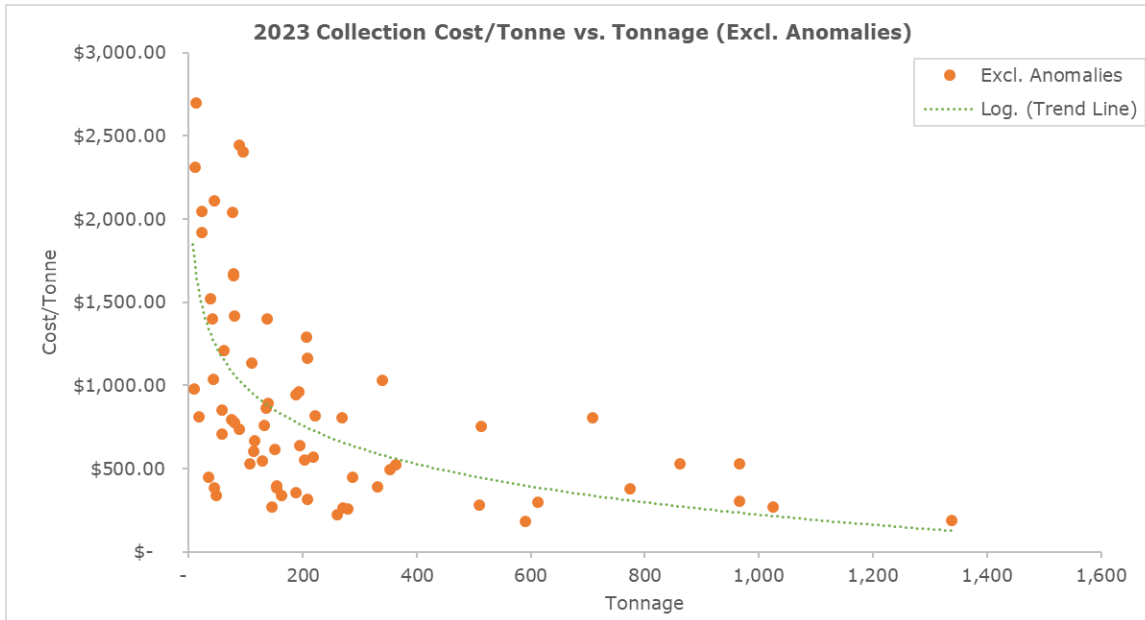


Figure 13. 2023 Depot Collection Cost/Tonne vs. Tonnage Collected (excl. Anomalies)

As shown in Figure 13, the logarithmic trend line for the cost/tonne and tonnage collected shows a negative correlation where cost/tonne decreases as the tonnage collected increases.

Depot Collection Cost by Bucket

The following tables and figures show the depot collection cost/tonne by bucket as defined by Recycle BC. All data presented below exclude anomalies.

Bucket 1 – Size of Depot

Depot collectors were categorized on the size of the depot based on tonnage collected to show the cost/tonne by bucket:

- Xsmall: ≤ 25 tonnes
- Small: > 25 tonnes, ≤ 125 tonnes
- Med: > 125 tonnes, ≤ 375 tonnes
- Large: > 375 tonnes

Table 23. 2023 Depot Collection Cost/Tonne by Size of Depot (excl. Anomalies)

	Xsmall	Small	Med	Large
Mean	\$1,794.58	\$1,169.35	\$638.94	\$410.47
Median	\$1,984.69	\$1,038.95	\$553.83	\$304.27
Weighted Average	\$1,805.75	\$1,180.29	\$619.04	\$391.53
Count	6	23	29	11

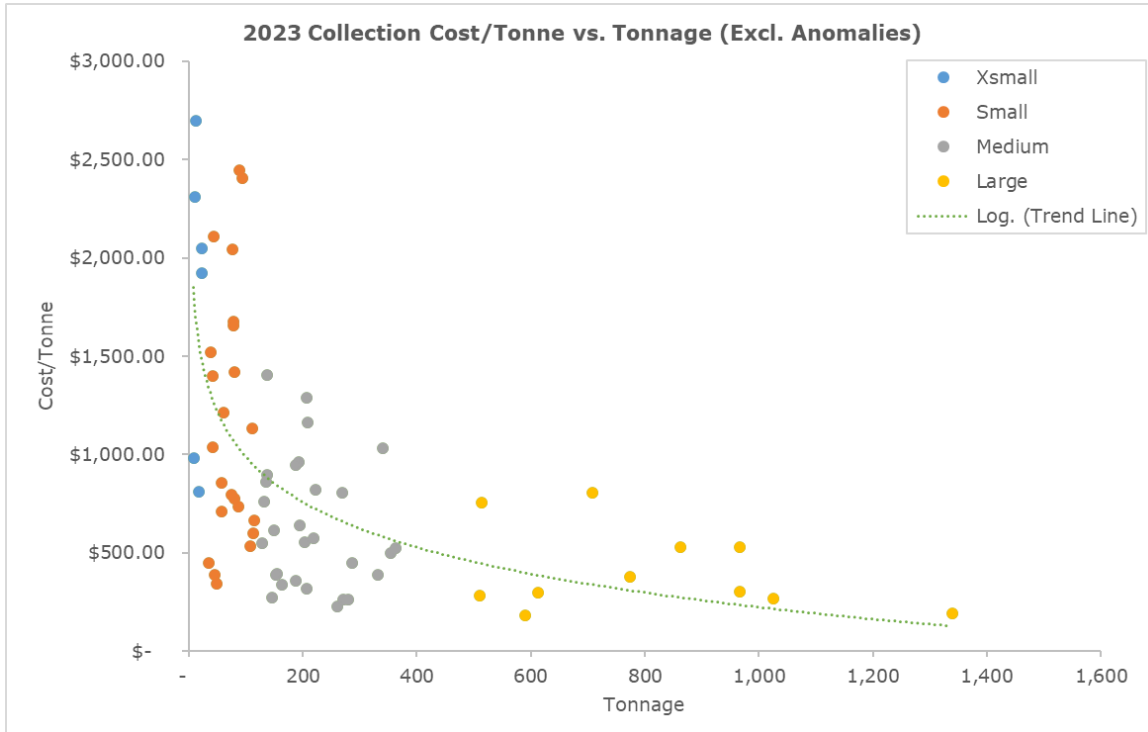


Figure 14. 2023 Depot Collection Cost/Tonne vs Tonnage Collected by Size of Depot (excl. Anomalies)

As shown in Figure 14, the logarithmic trend line for the cost/tonne and tonnage collected have a negative correlation where cost/tonne decreases as the size of the depot increases.

For further analysis, the depot collectors were categorized on a more granular size of depot based on tonnage collected. The collectors with the 25% highest cost/tonne were also removed from the collective population using a percentile method to provide a more isolated view. The revised tonnage buckets are shown in Table 24.

Table 24. Revised Tonnage Buckets for Depot Collectors by 6 Buckets

Bucket	Min. Tonnage	Max. Tonnage
1	0	25
2	25	50
3	50	80
4	80	125
5	125	400
6	400	-

The collection cost/tonne based on the revised tonnage buckets and omitting the collectors with the highest 25% of collection cost/tonne is shown in Table 25 with the breakdown shown in Table 26 and Table 27.

Table 25. 2023 Depot Collection Cost / Tonne by 6 Buckets (excl. Anomalies, excl. Highest Cost/Tonne)

	All Collectors excluding Anomalies	All Collectors excluding 25% highest Collection Cost/Tonne
Mean	\$879.81	\$590.01
Median	\$736.57	\$539.88
Weighted Average	\$561.19	\$479.41
Min	\$179.68	\$179.68
Max	\$2,696.82	\$1,211.84
Count	69	52

Table 26. 2023 Depot Collection Cost/Tonne by Size of Depot by 6 Buckets (excl. Anomalies)

	1	2	3	4	5	6
Mean	\$1,794.58	\$1,034.69	\$1,277.56	\$1,189.93	\$638.94	\$410.47
Median	\$1,984.69	\$1,038.95	\$1,211.84	\$774.58	\$553.83	\$304.27
Weighted Average	\$1,805.75	\$1,027.74	\$1,321.88	\$1,153.11	\$619.04	\$391.53
Count	6	7	7	9	29	11

Table 27. 2023 Depot Collection Cost/Tonne by Size of Depot by 6 Buckets (excl. 25% Highest Cost/Tonne)

	1	2	3	4	5	6
Mean	\$895.27	\$553.34	\$924.58	\$740.66	\$574.76	\$410.47
Median	\$895.27	\$417.06	\$853.74	\$701.35	\$535.28	\$304.27
Weighted Average	\$867.45	\$548.85	\$930.35	\$739.16	\$569.57	\$391.53
Count	2	4	3	6	26	11

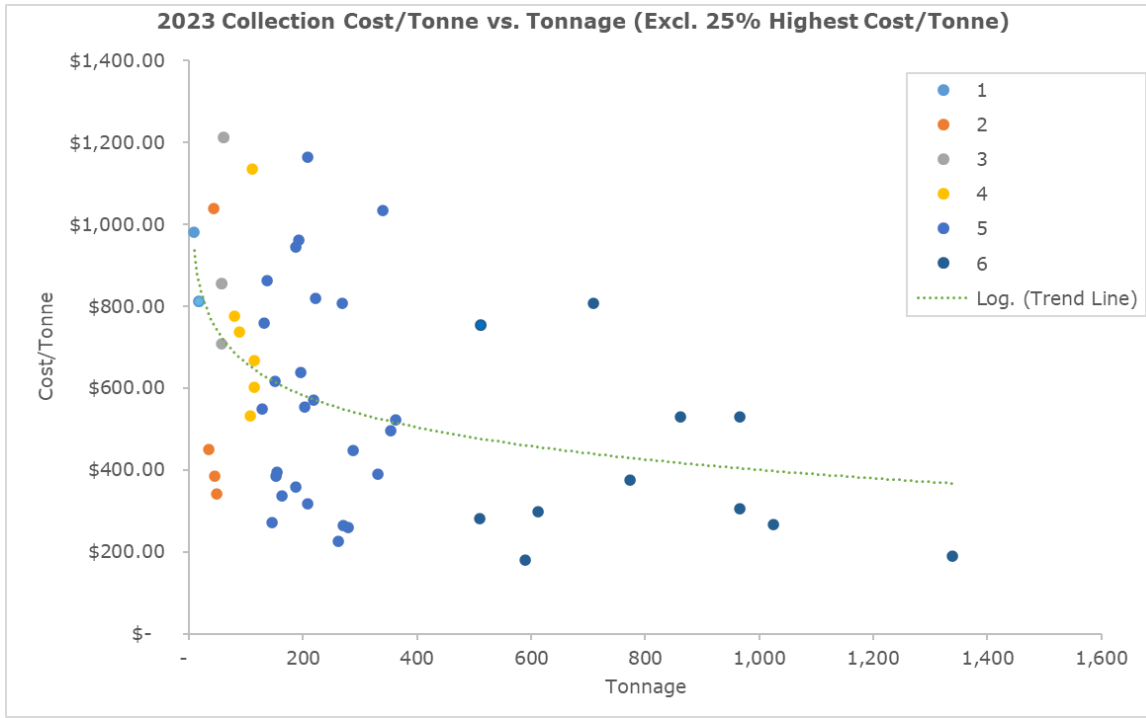


Figure 15. 2023 Depot Collection Cost/Tonne vs Tonnage Collected by Size of Depot by 6 Buckets (excl. 25% Highest Cost/Tonne)

As shown in Figure 15, the cost/tonne and tonnage collected shows a negative correlation where cost/tonne decreases as the tonnage collected increases.

Continuing from the previous analysis, the depot collectors were further categorized into four (4) buckets based on tonnage collected. The collectors with the 25% highest cost/tonne were removed from each bucket using a percentile method. The revised tonnage buckets are shown in Table 28.

Table 28. Revised Tonnage Buckets for Depot Collectors by 4 Buckets

Bucket	Min. Tonnage	Max. Tonnage
1	0	80
2	80	125
3	125	400
4	400	-

The collection cost/tonne based on the four (4) tonnage buckets and omitting the collectors with the highest 25% of collection cost/tonne in each bucket is shown in Table 29 with the breakdown shown in Table 30 and Table 31.

Table 29. 2023 Depot Collection Cost / Tonne by 4 Buckets (excl. Anomalies, excl. Highest Cost/Tonne)

	All Collectors excluding Anomalies	All Collectors excl. 25% highest Collection Cost/Tonne by Bucket
Mean	\$879.81	\$696.55
Median	\$736.57	\$553.83
Weighted Average	\$561.19	\$447.32
Min	\$179.68	\$179.68
Max	\$2,696.82	\$2,041.31
Count	69	53

Table 30. 2023 Depot Collection Cost/Tonne by Size of Depot by 4 Buckets (excl. Anomalies)

	1	2	3	4
Mean	\$1,347.66	\$1,189.93	\$638.94	\$410.47
Median	\$1,305.44	\$774.58	\$553.83	\$304.27
Weighted Average	\$1,274.99	\$1,153.11	\$619.04	\$391.53
Count	20	9	29	11

Table 31. 2023 Depot Collection Cost/Tonne by Size of Depot by 4 Buckets (excl. 25% Highest Cost/Tonne)

	1	2	3	4
Mean	\$1,111.76	\$837.32	\$492.79	\$303.29
Median	\$1,009.60	\$736.57	\$471.21	\$289.66
Weighted Average	\$1,169.19	\$818.06	\$480.78	\$299.80
Count	16	7	22	8



Figure 16. 2023 Depot Collection Cost/Tonne vs Tonnage Collected by Size of Depot by 4 Buckets (excl. 25% Highest Cost/Tonne)

As shown in Figure 16, the cost/tonne and tonnage collected shows a negative correlation where cost/tonne decreases as the tonnage collected increases.

Bucket 2 – Organizational Structure

Depot collectors were categorized on organizational structure to show cost/tonne by bucket. On suggestion from Recycle BC, Private Contractor (PC) collectors were grouped with the Private Contractor – Encorp (PC-E) collectors.

- LG: Local Government
- PC / PC-E²⁵: Private Contractor / Private Contractor – Encorp

Table 32. 2023 Depot Collection Cost/Tonne by Organizational Structure (excl. Anomalies)

	LG	PC / PC-E
Mean	\$843.30	\$948.27
Median	\$708.16	\$756.08
Weighted Average	\$485.93	\$748.97
Count	45	24

²⁵ Non-profit collectors are included in the PC / PC-E category.

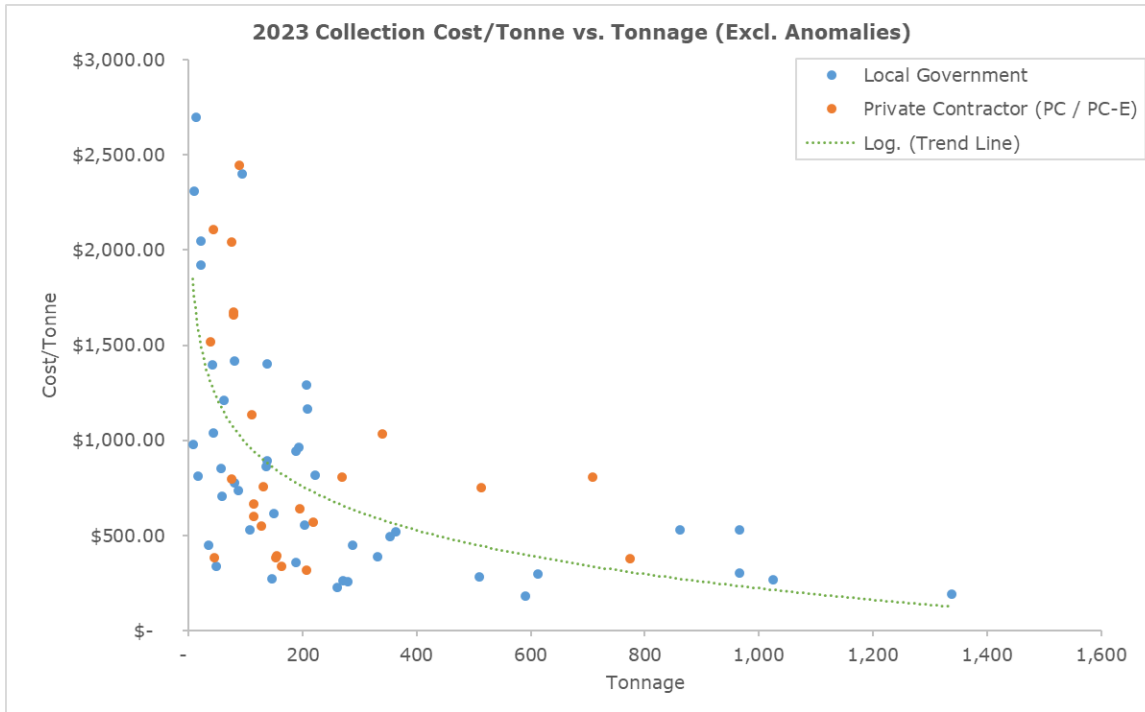


Figure 17. 2023 Depot Collection Cost/Tonne vs Tonnage Collected by Organizational Structure (excl. Anomalies)

As shown in Figure 17, the cost/tonne weighted average for local government collectors were lower than for private contractors.

Bucket 3 – Type of Community Collection

Depot collectors were categorized on type of community collection to show cost/tonne by bucket.

- With curbside MS: With curbside multi-stream collection
- W/O curb/mf or Curb with Single Stream only: Without curbside / multi-family collection or curbside with single-stream collection only

Table 33. 2023 Depot Collection Cost/Tonne by Type of Community Collection (excl. Anomalies)

	With curbside MS	W/O curb/mf or Curb with Single Stream only
Mean	\$915.19	\$864.33
Median	\$753.15	\$687.80
Weighted Average	\$531.44	\$573.08
Count	21	48

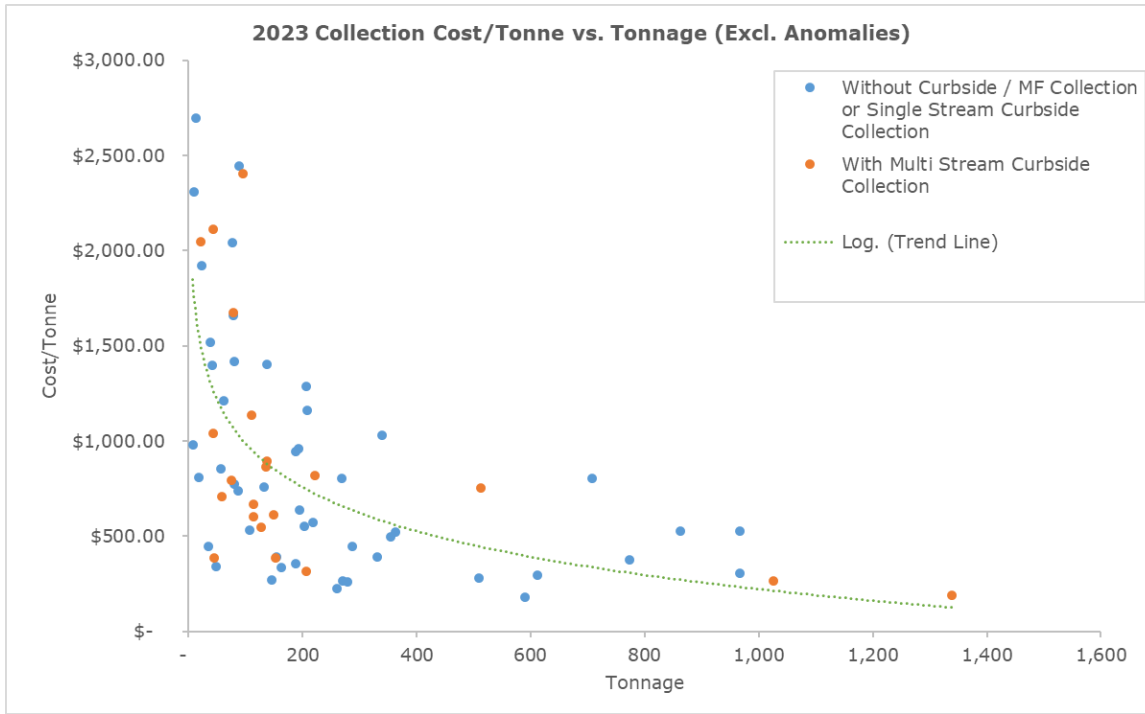


Figure 18. 2023 Depot Collection Cost/Tonne vs Tonnage Collected by Type of Community Collection (excl. Anomalies)

As shown in Figure 18, the cost/tonne weighted average for collectors with curbside multi-stream was comparable to collectors without curbside / multi-family collection or collectors with curbside collection with single-stream collection only.

Bucket 4 – Type of Collection Container

Depot collectors were categorized on type of collection container to show cost/tonne by bucket.

- SS/Liner Bags: Depots who only collect materials in super sacks / liner bags
- FE Bins/Roll-offs: Depots who only collect material in front-end bin / roll-off bins though coloured foam may be loose
- Compactor: Depots who only collect mixed paper in compactors
- Bale: Depots who bale both mixed paper and mixed containers
- Other: Residual category, all other depots who collect materials in any other combination of containers

Table 34. 2023 Depot Collection Cost/Tonne by Type of Collection Container (excl. Anomalies)

	SS/Liner Bags	FE Bins/Roll-offs	Compactor	Bale	Other
Mean	\$1,282.25	\$1,221.70	\$577.31	\$927.91	\$770.62
Median	\$921.35	\$977.55	\$376.31	\$958.61	\$608.35
Weighted Average	\$892.07	\$802.89	\$390.42	\$579.05	\$573.54
Count	12	4	7	6	40

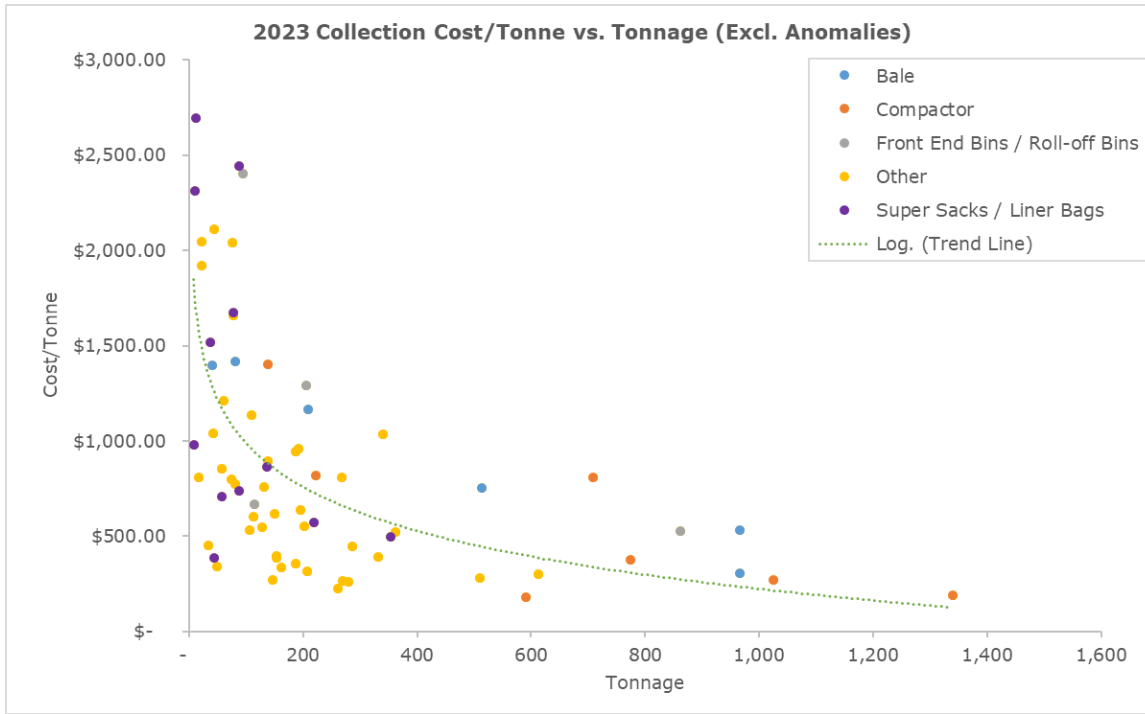


Figure 19. 2023 Depot Collection Cost/Tonne vs Tonnage Collected by Type of Collection Container (excl. Anomalies)

As shown in Figure 19, the cost/tonne weighted average for collectors who use compactors were the lowest while collectors who use super sacks / liner bags were the highest.

Depot Collection Cost by Material Type

The weighted average of collection cost/tonne by material type based on the data completeness category as defined in Section 3.5 Cost Allocations by Material Type is shown in Table 35 below. All data presented below exclude anomalies.

Table 35. 2023 Depot Collection Cost/Tonne by Material Type (excl. Anomalies)

	Mixed Paper	Mixed Container	Glass	Flexible Plastics	Expanded Polystyrene
Cost/Tonne (Complete)	\$246.08	\$841.97	\$338.67	\$1,083.07	\$3,154.34
Cost/Tonne (Partial)	\$611.34	\$1,063.96	\$206.88	\$1,067.32	\$3,511.54
Cost/Tonne (Workaround)	\$313.54	\$575.53	\$278.31	\$1,023.45	\$2,741.54
Cost/Tonne (Complete & Partial)	\$349.30	\$923.57	\$294.13	\$1,077.60	\$3,257.19

Using the available allocation percentages by material type from the questionnaires, the average cost composition was calculated. The cost composition for each material type is shown in Table 36.

Table 36. Average Cost Composition by Material Type (%) (excl. Anomalies)

	Mixed Paper	Mixed Container	Glass	Flexible Plastics	Expanded Polystyrene
Cost Composition (%) (Complete)	34%	17%	13%	20%	16%
Cost Composition (%) (Complete & Partial)	40%	18%	10%	19%	13%

Depot Collection Cost Breakdown

The following tables show other category breakdowns for depot collection cost/tonne. All costs presented in this section is a component of the total collection cost. In other words, it is not an additional cost to the total collection cost. All data presented below exclude anomalies.

The costs related to contamination removal related to material handling and depot facility costs are shown in Table 37.

Table 37. Depot Contamination Removal Cost/Tonne

	All Collectors	Excluding Anomalies	Percentage of Total Collection Cost (excl. Anomalies)
Mean	\$51.39	\$50.64	7.5%
Median	\$31.27	\$29.74	3.4%
Weighted Average	\$16.74	\$16.53	3.2%
Count	25	24	24

The cost to bale material is shown in Table 38. The baling cost/tonne is separated by material type for baled material which includes mixed paper, mixed container, and flexible plastics. For the baling cost/tonne, the tonnage by material type was used. For the total baling cost/tonne, the summation of costs for all baled material and tonnage for all baled material was used in the calculation. As a result, the baling cost/total may be skewed for some collectors as it accounts for all the baled material tonnage. For example, some collectors only bale mixed paper; therefore, total baling costs would only account for mixed paper baling cost while the total baling material tonnage accounts for mixed paper, mixed container, and flexible plastics material tonnage.

Table 38. Depot Baling Cost/Tonne (All Baling Collectors)

	Mixed Paper Cost/Tonne	Mixed Container Cost/Tonne	Flexible Plastics Cost/Tonne	Total Baling Cost/Tonne
Mean	\$331.20	\$468.98	\$441.33	\$324.73
Median	\$164.89	\$152.83	\$182.27	\$227.40
Weighted	\$184.56	\$207.90	\$232.00	\$181.67
Count	19	12	13	19

Change in Depot Collection Cost

The following Figures show the change in Depot collection costs from 2017 to 2023.

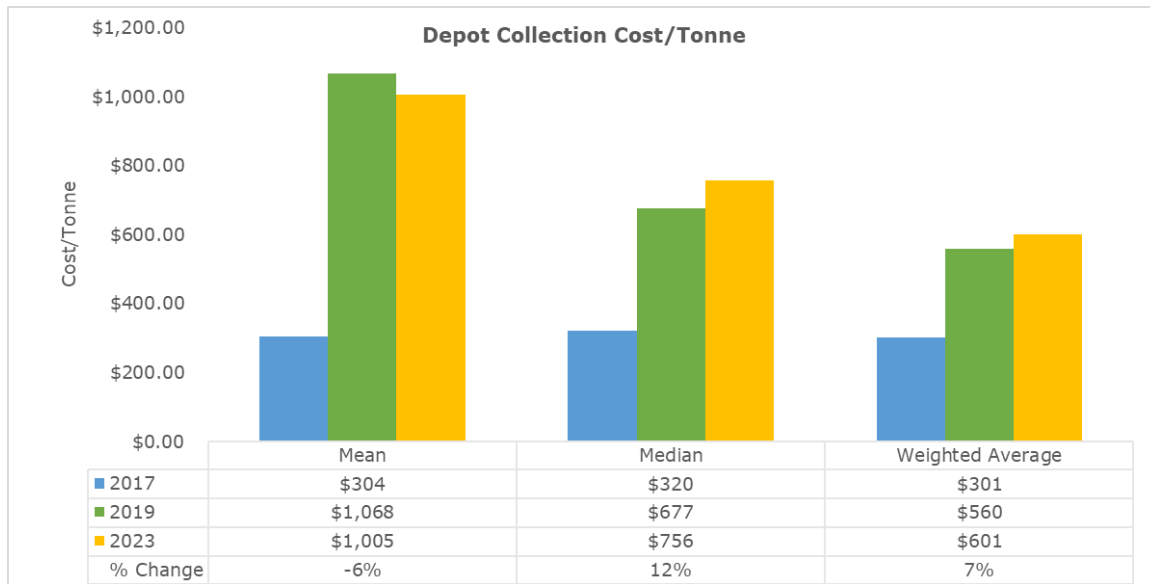


Figure 20. Change in Depot Collection Cost/Tonne (all Collectors)

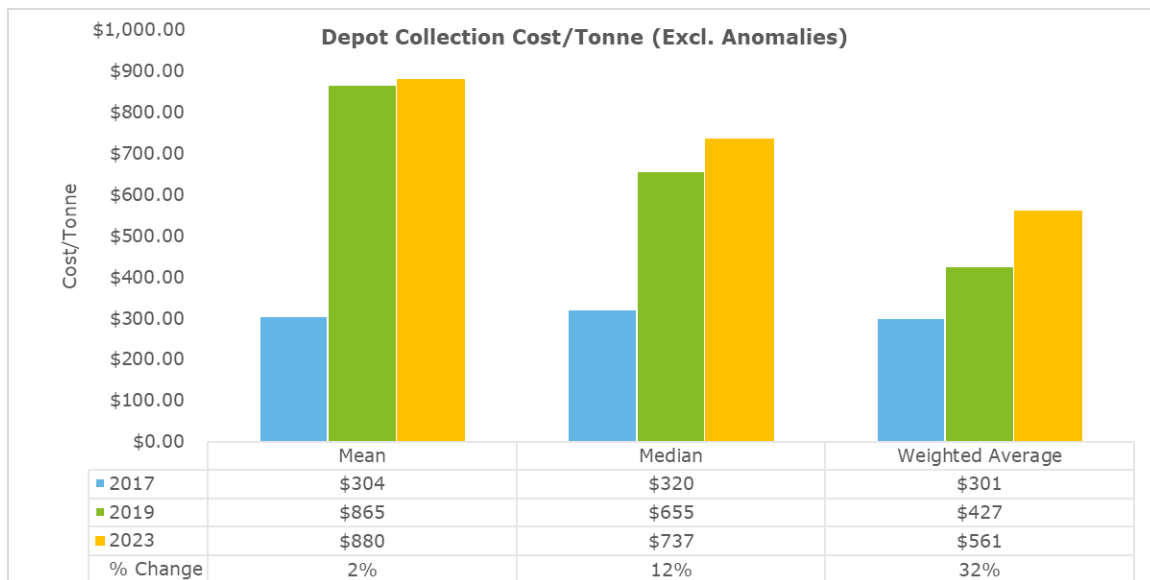


Figure 21. Change in Depot Collection Cost/Tonne (excl. Anomalies)

As shown in Figure 21, from 2019 to 2023, the weighted average of the depot collection costs increased from \$427 to \$561 resulting in a percentage increase of 32%.

Cost Drivers

Participants were requested to provide significant cost drivers that have impacted operations from 2019 to 2023. Expected cost drivers that would impact future collection costs in 2025 were also requested. Common themes of cost drivers include:

Table 39. Significant Cost Drivers for Depot Collectors

Cost Driver	No. of Collector Responses	Descriptions
Labour	17	<ul style="list-style-type: none"> Labour Employee health tax Collective agreements
Rent, Utilities, Maintenance	8	<ul style="list-style-type: none"> Repairs Site maintenance Rent
Vehicles/Equipment	2	<ul style="list-style-type: none"> Equipment repair/maintenance
Contracts	6	<ul style="list-style-type: none"> Contract renewals
CPI	1	<ul style="list-style-type: none"> Inflationary increases
Other	7	<ul style="list-style-type: none"> Insurance Property tax

Future Planning Costs

Participants were requested to provide significant future planning costs that will introduce additional costs for depot. There were three main categories of costs that were requested: depot investments, vehicle purchases, equipment purchases, and accessibility.

Table 40. Future Planning Costs for Depot Collectors

Capital Assets	No. of Collector Responses	Descriptions
Depot Investments	19	<ul style="list-style-type: none"> Building purchase Depot expansion Renovations
Vehicle Purchases	6	<ul style="list-style-type: none"> Forklift Diesel truck EV skid steer Electric vehicle
Equipment Purchases	16	<ul style="list-style-type: none"> Baler Storage container Pallet jack Lifter
Accessibility	2	<ul style="list-style-type: none"> Ramp Concrete repair
Other	1	<ul style="list-style-type: none"> Property tax for extra storage unit

5.5 Promotion and Education

Promotion and Education (P&E) costs from 84 questionnaires submitted by curbside, multi-family, and depot collectors, were received, and analyzed in the 2024 cost study. All contamination education and curbside auditing (e.g., contamination management) costs are included in the promotion and education costs.

Promotion and Education Curbside and Multi-family Cost Summary

The P&E costs for curbside and multi-family collectors are reported in the same section. All multi-family collectors also provide curbside collection; therefore, curbside/multi-family collectors submitted a consolidated promotion and education cost for both collection programs. The promotion and education costs for curbside and multi-family collectors are reported on a household and tonnage basis.

The P&E cost/household for curbside and curbside/multi-family collectors in 2023 ranged from \$0.27 to \$9.38 as shown in Table 41. The cost/household in 2019 ranged from \$0.29 to \$9.77. Two (2) anomalies were identified with costs greater than \$40/household and not used as representative sample costs. As shown in Figure 22, from 2019 to 2023, the weighted average of the P&E costs/household increased from \$1.18 to \$2.07, reflecting a percentage increase of 76%.

Table 41. 2023 Curbside and Multi-family Promotion & Education Cost/Household (excl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	\$6.95	\$3.52
Median	\$2.68	\$2.57
Weighted Average	\$2.13	\$2.07
Min	\$0.27	\$0.27
Max	\$58.59	\$9.38
Count	28	26

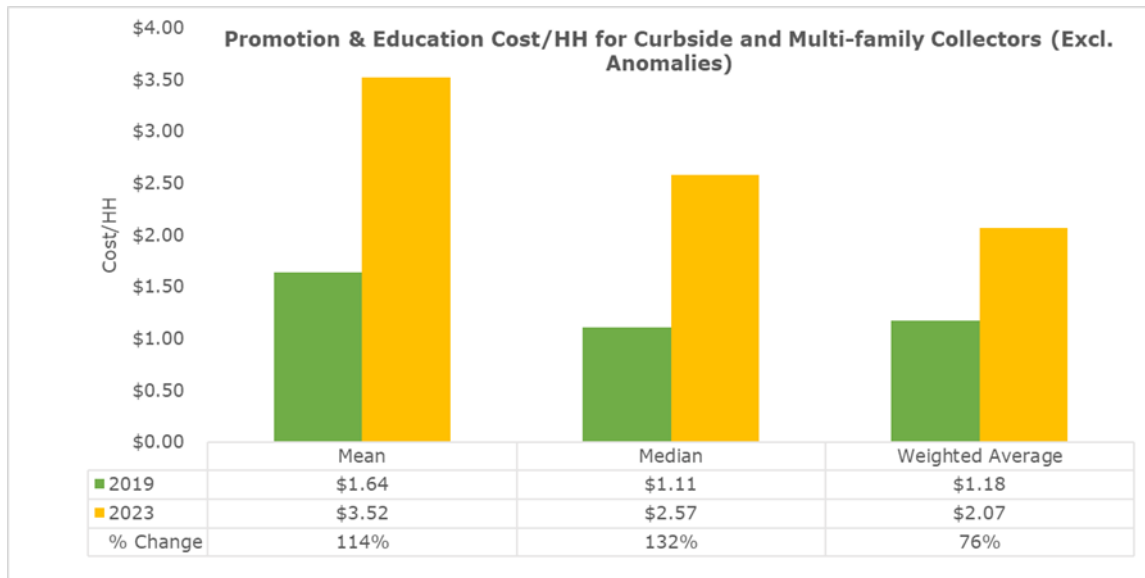


Figure 22. Change in Curbside and Multi-family Promotion & Education Cost/Household (excl. Anomalies, excl. Direct Service)

The P&E cost/tonne for curbside and curbside/multi-family collectors in 2023 ranged from \$1.74 to \$115.45 as shown in Table 42. The cost/tonne in 2019 ranged from \$2.82 to \$127.78. Two (2) anomalies were identified with costs greater than \$275.00/tonne and not used as representative sample costs. As shown in Figure 23, from 2019 to 2023, the weighted average of the P&E costs/tonne increased from \$9.56 to \$17.17, reflecting a percentage increase of 79%.

Table 42. 2023 Curbside and Multi-family Promotion & Education Cost/Tonne (excl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	\$56.56	\$35.04
Median	\$25.34	\$22.55
Weighted Average	\$17.64	\$17.17
Min	\$1.74	\$1.74
Max	\$395.01	\$115.45
Count	28	26

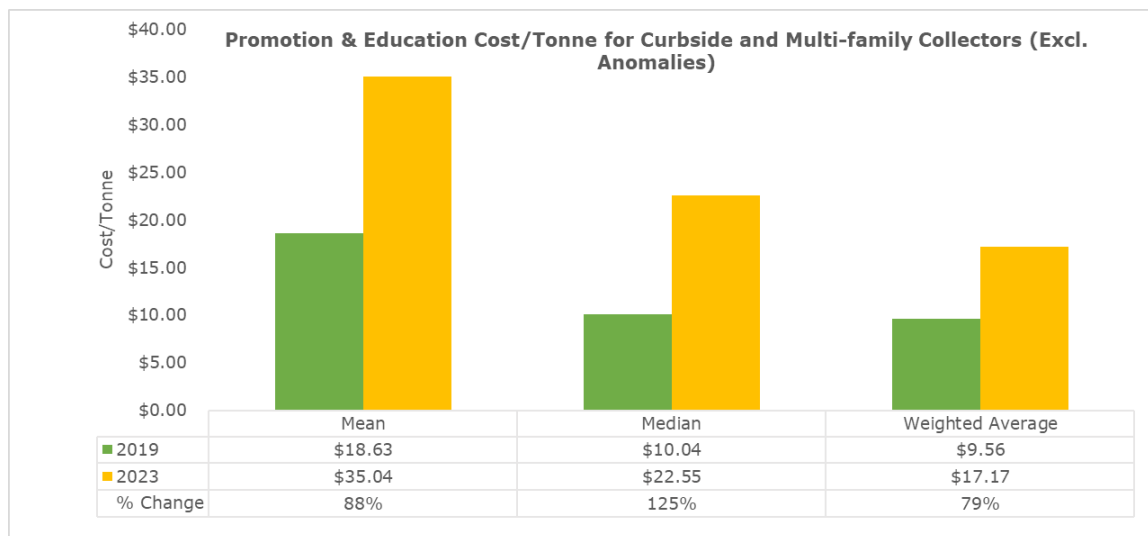


Figure 23. Change in Curbside and Multi-family Promotion & Education Cost/Tonne (excl. Anomalies, excl. Direct Service)

The curbside contamination education cost/household for all collectors in 2023 ranged from \$0.03 to \$8.18 as shown in Table 43. There were no anomalies identified.

Table 43. 2023 Curbside Contamination Education Cost/Household (excl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	\$2.26	\$2.26
Median	\$1.49	\$1.49
Weighted Average	\$1.56	\$1.56
Min	\$0.03	\$0.03
Max	\$8.18	\$8.18
Count	17	17

Promotion and Education Depot Cost Summary

The promotion and education costs for depot collectors are reported on a tonnage basis.

The P&E cost/tonne for collectors in 2023 ranged from \$0.22 to \$262.18 as shown in Table 44. The cost/tonne in 2019 ranged from \$0.02 to \$128.88. Four (4) anomalies were identified with costs greater than \$275.00/tonne and not used as representative sample costs. As shown in Figure 24, from 2019 to 2023, the weighted average of the P&E costs/tonne increased from \$8.94 to \$16.97, reflecting a percentage increase of 90%.

Table 44. 2023 Depot Promotion & Education Cost/Tonne

	All Collectors	Excluding Anomalies
Mean	\$64.05	\$36.69
Median	\$13.78	\$11.70
Weighted Average	\$18.38	\$16.97
Min	\$0.22	\$0.22
Max	\$1,200.18	\$262.18
Count	56	54

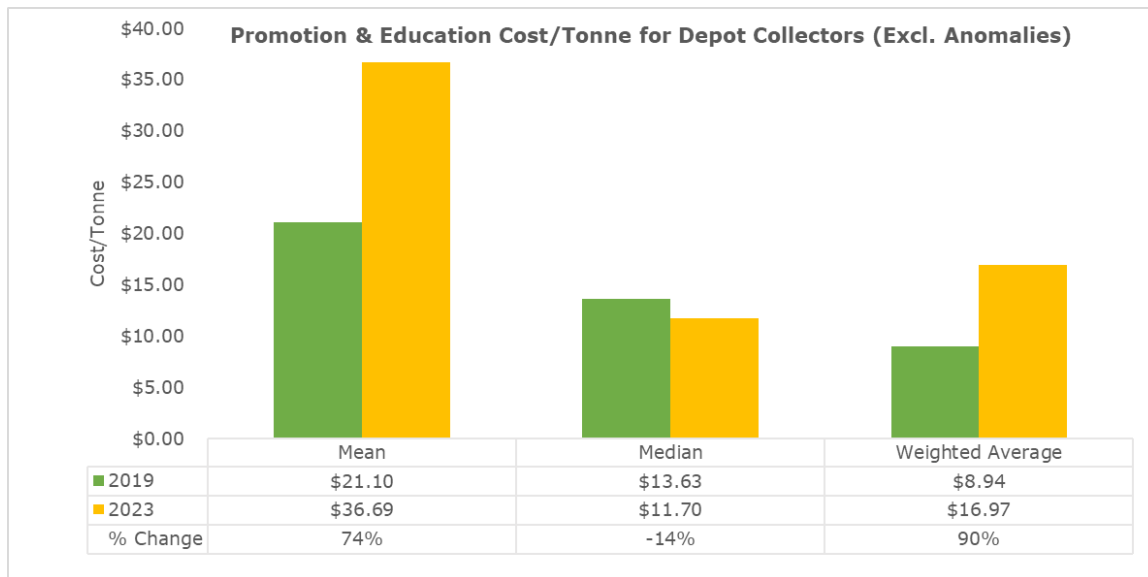


Figure 24. Change in Depot Promotion & Education Cost/Tonne (excl. Anomalies)

5.6 Service Administration

Service Administration (SA) costs from 89 questionnaires submitted by curbside, multi-family, and depot collectors, were received and analyzed in the 2024 cost study.

Service Administration Curbside and Multi-family Cost Summary

The SA costs for curbside and multi-family collectors are reported in the same section. All multi-family collectors also provide curbside collection; therefore, curbside/multi-family collectors submitted a consolidated service administration cost for both collection programs.

The SA costs for curbside and multi-family collectors are reported on a household and tonnage basis.

The SA cost/household for curbside and curbside/multi-family collectors in 2023 ranged from \$0.97 to \$28.98 as shown in Table 45. In 2019, the cost/household ranged from \$0.53 to \$12.46. One (1) anomaly was identified with costs greater than \$90/household and not used as representative sample costs. As shown in Figure 25, from 2019 to 2023, the weighted average of the SA costs/household decreased from \$4.34 to \$3.81, reflecting a percentage decrease of 12%.

Table 45. 2023 Curbside and Multi-family Service Administration Cost/Household (excl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	\$11.96	\$9.02
Median	\$8.02	\$7.82
Weighted Average	\$5.34	\$3.81
Min	\$0.97	\$0.97
Max	\$91.34	\$28.98
Count	28	27

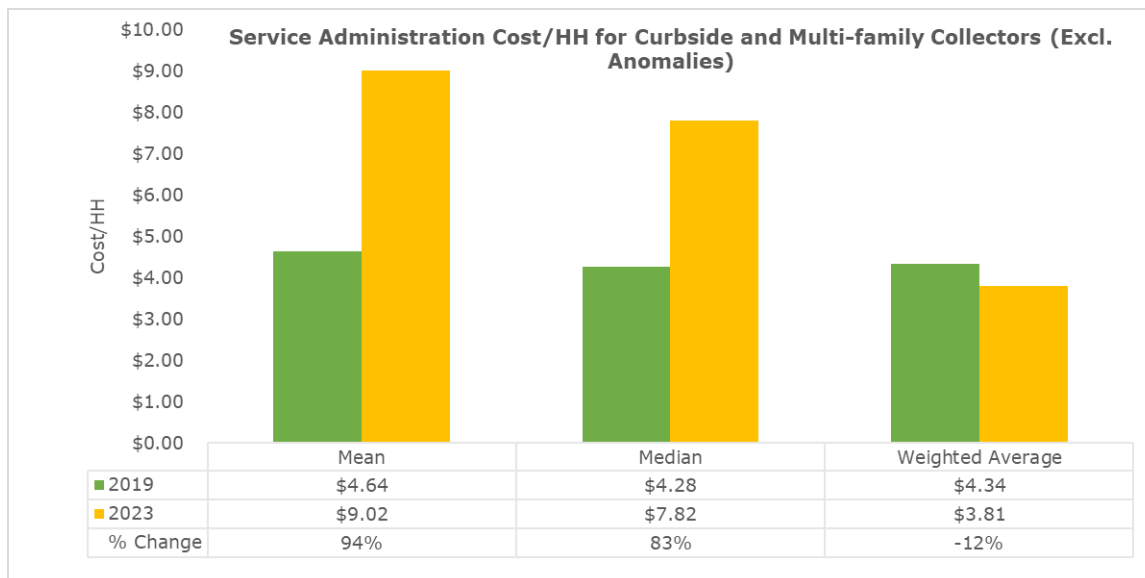


Figure 25. Change in Curbside and Multi-family Service Administration Cost/Household (excl. Anomalies, excl. Direct Service)

The SA cost/tonne for collectors in 2023 ranged from \$6.81 to \$180.23 as shown in Table 46. In 2019, the cost/tonne ranged from \$9.87 to \$446.78. One (1) anomaly was identified with costs greater than \$900.00/tonne and not used as representative sample costs. As shown in Figure 26, from 2019 to 2023, the weighted average of the SA costs/tonne decreased from \$35.30 to \$31.48, reflecting a percentage decrease of 11%.

Table 46. 2023 Curbside and Multi-family Service Administration Cost/Tonne (excl. Direct Service)

	All Collectors	Excluding Anomalies
Mean	\$105.95	\$75.97
Median	\$70.16	\$67.01
Weighted Average	\$44.31	\$31.48
Min	\$6.81	\$6.81
Max	\$915.52	\$180.23
Count	28	27

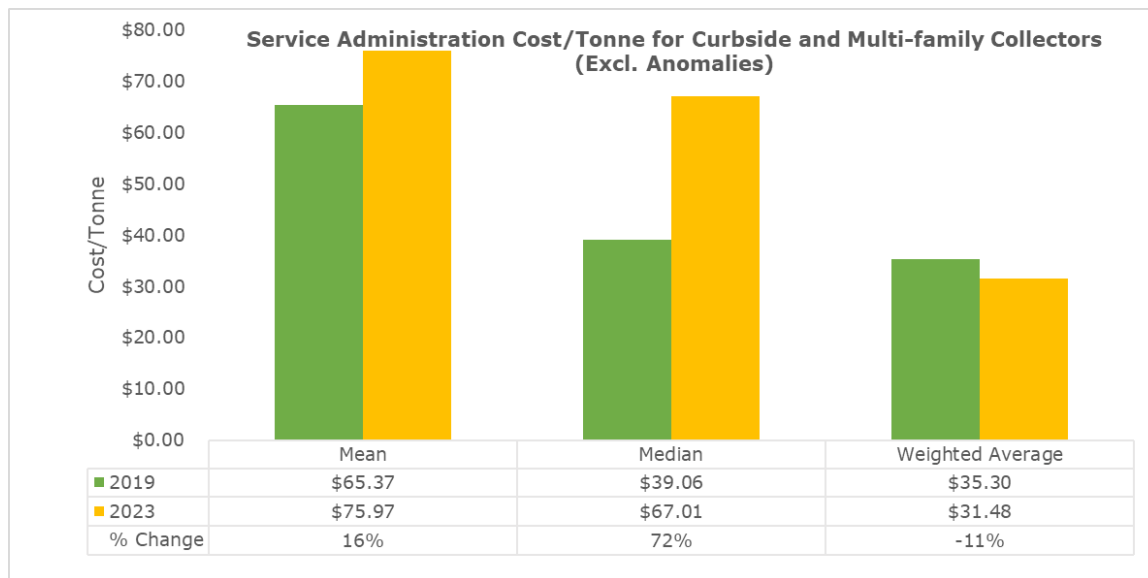


Figure 26. Change in Curbside and Multi-family Service Administration Cost/Tonne (excl. Anomalies, excl. Direct Service)

Service Administration Depot Cost Summary

The service administration costs for depot collectors are reported on a tonnage basis.

The SA cost/tonne for all collectors excluding anomalies in 2023 ranged from \$2.01 to \$512.09 as shown in Table 47. In 2019, the cost/tonne ranged from \$1.01 to \$647.46. Six (6) anomalies were identified with costs greater than \$900.00/tonne and not used as representative sample costs. As shown in Figure 27, from 2019 to 2023, the weighted average of the SA costs/tonne increased from \$46.25 to \$61.38, reflecting a percentage increase of 33%.

Table 47. 2023 Depot Service Administration Cost/Tonne

	All Collectors	Excluding Anomalies
Mean	\$273.76	\$89.72
Median	\$64.44	\$51.07
Weighted Average	\$91.30	\$61.38
Min	\$2.01	\$2.01
Max	\$7,603.42	\$512.09
Count	61	56

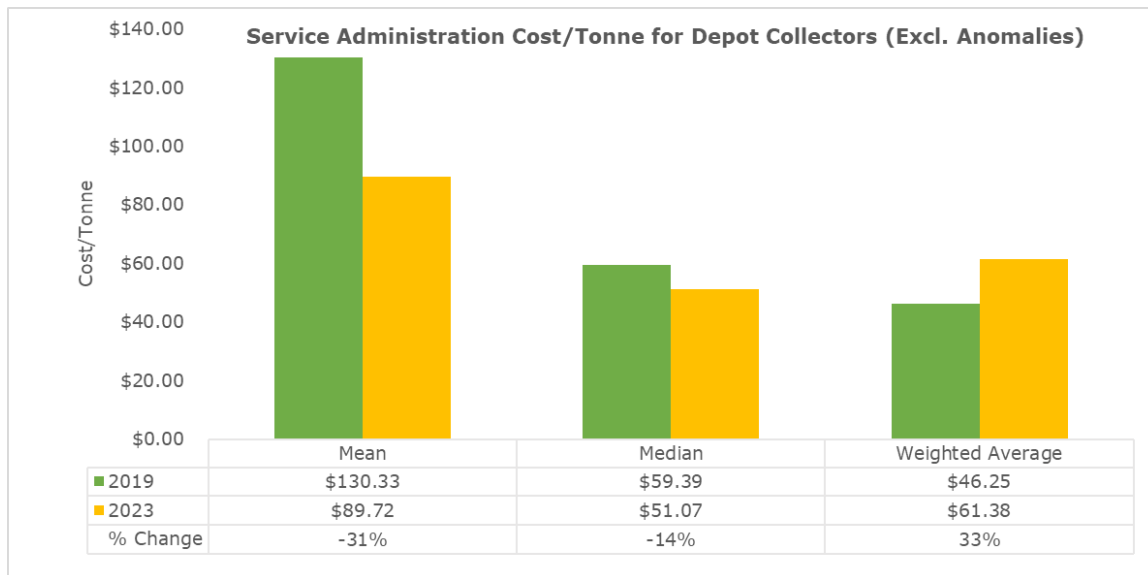


Figure 27. Change in Depot Service Administration Cost/Tonne (excl. Anomalies)
