

# 2025 Processing Fee Final Report

Produced Under Contract by:  Crowe



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# Acknowledgments

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The CalRecycle Cost Survey requires a high degree of communication and collaboration by all involved. Crowe LLP thanks CalRecycle management and staff for their support throughout the entire project. In addition, Crowe acknowledges and appreciates the cooperation and time commitment of the many recycling centers that were selected to participate in the processing fee cost survey.

# Executive Summary

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The processing fee and handling fee cost surveys were performed under contract by Crowe LLP (Crowe), for the California Department of Resources Recycling and Recovery (CalRecycle). This Processing Fee Final Report provides estimates of the cost per ton to recycle aluminum, bi-metal, glass, plastic (for seven different resin types), and wine and distilled spirits packaged in bag-in-box, pouches, or paperboard cartons (WDS-BBP) beverage containers. It also summarizes the tasks that Crowe and its subcontractors conducted to obtain the final, statewide, weighted-average processing fee recycler cost per ton. Finally, this report provides analyses of the processing fee cost survey results.

## Processing Fee Cost Survey Background

In 1986, the California State Legislature enacted the California Beverage Container Recycling and Litter Reduction Act (Assembly Bill (AB) 2020, Margolin, Chapter 1290, Statutes of 1986). This deposit-refund program is the only one of its kind in the nation because of its unique program structure.

A major subprogram with AB 2020 is the processing fee paid by beverage manufacturers, which is paid to recyclers as a processing payment to help cover recycling costs. Most recyclers in the program are required to redeem all beverage container material types. Scrap values for glass, plastics, bi-metal, and WDS-BBP are not sufficient to cover their recycling costs. These non-aluminum beverage container recycling costs are subsidized by paying recyclers a processing payment. The cost to recycle beverage containers is determined by the processing fee cost survey.

Public Resources Code (PRC) section 14575 directs CalRecycle to calculate processing payments and fees. Processing payments are defined as the difference between the statewide, weighted-average cost of recycling a beverage container material in the AB 2020 program, including a reasonable financial return (RFR) and cost-of-living adjustment (COLA), and the scrap value for the material. The processing fee is imposed on beverage manufacturers, and together with supplemental funds from unredeemed containers, these two sources of funds are used to provide processing payments to recyclers.

If an AB 2020 material's scrap value is high enough to cover recycling costs, including a RFR and COLA, no processing fee is imposed. If a material scrap value is less than the statewide, weighted-average recycling cost, including a RFR and COLA, the processing fee is intended to make up this difference, or net cost.

CalRecycle has conducted processing fee cost surveys every two years since 2002. The next cost survey after this report will survey recycling center costs in 2027 (using 2026 financial statements), for a processing fee effective January 1, 2028.

AB 3056 (Statutes of 2006) added the handling fee cost survey. This survey, implemented in conjunction with the processing fee cost survey, determines the statewide, weighted-average cost per container for recycling centers that do not receive

handling fees, processing fee (PF) recyclers, and recycling centers that do receive handling fees, handling fee (HF) recyclers. Results of the handling fee cost survey will be discussed in a separate report.

## **Processing Fee Cost Survey Objectives**

This processing fee cost survey informed the estimated California statewide, weighted-average 2024 certified recycler cost per ton for five beverage container material types, and the percentage change in HDPE #2 cost per ton between 2022 and 2024.

Recycling center costs were surveyed and analyzed in 2025 (early May through mid-October), using calendar year 2024 financial statements. These recycling center costs will be used for the processing fee calculation effective January 1, 2026.

This survey had a similar sample size compared with the previous three (137, 143, and 154 sites). In 2025, Crowe completed 159 recycler cost surveys during field work (May 5 to October 13, 2025) to obtain these results.

This processing fee cost survey consisted of one stratified random sample, consistent with prior surveys in terms of quantitative information collected at each site. The survey also generally achieved the same high level of accuracy as prior CalRecycle cost surveys.

## Processing Fee Cost Survey Results

**Exhibit 1** provides the statewide recycler cost per ton for 11 material types in the California Beverage Container Recycling Program (BCRP). It compares 2024 cost per ton with the 10 prior cost surveys (2004 through 2024). Costs per ton in Exhibit 1 are not adjusted for inflation, RFR, or COLA.

**Exhibit 2** provides the two-year percentage change in cost per ton between cost surveys. The 2024 cost-per-ton results increased compared with 2022 and are the highest for all four major material types in the last 10 surveys. This is also the first statewide calculation of recycler cost per ton for WDS-BBP. The 2024 cost per ton increased as follows: aluminum 5%, glass 21%, PET #1 7%, and HDPE #2 51%.

**Exhibit 3** illustrates the non-adjusted cost per ton for aluminum, glass, PET #1, and HDPE #2 from 2004 to 2024.

**Exhibit 4** provides Consumer Price Index (CPI)-adjusted costs per ton for aluminum, glass, PET #1, and HDPE #2 using the U.S. Department of Labor, Bureau of Labor Statistics, West Urban CPI, which was 7.2% between 2022 and 2024.<sup>1</sup>

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<sup>1</sup> Source: CPI for All Urban Consumers (CPI-U), West. Series ID: CUUR0400SA0

**Exhibit 1**

**Historical Statewide Cost per Ton (Without Reasonable Financial Return) (2004 through 2024)**

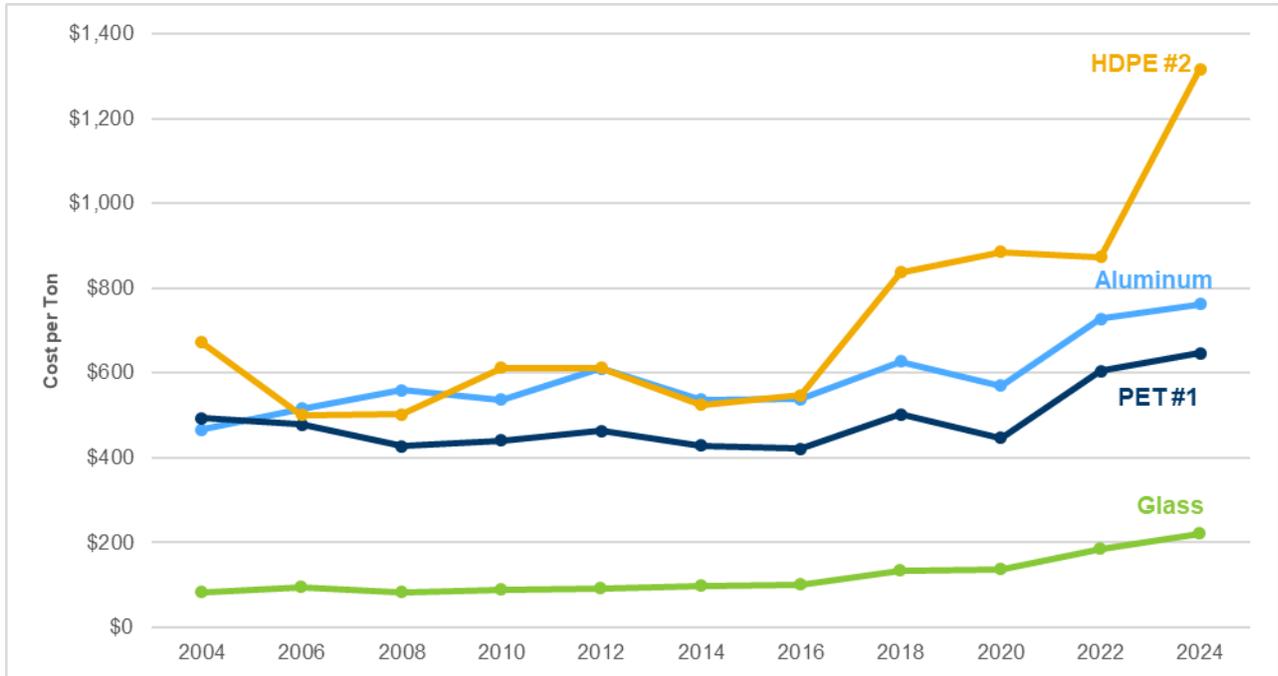
Material Type	2024	2022	2020	2018	2016	2014	2012	2010	2008	2006	2004
1. Aluminum	<b>\$762.23</b>	\$727.46	\$569.76	\$626.61	\$539.11	\$537.29	\$609.81	\$537.06	\$559.23	\$516.13	\$465.90
2. Glass	<b>221.51</b>	183.45	136.73	132.68	101.04	97.50	92.88	89.76	81.60	94.98	82.45
3. PET #1	<b>645.88</b>	605.19	446.34	502.44	421.30	428.55	462.79	440.61	426.76	477.73	493.31
4. HDPE #2	<b>1,316.58</b>	874.10	885.21	838.00	547.11	524.23	612.50	611.62	501.67	500.64	671.73
5. Bi-Metal	<b>1,659.47</b>	1,101.76	1,115.82	1,056.35	689.66	660.65	771.88	770.80	632.22	883.55	607.03
6. PVC #3	<b>2,070.80</b>	1,374.85	1,392.39	1,318.18	860.60	824.65	963.49	962.14	789.16	731.37	1,583.72
7. LDPE #4	<b>2,954.17</b>	1,961.34	1,986.37	1,880.50	1,227.72	1,176.43	1,374.50	1,372.58	1,125.80	1,858.09	1,889.50
8. PP #5	<b>2,650.29</b>	1,759.59	1,782.04	1,687.06	1,101.43	1,055.41	1,233.10	1,231.38	1,009.99	787.83	809.42
9. PS #6	<b>1,641.62</b>	1,089.91	1,103.82	1,044.99	682.24	653.74	763.80	762.73	625.60	623.11	3,051.82
10. Other #7	<b>1,798.66</b>	1,194.17	1,209.41	1,144.95	747.50	716.27	836.86	835.69	685.44	741.93	1,264.47
11. WDS-BBP	<b>1,290.11</b>	N/A									

**Exhibit 2**

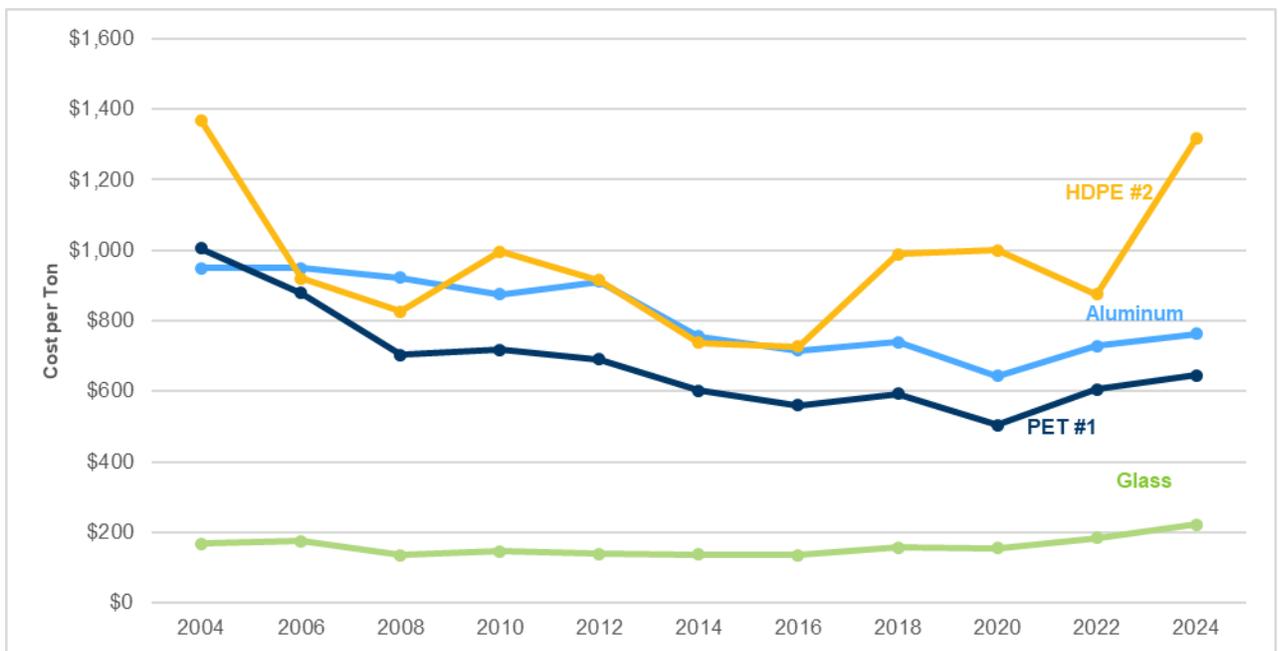
**Two-Year Percentage Change in Statewide Recycler Cost per Ton, by Material Type (2004 through 2024)**

Material Type	2022 to 2024	2020 to 2022	2018 to 2020	2016 to 2018	2014 to 2016	2012 to 2014	2010 to 2012	2008 to 2010	2006 to 2008	2004 to 2006
1. Aluminum	+5%	+28%	-9%	+16%	+0.3%	-12%	+14%	-4%	+8%	+11%
2. Glass	+21%	+34%	+3%	+31%	+3.6%	+5%	+3%	+10%	-14%	+15%
3. PET #1	+7%	+36%	-11%	+19%	-1.7%	-7%	+5%	+3%	-11%	-3%
4. HDPE #2	+51%	-1%	+5.6%	+53%	+4.4%	-14%	0%	+22% <sup>a</sup>	0%	-25%
5. Bi-Metal	+51%	-1%	+5.6%	+53%	+4.4%	-14%	0%	+22%	-28%	+46%
6. PVC #3	+51%	-1%	+5.6%	+53%	+4.4%	-14%	0%	+22%	+8%	-54%
7. LDPE #4	+51%	-1%	+5.6%	+53%	+4.4%	-14%	0%	+22%	-39%	-2%
8. PP #5	+51%	-1%	+5.6%	+53%	+4.4%	-14%	0%	+22%	+28%	-3%
9. PS #6	+51%	-1%	+5.6%	+53%	+4.4%	-14%	0%	+22%	0%	-80%
10. Other #7	+51%	-1%	+5.6%	+53%	+4.4%	-14%	0%	+22%	-8%	-41%
11. WDS-BBP	N/A	N/A	N/A							

**Exhibit 3**  
**Summary Comparison of Aluminum, Glass, PET and HDPE Plastic Processing Fee Recycler Cost per Ton Cost Survey Results (2004 to 2024)**



**Exhibit 4**  
**Summary Comparison of Aluminum, Glass, PET and HDPE Plastic Processing Fee Recycler Cost per Ton Cost Survey Results, CPI Adjusted (2004 to 2024)**



## **Aluminum**

The aluminum cost per ton increased 5%, from \$727.46 cost per ton in 2022 to \$762.23 cost per ton in 2024. This \$762.23 cost per ton is the highest in the past 10 surveys. In 2024, the processing fee recycler population recycled 54,657 tons of aluminum, down from 63,554 tons recycled in 2022, a 14% decrease. This continued decline in aluminum likely reflects the ongoing market shift from aluminum to PET beverage containers and CalRecycle's ongoing enforcement activity. On a per-recycler basis, average tons of aluminum recycled per year increased from 113.7 in 2022 to 117.0 in 2024, the highest level in the past 10 cost surveys. The increase was a result of the smaller number of recycling centers, rather than an increase in aluminum recycling. In general, the increased quantity of aluminum per recycler would tend to improve recycler profitability as compared to previous survey years. However, the increase in the cost per ton to recycle aluminum coupled with volatile scrap market conditions in 2024 indicate a decline in potential profits from aluminum for recyclers. In 2024, aluminum made up 19% of tons of CRV material recycled by the population, similar to 2022.

## **Glass**

The glass cost per ton results increased 21% from \$183.45 cost per ton in 2022 to \$221.51 cost per ton in 2024. This \$221.51 cost per ton is the highest in the past 10 surveys. The results reflect a continued trend of rising glass costs since 2008, resulting in the first cost per ton over \$200. In 2024, total glass volumes, at 135,744 tons, were lower than all the other survey years. Glass volumes continued to decline between 2022 and 2024. Average tons of recycled glass per recycler increased slightly from 296 tons in 2022 to 298 tons in 2024. In 2024, glass made up its lowest historical share of CRV material recycled at 49%, down from 50% in 2022.

## **PET #1**

The PET #1 cost per ton increased 7% from \$605.19 in 2022 to \$645.88 in 2024. This \$645.88 cost per ton is the highest in the past 10 surveys. For PET #1, the costs have historically fluctuated year to year within a relatively narrow band between \$400 to \$500 cost per ton, but 2024 marks the second time costs exceeded \$600. Tons of PET #1 recycled decreased from 102,429 in 2022 to 81,875 in 2024, a 20% decrease. On a per-recycler basis, average tons recycled per year adjusted from approximately 177 tons in 2020, and 183 tons in 2022, back to 177 tons in 2024. In 2024, PET #1 made up one of its greatest shares of CRV materials recycled, at 29.8%, an increase from 2022.

## **HDPE #2**

The HDPE #2 cost per ton results increased 51% from \$874.10 cost per ton in 2022 to \$1,316.58 cost per ton in 2024. This \$1,316.58 cost per ton is based on the sub-model<sup>2</sup> and relative costs compared to PET and to a lesser extent other plastics. The requirement to redeem separated CRV-only material continued to have an impact on HDPE #2 recycling in 2024. HDPE #2 is the only beverage container material to have a commingled rate significantly lower than 100% because recyclers continue to receive and separate large volumes of non-CRV HDPE #2. This results in a low commingled rate. The HDPE #2 commingled rate (approximately 78%) was far lower than all other minority plastics, impacting the allocation of costs across plastics.

In addition, the commingled rate for all other types of plastic increased to almost 100%. These changes increase relative costs for HDPE #2, reflecting the additional cost of sorting non-CRV HDPE #2 from HDPE #2 beverage containers. The 20% decrease in overall volumes was a significant factor in the 51% increase in costs. In 2024, HDPE #2 made up its lowest share of CRV materials recycled, at 0.7%, roughly the same percentage as 2022.

## **Bi-Metal and Plastics #3 to #7**

This is the eighth cost survey that the cost per ton for bi-metal and plastics #3 to #7 was indexed to the percentage change in HDPE #2 cost per ton, as specified in Senate Bill (SB) 1357 ( Statutes of 2008). Per statute, CalRecycle adjusts the costs of recycling for material types that make up less than 5% of the total number of containers recycled by the percentage change in the most recently measured cost of recycling HDPE #2 beverage containers (even if HDPE #2 makes up less than 5% of total containers recycled).

In calendar year 2024, HDPE #2 made up only 0.72% of all beverage containers recycled. In total, bi-metal and plastics #3 through #7 made up approximately 0.20% of containers recycled. While HDPE #2 recycling is minimal as compared to aluminum, glass, and PET #1, it is still substantial as compared to the other six minority material types. The cost per ton to recycle bi-metal and plastics #3 to #7 was based on the calculated 51% increase in HDPE #2 between 2022 and 2024.

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<sup>2</sup> More information on the sub-model can be found in Subsection F. Calibration of the Indirect Cost Allocation Sub-Models.

## **WDS-BBP**

This is the first cost survey in which CalRecycle determined cost per ton for WDS-BBP. The implementation of SB 1013 (Atkins, Chapter 610, Statutes of 2022) on January 1, 2024, introduced wine and distilled spirits (WDS) as well as three new types of beverage containers to the BCRP. The WDS-BBP cost per ton result was \$1,290.11. This cost is based on a sample of 39 recyclers handling WDS-BBP at a level that accounts for at least 0.005% of total CRV volume in 2024. In subsequent cost surveys, CalRecycle will determine cost per ton separately for each of the three subtypes: Bag-in-Box (BIB), Multi-Layer Pouch (MLP), and Paperboard Carton (PC).

## **Error Rates**

Regulations require that the cost per ton be estimated at an 85% confidence interval (CI), and CalRecycle policy further specifies a 10% error rate. For the tenth consecutive survey, the 2024 sampling plan was based on a more rigorous 90% confidence interval and a 10% error rate.

**Exhibit 5** provides the 2024 sample error rates for each relevant material type. In 2024, the only materials for which error rates were applicable were aluminum, glass, PET #1, and HDPE #2. In all four cases, the error rates were below the 10% error rate at the 90% confidence level threshold.

The error rates in 2024 were consistent with the low error rates for each of the four materials over the prior 10 cost surveys. Because bi-metal and plastics #3 to #7 were based on the percentage change in HDPE #2 cost per ton, there were no calculated error rates for these six materials. There was no error rate for the WDS-BBP calculations because this analysis was based on a broader sample of recycling centers with an adequate volume of WDS-BBP material to determine a representative cost. Further information can be found in the WDS-BBP Background and Methodology section.

**Exhibit 5**  
**Sample Error Rates (90% confidence interval) for Processing Fee Recyclers, by Material Type (2004 to 2024)**

Material Type	2024	2022	2020	2018	2016	2014	2012	2010	2008	2006	2004
1. Aluminum	<b>4.44%</b>	4.97%	5.80%	7.52%	6.71%	5.86%	5.71%	6.27%	5.66%	6.61%	5.55%
2. Glass	<b>6.28%</b>	7.29%	7.91%	6.88%	7.80%	6.49%	5.24%	7.52%	6.19%	8.17%	7.35%
3. PET #1	<b>4.63%</b>	4.92%	5.29%	7.40%	6.11%	6.23%	5.18%	7.56%	6.39%	8.05%	7.33%
4. HDPE #2	<b>7.36%</b>	6.41%	8.29%	8.62%	6.68%	6.86%	7.63%	7.33%	8.27%	8.97%	7.47%
5. Bi-Metal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.89%	8.31%	9.83%
6. PVC #3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100% Sample	100% Sample	100% Sample
7. LDPE #4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100% Sample	100% Sample	100% Sample
8. PP #5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100% Sample	100% Sample	100% Sample
9. PS #6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100% Sample	100% Sample	100% Sample
10. Other #7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.53%	9.95%	100% Sample
11. WDS-BBP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**Exhibit 6** provides the sample size for each of the 11 material types. The statewide weighted-average for the major materials – aluminum, glass, PET #1, and HDPE #2 – were calculated from a stratified random sample while WDS-BBP was calculated based on a census above a volume threshold (see the WDS-BBP methodology subsection for more details). The sample sizes for glass, PET#1, and HDPE #2 were lower than 159 because a small number of recycling centers in the stratified random sample did not report all four material types.

**Exhibit 6  
Sample Sizes by Material Type (2020 to 2024)**

Material Type	2024 Sample Size	2022 Sample Size	2020 Sample Size
1. Aluminum	159	137	146
2. Glass	156	138	142
3. PET #1	158	137	146
4. HDPE #2	149	135	138
5. Bi-Metal	N/A	N/A	N/A
6. PVC #3	N/A	N/A	N/A
7. LDPE #4	N/A	N/A	N/A
8. PP #5	N/A	N/A	N/A
9. PS #6	N/A	N/A	N/A
10. Other #7	N/A	N/A	N/A
11. WDS-BBP	39	N/A	N/A

**D. Processing Fee Cost Survey Tasks**

The following summarizes nine major tasks accomplished over a nine-month period to complete this processing fee cost survey.

- **Developed and documented the sample design framework and randomly selected recycling centers for the cost survey.** We determined the number of recycling centers to be selected for the stratified random sample used to measure costs of aluminum, glass, PET #1, and HDPE #2 recycling, and the minimum volume threshold for WDS-BBP recycling. Following the sample design, Crowe randomly identified certified recycling centers selected to participate in the cost survey.

- **Developed a methodology and created a list of questions about WDS-BBP for surveyors to ask during recycling center interviews.** These questions assessed any direct costs associated with handling WDS-BBP materials, the average number of transactions per week, the number of containers per transaction, and how recyclers handle, sort, store, and transport these materials. As part of this work, the team also determined the material composition of wine and distilled spirits beverage containers that are in a box, bladder, pouch, or similar container. Recycling centers that are dual sites, both recyclers and processors, were asked three additional WDS-BBP questions about the frequency of shipments received from recyclers, how the site processes the materials, and what end markets, if any, exist. Crowe also updated the Excel model to accommodate question responses.
- **Revised and updated the Cost Survey Training Manual and training materials. We continued to update the evolving training manual.** The manual consists of 10 chapters, each emphasizing actions for survey team members to take in the field and when completing site files. The training manual focuses on key areas of learning necessary to successfully conduct cost surveys. In addition, Crowe updated PowerPoint presentations covering topics in the training manual and developed other training content.
- **Revised and conducted cost survey training consisting of six half-days of interactive training sessions, training site visits, and a follow-up session, as well as two in-person days.** Activities during the first four days included conducting cost survey interview role-playing activities, mentoring from experienced survey team members, and completing a site visit cost model and associated documentation. As part of training, each new survey team member conducted a cost survey site visit with an experienced team member to provide real-world experience. The experienced survey team member guided the new team member, with increasing levels of responsibility for the on-site and post-site visit procedures over the course of the visit. Following the field visits, new survey members spent one to two days working together to complete the site files. The entire survey team reconvened after the training site visits to present and discuss the site visits and review the remainder of the training materials. For this 2025 Cost Survey, Crowe also conducted a one-hour training for quality control reviewers.

- **Updated and calibrated the Labor Allocation Cost Survey Model, a 19-worksheet, Excel-based computer model used to allocate recycling center costs to beverage container material types based on labor allocations.** Crowe updated the cost survey model to reflect 2024 container per pound and CRV payment information, as well as procedural changes to the cost survey. In addition, we calibrated the Indirect Cost Allocation Sub-Models for Aluminum/Bi-Metal and All-Plastics with 2025 cost survey information. These sub-models, incorporated into the Labor Allocation Cost Survey Model, help ensure appropriate allocation of costs and labor to bi-metal and plastic resins HDPE #2, PVC #3, LDPE #4, PP #5, PS #6, and Other #7. While the survey no longer directly measures the cost per ton for bi-metal and plastics #3 to #7, the sub-model is still used to help determine aluminum, PET #1, and HDPE #2 cost per ton. These changes are part of Crowe's ongoing commitment to maintain and improve the model, confirming it becomes an increasingly valuable and effective tool for surveyors over time.
- **Created a secure SharePoint site for the project team and developed a secure online file review system for team members to upload and review survey files.** The survey files maintain the functional components of former hard copy documentation (e.g., site procedure checklist, site memorandum, site equipment sheet, Excel cost model, signed affidavit, and supporting site labor and financial information), but eliminated the paper-intensive file development and review process of prior cost surveys.
- **Scheduled, conducted, and completed 159 recycling center on-site visits, and additional 19 visits to sites selected for handling WDS-BBP, during 24 weeks between May 5, 2025, and October 13, 2025, using the statistical sample frame developed by Crowe.** Throughout the scheduling and site visits, Crowe built on the working relationships established with the program's recyclers in prior years. These working relationships were important to the success of this cost survey and should carry over into future cost surveys. All the cost surveys were conducted by a team of one to three auditors (normally two), including accountants and/or recycling analysts. It typically took one to three hours to complete the on-site survey. This on-site survey included a tour of the facility, interviews with management and operational personnel relating to facility operations, financial statements, and labor allocations. In addition to the on-site time, usually over eight hours of additional time was required after each site visit to analyze data, and to follow up with each recycler to obtain complete and reconciled financial and labor information.

- **Developed and implemented an intensive quality control procedure that included over eight hours and five different levels of review (site team review, independent first level review, manager review, CPA partner review, and project director review) for each site file.** This review took place before the site files were approved for data processing and data analysis. These quality assurance steps helped ensure that each site file was complete and accurate, and results from the labor allocation model and the indirect cost allocation sub-models were accurate. In total, over 28 hours were spent for each completed recycler site, including the site team and quality control hours.
- **Analyzed the primary database and determined final cost per ton by material type.** Using an automated process, Crowe extracted results from each of the 159 completed cost models, and an additional 19 completed cost models, specifically included for their WDS-BBP results. Crowe developed an Excel workbook to calculate total costs by material type, total tons by material type, and for each of the five beverage container material types. Crowe also calculated the percentage change in HDPE #2 cost per ton between 2022 and 2024. Calculations used one of three different methods, depending on the material and sample characteristics: (1) weighted average by stratum (aluminum, glass, PET #1, and HDPE #2); (2) indexing the 2024 cost per ton on the percentage change in HDPE #2 cost per ton between 2022 and 2024 (bi-metal and plastics #3 to #7); or (3) for WDS-BBP, a targeted sampling approach that selected recycling centers reporting at least 0.005% of statewide WDS-BBP tonnage and then applied a bottom-up, activity-based cost model that estimated per-transaction handling time, calculated cost per hour by stratum, derived WDS-BBP cost per ton for each sampled site, and produced a statewide weighted-average cost per ton by scaling sample results to population tonnage across all strata. Using defined and documented statistical procedures, Crowe calculated error rates at a 90% confidence interval for the four relevant material types. Crowe conducted additional detailed analyses of the results, as presented in this report.

## E. Processing Fee Cost Analyses and Implications

Crowe conducted multiple analyses of the cost per ton results for the cost survey. Many of these analyses focused on identifying and better understanding the likely reasons for the changes in cost per ton for aluminum, glass, PET #1, and HDPE #2, as compared to the 2022 processing fee cost survey. These analyses are summarized.

- **Examined historical processing fee cost survey results.** This cost survey represented the 20th time that the state determined the cost of recycling since the inception of the BCRP in 1987. The historical cost per ton for aluminum, glass, PET #1, and HDPE #2 are illustrated in **Exhibit 3** for the past 10 surveys.
- **Analyzed the relationship between recycler population and productivity.** Between 2022 and 2024, recycler productivity (i.e., average tons recycled by RC) remained relatively stable. Recycler productivity stability generally results in similar cost per ton, as recycler efficiency remains stable. This stability points to other factors that contributed to higher cost per ton. In total, between 2022 and 2024, the average tons per RC for aluminum increased by 3%, PET #1 decreased by 3%, and glass increased by 1%. The change in average tons per RC for WDS-BBP was not calculated, as this is the first year that this container type was included in the cost survey.
- **Confirmed cost survey methodology, including validation of strata definitions, CRV versus Non-CRV labor allocations, and material allocations.** The cost per ton results from this 2024 processing fee cost survey are consistent with historical results. We conducted several additional analyses to test the validity of the survey results. We concluded that our methodology was consistent with prior years. We are confident that the cost per ton results consistently reflect recycler operations and costs.
- **Performed a cost category comparison between 2022 and 2024 RC costs.** The 2024 costs are not adjusted by CPI, rather they are a straight dollar comparison across the two survey years. A CPI adjustment would increase 2022 costs by 7.2%. Consistent with prior cost surveys, the cost categories that make up the largest share of RC costs are direct labor, rent, indirect labor, general business overhead, and transportation.
- **Evaluated the potential influence and impact of labor costs on cost per ton, as well as the potential influence of high-wage sites or labor allocations.** We conducted evaluations of several potential factors related to labor hours, labor allocations, hourly yard wages, hourly administrative wages, and minimum wage.
- **Analyzed CRV transportation costs to gain a better understanding of how transportation impacted the changes in cost per ton between 2022 and 2024.** Transportation costs increased in 2024 for glass. For aluminum and plastic, transportation costs varied by recycler size, with some strata

experiencing increases and others decreases; overall decreases in fuel prices helped moderate these costs.

### **F. Processing Payments and Processing Fees**

The processing payment is defined as the difference between the statewide, weighted-average cost of recycling (as determined by this survey), multiplied by a RFR and a COLA, and the average scrap value paid to recyclers. The processing payment is paid by CalRecycle to processors, who then pass the payment on to recyclers based on the weight of material redeemed.

The processing fee, earlier in the history of the BCRP, was equal to the processing payment, and was paid to the state by beverage manufacturers on every container sold. Over time, the processing fee has been modified. Currently, when funds are available

in the California Beverage Container Recycling Fund (Fund), the amount of processing fee paid by beverage manufacturers is reduced based on the recycling rate of the material. The difference between the processing fee paid to the department and the processing payment paid to recyclers is made up with funds from the Fund, essentially from CRV paid on unredeemed containers.

**Exhibit 7** illustrates the January 1, 2026, per ton processing payments and per container processing fees.

#### **Exhibit 7 Processing Payments and Processing Fees January 1, 2026**

<b>Material</b>	<b>Processing Payment (per Ton)</b>	<b>Processing Fee (per Container)</b>
1. Aluminum	None	None
2. Glass	\$252.32	\$0.00855
3. PET #1	480.79	0.00085
4. HDPE #2	1,240.04	0.00867
5. PVC #3	2,416.83	0.08098
6. LDPE #4	3,446.83	0.02821
7. PP #5	3,087.84	0.01516
8. PS #6	1,912.82	0.00570
9. Other #7	2,097.34	0.21988
10. Bi-metal	1,921.20	0.07260
11. WDS-BIB <sup>a</sup>	1,500.13	0.32503
12. WDS-MLP <sup>a</sup>	1,500.13	0.02802

<b>Material</b>	<b>Processing Payment (per Ton)</b>	<b>Processing Fee (per Container)</b>
13. WDS-PC <sup>a</sup>	1,500.13	0.02851

<sup>a</sup> Starting January 1, 2026 WDS-BBP processing payments and fees are split into WDS-BIB, WDS-MLP, and WDS-PC (see subsection H. WDS-BBP Analysis for additional information).

## **G. Summary of Results**

Overall, the change in cost per ton between 2022 and 2024 was moderate: aluminum increased 5%, glass 21%, PET #1 7%, and HDPE #2 51% (Exhibit 1 and Exhibit 2). Glass and HDPE #2 experienced the largest increases, while aluminum and PET #1 increased by less than 10%. Our analyses identify a combination of factors that may be impacting recycling costs.

Cost per ton is the quotient determined by dividing recycling center costs (numerator) by recycling center tons (denominator). Because costs and tons for the surveyed PF recycling centers can each increase, decrease, or not change between subsequent cost surveys, and because these changes can differ in their rate of change, the causes for changes in cost per ton over time are complex. In addition, because the cost per ton calculation is a statewide weighted average based on a stratified sample, changes within the population of recycling centers can also influence cost per ton results.

Between 2022 and 2024, there was a reduction in the overall survey population of PF recycling centers, and, to a greater extent, a decrease in the total tons of CRV material recycled.<sup>3</sup> This combination would be expected to put upward pressure on the statewide cost per ton between 2022 and 2024, which is consistent with the increases observed. Our initial analysis of 2022 and 2024 data identifies four factors that appear to have contributed to increases in cost per ton between 2022 and 2024. We discuss these factors further in **Exhibit 8** and provide further analysis in Section 3.

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<sup>3</sup> Decrease in Recycling Center sourced volumes only.

**Exhibit 8**  
**Summary of Key Factors for Changes in Costs between 2022 and 2024**

Key Factor	Impact to Costs
1. Higher CRV hourly wages	<p>CRV recycler wages increased across the board, partly due to the 7% rise in California’s minimum wage between 2022 and 2024. Weighted-average CRV hourly wages grew by 12% overall, with increases ranging from 7% for stratum 2 to 13 to 14% for strata 1 and 3. The simple average CRV hourly rate rose by 11%, driven mainly by higher all other labor (AOL) wages. Recyclers in Los Angeles County (representing over one-third of the state’s recycler population) saw an 18% increase, compared to 10% for the rest of the state. These higher AOL and LA County wages contributed most to the increase beyond the statewide minimum wage increase.</p> <p>In addition, California introduced a \$20 per hour minimum wage for fast food workers in April 2024, 33% higher than the \$15 statewide minimum wage in 2022. Because recycler wages rose by 12% (outpacing the statewide minimum wage increase), the increase suggests recyclers are raising pay to stay competitive with fast food jobs. Anecdotally, we also heard from recyclers that wages must be set above the minimum to attract and retain workers.</p> <p>Impact: Higher wages contribute to higher costs.</p>
2. Higher hours per ton handling CRV materials	<p>In 2024, direct yard labor<sup>4</sup> (≈80% of total hours) hours per ton increased almost 14% while AOL (≈20% of total hours) decreased slightly (-3%). This reduction in recycler efficiency, likely driven by a higher portion of smaller, stratum 3 recyclers, contributes to higher costs.</p> <p>Impact: Reduced CRV handling efficiency contributes to higher costs.</p>
3. Increased high wage sites	<p>In 2024, there were eight recyclers, representing 5% of sampled recyclers, with AOL wages of more than \$100 per hour. In 2022, there were no sites with average wages over \$100 per hour. A higher share of sites with high wages contributes to higher costs.</p> <p>Impact: Increased sites with higher wages contribute to higher costs.</p>

<sup>4</sup> Direct yard labor (DYL) refers to employees who generally work in the yard, responsible for manual labor and handling materials (e.g., site attendant, baler operator, forklift operator, weighmaster, loader, cashier). All other labor (AOL) refer to less physical activities (e.g., supervision, administration).

Key Factor	Impact to Costs
4. Increased low wage sites	<p>Although the share of low-wage sites (under minimum wage) in 2024 was slightly higher than in 2022, recycler wages for sites under minimum wage were higher (i.e., closer to minimum wage). Low-wage sites with higher wages contribute to higher costs.</p> <p>Impact: Increased low-wage sites with rising costs contribute to higher costs.</p>

# 1. Processing Fee Cost Survey Methodologies

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This section describes the cost survey methodologies, from establishing the survey sample frame to the quality control procedures, and all the supporting tasks in between. There are 10 key tasks described in this section. This section is organized as follows:

- A. Survey Design
- B. WDS-BBP Background and Methodology
- C. Conducting Site Visit Surveys
- D. Quality Control and Confidentiality Procedures
- E. Cost Survey Methodology Validation
- F. Calibration of the Indirect Cost Allocation Sub-Models

## A. Survey Design

Crowe followed processing fee and handling fee cost survey procedures consistent with the 10 prior cost surveys. The specific survey design for wine and distilled spirits packaged in bag-in-box, pouches, or paperboard cartons (WDS-BBP) is described in *Subsection B. WDS-BBP Background and Methodology*.

The population of processing fee (PF) recycling centers eligible for the cost survey was defined as all recycling centers: (1) not receiving handling fees between January 2024 and December 2024, (2) certified and operational on or before March 1, 2024, (3) that reported redemption volume between January 2024 and December 2024, (4) not subsidized by the Department of Rehabilitation, and (5) not subject to CalRecycle investigation for major infractions. There were 39 sites removed from the population due to investigations, leaving 467 recycling centers in this traditional recycling center population.

This overall 2024 processing fee cost survey had a similar sample size to the most recent processing fee cost surveys (2024: 159 unique sites; 2022: 140; 2020: 146; 2018: 154). The Crowe team completed 159 recycler cost surveys from May 2025 through October 2025. These 159 recycling centers are referred to in this report as “PF for PF recycling centers”. There were 39 sites chosen for the WDS-BBP portion of the analysis, of which 20 were included in the 159 selected sites.

This processing fee cost survey consisted of one stratified random sample as well as a second modified stratified sample, specific to WDS-BBP. This processing fee cost survey was consistent with prior cost surveys in terms of quantitative information obtained for each recycling site.

To increase precision and confidence in random sample results for all recycling centers, while minimizing overall sample size, the traditional recycling center survey population was divided into three strata, based on PET volume, as shown in **Exhibit 9**.

**Exhibit 9**  
**Stratum Definitions for Processing Fee Recyclers (2024)**

Stratum	Annual PET Volume
1	Greater than, or equal to 370 tons
2	Greater than, or equal to 175 tons, and less than 370 tons
3	Less than 175 tons

**Sample Selection**

The sample design originally consisted of 240 unique processing fee sites selected among the random PET stratified sample (plus the processing fee container strata sample and WDS-BBP added sites). When the cost survey was underway, several issues arose that required a site to be dropped, and an alternate site appropriately and randomly chosen, to replace it. Reasons for dropped sites included: (1) CalRecycle initiating a new site investigation or subsequently decertifying a site, (2) sites closing or being sold and the owner not being available, (3) sites being subsidized by the Department of Rehabilitation, or (4) site owners being non-cooperative.

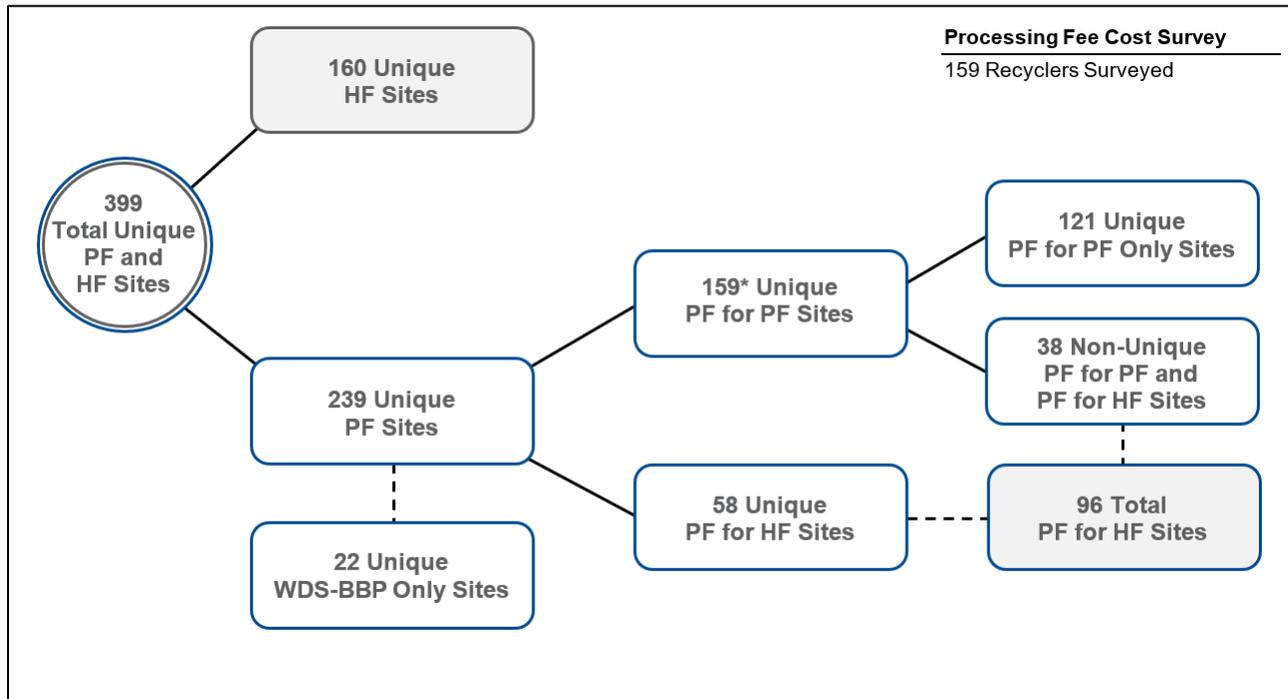
In any given year, there are a number of processing fee recycling centers that close during the survey year or prior to our survey site visit. When possible, Crowe surveyed sites that had closed, meeting with the site owner to obtain the required financial and labor information. However, there were instances where the owner was not available, or not willing to cooperate.

Crowe selected alternate sites for these initially dropped sites. Crowe replaced each dropped site with the next site in random selection order to maintain the integrity of the survey sample. The alternate sites were carefully chosen from the respective lists of available sites by strata. The lists of available sites to choose from were randomly generated and there was a strict sequential protocol ordering established in order to ensure survey randomness integrity.

**Sample Reconciliation**

This processing fee cost survey was part of a broader combined processing fee and handling fee cost survey that included 239 processing fee (originally 240) and 160 handling fee recyclers. **Exhibit 10** illustrates the total number of processing fee and handling fee recyclers surveyed (399 unique sites) and the number of recyclers in the processing fee cost survey (239 unique sites).

**Exhibit 10**  
**Processing Fee and Handling Fee Cost Survey Sample (2024)**



\* 38 PF sites within the 159 also were within the handling fee (HF) cost survey (PF for HF sites), for a total of 96 (38 + 58) PF sites used for the cost per container calculation.

**B. WDS-BBP Background and Methodology**

The implementation of SB 1013 on January 1, 2024, introduced wine and distilled spirits (WDS) as well as three new types of beverage containers to the Beverage Container Recycling Program (BCRP): bag-in-box, multi-layer pouch, and paperboard carton. Boxes, bladders, and pouches (BBP) with WDS beverages have a 25-cent CRV deposit rate. In addition to outlining mandated fees, refund values, and reporting requirements, the bill also expanded convenience zones and introduced grants to support the circular economy of beverage containers in California.

To better understand how these new container types fit into the BCRP, it is important to consider their material composition. Bag-in-box containers generally consist of a corrugated or paperboard shell, containing a multilayer bladder with a spout. Products like BeatBox use coated or waxed paper cartons that resemble cartons but do not meet standard OCC specifications. Stand-up pouches and flexible bags may incorporate several resin types and barrier layers, making them functionally different from other types of plastic HDPE beverage containers.

During an interim period through December 31, 2025, CalRecycle applied a temporary segregated rate for WDS-BBP, equivalent to Other #7; and a processing payment equivalent to HDPE, pending development of WDS-BBP-specific cost and scrap value data. WDS-BBP beverage containers were categorized as one single container group during this period, meaning payment rates for these three types of items are identical. Beginning January 1, 2026, WDS-BBP was broken down into individual components, and during the next survey, their costs will be calculated separately for separate payment rates. This change comes from PRC Code Section 14575, which requires WDS-BBP to have a specific processing payment and fee, rather than using the same rate as HDPE #2. It also requires WDS-BBP scrap value data to be collected from processors for use in analysis. This material-specific framework marks a transition from the temporary proxy rates to a longstanding statutory requirement.

The sampled WDS-BBP RCs included all PF recyclers from the stratified statewide samples that reported WDS-BBP volumes of at least 0.005% of total reported tonnage. We first reviewed the full population of 117 PF sites reporting WDS-BBPs to confirm population size; and then developed a sampling strategy to help ensure representation across the strata for cost-per-ton estimation. Crowe selected sites with at least 0.005% of total reported tonnage to confirm measurable material volumes; we first evaluated a threshold of 0.01% but this resulted in too few eligible sites to support representative sampling.

Our target sample size was 40 RCs, consistent with accepted sampling practices for small populations, where samples of 30–50 provide more stable and reliable estimates under the central limit theorem. The final selected sites represent approximately 66% of total WDS-BBP volume, confirming coverage of the majority of material handled statewide and providing sufficient data to estimate recycling costs.

### **C. Conducting Site Visit Surveys**

A significant component of the cost survey involved scheduling site visits and communicating with recyclers chosen from the sample frame. Key scheduling and outreach team members were engaged from the project start-up through survey months (May through late October) to coordinate scheduling and communicate with recyclers.

Because conducting a cost survey involves collecting proprietary financial information, sensitivity to stakeholder relations is highly important. Without willing and active cooperation from the selected recycling center operators, determining the real costs of beverage container recycling would be exceptionally difficult and the results would be hard to support. Our approach was to communicate with site operators and managers from the start of the process to help them understand what the cost survey entailed, what information we were seeking to obtain, and, perhaps most importantly, to correct misunderstandings about the purpose of the cost survey.

A letter on CalRecycle letterhead informed the recycler that they were selected to participate in the processing fee cost survey. The letter also identified the expectations of the recycler and introduced Crowe as CalRecycle’s cost survey contractor. Introduction letters were sent to all selected recyclers starting in late April 2025. In the second stage of communication, a Crowe scheduling coordinator contacted recyclers by telephone to schedule site visits. In addition to the call, the scheduler typically sent a confirmation email to recyclers.

The survey team contacted the recycler directly, approximately one week before the site visit, for final visit confirmation. Site visits were generally conducted by a team of two surveyors, including accountants and/or recycling experts. Each survey team included at least one member with experience on prior cost surveys. Survey teams made their own travel arrangements.

There were three phases of an individual cost survey, illustrated in **Exhibit 11**:

- **Pre-site visit** – Model population, data review, and travel logistics
- **On-site visit** – Site tour, cost survey, and labor interviews
- **Post-site visit** – Data entry, analysis, and follow-up.

**Exhibit 11**  
**Three Phases of the Cost Survey (2024)**

Phases	1. Pre-Site Visit	2. Site Visit	3. Post-Site Visit
<b>Activities</b>	<ul style="list-style-type: none"> <li>• Scheduling team sends notification letter</li> <li>• Survey team confirms site visit</li> <li>• Survey team reviews information on the site, including prior site files and current cost model</li> <li>• Scheduling team sends follow-up notification letter, as necessary</li> </ul>	<ul style="list-style-type: none"> <li>• Survey team conducts site visit</li> </ul>	<ul style="list-style-type: none"> <li>• Survey team completes site files and uploads files to SharePoint site</li> <li>• Reviewers begin reviewing site files</li> <li>• Survey team responds to comments</li> <li>• Review process ends in final approval</li> </ul>
<b>Participants</b>	<ul style="list-style-type: none"> <li>• Scheduling Team</li> <li>• Survey Team</li> </ul>	<ul style="list-style-type: none"> <li>• Survey Team</li> </ul>	<ul style="list-style-type: none"> <li>• Survey Team</li> <li>• Reviewers</li> </ul>

## **Pre-Site Visit**

Before conducting the on-site cost survey, the survey team obtained all available information about that site. Crowe entered recycling volumes for 2024 into the cost model Excel file for each site. The survey team evaluated the beverage container tons information to identify the approximate size and scope of the site. Much of the pre-site visit time was spent on travel logistics and mapping.

## **On-Site Visit**

Each site visit typically lasted from one to three hours, depending on the size and complexity of the site. The primary data-gathering effort took place during the site visit. Survey teams carefully followed procedures outlined in the Training Manual. The survey team first toured the site with site management to view and inquire about the site's operations, such as materials handled, equipment, recycling procedures, and material shipping.

Another key on-site task was reviewing the financial information with site management, or a financial officer, to identify and categorize allowable and non-allowable costs for calculating processing fees; and be able to identify and direct specific costs towards or away from the recycler operation and specific materials handling. Team members classified costs into one of the following categories:

- Direct labor
- Other labor
- General business overhead
- Transportation
- Rent
- Depreciation
- Property taxes
- Utilities
- Supplies
- Fuel
- Insurance
- Interest
- Maintenance/repairs
- Not allowable

The next key task was conducting structured labor allocation interviews to determine the allocation of each employee's time, first to recycler, processor, or other business, then to recycling center direct yard labor or all other labor, and finally by CRV material type or other non-CRV material. The cost model used this labor allocation information to allocate indirect costs and wages.

### **Post-Site Visit**

After the site visit, the survey team spent from four to 10 or more hours further compiling the site data, entering information into the cost model, completing the Site Memorandum and site file, and reviewing the site file. In many cases, site managers did not have all the necessary information available at the site visit, and the survey team had to telephone and/or email the recycler to request additional information, or to ask specific questions about the data.

Following the site visit, the team entered the labor information for each employee, as well as the cost summary and direct cost information, into the cost model. Once the data were entered into the cost model, the model calculated cost per ton for each of the CRV material categories recycled at the site. Finally, the survey team compiled and checked all workpapers and conducted a reasonableness check of survey results before uploading the files to the secure SharePoint site for the experienced project team to conduct the first of several independent office review steps.

### ***D. Quality Control and Confidentiality Procedures***

Data quality control (QC) was a primary focus of the cost survey project. Quality control procedures included five separate levels of review and totaled an average of 8.35 hours per site. These data QC procedures were essential to confirm that the cost survey results were fair, equitable, accurate, reasonable, justifiable, and defensible.

This extensive quality control process, with six different individuals or staff teams, determined that each site file was complete and accurate before it was released for data processing and data analysis. Site files that did not meet all the quality control criteria were returned to the original survey team for corrections, if appropriate. Crowe approved data for the final cost per ton calculations, described in Section 2, after this extensive series of quality control reviews were complete.

Confidentiality was important for the cost survey. The data from each recycling site were not to be disclosed because release of the data could compromise a recycling business. As a result, Crowe developed formal policies regarding confidentiality. Each project team member signed an employee confidentiality statement, and in addition, each project team firm signed a similar statement. Records from each site were maintained securely in the Crowe SharePoint site after they were completed, and financial printouts and worksheet drafts with site-specific information were securely shredded. The final electronic site files will be delivered to CalRecycle for their secure record retention. Computers were protected against unauthorized access through use of encryption security software that requires a password to use our laptops. All electronic files related to site visits were stored on the secure SharePoint site within Crowe's domain, accessible by password only, to authorized survey team members.

## E. Cost Survey Methodology Validation

Crowe conducted additional analysis to test the validity of the survey results. This subsection discusses distribution of cost per ton results. Based on the analyses described and throughout this section, we conclude that our methodology is consistent with prior years. We are confident that the cost per ton results consistently reflect recycler operations and costs.

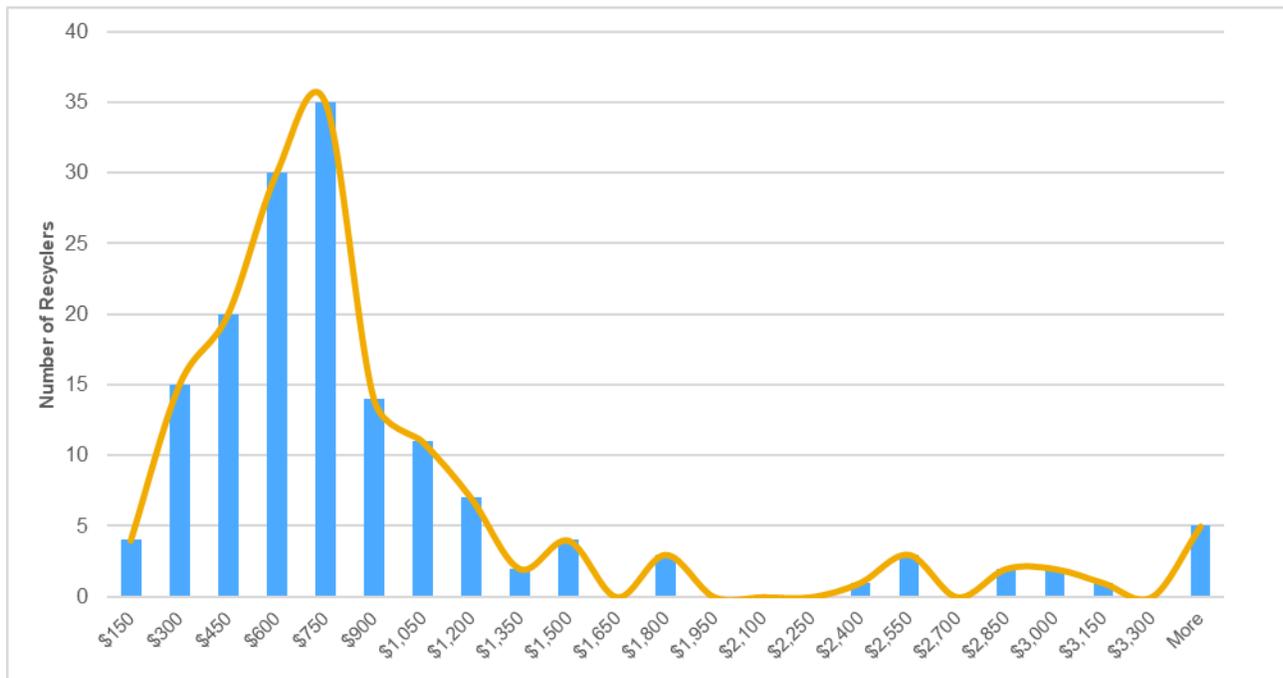
### Distribution of Cost per Ton Results

Crowe evaluated the distribution of 2024 cost per ton results. Our assumption was that if the cost survey was conducted without bias, we would expect a generally “right skewed” normal distribution of cost per ton results from our sample. That is, cost per ton can never be less than \$0 per ton, and there is no fixed upper limit on the cost per ton. A distribution of recycling centers (RCs) by cost per ton is expected to be bunched up toward the left, with a “tail” stretching toward the right.

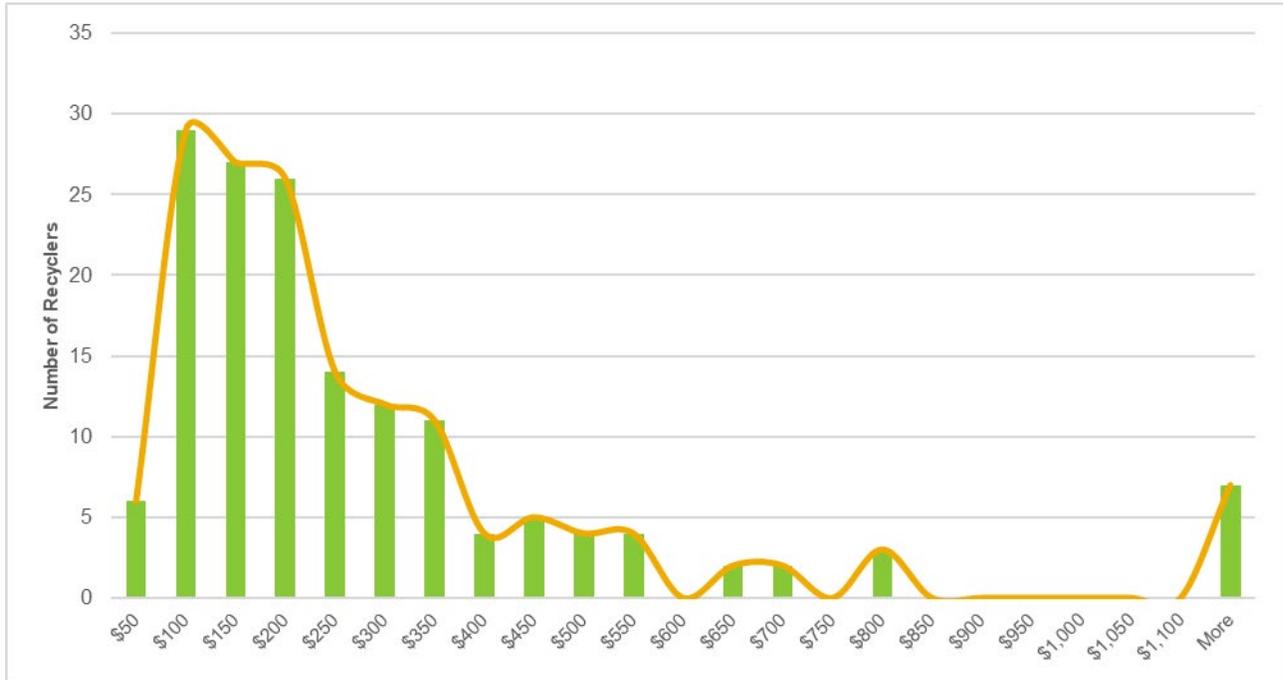
**Exhibit 12, Exhibit 13, Exhibit 14, and Exhibit 15** provide frequency histograms of the cost per ton results for aluminum, glass, PET #1, and HDPE #2. On each graph, the vertical axis is the number of RCs, and the horizontal axis is cost per ton. The horizontal axis of cost per ton is in \$150 increments for aluminum and PET #1, \$250 increments in HDPE #2, and \$50 increments for glass. Note that the range for each horizontal bar represents an “up-to” amount; for example, the glass \$200 bar represents cost per ton from \$150.01 to \$200.

#### Exhibit 12

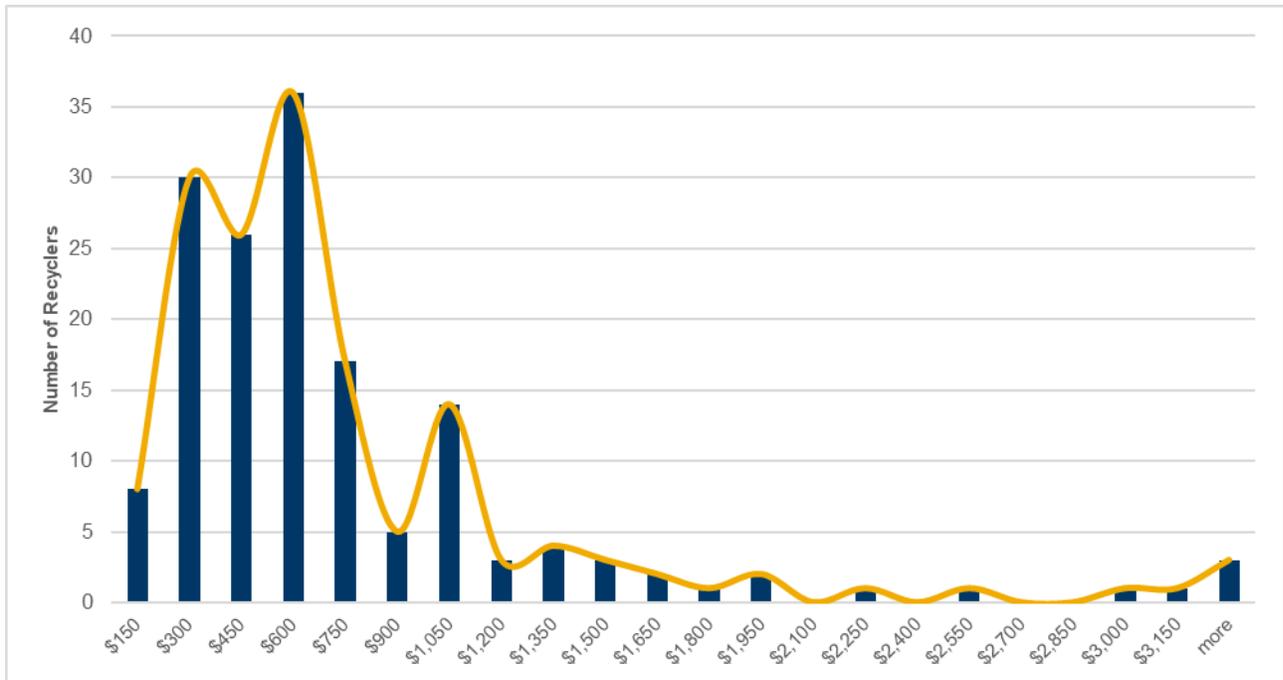
#### 2024 Sampled Processing Fee Recyclers, Distribution of Aluminum Cost per Ton



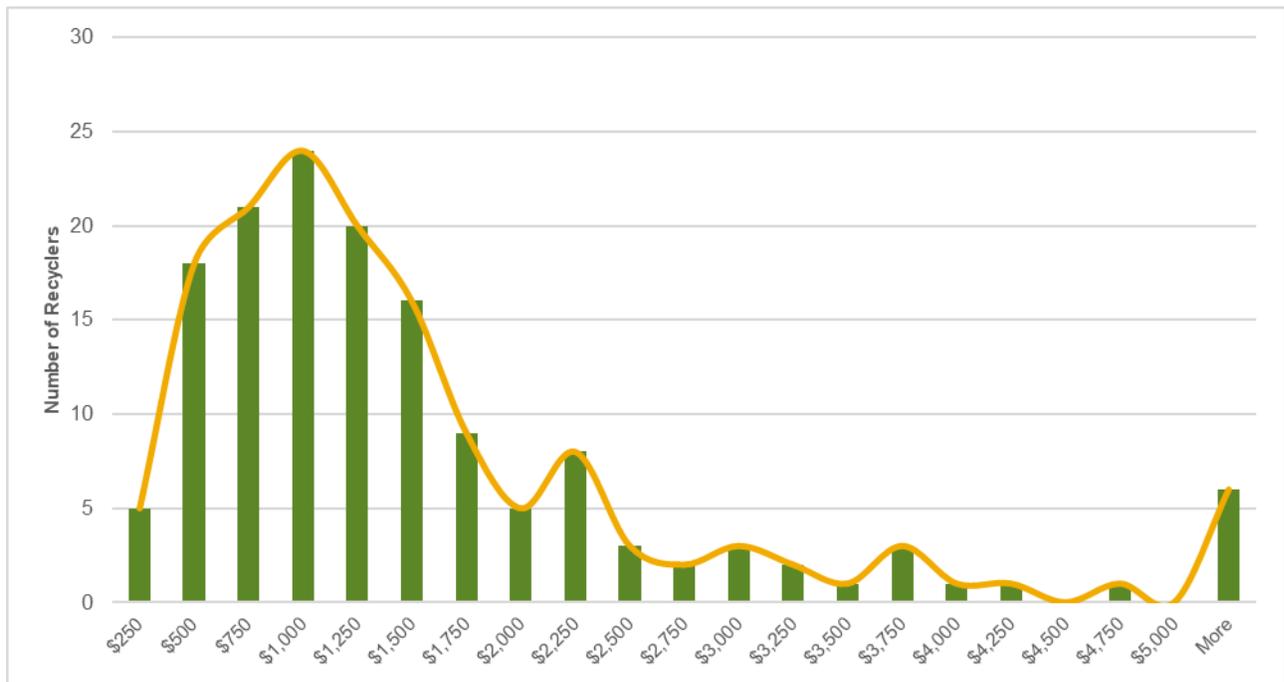
**Exhibit 13**  
**2024 Sampled Processing Fee Recyclers, Distribution of Glass Cost per Ton**



**Exhibit 14**  
**2024 Sampled Processing Fee Recyclers, Distribution of PET #1 Cost per Ton**



**Exhibit 15**  
**2024 Sampled Processing Fee Recyclers, Distribution of HDPE #2 Cost per Ton**



The histograms demonstrate extremely consistent distributions among all four material types. In addition, these histograms are consistent as compared to the prior cost survey frequency histograms, which were similarly right skewed. The distributions are right skewed distributions, with a tail to the right as cost per ton increases. The consistency of the four distributions also demonstrates that the survey results are reasonably balanced between the material types.

The right-side skew represents the fact that the cost per ton cannot be below \$0, as there is some actual, baseline amount of costs required to recycle a ton of material. At the high end of costs, there are fewer constraints. For example, a recycler with low tonnage and high fixed costs could end up with a very high cost per ton.

**Investigated Recycling Centers Removed from the Full Population and Sample**

For the current 2025 cost survey, Crowe removed RCs that were subject to CalRecycle investigations for significant infractions, from the population and the survey sample. We reasoned that removing major investigated RCs from the full population would eliminate potential site visits to RCs that might be in an adversarial relationship with CalRecycle, or which might be recycling large volumes of illegitimate containers.

**Exhibit 16** provides the removed investigated RCs for each survey since 2012. This includes the identification and removal of 39 sites for this 2024 processing fee cost survey, resulting in a processing fee recycler population of 467.

## Exhibit 16

### Recycler Population and Investigated Site Between 2012 and 2024

Cost Survey Year	2012	2014	2016	2018	2020	2022	2024
Full Population	1,032	995	785	705	611	577	506
Investigated Sites	269 <sup>4</sup>	42	7	31	30	18	39
PF Recycler Population	763	953	778	674	581	559	467
% of Full Population	26%	4%	1%	4%	5%	3%	8%
% of Materials Recycled	N/A	9%	1%	4%	5%	3%	7%

*The 2012 cost survey population determination included removal of all investigated recyclers. In subsequent years, the processing fee recycler population only includes a removal of major investigated recycling centers.*

### **F. Calibration of the Indirect Cost Allocation Sub-Models**

Crowe updated the cost survey model to reflect 2024 containers per pound, CRV payment information, and procedural changes to the cost survey. In addition, Crowe calibrated the Indirect Cost Allocation Sub-Models for Aluminum/Bi-Metal and All-Plastics with 2024 survey information. These sub-models, now incorporated into the Labor Allocation Cost Survey Model, help ensure rational allocation of costs and labor to bi-metal and plastic resins HDPE #2, PVC #3, LDPE #4, PP #5, PS #6, and Other #7. While the survey no longer directly measures the cost per ton for bi-metal and plastics #3 to #7, the sub-model is still utilized to help determine aluminum, PET #1, and HDPE #2 cost per ton. In 2025, the cost model underwent improvements. These changes are part of Crowe's ongoing commitment to maintain and improve the model, helping to ensure it is adaptive and becomes a more valuable and effective tool for surveyors over time.

The purpose of the two sub-models, the Indirect Cost Allocation Sub-Model for All Plastics, and the Indirect Cost Allocation Sub-Model for Aluminum/Bi-Metal, was to separate the individual majority and minority material costs from the larger indirect cost categories: all plastics and aluminum/bi-metal. Using operational and material handling factors, the sub-models provide a consistent, site-specific, and sub-material specific approach, for determining the cost per ton for both the high-volume majority materials and low-volume minority materials.

Four operational/material handling factors (weight of containers, number of containers, volume (size) of containers, and commingled rate), along with a weighting allocation across these factors, formed the basis of the indirect cost allocation sub-models for the two majority and seven minority materials (glass does not require a sub-model). The sub-models were integrated into the Labor Allocation Cost Model for each site.

## 2. Processing Fee Cost Calculations and Results

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This section describes the calculations used and the final results for the statewide weighted-average cost per ton for recycling each of the 11 beverage container material types in the California BCRP. This section is organized as follows:

- A. *Cost Calculations*
- B. *Cost Results*
- C. *Historical Trends in Cost per Ton Results*
- D. *Comparison of 2004-2024 Cost per Ton Results for Aluminum, Glass, PET #1, and HDPE #2*
- E. *Cost per Ton Results for Seven Minority Material Types*

### **A. Cost Calculations**

The statewide statistical methodology (stratified weighted-average cost) used for the cost per ton calculations for aluminum, glass, PET #1, and HDPE #2 was pre-determined by sample design.<sup>5</sup> For this 2024 processing fee cost survey, Crowe utilized only one type of sample design, a stratified random sample based on tons of PET recycled for historically-included material types.

For the stratified random sample, Crowe used a weighted-average, by-strata calculation to determine cost per ton. We calculated the cost per ton for bi-metal and plastics #3 to #7 based on the percentage change in HDPE #2 cost per ton between 2022 and 2024. We used a modified stratified sample to calculate the 2024 cost per ton for WDS-BBP.

**Exhibit 17** and **Exhibit 18** illustrate the three calculation approaches we used for determining processing fee recycler cost per ton for 11 beverage container material types.

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<sup>5</sup> The Beverage Container Recycling and Litter Reduction Act specifies that cost per ton calculations be based on a statewide, weighted-average. The Act eliminated the calculation of a simple average (taking the average of each site and dividing by the total number of sites).

**Exhibit 17**

**2024 Cost per Ton Calculations for Processing Fee Recyclers: Approaches A and B**

**Approach A: Aluminum, Glass, Plastics #1, and Plastics #2 Cost per Ton**

<u>Glass Stratum 1 Sample Costs</u>	×	Glass Stratum 1 Population Volumes	=	Glass Stratum 1 Total Population Costs
Glass Stratum 1 Sample Volumes				+
<u>Glass Stratum 2 Sample Costs</u>	×	Glass Stratum 2 Population Volumes	=	Glass Stratum 2 Total Population Costs
Glass Stratum 2 Sample Volumes				+
<u>Glass Stratum 3 Sample Costs</u>	×	Glass Stratum 3 Population Volumes	=	Glass Stratum 3 Total Population Costs
Glass Stratum 3 Sample Volumes				=
				<hr style="border: 1px solid black;"/> Total Population Volumes
				= Statewide Stratified Weighted-Average Cost Per Ton

**Approach B: Bi-Metal, and Plastics #3 to #7 Cost per Ton**

- Determine HDPE percent change in cost per ton between 2022 (\$874.10) and 2024 (\$1,316.58):

$$\text{Percent change} = \frac{\$1,316.58 - \$874.10}{\$874.10} = \frac{\$442.48}{\$874.10} = 50.62\%$$

- Calculated cost per ton for bi-metal and plastics #3 to #7 =  
2022 cost per ton + (2022 cost per ton × 50.62%)

**Exhibit 18**  
**2024 Cost per Ton Calculations for Processing Fee Recyclers: Approach C**

**Approach C: WDS-BBP Cost per Ton**

**1. (Sample) Estimate WDS-BBP transaction time**

- At the start of the survey, RCs were asked to estimate the average time required per WDS-BBP transaction. These estimates were validated through on-site observations. On average, RCs spend approximately one minute per transaction.
- During the survey, RCs also provided estimates of their weekly WDS-BBP transaction counts. To estimate the total number of transactions in 2024, we multiply the number of transactions per week by 52 weeks. Then, to calculate the total time (hours) spent on WDS-BBP for the year, we multiply the total 2024 transactions by one minute per transaction. The two-step process is as follows:

$$\text{Transactions per week} \times 52 \text{ weeks} = \text{Total 2024 WDS - BBP transactions}$$

$$\text{Total 2024 WDS - BBP transactions} \times 1 \text{ minute per transaction} \times \frac{1}{60} \text{ min per hr} = \text{WDS - BBP hours}$$

**2. (Sample) Calculate CRV cost per hour by stratum**

- Total recycler CRV costs were divided by total CRV hours, as follows:

$$\text{Recycler CRV costs} \div \text{Recycler CRV hours} = \text{CRV cost per hour}$$

**3. (Sample) Calculate total WDS-BBP costs by stratum**

- WDS-BBP hours were multiplied by the CRV cost per hour and combined with direct WDS-BBP costs, as follows:

$$(\text{WDS - BBP hours} \times \text{CRV cost per hour}) + \text{WDS - BBP direct costs} = \text{WDS - BBP costs}$$

**4. (Sample) Calculate WDS-BBP cost per ton by stratum**

- Total WDS-BBP costs were divided by reported WDS-BBP tons, as follows:

$$\text{WDS - BBP costs} \div \text{Reported WDS - BBP tons} = \text{WDS - BBP cost per ton}$$

**5. (Population) Calculate statewide WDS-BBP cost per ton by stratum**

- Multiply WDS-BBP cost per ton of the sample for each stratum (1, 2, 3) to the WDS-BBP tons by stratum of the population, as follows:

$$\begin{aligned} \text{Stratum 1: Sample WDS - BBP cost per ton} \times \text{Population WDS - BBP tons} \\ = \text{Population Stratum 1 WDS - BBP costs} \end{aligned}$$

$$\begin{aligned} \text{Stratum 2: Sample WDS - BBP cost per ton} \times \text{Population WDS - BBP tons} \\ = \text{Population Stratum 2 WDS - BBP Costs} \end{aligned}$$

$$\begin{aligned} \text{Stratum 3: Sample WDS - BBP cost per ton} \times \text{Population WDS - BBP tons} \\ = \text{Population Stratum 3 WDS - BBP Costs} \end{aligned}$$

**6. (Population) Calculate statewide weighted-average WDS-BBP cost per ton**

- Sum population WDS-BBP tons across all strata (1, 2, 3)
- Sum population WDS-BBP costs across all strata (1, 2, 3)
- Divide population WDS-BBP costs by WDS-BBP tons, as follows:

$$\begin{aligned} \Sigma \text{ Population WDS - BBP costs} \div \Sigma \text{ Population WDS - BBP tons} \\ = \text{Statewide weighted - average WDS - BBP cost per ton} \end{aligned}$$

## Approach A: Aluminum, Glass, PET #1, and HDPE #2

Most recyclers in the total population accept and recycle these four material types.<sup>6</sup> As a result, for these materials, we used a weighted, by-stratum, average statewide cost per ton. There were 159 recyclers in the random sample, divided into three strata. Within each of the three sample strata, we determined the total sample costs and the total sample tons. CalRecycle provided the 2024 tons data for both the sample and population. The next step was to calculate the average cost per ton by stratum, equal to the sample stratum cost divided by the sample stratum tons. Next, we multiplied this figure by the stratum population tons, to determine the total population costs for each stratum, for each material type. Finally, we determined the statewide, weighted-average cost per ton by summing the three strata total population costs, then dividing by the total population tons. **Exhibit 19** provides an example of the actual step-by-step calculation for glass cost per ton.

### Exhibit 19

#### Weighted-Average by Strata Calculation Example for Processing Fee Recycler Glass Cost per Ton (2024)

Strata	Sample Glass Tons	Sample Glass Cost	Sample Cost per Ton <sup>7</sup>
1	20,166.17	\$4,411,910.68	\$218.78
2	17,979.93	\$3,869,390.25	\$215.21
3	14,432.17	\$3,306,000.71	\$229.07
Sample Total	52,578.28	\$11,587,301.63	\$220.38

Strata <sup>8</sup>	Population Glass Tons	Population Glass Cost	Population Cost per Ton
1	36,754.80	\$8,041,215.90	N/A
2	46,762.51	\$10,063,760.36	N/A
3	52,227.11	\$11,963,663.54	N/A
Sample Total	135,744.42	\$30,068,639.80	\$221.51 <sup>9</sup>

<sup>6</sup> Somewhat fewer recyclers accept HDPE #2, but the number of HDPE #2 recyclers is still quite large, although the tons are significantly less than for the other three materials, aluminum, glass, and PET #1.

<sup>7</sup> Simple weighted-average cost per ton for each stratum, and simple weighted-average for the sample.

<sup>8</sup> Total costs for each stratum, calculated by multiplying sample cost per ton from above, by total glass tons, summed for entire population.

<sup>9</sup> A statewide, weighted-average result of \$221.51 per ton, calculated by dividing total population glass costs by total population glass tons.

## **Approach B: Bi-Metal and Plastics #3 to #7**

This 2025 cost survey was the eighth time since 2002 (the first was the 2010 cost survey) that the state did not calculate material-specific cost per ton for bi-metal and plastics #3 to #7. SB 1357 states that the department shall adjust the costs of recycling for material types that make up less than 5% of the total number of containers recycled by the percentage change in the most recently measured cost of recycling HDPE #2 beverage containers (even if HDPE #2 makes up less than 5% of total containers recycled). Thus, the cost per ton to recycle bi-metal and plastics #3 to #7 was based on the calculated 50.6% change in HDPE #2 cost per ton between 2022 and 2024. For the 2024 cost per ton for each of these six minority materials (bi-metal, PVC #3, LDPE #4, PP #5, PS #6, and Other #7), cost per ton increased by calculating a 50.6% increase to the respective minority material cost per ton measured in 2022.

## **Approach C: WDS-BBP**

The 2025 cost survey is the first time that the state has determined the cost for WDS-BBP. The cost model labor allocation approach is not granular enough to determine costs because the recycling volumes and number of sites reporting WDS-BBP are so low. Because WDS-BBP is a new material category with very small statewide volumes, this analysis required a unique methodological approach. Instead of applying the traditional processing fee cost model, we used a bottom-up, activity-based method to isolate the costs associated specifically with WDS-BBP. The approach is summarized in Exhibit 18.

The WDS-BBP cost per ton was determined to be \$1,290.11.

## **Financial Return**

The California Beverage Container Recycling and Litter Reduction Act, Section 14575(b)(2) specifies that “a reasonable financial return for recyclers” should be included in the processing payment calculation. The RFR is multiplied by the cost of recycling to determine a cost of recycling, with financial return. Based on amendments to California Code of Regulations, Section 2975, the RFR applied to the cost of recycling for the January 1, 2026, processing payment and processing fee calculations was 10%.

The cost to recycle used to determine processing fees and processing payments for January 1, 2026, included a COLA. This was the seventh time that CalRecycle has utilized a COLA in the cost of recycling calculation. The COLA adjustment was a mechanism to account for the fact that the 2024 cost data were already over a year old when the processing fees and processing payments went into effect on January 1, 2026.

## B. Cost Results

The cost per ton to recycle for each of the 11 material types, with and without the RFR and COLA, is summarized in **Exhibit 20**. This exhibit also shows the 2025 cost survey sample size for each of the four relevant material types.

**Exhibit 21** illustrates the strata and population tons and costs used in the final calculations for aluminum, glass, PET #1, and HDPE #2, as well as the calculation used to determine cost per ton for bi-metal, plastics #3 to #7, and WDS-BBP.

**Exhibit 20**  
**Statewide Cost per Ton to Recycle for Processing Fee Recyclers (2024)**

Material	Cost per Ton without Financial Return	Cost per Ton with Financial Return and COLA <sup>a</sup>	N = Sample Number of Sites <sup>b</sup>
1. Aluminum	\$762.23	\$837.02	159
2. Glass	221.51	258.52	156
3. PET #1	645.88	753.81	158
4. HDPE #2	1,316.58	1,536.58	149
5. Bi-Metal	1,659.47	1,936.77	NA
6. PVC #3	2,070.80	2,416.83	NA
7. LDPE #4	2,954.17	3,447.81	NA
8. PP #5	2,650.29	3,093.16	NA
9. PS #6	1,641.62	1,915.94	NA
10. Other #7	1,798.66	2,097.34	NA
11. WDS-BBP	1,290.11	1,505.69	39

<sup>a</sup> The RFR is 10% and the COLA is 6.1%.

<sup>b</sup> Overall, 159 sites (and an additional 19 sites for inclusion in WDS-BBP analysis) were completed to obtain the results. The cost per ton for bi-metal and plastics #3 to #7 was determined by the percentage change in HDPE cost per ton.

**Exhibit 21**

**Strata and Population Costs and Tons for Processing Fee Recyclers (2024)**

**Stratum 1 – High PET #1 Tons**

Material Type	Sample Costs	Sample Tons	Stratum 1 Population Costs	Population Tons
Aluminum	\$6,592,114.63	11,302.91095	\$10,814,629.33	18,542.97
Glass	4,411,910.68	20,166.17300	8,041,215.90	36,754.80
PET #1	8,863,135.96	17,038.96915	14,563,291.30	27,997.18
HDPE #2	331,336.81	262.16460	583,800.12	461.92

**Stratum 2 – Medium PET #1 Tons**

Material Type	Sample Costs	Sample Tons	Stratum 2 Population Costs	Population Tons
Aluminum	\$5,165,870.16	6,887.86400	\$12,848,368.09	17,131.16
Glass	3,869,390.25	17,979.93435	10,063,760.36	46,762.51
PET #1	7,050,423.00	11,463.98805	16,859,298.83	27,413.05
HDPE #2	379,553.26	322.85590	1,043,326.78	887.48

**Stratum 3 – Low PET #1 Tons**

Material Type	Sample Costs	Sample Tons	Stratum 3 Population Costs	Population Tons
Aluminum	\$4,652,971.53	4,907.57570	\$17,997,621.10	18,982.43
Glass	3,306,000.71	14,432.17030	11,963,663.54	52,227.11
PET #1	5,784,278.40	7,133.59730	21,458,645.69	26,464.38
HDPE #2	288,767.40	186.35490	994,034.60	641.49

**Combined Population Strata**

Material Type	Population Costs	Population Tons	Statewide Cost per Ton
Aluminum	\$41,660,618.52	54,656.55420	<b>\$762.23</b>
Glass	30,068,639.80	135,744.42375	<b>221.51</b>
PET #1	52,881,235.82	81,874.60870	<b>645.88</b>
HDPE #2	2,621,161.50	1,990.89370	<b>1,316.58</b>

**Minority Materials**

Material Type	2022 Cost per Ton	51% Increase	2024 Cost per Ton
PVC #3	\$1,101.76	\$557.71	<b>\$1,659.47</b>
LDPE #4	1,374.85	695.95	<b>2,070.80</b>
PP #5	1,961.34	992.83	<b>2,954.17</b>
PS #6	1,759.59	890.70	<b>2,650.29</b>
Other #7	1,089.91	551.71	<b>1,641.62</b>
Bi-Metal	1,194.17	604.49	<b>1,798.66</b>

**WDS-BBP**

Material Type	Population Costs	Population Tons	Statewide Cost per Ton
WDS-BBP	\$84,520.87	65.51	<b>\$1,290.11</b>

## Error Rates and Confidence Intervals for Cost per Ton

The California Beverage Container Recycling and Litter Reduction Act, section 14575, requires CalRecycle to conduct “a survey of a statistically significant sample of certified recycling centers, excluding those receiving a handling fee.” In the California Code of Regulations, a “statistical sample” is defined as an estimate with an 85% confidence level (section 2000 (a) (47)). Internal CalRecycle policy further establishes a 10% error rate.

In developing the sample design, Crowe determined that, rather than setting the sample to achieve an 85% confidence interval and then adding oversample, it would be more statistically accurate to set the confidence interval higher, at 90%. The sample size was developed, based on 2023 cost survey results, to achieve a 90% confidence interval with a 10% error rate. Only after the survey was complete could we determine whether the actual specifications of a 90% confidence interval, and the target of a 10% error rate, were met.

The analysis of the final data shows that, for the twelfth time, the processing fee cost survey met and exceeded all prior statistical requirements. For the four applicable materials, the error rate at the 90% confidence level was below 10%. The error rate at the 90% confidence interval for each of the four relevant materials is provided in **Exhibit 22**. For comparison, the exhibit also provides the error rates at the 90% confidence interval for each of the four (or five, or six) relevant material types from the 2004-2024 processing fee cost surveys.

The 2025 cost survey generally achieved a similar high degree of statistical confidence as the 10 previous cost surveys. This degree of accuracy reflects the deep experience of the survey team, in addition to extensive quality control processes built into this cost survey. The Crowe methodology continued to include substantial site file oversight and quality control review. Crowe conducted five levels of review for each site, and some site files were sent back to the original survey team for additional investigation and revisions before they were approved.

**Exhibit 23** provides a summary comparison of the number of surveyed sites for each material type for the cost surveys from 2004 to 2024. The stratified random sample for this 2024 processing fee cost survey was slightly higher than that of the prior cost survey.

**Exhibit 22**

**Sample Error Rates (90% confidence interval) for Processing Fee Recyclers, by Material Type (2004 to 2024)**

Material Type	2024	2022	2020	2018	2016	2014	2012	2010	2008	2006	2004
1. Aluminum	4.44%	4.97%	5.80%	7.52%	6.71%	5.86%	5.71%	6.27%	5.66%	6.61%	5.55%
2. Glass	6.28%	7.29%	7.91%	6.88%	7.80%	6.49%	5.24%	7.52%	6.19%	8.17%	7.35%
3. PET #1	4.63%	4.92%	5.29%	7.40%	6.11%	6.23%	5.18%	7.56%	6.39%	8.05%	7.33%
4. HDPE #2	7.36%	6.41%	8.29%	8.62%	6.68%	6.86%	7.63%	7.33%	8.27%	8.97%	7.47%
5. Bi-Metal	N/A	6.89%	8.31%	9.83%							
6. PVC #3	N/A	100% Sample	100% Sample	100% Sample							
7. LDPE #4	N/A	100% Sample	100% Sample	100% Sample							
8. PP #5	N/A	100% Sample	100% Sample	100% Sample							
9. PS #6	N/A	100% Sample	100% Sample	100% Sample							
10. Other #7	N/A	9.53%	9.95%	100% Sample							
11. WDS-BBP	N/A	N/A	N/A								

**Exhibit 23**

**Summary Comparison of Number of Surveyed Sites for Processing Fee Recyclers (2004 to 2024)**

Material Type	Number of Sites										
	2024	2022	2020	2018	2016	2014	2012	2010	2008	2006	2004
1. Aluminum	159	137	146	154	143	151	151	129	116	123	117
2. Glass	156	138	142	152	137	151	147	128	112	121	115
3. PET #1	158	137	146	153	140	151	148	129	115	122	115
4. HDPE #2	149	135	138	150	136	146	144	127	110	118	108
5. Bi-Metal	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	40	40	52
6. PVC #3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11	12	14
7. LDPE #4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20	13	10
8. PP #5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	21	14	12
9. PS #6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	32	15	11
10. Other #7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	40	40	67
11. WDS-BBP	39	N/A									

## C. Historical Trends in Cost per Ton Results

Recycler cost per ton for processing fees were first determined in 1987, after the passage of AB 2020. The initial cost of recycling survey for 50 recyclers represented the first time that such costs had been measured and calculated.

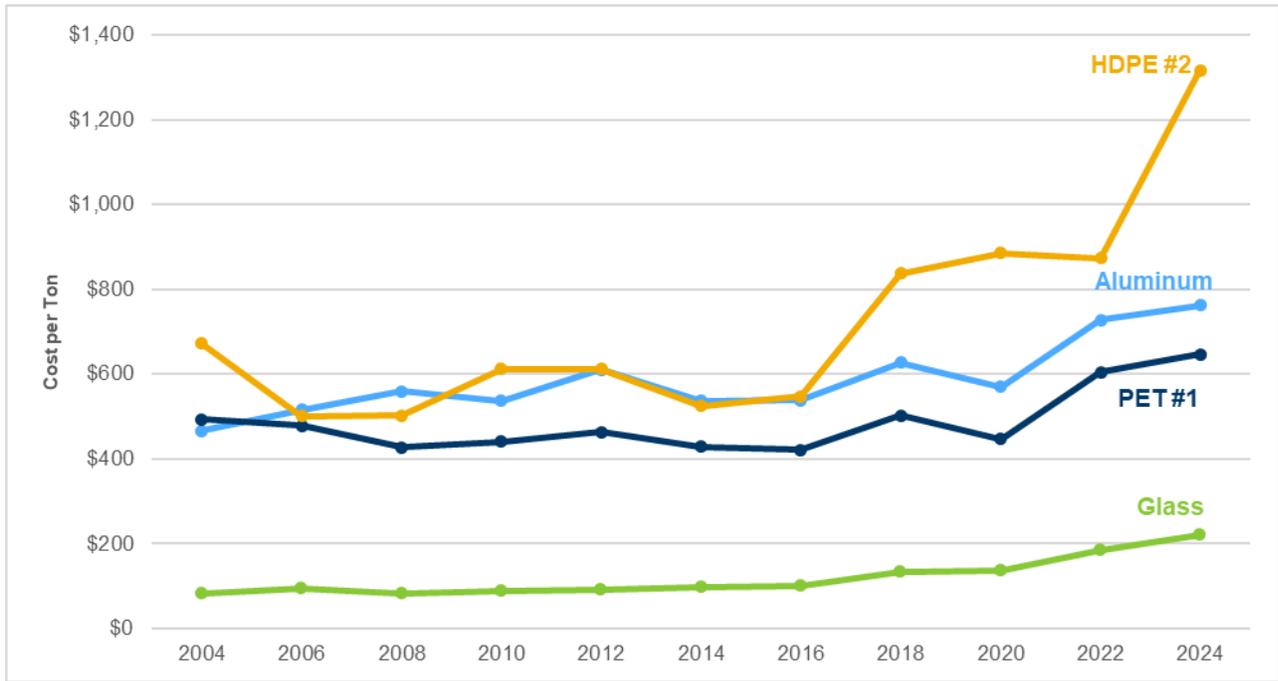
Over the last 38 years, the Department of Conservation and CalRecycle have developed and refined the processing fee cost survey methodology. The current high degree of accuracy of the cost survey reflects many years' experience and evolution of the cost survey process. Cost per ton results from the earliest years of the program represented far fewer recyclers and used a much less refined costing methodology. However, even in the early years, California's cost per ton studies provided far greater detail than any other existing studies and represented state-of-the-art research for that time.

**Exhibit 24** provides the historical cost per ton results for last 10 recycler cost surveys conducted for aluminum, glass, PET #1, and HDPE #2. As compared to 2022, the 2024 cost per ton results for aluminum increased 5%, glass increased 21%, PET #1 increased 7%, and HDPE #2 increased 51%. As compared to 2022 recycling volumes, the 2024 recycling volumes for aluminum decreased 14%, glass decreased 8%, and PET #1 and HDPE #2 decreased 20%. **Exhibit 25** provides a comparison of cost per ton from 2004 to 2024 for aluminum, glass, PET #1, and HDPE #2. **Exhibit 26** provides a comparison of CPI-adjusted costs per ton from 2004 to 2024 for aluminum, glass, PET #1, and HDPE #2 using the U.S. Department of Labor, Bureau of Labor Statistics, West Urban Consumer Price Index (CPI).<sup>10</sup>

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<sup>10</sup> Source: CPI for All Urban Consumers (CPI-U), West. Series ID: CUUR0400SA0

**Exhibit 24**  
**Aluminum, Glass, PET, and HDPE Plastic Processing Fee Recycler Cost per Ton**  
**(2004 to 2024)**



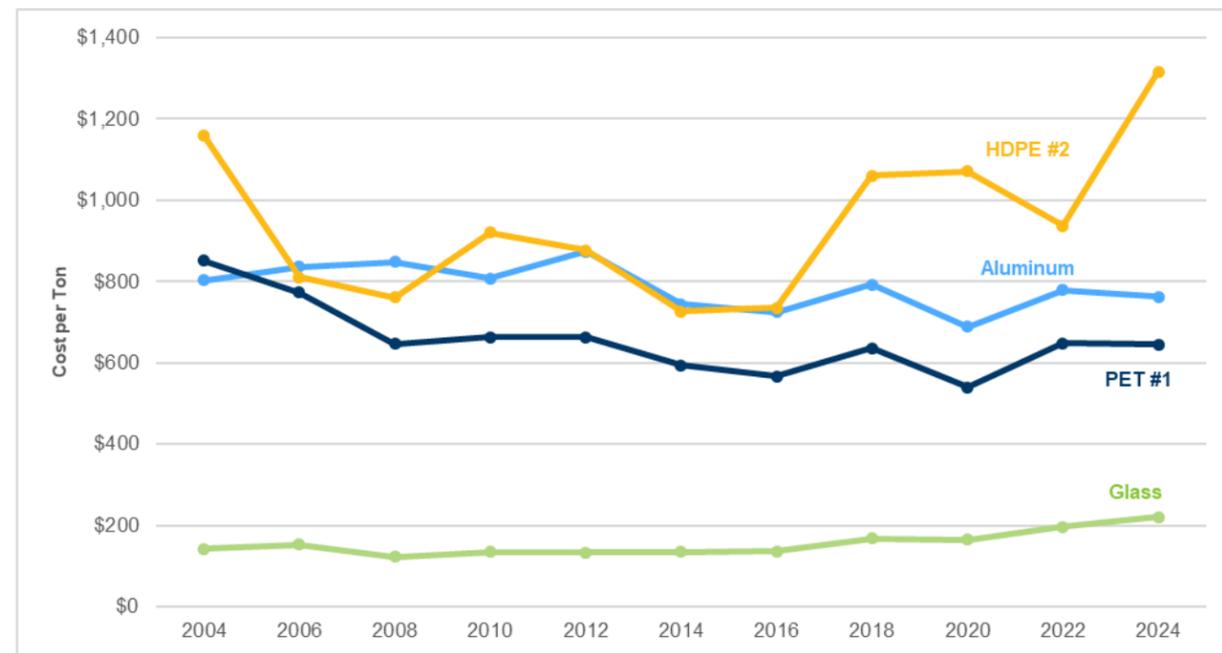
**Exhibit 25**

**Historical Statewide Cost per Ton (Without Reasonable Financial Return) (2004 through 2024)**

Material Type	2024	2022	2020	2018	2016	2014	2012	2010	2008	2006	2004
1. Aluminum	\$762.23	\$727.46	\$569.76	\$626.61	\$539.11	\$537.29	\$609.81	\$537.06	\$559.23	\$516.13	\$465.90
2. Glass	221.51	183.45	136.73	132.68	101.04	97.50	92.88	89.76	81.60	94.98	82.45
3. PET #1	645.88	605.19	446.34	502.44	421.30	428.55	462.79	440.61	426.76	477.73	493.31
4. HDPE #2	1,316.58	874.10	885.21	838.00	547.11	524.23	612.50	611.62	501.67	500.64	671.73
5. Bi-Metal	1,659.47	1,101.76	1,115.82	1,056.35	689.66	660.65	771.88	770.80	632.22	883.55	607.03
6. PVC #3	2,070.80	1,374.85	1,392.39	1,318.18	860.60	824.65	963.49	962.14	789.16	731.37	1,583.72
7. LDPE #4	2,954.17	1,961.34	1,986.37	1,880.50	1,227.72	1,176.43	1,374.50	1,372.58	1,125.80	1,858.09	1,889.50
8. PP #5	2,650.29	1,759.59	1,782.04	1,687.06	1,101.43	1,055.41	1,233.10	1,231.38	1,009.99	787.83	809.42
9. PS #6	1,641.62	1,089.91	1,103.82	1,044.99	682.24	653.74	763.80	762.73	625.60	623.11	3,051.82
10. Other #7	1,798.66	1,194.17	1,209.41	1,144.95	747.50	716.27	836.86	835.69	685.44	741.93	1,264.47
11. WDS-BBP	1,290.11	N/A									

**Exhibit 26**

**Summary Comparison of Aluminum, Glass, PET, and HDPE Plastic Processing Fee Recycler Cost per Ton Cost Survey Results, CPI Adjusted (2004 to 2024)**



## **Aluminum**

The aluminum cost per ton results increased 5%, from \$727.46 cost per ton in 2022 to \$762.23 cost per ton in 2024. This \$762.23 cost per ton is the highest in the past 10 surveys. In 2024, the processing fee recycler population recycled 54,657 tons of aluminum, down from 63,554 tons recycled in 2022, a 14% decrease. This continued decline in aluminum likely reflects the ongoing market shift from aluminum to PET beverage containers and CalRecycle's ongoing enforcement activity. On a per-recycler basis, average tons of aluminum recycled per year increased from 113.7 in 2022 to 117.0 in 2024, the highest level in the past 10 cost surveys. The increase was a result of the smaller number of recycling centers, rather than an increase in aluminum recycling. In general, the increased quantity of aluminum per recycler would tend to improve recycler profitability as compared to previous survey years. However, the increase in the cost per ton to recycle aluminum, coupled with volatile scrap market conditions in 2024, indicate a decline in potential profits from aluminum for recyclers. In 2024, aluminum made up 19% of tons of CRV material recycled by the population, similar to its percentage in 2022.

## **Glass**

The glass cost per ton results increased 21% from \$183.45 cost per ton in 2022 to \$221.51 cost per ton in 2024. This \$221.51 cost per ton is the highest in the past 10 surveys. The results reflect a continued trend of increased glass costs since 2008, resulting in a cost per ton over \$200 for the first time. In 2024, total glass volumes, at 135,744 tons, were lower compared to all of the other survey years. Glass volumes continued to decline between 2022 and 2024, compared to the stabilized levels between 2014 and 2016, following a large decrease between 2012 and 2014. Average tons of recycled glass per recycler increased slightly, from 296 tons in 2022 to 298 tons in 2024. In 2024, glass made up its lowest historical percent share of CRV material recycled, at 49% of tons, down slightly from 50% in 2022.

## **PET #1**

The PET #1 cost per ton results increased 7% from \$605.19 cost per ton in 2022 to \$645.88 cost per ton in 2024. This \$645.88 cost per ton is the highest in the past 10 surveys. For PET #1, the costs have historically fluctuated year to year within a relatively narrow band between \$400 and \$500 cost per ton, but 2024 marks the second time the trend has been over \$600 cost per ton. Tons of PET #1 recycled decreased from 102,429 in 2022 to 81,875 in 2024, a 20% decrease. On a per-recycler basis, average tons recycled per year adjusted from approximately 177 tons in 2020 to 183 tons in 2022, and back to 177 tons in 2024. In 2024, PET #1 made up one of its greatest shares of CRV materials recycled, at 29.8%, an increase from 2022. The 2024 PET #1 cost per ton results are higher than the average of all of the cost per ton results from combined surveys (2004 to 2022 average is \$471 cost per ton).

## **HDPE #2**

The HDPE #2 cost per ton results increased 51% from \$874.10 cost per ton in 2022 to \$1,316.58 cost per ton in 2024. This \$1,316.58 cost per ton is based on the sub-model and relative costs compared to PET. The requirement to redeem separated CRV-only material continued to have an impact on HDPE #2 recycling in 2024. HDPE #2 is the only beverage container material to have a commingled rate significantly lower than 100% because recyclers continue to receive (and separate) large volumes of non-CRV HDPE #2. This results in a low commingled rate. The HDPE #2 commingled rate (approximately 78%) was far lower than all other minority plastics, impacting the allocation of costs across plastics. In addition, the commingled rate for all other types of plastic increased to almost 100%. These changes increase relative costs for HDPE #2, reflecting the additional cost of sorting non-CRV HDPE #2 from HDPE #2 beverage containers. Overall, volumes decreased by 20% and costs increased by 51%. In 2024, HDPE #2 made up its lowest share of CRV materials recycled, at 0.7%, roughly the same percentage as 2022.

## **Bi-Metal and Plastics #3 to #7**

This is the eighth cost survey in which the cost per ton for bi-metal and plastics #3 to #7 has been indexed to the percentage change in HDPE #2 cost per ton, as specified in SB 1357. Per statute, CalRecycle adjusts the costs of recycling for material types that make up less than 5% of the total number of containers recycled by the percentage change in the most recently measured cost of recycling HDPE #2 beverage containers (even if HDPE #2 makes up less than 5% of total containers recycled).

In calendar year 2024, HDPE #2 made up only 0.72% of all beverage containers recycled. In total, bi-metal and plastics #3 through #7 made up approximately 0.20% of containers recycled. Thus, while HDPE #2 recycling is minimal as compared to aluminum, glass, and PET #1, it is still substantial as compared to the other seven minority material types, including WDS-BBP. The cost per ton to recycle bi-metal and plastics #3 to #7 was based on the calculated 51% increase in HDPE #2 between 2022 and 2024. Thus, for the 2024 cost per ton for each of these six minority materials (bi-metal, PVC #3, LDPE #4, PP #5, PS #6, and Other #7), cost per ton increased by 51%.

## **WDS-BBP**

This is the first cost survey that CalRecycle has determined cost per ton for WDS-BBP. The implementation of SB 1013 on January 1, 2024, introduced wine and distilled spirits, as well as three new types of beverage containers, to the BCRP. The WDS-BBP cost per ton result was \$1,290.11. This cost is based on a sample of 39 recyclers handling WDS-BBP at a level that accounts for at least 0.005% of total CRV volume in 2024. In subsequent cost surveys, CalRecycle will determine cost per ton separately for each of the three subtypes: Bag-in-Box, Multi-Layer Pouch, and Paperboard Carton.

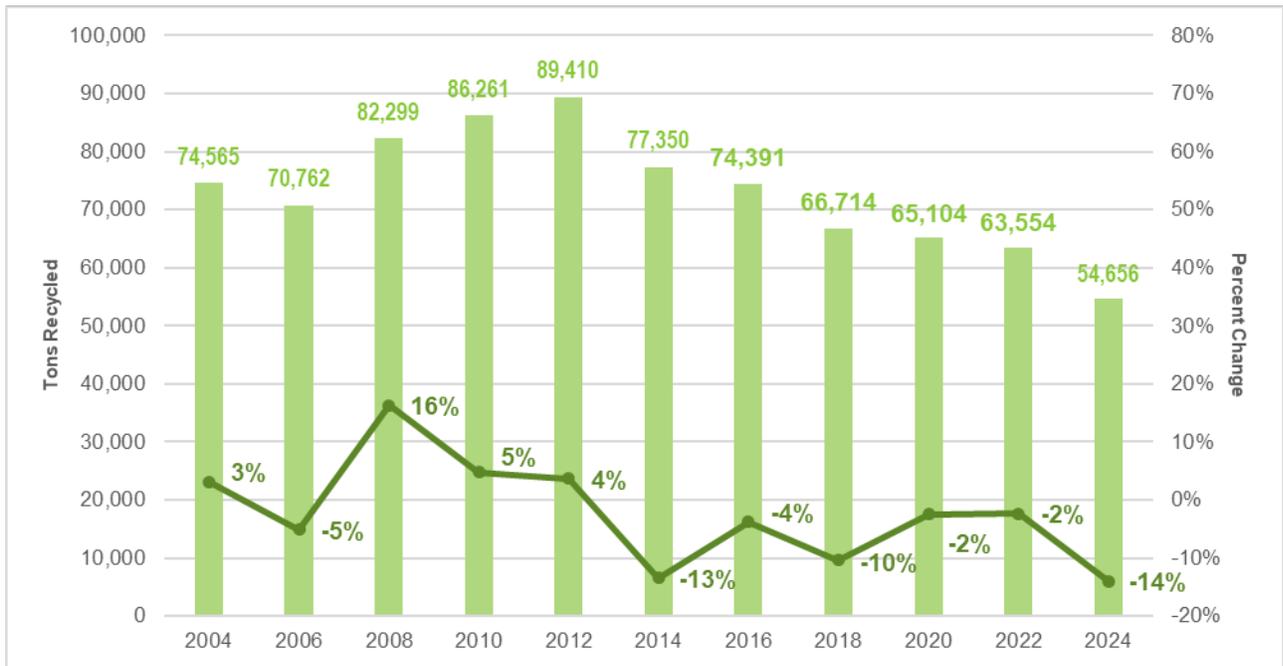
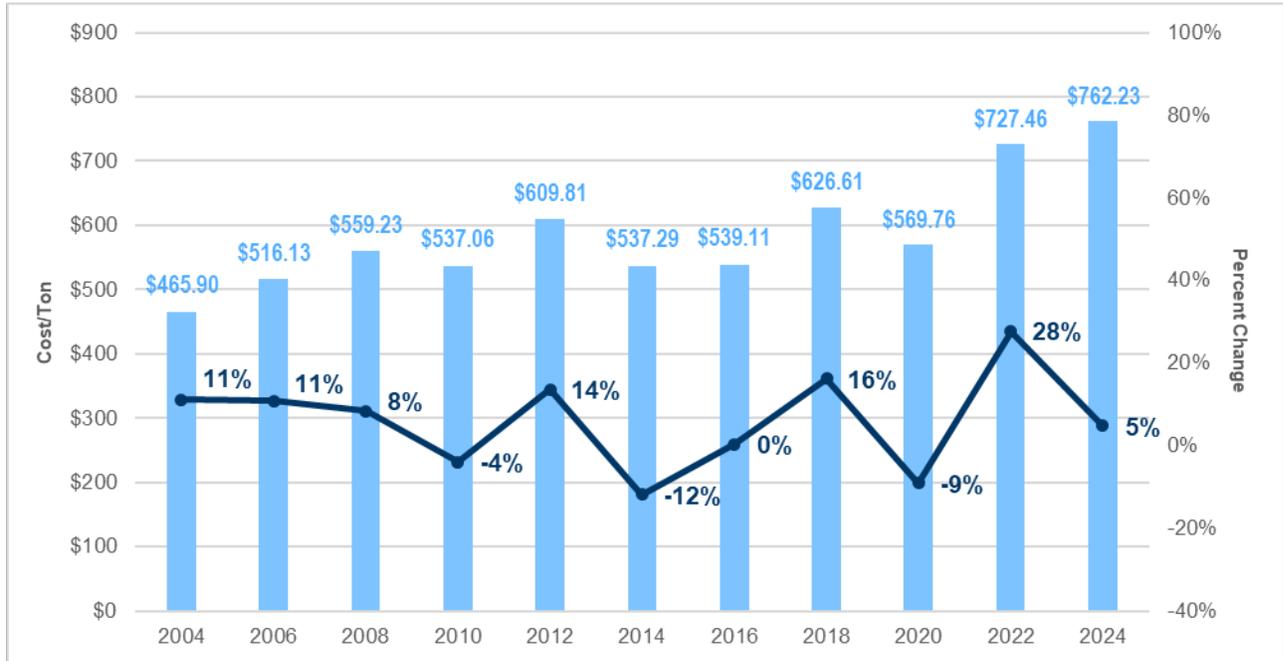
#### ***D. Historical Comparison of Cost per Ton Results for Aluminum, Glass, PET #1, and HDPE #2***

**Exhibit 27, Exhibit 28, Exhibit 29, and Exhibit 30** provide comparisons of the processing fee recycler cost per ton and recycling tons over the last 10 cost surveys, for the four majority material types. The percent figures on the secondary axis next to each column show the percentage change from the previous two years.

Note: For the 2012 cost survey, 269 processing fee recyclers that were being investigated by CalRecycle were removed from the full population prior to selecting the cost survey sample. The cost per ton calculation is based on a reduced population. The 2012 bar on the tons recycled graph shows the full population tons with investigated RCs, which is a better representation of the level of recycling in 2012.

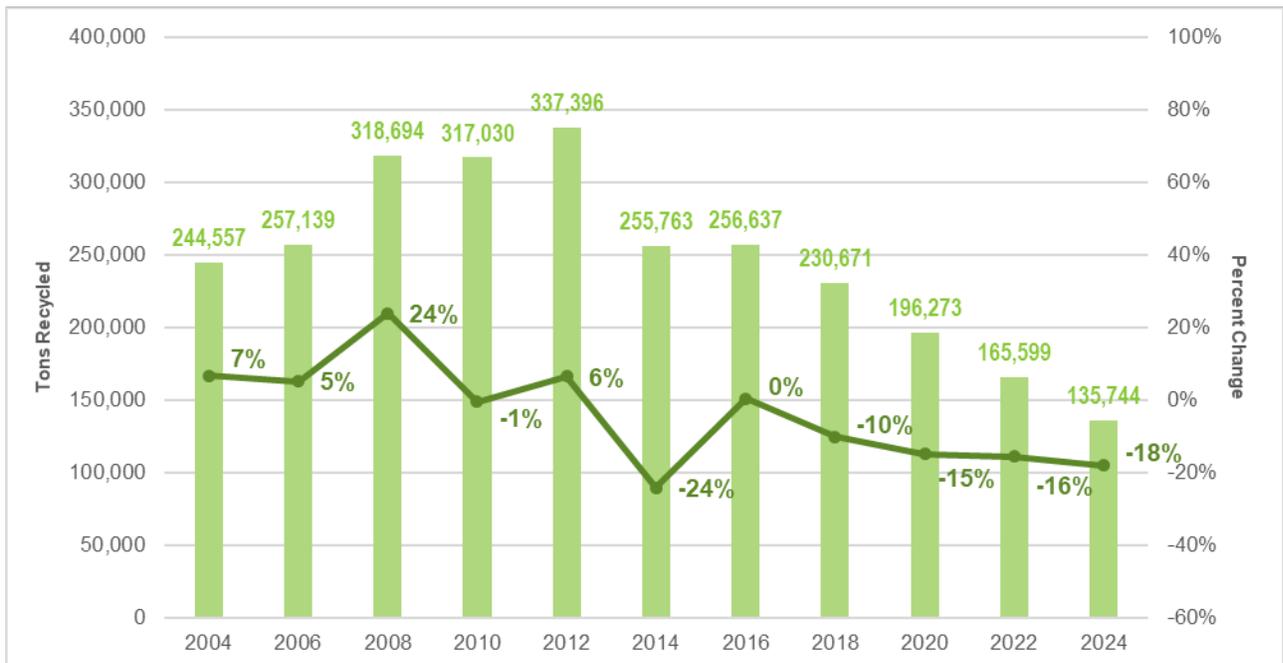
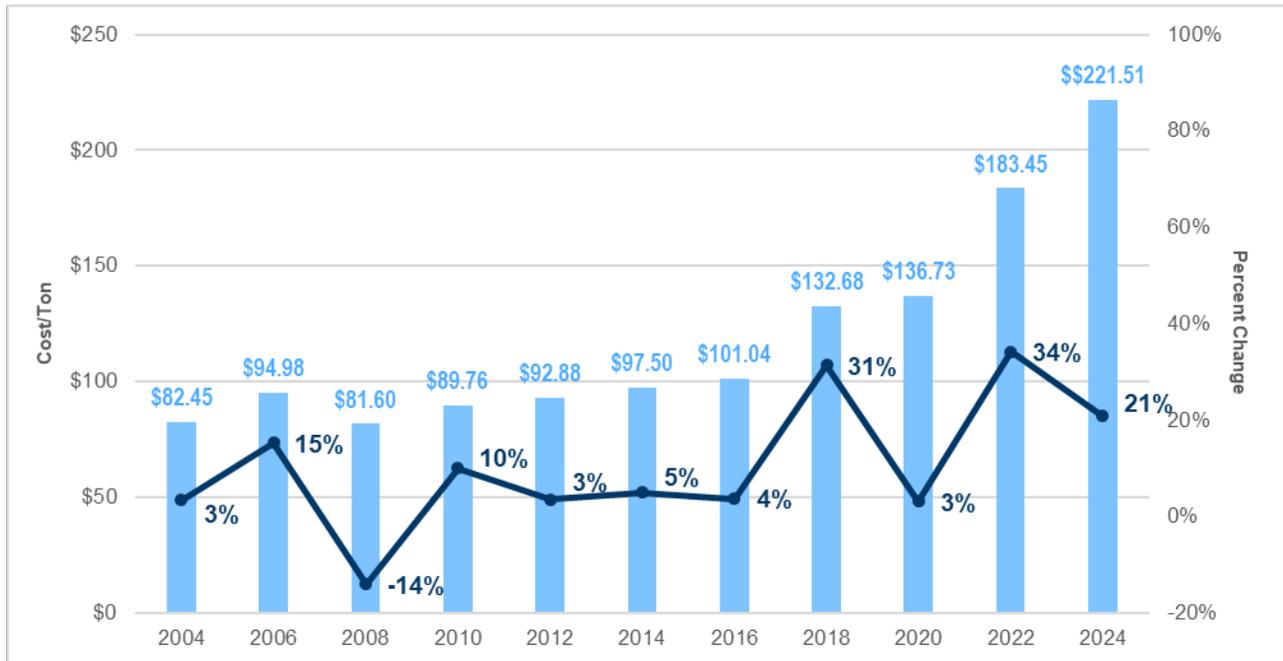
### Exhibit 27

### Aluminum Processing Fee Recycler Cost per Ton and Tons Recycled (2004 to 2024)



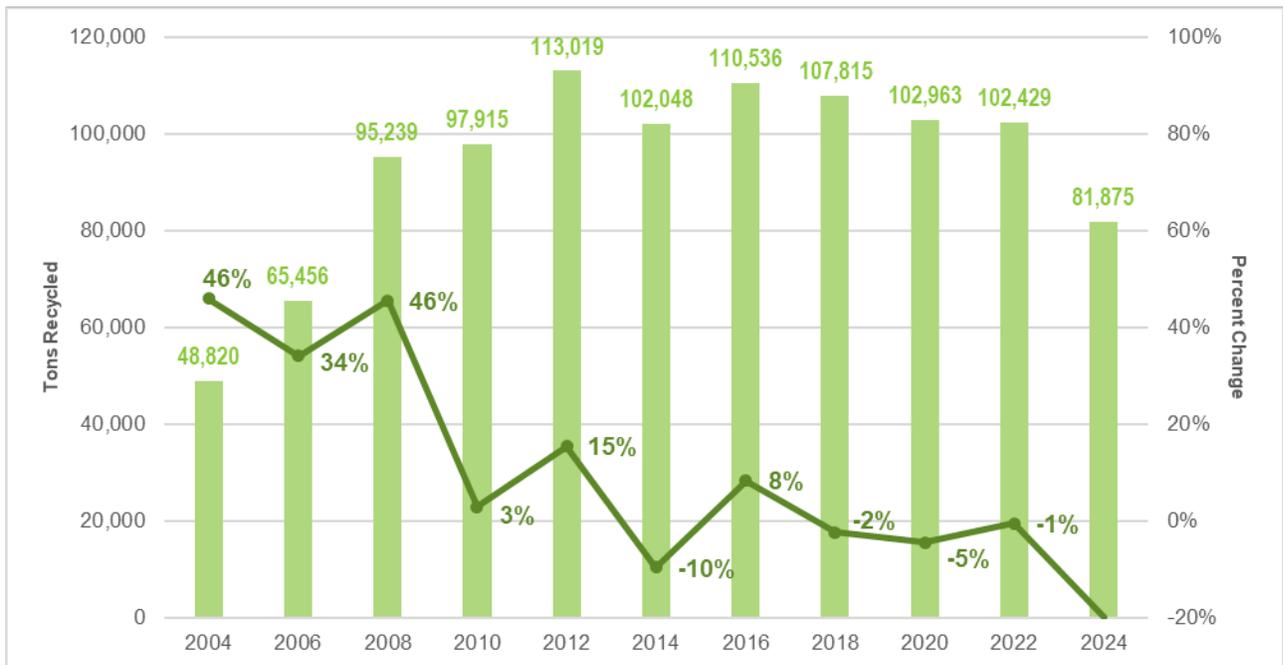
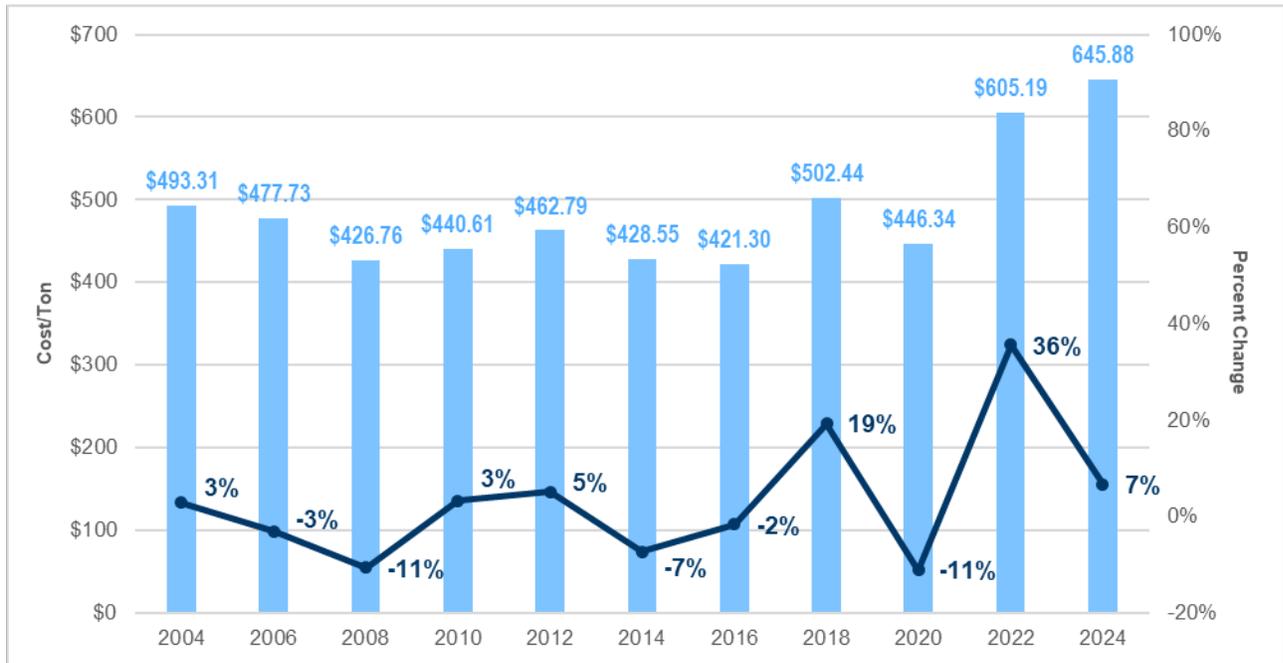
## Exhibit 28

### Glass Processing Fee Recycler Cost per Ton and Tons Recycled (2004 to 2024)

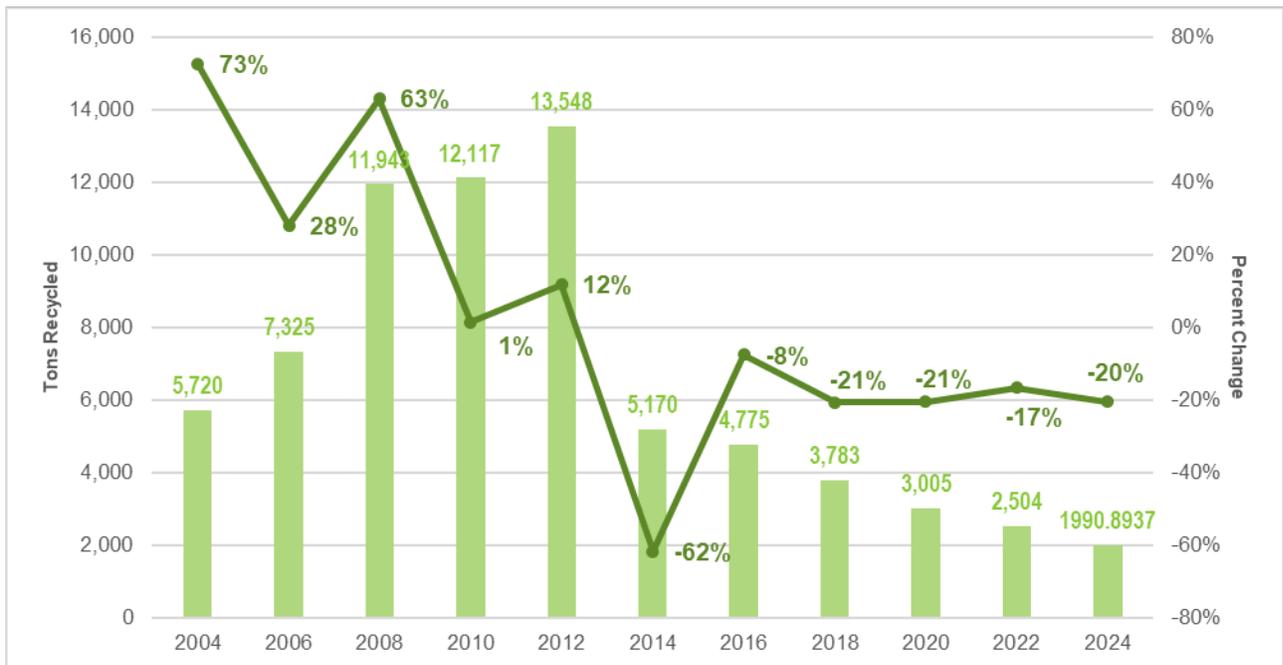
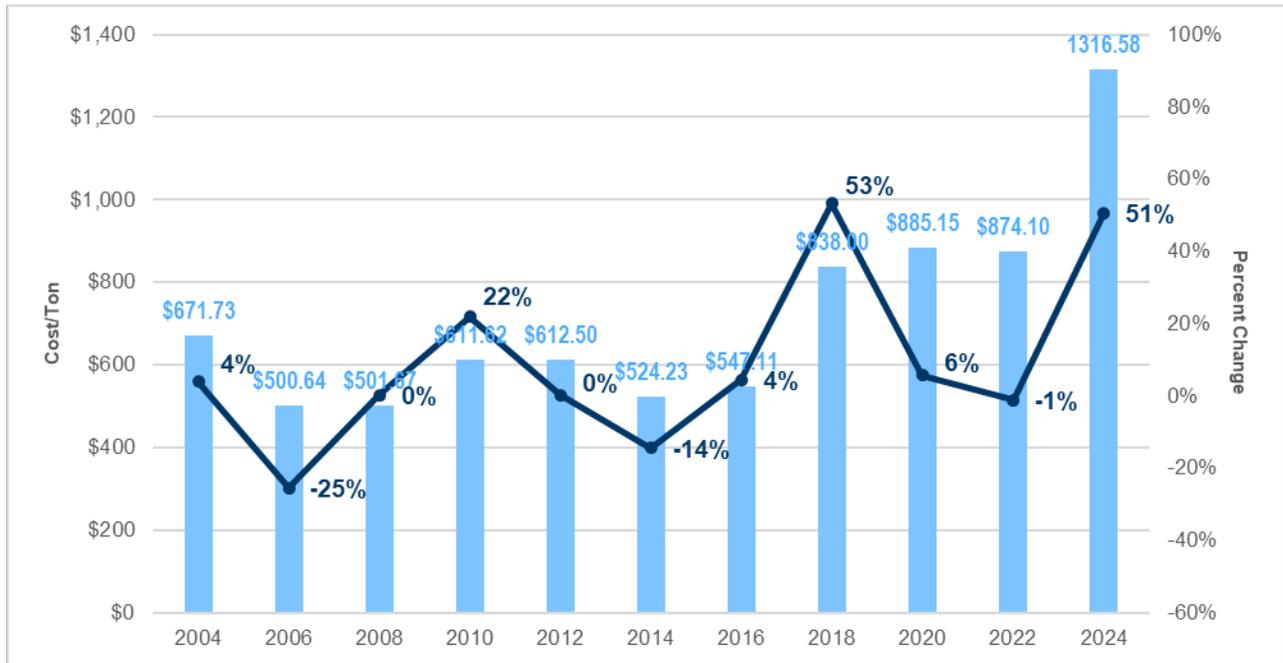


### Exhibit 29

### PET #1 Processing Fee Recycler Cost per Ton and Tons Recycled (2004 to 2024)



**Exhibit 30**  
**HDPE #2 Processing Fee Recycler Cost per Ton and Tons Recycled (2004 to 2024)**

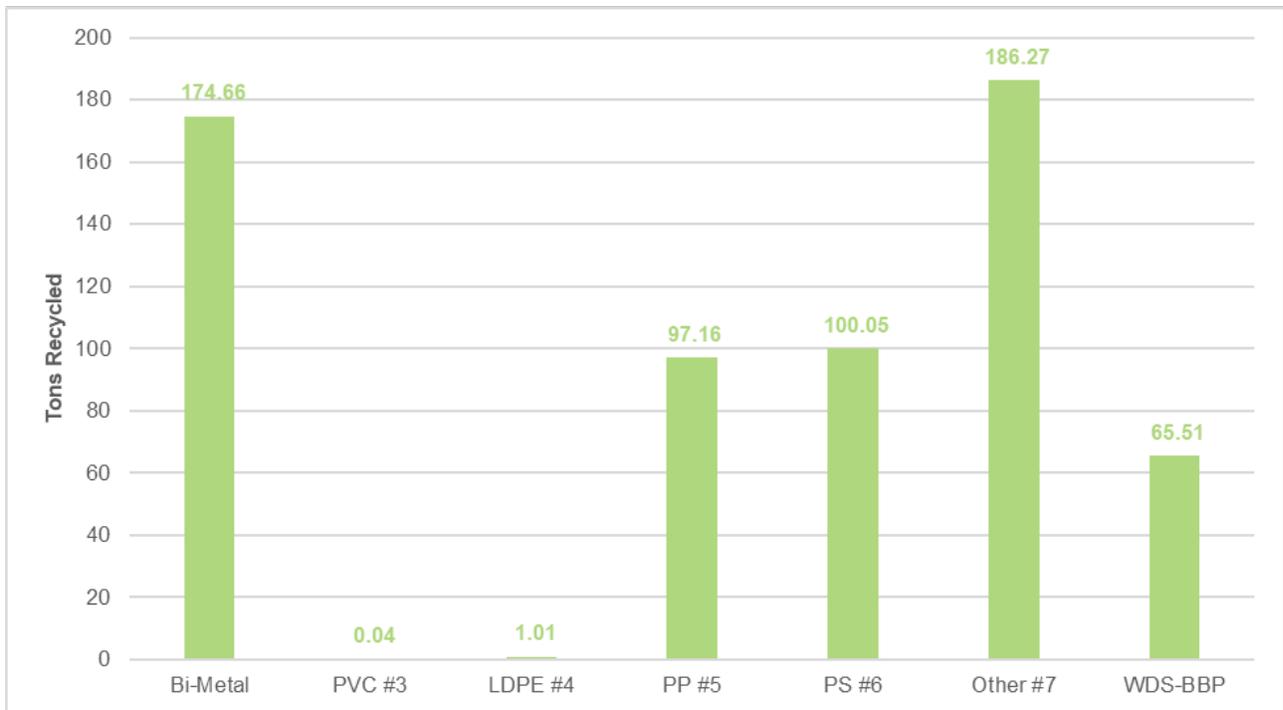
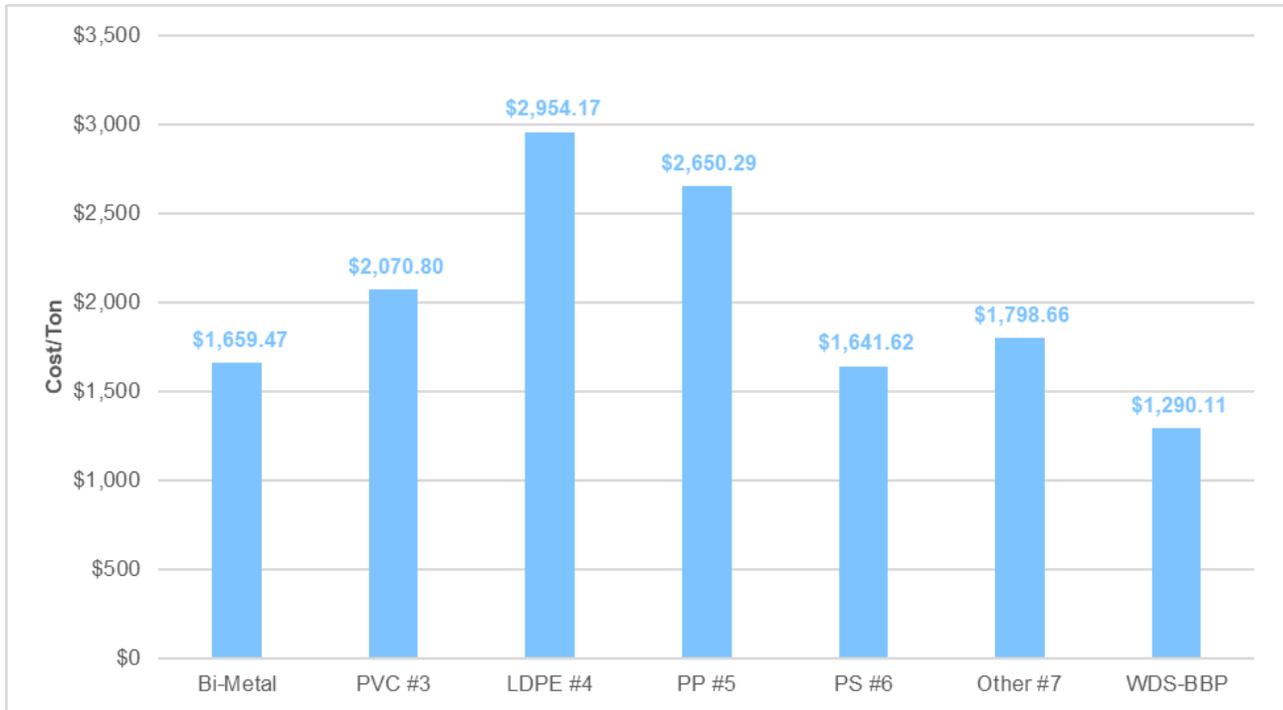


### ***E. Cost per Ton and Tons Recycled Results for Seven Minority Material Types***

**Exhibit 31** illustrates the processing fee recycler cost per ton for each of the seven minority material types, including bi-metal, the five plastic resin types: PVC #3, LDPE #4, PP #5, PS #6, Other #7), and WDS-BBP. As noted previously for the past seven surveys, the cost per ton for these minority materials, not including WDS-BBP, is based on the change in cost per ton for HDPE #2. Based on the 2025 cost survey results, cost per ton for each of these materials, not including WDS-BBP, increased 51% as compared to their 2022 cost per ton. Tons recycled fluctuated greatly depending on the material type. Other #7 and Bi-Metal had the highest reported volumes, while PVC #3 and LDPE #4 had the lowest. WDS-BBP had the lowest cost per ton and the third-lowest number of tons recycled, after PVC #3 and LDPE #4.

### Exhibit 31

### Bi-Metal, Plastics #3 to #7, and WDS-BBP Processing Fee Recycler Cost per Ton and Tons Recycled (2024)



### 3. Processing Fee Cost Analyses

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This section provides analyses of the cost per ton results for the cost survey. These analyses focus on aluminum, glass, PET #1, and, to a lesser extent, HDPE #2, because these four materials are recycled in more significant quantities and have a longer recycling history. The section is organized as follows:

- A. Changes in Recycling Center Population Dynamics*
- B. Comparison of Total Costs, Total Tons, and Total Containers Recycled*
- C. Comparison of Population Size, Recycling Tons, Costs, and Payments by Strata*
- D. Changes in Number of Recyclers and Recycled Tons*
- E. Cost Category Comparison*
- F. Changes in Labor Costs*
- G. Changes in Transportation Costs*
- H. Summary of Processing Fee Cost Analyses*

#### **A. Changes in Recycling Center Population Dynamics**

The statewide, weighted-average cost per ton calculation is based on the simple weighted-average cost per ton for each sample stratum and the tons of material recycled by each stratum of the population. **Exhibit 32** illustrates the cost per ton calculation for glass as originally presented in **Exhibit 19**.

With a stratified sample and a weighted-average calculation, the higher volume (and lower cost) recyclers generally have a stronger influence on the statewide cost per ton. Variations in the volume of material recycled by strata can influence the statewide, weighted-average cost per ton.

**Exhibit 32****Example Calculation of 2024 Statewide, Weighted-Average Cost per Ton for Glass**

<b>Strata</b>	<b>Sample Glass Tons</b>	<b>Sample Glass Cost</b>	<b>Sample Cost per Ton<sup>11</sup></b>
1	20,166.17	\$4,411,910.68	\$218.78
2	17,979.93	\$3,869,390.25	\$215.21
3	14,432.17	\$3,306,000.71	\$229.07
Sample Total	52,578.28	\$11,587,301.63	\$220.38

<b>Strata<sup>12</sup></b>	<b>Population Glass Tons</b>	<b>Population Glass Cost</b>	<b>Population Cost per Ton</b>
1	36,754.80	\$8,041,215.90	N/A
2	46,762.51	\$10,063,760.36	N/A
3	52,227.11	\$11,963,663.54	N/A
Sample Total	135,744.42	\$30,068,639.80	\$221.51 <sup>13</sup>

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<sup>11</sup> Simple weighted-average cost per ton for each stratum, and simple weighted-average for the sample.

<sup>12</sup> Total costs for each stratum, calculated by multiplying sample cost per ton from above, by total glass tons, summed for entire population.

<sup>13</sup> A statewide, weighted-average result of \$221.51 per ton, calculated by dividing total population glass costs by total population glass tons.

**Exhibit 33** provides the weighted-average cost per ton by stratum for glass, aluminum, PET #1, and HDPE #2 for 2022 and 2024, and the percentage change between 2022 and 2024. For glass, aluminum, and PET #1, the cost per ton for stratum 3 generally increased the least (0% to 27%) while the cost per ton for stratum 1 increased the most (11% to 86%). HDPE #2 has the largest fluctuations in percentage change from 2022 to 2024.

**Exhibit 33  
Comparison of Cost per Ton by Material Type and Stratum (2022 and 2024)**

**Glass**

Stratum	2024	2022	% Change
1	<b>\$218.78</b>	\$161.74	35%
2	<b>\$215.21</b>	\$151.56	42%
3	<b>\$229.07</b>	\$222.33	3%

**PET #1**

Stratum	2024	2022	% Change
1	<b>\$520.17</b>	\$439.32	18%
2	<b>\$615.01</b>	\$546.25	13%
3	<b>\$810.85</b>	\$811.47	0%

**Aluminum**

Stratum	2024	2022	% Change
1	<b>\$583.22</b>	\$525.70	11%
2	<b>\$750.00</b>	\$669.47	12%
3	<b>\$948.12</b>	\$939.29	1%

**HDPE #2**

Stratum	2024	2022	% Change
1	<b>\$1,263.85</b>	\$679.35	86%
2	<b>\$1,175.61</b>	\$692.37	70%
3	<b>\$1,549.56</b>	\$1,219.17	27%

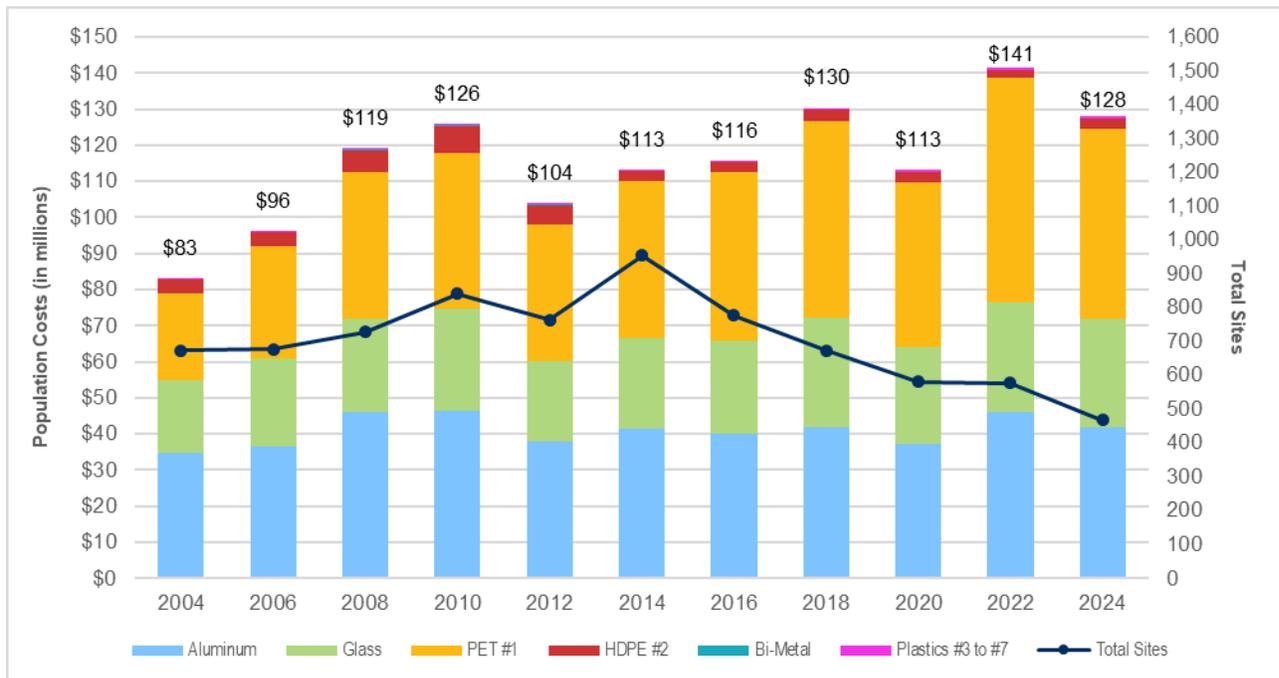
## B. Comparison of Total Costs, Total Tons, and Total Containers Recycled

To verify our observations about CRV material costs, we compared the changes in total population costs and volumes (tons and containers) from 2004 to 2024.

**Exhibit 34** illustrates the changes in population costs from 2004 to 2024. Between 2022 and 2024, total costs increased approximately 12%. **Exhibit 35** illustrates the changes in population tons from 2004 to 2024. Between 2022 and 2024, total tons decreased 18%.

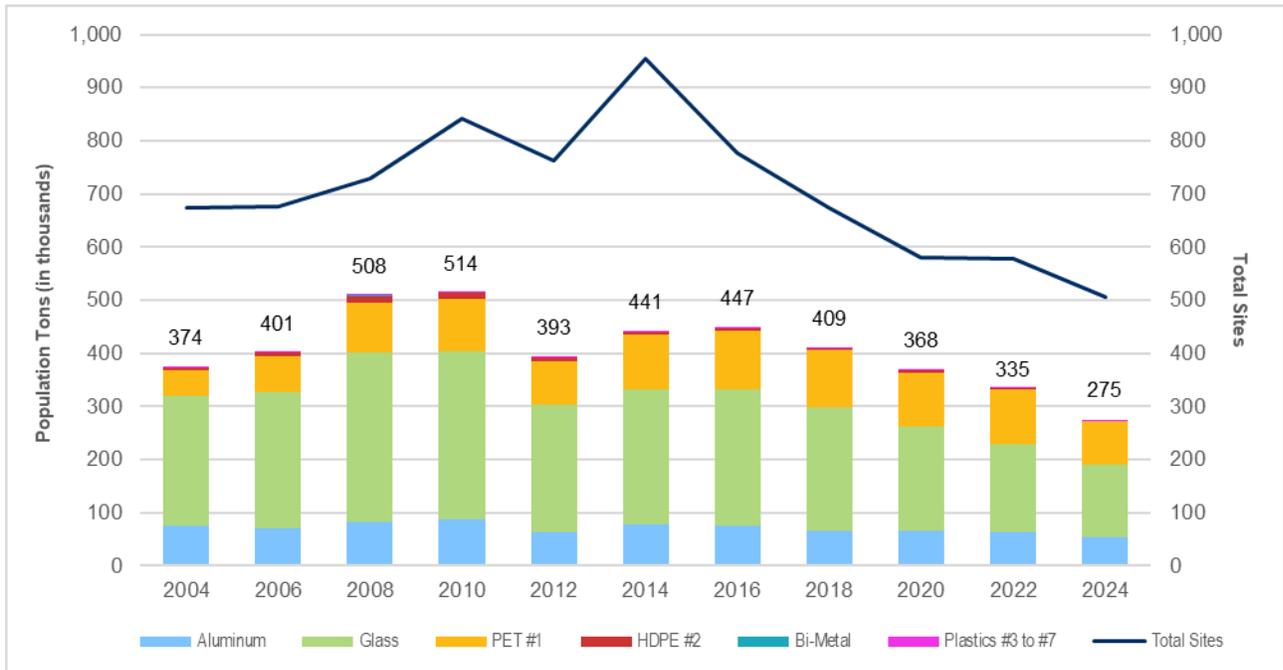
In 2024, glass represented 49.5% of total CRV tons, aluminum 19%, PET #1 31%, and HDPE #2 less than 1% (Exhibit 34). Compared to 2022, these shares declined by approximately 18% for glass, 14% for aluminum, and 20% for both PET #1 and HDPE #2.

**Exhibit 34**  
Total Population Costs for Processing Fee Recyclers (2004 to 2024)



**Note:** WDS-BBP total 2024 population costs = \$84,520.87 (due to the low amount, it would not be visible in the chart)

**Exhibit 35**  
**Total Population Tons for Processing Fee Recyclers (2004 to 2024)**



**Note:** WDS-BBP total 2024 population tons = 65.51 tons (due to the low amount, it would not be visible in the chart)

### **C. Comparison of Population Size, Recycling Tons, Costs, and Payments by Strata**

**Exhibit 36, Exhibit 37, Exhibit 38, Exhibit 39, and Exhibit 40** provide the number of sites and tons per stratum, for the four major material types from 2004 to 2024. For 2012 and 2014, the tables provide data for the full population of recyclers, consistent with the prior years' data. For 2016, the tables provide the survey population of recyclers, which excludes only seven sites. For 2018, the tables provide the survey population of recyclers, which excludes 31 investigated sites, for 2020, it excludes 30 investigated recycler sites, and for 2022, it excludes 18 investigated recycler sites. For 2024, it excludes 39 sites. The tables illustrate substantial shifts over time in the number of recyclers, size of recyclers, and tons of material recycled. We continued to utilize a PET-based strata definition reflective of the current recycling marketplace.

Examining results by each material type:

- Aluminum tons recycled have continued to drop and in 2024 were at the lowest level of the past 10 surveys.
- Glass tons recycled have continued to decline and in 2024 were also at the lowest level of the past 10 surveys. Glass tonnage is continuing to be more evenly distributed across strata than previously when stratum 1 sites handled the majority of material starting 2018. Since 2018, stratum 3 sites have handled most glass tons.
- PET#1 tons recycled have increased significantly since 2004. However, PET #1 tons recycled have declined since their peak in 2016 and are currently at the lowest level since 2008.
- HDPE #2 tonnage increased up until 2012, but declined between 2012 and 2014, and has continued to decline to 2024.<sup>14</sup> In 2024 it was at the lowest level since 2004.

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<sup>14</sup> The significant reduction in HDPE #2 tons recycled for each strata in 2014 reflects the change in CalRecycle policy to eliminate the commingled rate. In previous years, some non-CRV HDPE #2 (or #3 to #7 plastic) was being claimed as CRV HDPE #2.

**Exhibit 36**  
**Total Population and Tons Detail for Four Major Materials, by Strata, for Processing Fee Recyclers**

<b>Year</b>	<b>Population Stratum 1</b>	<b>Population Stratum 2</b>	<b>Population Stratum 3</b>	<b>Total Population</b>
2004	112	290	272	674
2006	135	274	268	677
2008	173	270	286	729
2010	165	325	352	842
2012	174	390	468	1,032
2014	132	396	469	997
2016	162	308	308	778
2018	53	125	496	674
2020	58	131	392	581
2022	58	118	383	559
<b>2024</b>	<b>51</b>	<b>110</b>	<b>306</b>	<b>467</b>

<b>Year</b>	<b>Tons Redeemed Stratum 1</b>	<b>Tons Redeemed Stratum 2</b>	<b>Tons Redeemed Stratum 3</b>	<b>Total Tons</b>
2004	187,899	155,269	30,494	373,662
2006	226,453	142,533	31,695	400,681
2008	316,809	152,912	38,454	508,175
2010	290,519	176,393	45,911	513,323
2012	288,271	201,672	63,869	553,812
2014	208,716	210,381	65,760	484,857
2016	231,186	165,589	49,564	446,339
2018	103,885	133,394	171,706	408,985
2020	109,271	126,716	131,356	367,344
2022	95,712	108,266	130,622	334,600
<b>2024</b>	<b>84,018</b>	<b>92,408</b>	<b>98,465</b>	<b>274,891</b>

**Exhibit 37****Aluminum Population and Tons Detail for Aluminum, by Strata, for Processing Fee Recyclers**

<b>Year</b>	<b>Population Stratum 1</b>	<b>Population Stratum 2</b>	<b>Population Stratum 3</b>	<b>Total Population</b>
2004	112	290	271	673
2006	135	274	268	677
2008	173	270	284	727
2010	165	325	349	839
2012	174	389	465	1,028
2014	132	396	467	995
2016	162	308	308	778
2018	53	125	496	674
2020	58	131	391	580
2022	58	118	380	556
<b>2024</b>	<b>51</b>	<b>110</b>	<b>305</b>	<b>466</b>

<b>Year</b>	<b>Tons Redeemed Stratum 1</b>	<b>Tons Redeemed Stratum 2</b>	<b>Tons Redeemed Stratum 3</b>	<b>Total Tons</b>
2004	28,084	35,999	10,482	74,565
2006	32,734	28,781	9,246	70,761
2008	42,173	29,899	10,227	82,299
2010	40,603	33,364	12,294	86,261
2012	36,871	35,763	16,776	89,410
2014	30,060	37,835	15,969	83,864
2016	36,844	27,640	9,907	74,391
2018	17,200	20,023	29,491	66,714
2020	20,856	21,201	23,047	65,104
2022	20,437	18,569	24,548	63,554
<b>2024</b>	<b>18,543</b>	<b>17,131</b>	<b>18,982</b>	<b>54,657</b>

**Exhibit 38****Glass Population and Tons Detail for Glass, by Strata, for Processing Fee Recyclers**

<b>Year</b>	<b>Population Stratum 1</b>	<b>Population Stratum 2</b>	<b>Population Stratum 3</b>	<b>Total Population</b>
2004	112	290	246	648
2006	135	274	242	651
2008	173	270	259	702
2010	165	325	325	815
2012	174	390	446	1,010
2014	132	396	443	971
2016	161	306	291	758
2018	53	125	478	656
2020	58	131	371	560
2022	58	118	366	542
<b>2024</b>	<b>51</b>	<b>110</b>	<b>294</b>	<b>455</b>

<b>Year</b>	<b>Tons Redeemed Stratum 1</b>	<b>Tons Redeemed Stratum 2</b>	<b>Tons Redeemed Stratum 3</b>	<b>Total Tons</b>
2004	135,949	93,729	14,879	244,557
2006	156,301	85,415	15,423	257,139
2008	211,574	88,140	18,980	318,694
2010	191,462	102,385	23,183	317,030
2012	189,465	116,798	31,133	337,396
2014	132,334	119,758	32,956	285,049
2016	132,920	95,976	27,637	256,637
2018	56,177	76,728	97,728	230,672
2020	54,076	68,518	73,678	196,273
2022	40,930	55,943	68,726	165,599
<b>2024</b>	<b>36,755</b>	<b>46,763</b>	<b>52,227</b>	<b>135,744</b>

**Exhibit 39****PET #1 Population and Tons Detail for PET #1, by Strata, for Processing Fee Recyclers**

<b>Year</b>	<b>Population Stratum 1</b>	<b>Population Stratum 2</b>	<b>Population Stratum 3</b>	<b>Total Population</b>
2004	112	290	251	653
2006	135	274	250	659
2008	173	270	269	712
2010	165	325	336	826
2012	174	390	454	1,018
2014	132	394	456	982
2016	162	308	291	758
2018	53	125	485	663
2020	58	131	385	574
2022	58	118	374	550
<b>2024</b>	<b>51</b>	<b>110</b>	<b>301</b>	<b>462</b>

<b>Year</b>	<b>Tons Redeemed Stratum 1</b>	<b>Tons Redeemed Stratum 2</b>	<b>Tons Redeemed Stratum 3</b>	<b>Total Tons</b>
2004	135,949	93,729	14,879	244,557
2006	156,301	85,415	15,423	257,139
2008	211,574	88,140	18,980	318,694
2010	191,462	102,385	23,183	317,030
2012	189,465	116,798	31,133	337,396
2014	132,334	119,758	32,956	285,049
2016	132,920	95,976	27,637	256,637
2018	56,177	76,728	97,728	230,672
2020	54,076	68,518	73,678	196,273
2022	40,930	55,943	68,726	165,599
<b>2024</b>	<b>27,997</b>	<b>27,413</b>	<b>26,464</b>	<b>81,875</b>

**Exhibit 40**

**HDPE #2 Population and Tons Detail for HDPE #2, by Strata, for Processing Fee Recyclers**

<b>Year</b>	<b>Population Stratum 1</b>	<b>Population Stratum 2</b>	<b>Population Stratum 3</b>	<b>Total Population</b>
2004	107	277	184	568
2006	132	267	213	612
2008	168	262	236	666
2010	163	321	301	785
2012	173	385	420	978
2014	130	389	420	939
2016	159	301	280	740
2018	53	125	469	647
2020	58	130	353	541
2022	58	116	334	508
<b>2024</b>	<b>51</b>	<b>109</b>	<b>261</b>	<b>421</b>

<b>Year</b>	<b>Tons Redeemed Stratum 1</b>	<b>Tons Redeemed Stratum 2</b>	<b>Tons Redeemed Stratum 3</b>	<b>Total Tons</b>
2004	2,743	2,663	314	5,720
2006	3,873	2,954	498	7,325
2008	7,429	3,881	633	11,943
2010	6,633	4,651	833	12,117
2012	7,422	4,948	1,178	13,548
2014	2,242	2,723	735	5,700
2016	2,232	1,994	548	4,775
2018	722	1,498	1,563	3,783
2020	674	1,301	1,030	3,005
2022	534	1,093	877	2,504
<b>2024</b>	<b>462</b>	<b>888</b>	<b>642</b>	<b>1,991</b>

## Cost per Ton Results by Strata

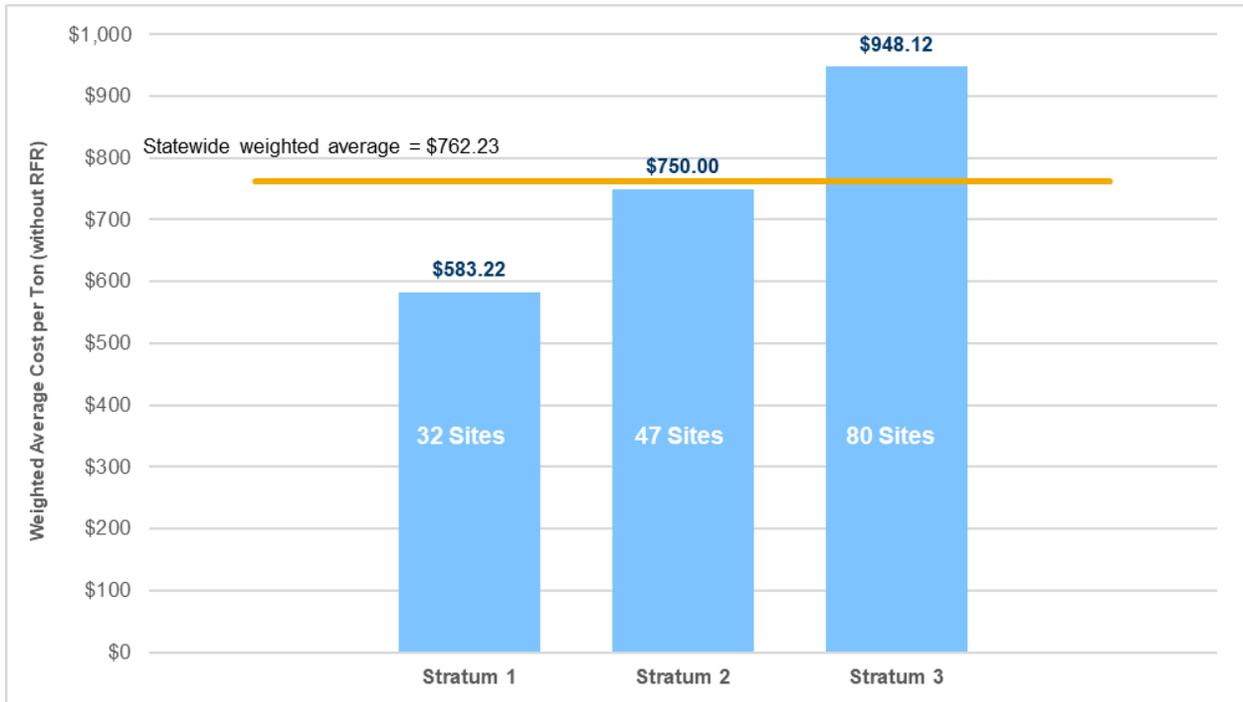
The cost to recycle varies between large, medium, and small recyclers. In the cost survey, Crowe determined the weighted-average cost per ton for each of the strata and majority materials. Comparing these strata-specific cost per ton to the statewide, weighted-average cost per ton allows one to assess the relative financial position of large, medium, and small recyclers. **Exhibit 41, Exhibit 42, Exhibit 43, and Exhibit 44** illustrate the 2024 cost per ton and survey population size by strata for aluminum, glass, PET #1, and HDPE #2.

These figures illustrate the following key findings:

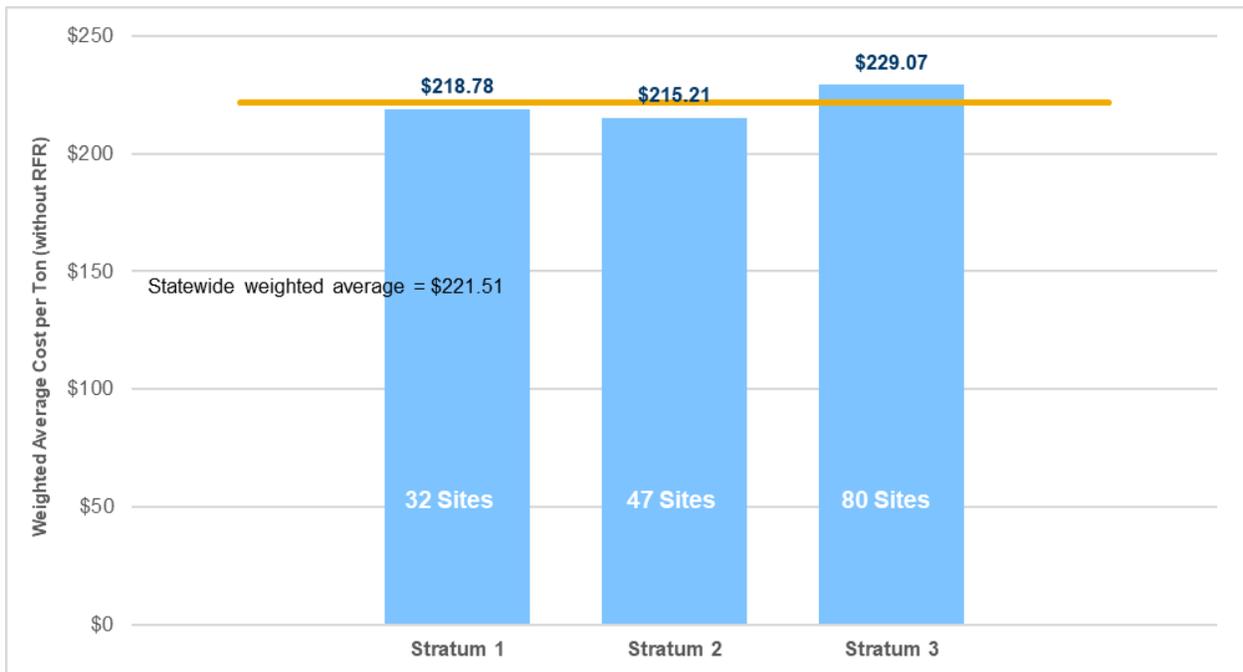
- With the exception of glass and HDPE #2, costs per ton were lowest for large stratum 1 sites. Stratum 2 costs per ton were always lower than stratum 3 costs per ton.
- All four material types were significantly higher than the statewide, weighted-average cost per ton for small, stratum 3 recyclers, implying that on average, processing payments do not cover the costs of recycling for this stratum of recyclers.
- Stratum 1 and 2 sites for all materials were below the statewide, weighted-average cost per ton.

Comparing recycling volumes and cost contributions, by stratum, to the statewide, weighted-average cost per ton for cost surveys between 2014 and 2024, provides insight into the changes in cost per ton between survey years. As the strata definitions have changed over time, including the new strata definition in 2018, the cost per ton results cannot be directly compared between strata, though this does not impact the overall cost per ton results.

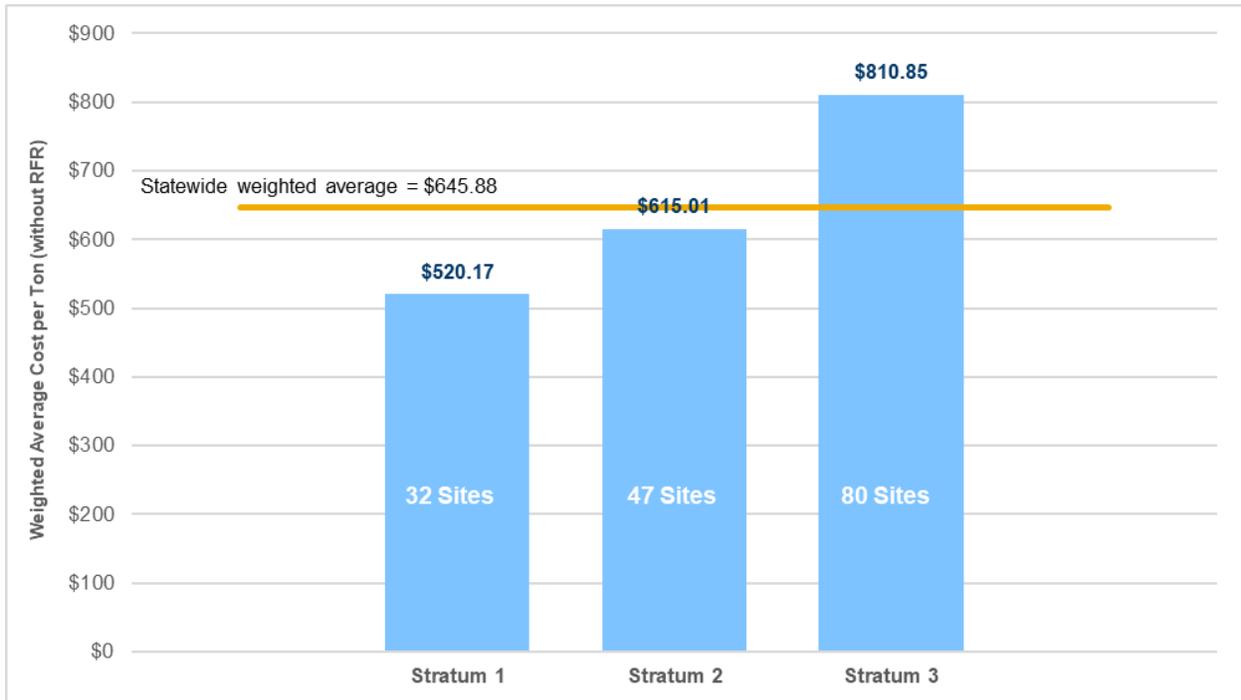
**Exhibit 41**  
**Aluminum Cost per Ton and Survey Population Size by Strata for Processing Fee Recyclers (2024)**



**Exhibit 42**  
**Glass Cost per Ton and Survey Population Size by Strata for Processing Fee Recyclers (2024)**



**Exhibit 43**  
**PET #1 Cost per Ton and Survey Population Size by Strata for Processing Fee Recyclers (2024)**



**Exhibit 44**  
**HDPE #2 Cost per Ton and Survey Population Size by Strata for Processing Fee Recyclers (2024)**



**Exhibit 45, Exhibit 46, and Exhibit 47** illustrate the percent of population tons recycled by each stratum and the percent of total population costs by each stratum for 2014 to 2024. The light blue shade at the top of each bar represents stratum 1, the middle green shade represents stratum 2, and the bottom dark blue shade represents stratum 3. In 2018, 2020, 2022, and 2024, the proportion of costs and tons by stratum were relatively even as compared to prior survey years and reasonably consistent.

**Exhibit 45** provides the tons and cost comparison for glass. Between 2022 and 2024, the following patterns were identified:

- **Stratum 3:** Both costs and tons decreased, with costs decreasing more (-21% vs -7%). This lowers cost per ton.
- **Stratum 2:** Costs increased much more than tons (+20% costs vs +2% tons). This increases cost per ton.
- **Stratum 1:** Costs increased more than tons (+23% vs +10%). This increases cost per ton.

As the proportion of costs increased to the proportion of tons, this contributes to higher costs for glass across all categories.

**Exhibit 46** illustrates the same data for aluminum. For aluminum, the shifts in tons and costs between stratum 1 to stratum 2 and 3 also occurred, to a similar extent. Crowe identified the following patterns between 2022 and 2024:

- **Stratum 3:** Costs decreased more than tons (-13% vs -10%). This slightly lowers cost per ton.
- **Stratum 2:** Costs increased more than tons (+15% vs +7%). This increases cost per ton.
- **Stratum 1:** Costs increased more than tons (+12% vs +6%). This increases cost per ton.

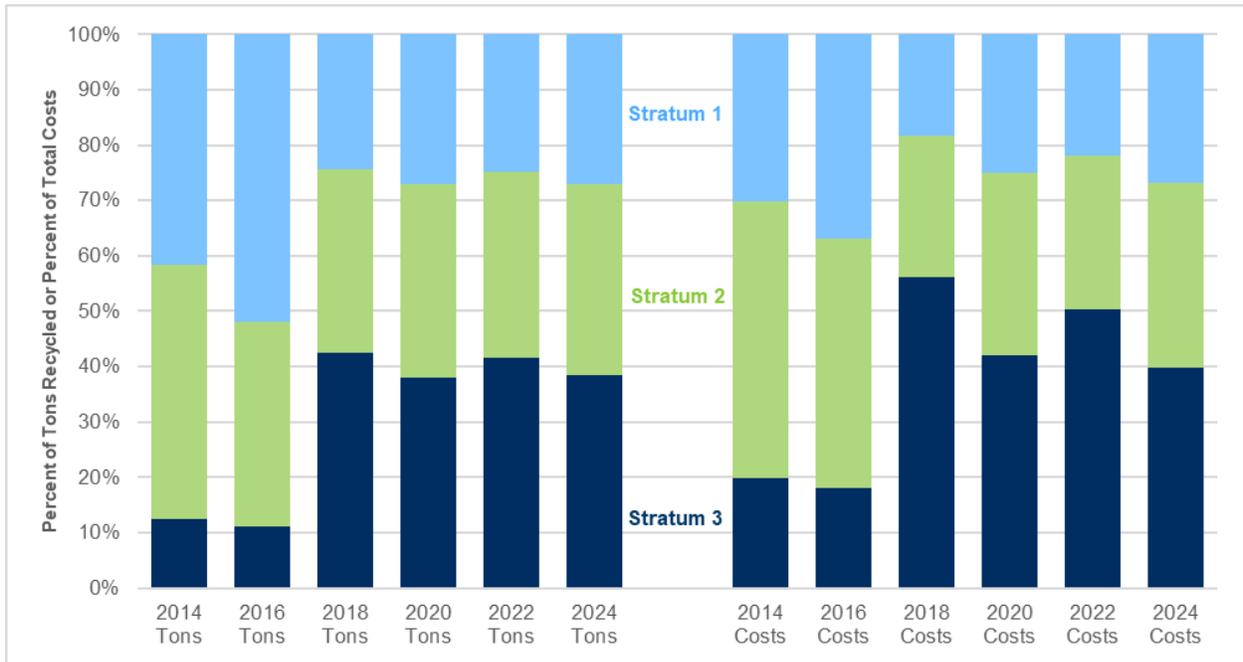
As the proportion of costs increased to the proportion of tons, this contributes to higher costs for aluminum across all categories.

**Exhibit 47** illustrates the same data for PET #1. For PET #1, the shifts in tons and costs between stratum 1 and 2 to stratum 3 also occurred, to a similar extent.

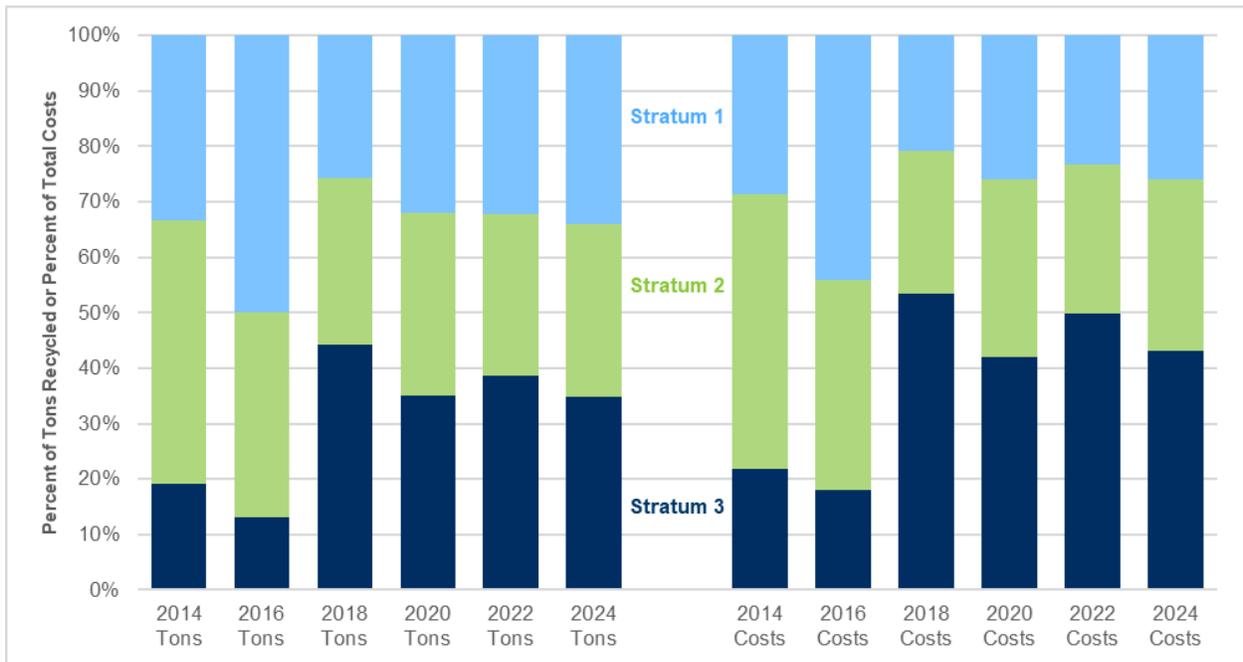
- **Stratum 3:** Tons decreased while costs increased (-9% vs +1%). This increases cost per ton.
- **Stratum 2:** Tons increased with flat costs (+6% vs 0%). This slightly lowers cost per ton.
- **Stratum 1:** Tons increased with costs decreasing (+4% vs -2%). This slightly lowers cost per ton.

As the proportion of costs increased to the proportion of tons for stratum 3 and strata 1 and 2 saw moderate changes, this contributes to higher costs for PET.

**Exhibit 45**  
**Glass, Percent of Population Tons Recycled and Percent of Total Costs**  
**(2014 to 2024)**

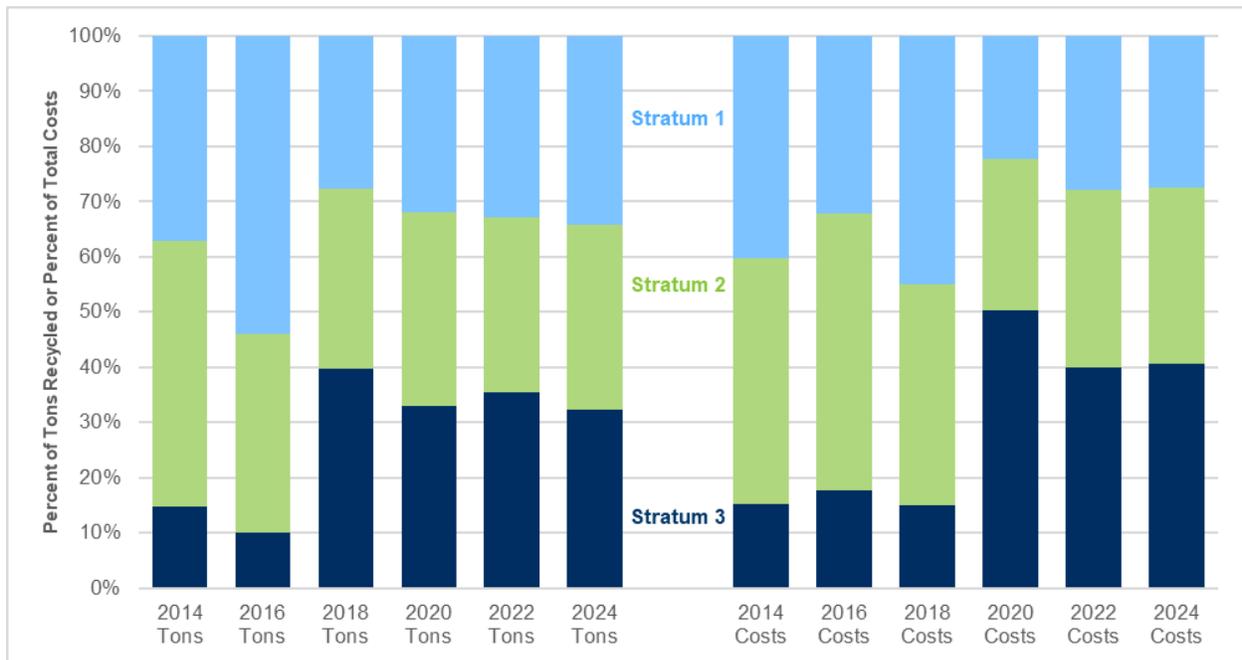


**Exhibit 46**  
**Aluminum, Percent of Population Tons Recycled and Percent of Total Costs**  
**(2014 to 2024)**



## Exhibit 47

### PET #1, Percent of Population Tons Recycled and Percent of Total Costs (2014 to 2024)



#### ***D. Changes in Number of Recyclers and Recycled Tons***

The cost per ton to recycle in any given year, and for any given material, is based on numerous factors. There is not a direct linear relationship between the cost of recycling and tons recycled. In addition, the relative increase or decrease in costs and tons between any two given cost surveys is not necessarily the same. The following are a series of graphs that explore the relationship between population CRV costs and tons recycled and how changes in these two variables impact changes in the cost per ton over time. In this subsection, we examine the impact of these changes on cost per ton results.

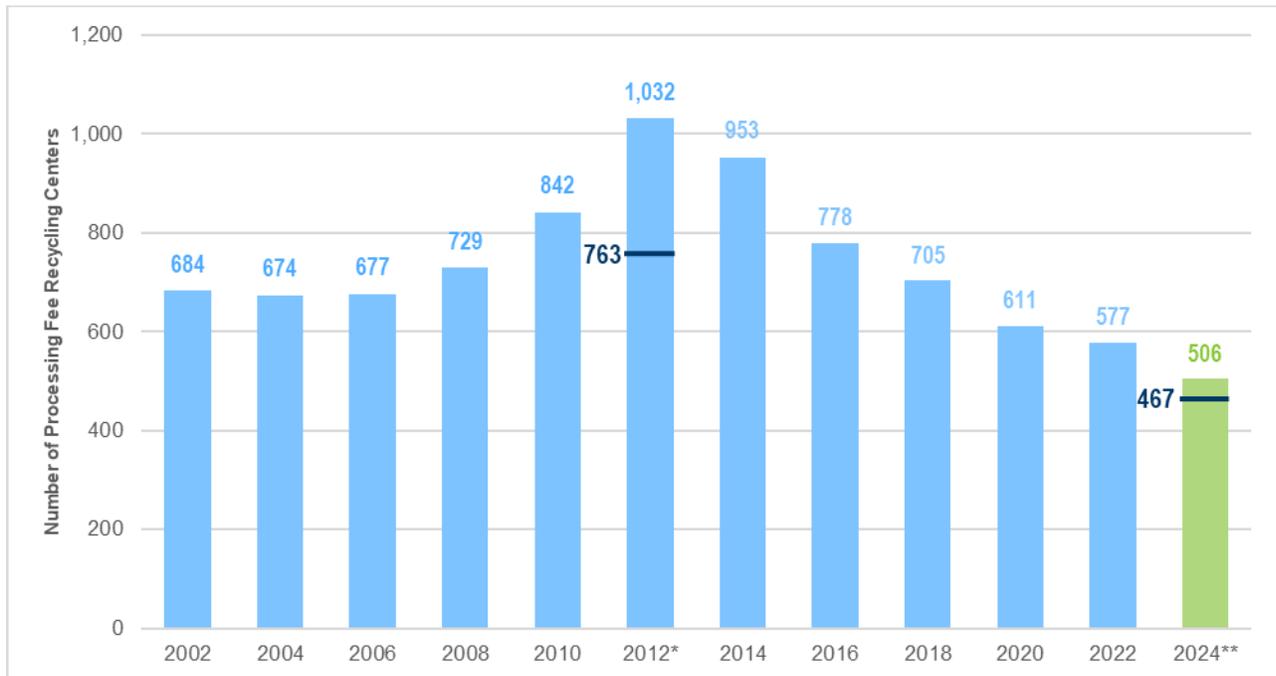
#### **Historical Trends in Population Number of Recyclers**

The population costs and recycled tons are related, to some extent, to the number of recyclers in the population. In any given survey year, each recycler in the population may recycle more, or less, CRV materials. Generally, higher tonnage recyclers have a lower cost per ton than lower tonnage recyclers.

**Exhibit 48** provides the number of PF recyclers in the population for each of the 10 prior and current processing fee cost surveys. Starting in 2012, the number of recycling centers has declined every survey, ranging between 6 to 18% declines between years. Between 2022 and 2024, the number of recycling centers declined by 12%.

The overall decline in recycling centers coincides with poor recycling markets and a shift in container mix from higher-value aluminum toward lower-value PET #1, which can reduce recycler profitability. The substantially reduced 467 PF population recyclers is lower than any other year since 2004. The volatility of commodity values creates a high risk, and generally low reward combination for recycling centers. The continuing decrease in the number of processing fee recyclers from the highest population in 2012 to 2024 is likely a partial correction from the significant growth in population between 2010 and 2012.

**Exhibit 48  
Number of Processing Fee Recycling Centers (2004 to 2024)**



\*In 2012, Crowe reduced the population from 1,032 RCs to 763 RCs by removing all 269 RCs that were under investigation by CalRecycle, including those only under probation investigation. In 2014, Crowe removed only 42 RCs that were under investigation by CalRecycle for major violations. In 2018, Crowe removed 31 RCs that were under investigation by CalRecycle for major violations, reducing the total population from 705 to the survey population of 674 RCs.

\*\*The 2024 total population of 506 PF Recyclers includes 39 Recyclers being investigated. These were removed from the survey population, resulting in 467 Recyclers.

## Average Tons Recycled per Recycling Center

Between 2022 and 2024, recycler productivity (i.e., average tons recycled by RC) increased for the fifth time since 2008 for aluminum. Recycler productivity (tons per recycler) increased for aluminum between 2022 and 2024, which would normally be expected to reduce cost per ton. However, cost per ton still increased for all major materials, indicating that other factors—particularly higher wages and increased hours per ton—offset any efficiency gains from higher throughput per site. In total, between 2022 and 2024, the average tons per recycler for aluminum increased 3%. However, glass decreased by 2% and PET #1 decreased by 5%. Between 2022 and 2024, the total tons of material recycled decreased to a greater extent than the number of RCs.

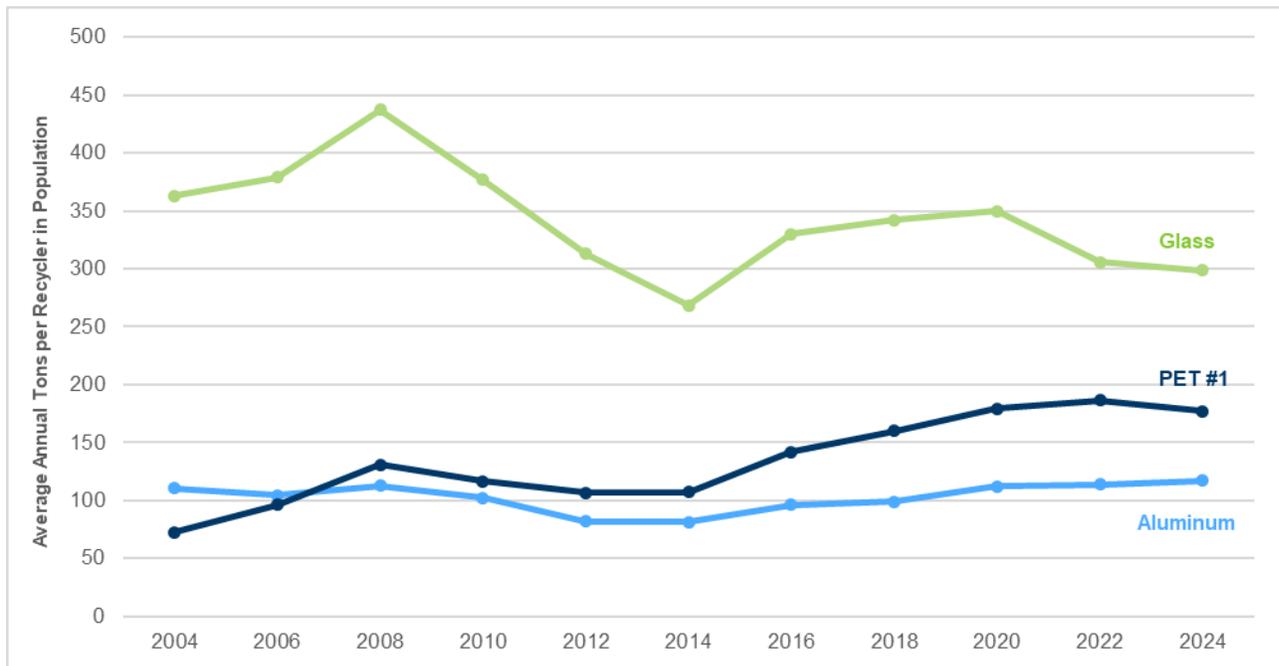
**Exhibit 49** provides the average tons of aluminum, glass, and PET #1 recycled per RC for each cost survey year, 2004 through 2024. Each cost survey year's data point is the quotient determined by dividing population tons recycled by the number of RCs in the population.

Overall, average tons per recycler show the following trends, beginning in 2008:

- Aluminum has declined as low as 81 tons per recycler and is now at a decade high of 117 tons per recycler. Between 2008 and 2024, average tons per recycler increased by 4%.
- Glass has been trending from a decade high of 427 tons per recycler in 2008, down to 298 tons per recycler in 2024, which is a 32% decline in 16 years.
- PET #1 trended up from 2008 until 2022 and slightly decreased to 177 tons per recycler in 2024.

## Exhibit 49

### Average Tons of Aluminum, Glass, and PET #1 Recycled per Processing Fee Recycler (2004 to 2024)

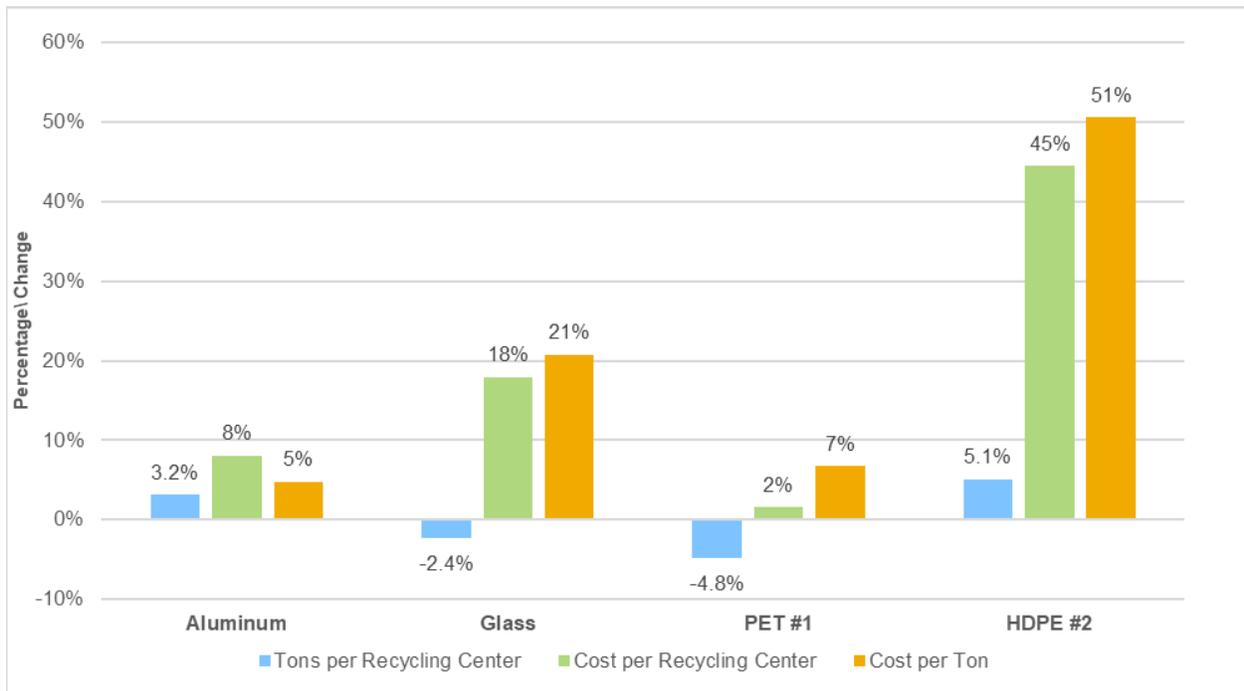


## Change in Tons per RC, Costs per RC, and Cost per Ton

**Exhibit 50** summarizes the relationship between RC productivity, costs, and cost per ton. The figure shows the percentage change in average tons per RC, average costs per RC, and statewide, weighted-average cost per ton, between 2022 and 2024, for the PF for PF recycler population for aluminum, glass, PET #1, and HDPE #2. For aluminum, average recycling center productivity (measured as tons recycled per RC) increased slightly, with the average cost per RC and cost per ton increasing. For PET #1, average tons per recycler decreased while average cost per RC and cost per ton increased. For glass, tons recycled per RC decreased while cost per recycler increased and cost per ton increased significantly. For HDPE #2, tons recycled per RC increased as well as cost per RC and cost per ton.

If all else held equal, the higher tons recycled per RC would result in lower cost per ton. However, because we are seeing that this impact is not observed with aluminum and HDPE #2 as there is an increase to tons recycled per RC as well as cost per ton, there are other factors that are contributing to higher cost per ton. Glass and PET #1 observed the most typical pattern: overall costs are similar between the two years with a decrease in tons recycled per RC and an increase in cost per ton.

**Exhibit 50**  
**Percentage Change in Tons per Recycler, Costs per Recycler, and Statewide, Weighted-Average Processing Fee Recycler Cost per Ton (2022 to 2024)**



## E. Cost Category Comparison

In conducting the cost surveys, Crowe assigns each recycler allowable cost line item to one of 13 categories. To help evaluate potential reasons for the cost per ton increases between 2022 and 2024, we compared the average CRV category costs for the two survey samples. These data reflect the total costs in a particular category divided by the number of sampled RCs. They do not take into account costs by stratum or recycling tons per site, they simply reflect an average category cost per RC for the 140 RCs surveyed as part of the 2023 cost survey and the 159 RCs surveyed as part of the 2025 cost survey. **Exhibit 51** provides the cost category comparison between 2022 and 2024.

### Exhibit 51 Comparison of Average Processing Fee Recycler Category Costs (2022 and 2024)

Cost Category	2024 (n=159)	% of CRV Costs	2022 (n=140)	% of CRV Costs	\$ Change 2022 to 2024	% Change 2022 to 2024
Direct Labor	\$173,432	52.7%	\$149,514	48.8%	\$23,918	16.0%
Indirect Labor	\$22,198	6.7%	\$20,360	6.6%	\$1,837	9.0%
General Business Overhead	\$20,282	6.2%	\$23,507	7.7%	-\$3,225	-13.7%
Transportation	\$23,627	7.2%	\$25,702	8.4%	-\$2,076	-8.1%
Rent	\$38,351	11.7%	\$37,361	12.2%	\$991	2.7%
Depreciation	\$7,254	2.2%	\$9,401	3.1%	-\$2,147	-22.8%
Property Tax	\$1,987	0.6%	\$811	0.3%	\$1,176	145.1%
Utilities	\$10,828	3.3%	\$10,060	3.3%	\$768	7.6%
Supplies	\$9,455	2.9%	\$10,317	3.4%	-\$862	-8.4%
Fuel	\$2,503	0.8%	\$2,009	0.7%	\$494	24.6%
Insurance	\$8,148	2.5%	\$7,237	2.4%	\$911	12.6%
Interest	\$1,873	0.6%	\$848	0.3%	\$1,025	120.9%
Maintenance	\$9,091	2.8%	\$9,383	3.1%	-\$292	-3.1%
<b>Total CRV Costs per Site</b>	<b>\$329,029</b>	<b>100.0%</b>	<b>\$306,509</b>	<b>100.0%</b>	<b>\$22,520</b>	<b>7.3%</b>

This comparison illustrates several key points:

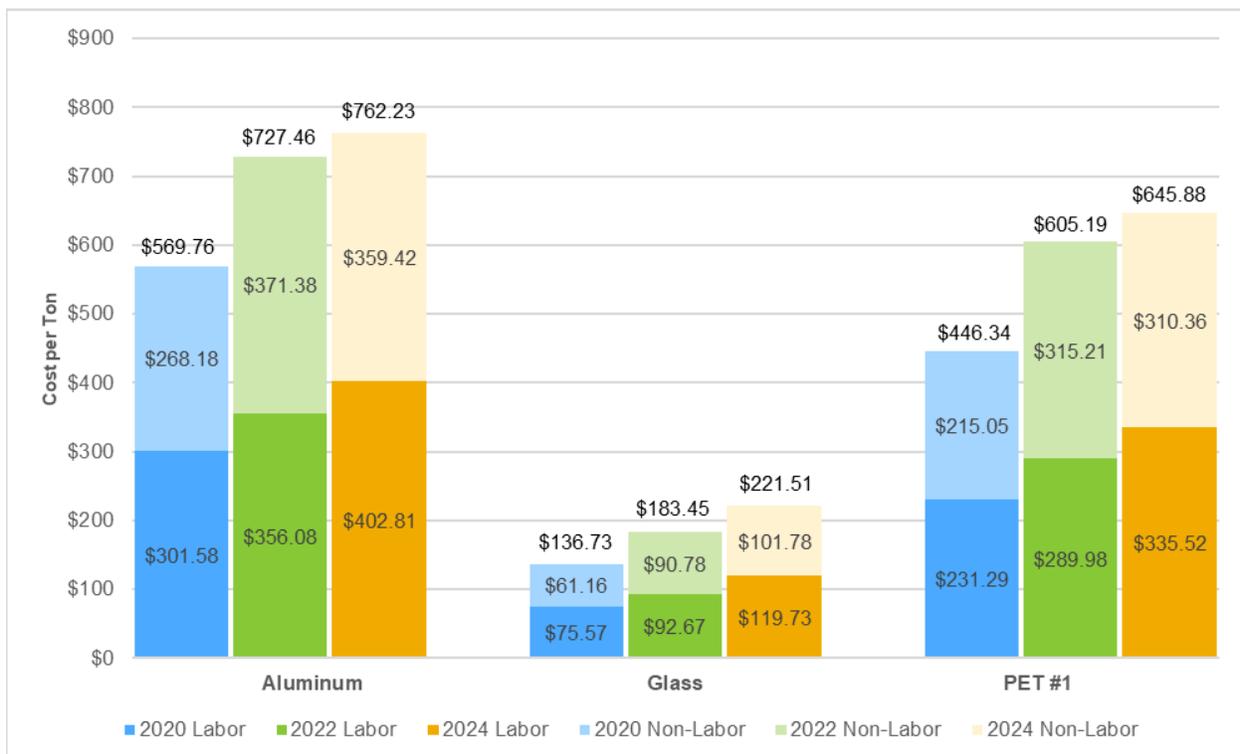
- Average CRV costs per RC increased by 7.3%, which directly contributes to the increase in cost per ton if volumes were held equal
- The percentage of CRV costs, by category, were similar between the two years. For example, direct labor represented 53% of CRV costs in 2024 and 49% in 2022.
- Consistent with prior cost surveys, the cost categories that make up the largest share of RC costs are:
  - Direct labor (~50%)
  - Rent (~12%)
  - Indirect labor (~7%)
  - Transportation (~7 to 8%)

- General business overhead (GBO) (administrative costs, fees, etc.) (~6 to 8 percent)
- Cost categories representing roughly 80% of total costs increased. General business overhead, transportation, depreciation, supplies, and maintenance decreased.
- Direct labor is the single cost category that contributed 77% of the cost increase. The other cost categories that increased contributed between 2% to 6% each.

Direct labor consists of actual employee wages and owner/partner income (i.e., owner wages). Transportation consists of costs associated with transporting CRV material from recyclers to processors. By comparison, GBO consists of a wide range of line items (accounting, advertising (excluding coupons), bank charges, dues/subscriptions, payroll processing, safety, security, licenses and permits, etc.) that are less suitable for a direct comparison of labor and non-labor costs.

We also determined the labor and non-labor portions of cost per ton for 2020, 2022, and 2024, and compared how the two cost components changed between these surveys. **Exhibit 52** shows that, for each material type, labor accounts for slightly more than half of the cost per ton. The shares of labor and non-labor cost per ton are generally consistent between the three survey years and across the three material types, further validating our survey methodology.

**Exhibit 52**  
**Labor and Non-Labor Cost per Ton (2020, 2022, and 2024)**



The two analyses presented provide considerable confidence in our sample design and cost survey labor allocation methodologies that were the basis of the 2024 cost per ton results. The results also demonstrate a consistency in the cost survey labor allocation methodology between 2020, 2022, and 2024.

## F. Changes in Labor Costs

Crowe analyzed CRV labor costs and labor hours to better understand how labor influenced the increase in cost per ton between 2022 and 2024. In the analyses, 2024 labor costs are not adjusted by CPI, rather they are a straight dollar comparison across the two survey years. A CPI adjustment would increase 2022 costs by 7.2%.

To evaluate the potential influence and impact of labor costs on cost per ton, as well as the potential influence of high-wage sites or labor allocations, we conducted evaluations of several potential factors related to labor hours, labor allocations, hourly yard wages, hourly administrative wages, and minimum wage. The cost survey labor allocation methodology assigns labor hours for each employee or owner at the site based on whether the time was associated with 1) the recycler or other business, 2) CRV or non-CRV, 3) DYL or AOL, and by aluminum/bi-metal, glass, and plastic. DYL labor includes yard employees that sort, weigh, handle, bale, or cashier. AOL labor includes administration, management, and driver time, all of which are typically higher-wage activities.

- Factors that did lead to higher labor costs:
  - **Higher CRV hourly wages** – CRV recycler wages increased across the board, partly due to the 7% rise in California's minimum wage between 2022 and 2024. Weighted-average CRV hourly wages grew by 12% overall, with increases ranging from 7% for stratum 2 to 13-14% for strata 1 and 3. The simple average CRV hourly rate rose by 11%, driven mainly by higher AOL wages. Recyclers in Los Angeles County (representing over one-third of the state's recycler population) saw an 18% increase, compared to 10% for the rest of the state. These higher AOL and LA County wages contributed most to the increase beyond the statewide minimum wage increase.

In addition, California introduced a \$20 per hour minimum wage for fast food workers in April 2024, 33% higher than the \$15 statewide minimum in 2022. Because recycler wages rose by 12% (outpacing the statewide minimum wage increase) it suggests recyclers are raising pay to stay competitive with fast food jobs. Anecdotally, we also heard from recyclers that wages must be set above the minimum to attract and retain workers.

- **Higher hours per ton** – In 2024, direct yard labor (about 80% of total hours) hours per ton increased almost 14% while AOL (about 20% of total hours) only decreased slightly, or -3%. This reduction in recycler efficiency, likely driven by a higher portion of smaller, stratum 3 recyclers, contributes to higher costs.

- **High wage sites** – In 2024, there were eight recyclers, representing 5% of sampled recyclers, with AOL wages per hour of over \$100 per hour. In 2022, there were no sites with average wages over \$100 per hour. A higher share of sites with high wages contribute to higher costs.
- **Low wage sites** – Although the share of low wage sites in 2024 is slightly higher than 2022 (under minimum wage), recycler wages for sites under minimum wage were higher (i.e., closer to minimum wage). Low wage sites with higher wages contribute to higher costs.
- Factors that did not lead to higher labor costs:
  - **Labor allocations** – The allocation of CRV hours between material types or hours per ton by material type stayed generally the same.

### Average CRV Wages per Hour

Crowe calculated CRV hourly wages by summing CRV labor costs across all RCs in each survey sample and dividing by the sum of CRV labor hours. Thus, this calculation reflects a weighted average hourly wage across the strata. It does not take into account tons of CRV material. Labor reflects over 50% of the cost of CRV recycling.

**Exhibit 53** provides PF for PF recycler average hourly CRV wage since 2010 and compares these results with minimum wage and inflation-adjusted average hourly CRV wages. 2024 average labor wages per hour increased since the 2023 cost survey, but at a lower rate than that of the previous two surveys. CRV hourly wages increased 12% between 2022 and 2024. This is lower than the 15% increase to the California minimum wage, which indicates that this was one of the main factors contributing to a higher increase in CRV hourly wages.

**Exhibit 54** provides a summary of CRV hourly wages between 2022 and 2024 by stratum. Stratum 1, 2, and 3 hourly wages increased by 14%, 7%, and 13%, respectively. Overall hourly wages increased by 12%.

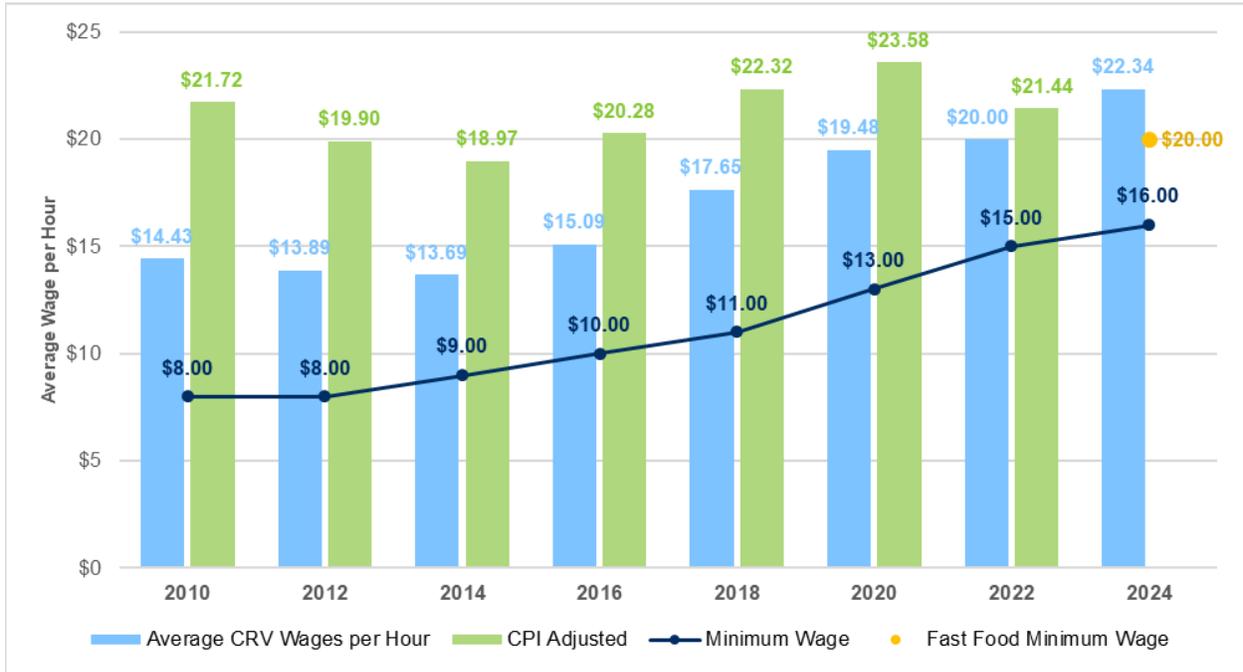
To provide context, at 2,080 hours annually, \$22.34 per hour is equivalent to a gross annual income of \$46,461. In 2023 (latest data), the median household income in California was \$96,334.<sup>15</sup> The California Poverty Measure for a family of four, slightly higher than the federal poverty level, was about \$43,990 in 2023 (latest data).<sup>16</sup>

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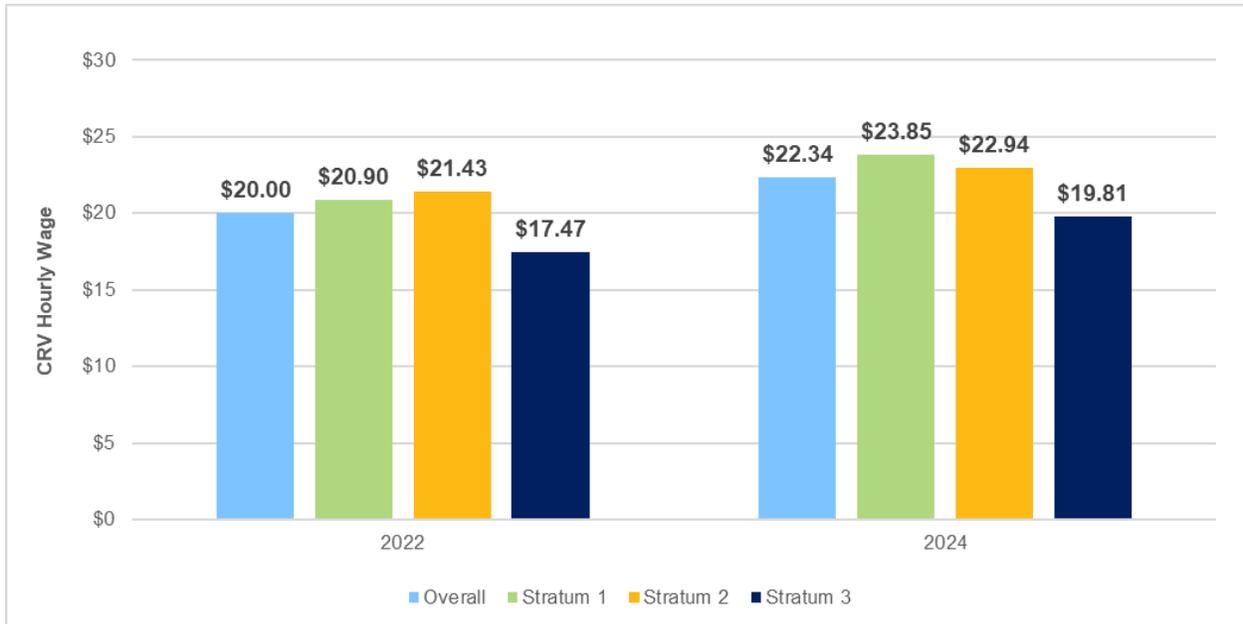
<sup>15</sup> California Quick Facts. U.S. Census Bureau. Accessed 11/12/2025.

<sup>16</sup> Poverty in California. Public Policy Institute of California. Accessed 10/31/2025.

**Exhibit 53**  
**Average CRV Wages per Hour (2010 to 2024)**



**Exhibit 54**  
**Comparison of CRV Hourly Wages Overall and by Strata (2022 and 2024)**



## Increases in DYL, AOL, and Overall Wage per Hour

Similar to the weighted-average increase in CRV hourly wage, the simple average of overall hourly wages increased. Stratum 1 increased by 4%, Stratum 2 increased by 6%, and Stratum 3 increased by 19%. These wages include all labor: other business, RC, non-CRV, and CRV. They reflect a simple average of the average hourly wage for each site in the survey sample. They do not reflect the number of hours per site, or volumes of material handled. **Exhibit 55** provides a comparison of average hourly wages by stratum and overall.

On average, CRV and non-CRV direct yard labor (DYL) hours make up over 80% of RC hours. The remaining less than 20% of RC hours are all other labor (AOL). DYL wages per hour increased by 14% and AOL wages per hour significantly increased by 39%. The increase to DYL wages per hour was driven by increases across all three strata, while AOL wages per hour increased more for the small recycler (highest for Stratum 3, then Stratum 2, then Stratum 1). The increase to DYL wages per hour aligns with the increase in minimum wage. The even higher increase to AOL wages per hour indicates that profitability may have been higher in 2024. Higher profitability could be due to either CRV, other businesses such as scrap metal, or both.

### Exhibit 55

#### Comparison of DYL, AOL, and Overall Wage per Hour (2022 and 2024)

##### Average DYL per Hour

Strata	2022	2024	% Change
1	\$19.06	<b>\$21.23</b>	11%
2	19.74	<b>21.53</b>	9%
3	16.55	<b>19.77</b>	19%
<b>Average</b>	<b>\$18.02</b>	<b>\$20.58</b>	<b>14%</b>

##### Average AOL per Hour

Strata	2022	2024	% Change
1	\$36.34	<b>\$42.99</b>	18%
2	33.75	<b>45.90</b>	36%
3	23.32	<b>36.18</b>	55%
<b>Average</b>	<b>\$29.00</b>	<b>\$40.41</b>	<b>39%</b>

##### Average Overall Wage per Hour

Strata	2022	2024	% Change
1	\$23.29	<b>\$24.20</b>	4%
2	22.48	<b>23.73</b>	6%
3	17.73	<b>21.12</b>	19%
<b>Average</b>	<b>\$20.25</b>	<b>\$22.51</b>	<b>11%</b>

## Minimum Wage Increases

Changes in DYL are most likely to be impacted by changes in minimum wage. Because DYL accounts for over 80% of CRV labor, increases in DYL have a greater impact on CRV recycling costs than increases in AOL. California minimum wage increased approximately 7%, from \$15 per hour in 2022 to \$16 per hour in 2024. Los Angeles (LA) County’s minimum wage increased approximately 8% during the same time period. Approximately one-third of surveyed processing fee recyclers across both years were located in LA County. As a result, changes in hourly wages in LA County sites have a significant impact on overall labor costs. Since the average wages per hour in LA County increased more than the rest of the state, LA County recyclers contributed higher labor costs.

As **Exhibit 56** illustrates, LA County DYL increased 19% between 2022 and 2024, while non-LA County DYL increased 12%. Both DYL and AOL for LA County recyclers increased more than non-LA County recyclers, especially for LA County AOL with a significant 86% increase.

As previously noted these data reflect a simple average wage per hour and include non-CRV and other business wages.

### Exhibit 56

#### Los Angeles County and non-Los Angeles County DYL, AOL, and Overall Wage per Hour (2022 and 2024)

Wage Category	LA County 2022 (n=50)	LA County 2024 (n=62)	LA County % Change	Non-LA County 2022 (n=90)	Non-LA County 2024 (n=97)	Non-LA County % Change
Minimum Wage	\$15.96	<b>\$17.27</b>	8%	\$15.00	<b>\$16.00</b>	7%
Direct Yard Labor (DYL)	\$16.63	<b>\$19.80</b>	19%	\$18.80	<b>\$21.08</b>	12%
All Other Labor (AOL)	\$24.55	<b>\$45.56</b>	86%	\$31.46	<b>\$37.06</b>	18%
Overall Wage per Hour	\$18.01	<b>\$21.32</b>	18%	\$21.50	<b>\$23.64</b>	10%

## Increases in Low Wage Recycling Centers

One of the challenges inherent in the cost survey methodology is that for sole proprietors, S-corporations, and partnerships where the owner(s) work in the recycling centers, owner’s income or profits is equivalent to owner wages. These two business categories represent a large share of the survey population – 72% in 2024. Over the last several years, we have seen a growing number of recycling centers where the owner(s) work a significant number of hours but that have low-to-no profits. This results in hourly wages that are below minimum wage, driving cost per ton down. This dynamic places downward pressure on reported hourly wages and can contribute to financial stress and eventual closure for some recycling centers.

Crowe evaluated the number and percent of surveyed recyclers with overall hourly wages below minimum wage in 2022 and in 2024. **Exhibit 57** illustrates that there was a slight increase in the number of surveyed recycling centers with overall average hourly wages that were less than minimum wage between the two years. Although there is a slightly higher percentage of recyclers lower than minimum wage, the low wages are not quite as low in 2024 as compared to 2022.

**Exhibit 57**  
**Comparison of Low Wage Recycling Centers (2022 and 2024)**

Category	2022 (n=140)	2024 (n=159)
California Minimum Wage	\$15.00	<b>\$16.00</b>
Number of Surveyed PF Recyclers < Minimum Wage	20	<b>28</b>
Percent of Surveyed Sites < Minimum Wage	14%	<b>18%</b>
Range of Hourly Wages < Minimum Wage	\$0.49 to \$14.99	<b>\$8.73 to 15.89</b>

**Labor Hours per Ton Recycled**

The labor hours required to handle one ton of CRV material is another measure of RC productivity and is a factor that has a direct impact on cost per ton. We calculated and compared the average PF for PF recycler labor hours allocated per ton of aluminum, glass, and plastic<sup>17</sup> recycled, for the surveys for 2010 to 2024. **Exhibit 58** shows the labor hours allocated per ton of material recycled. Labor hours per ton increased across all material types, with aluminum increasing by 4%, glass increasing by 21%, and plastic increasing by 10%.

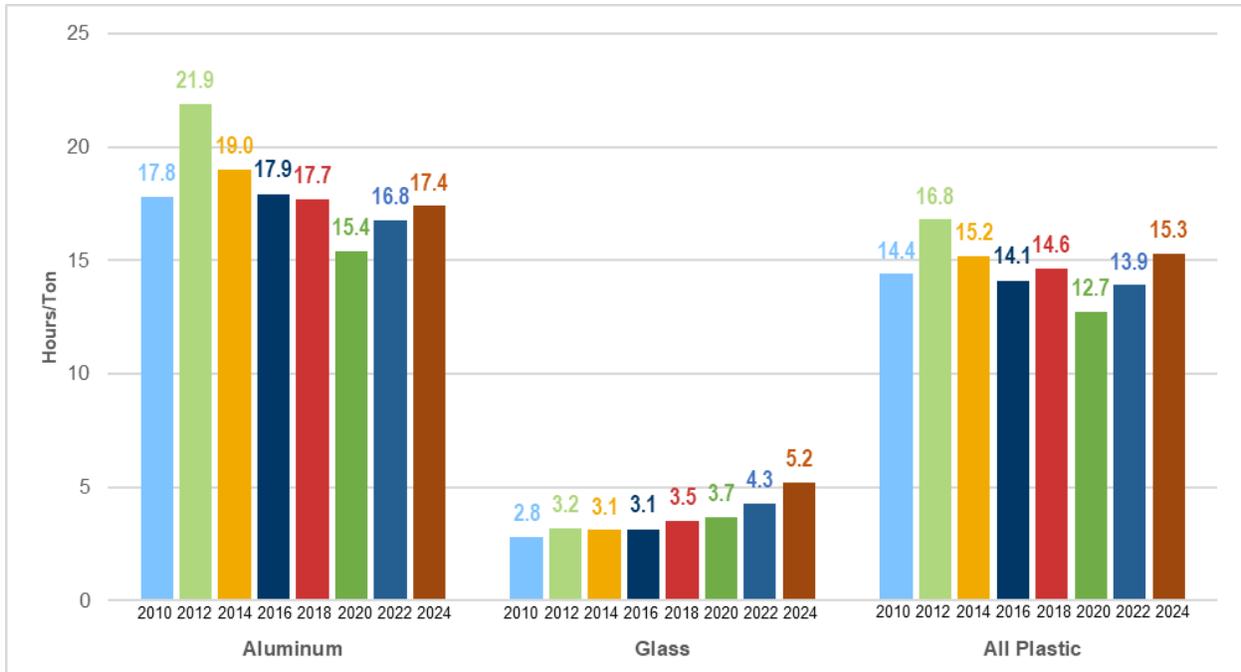
Despite the slightly higher tons recycled per RC for aluminum and plastic, there was an even higher increase to labor hours per ton. This indicates that recyclers are spending more time on fewer tons than before, reducing the average economies of scale among recyclers for these materials. The relationship for glass seems to be consistent with the higher labor hours per ton with lower tons per RC.

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<sup>17</sup> The analysis of labor hours per ton includes data available for plastic, rather than for PET #1, because of the cost survey methodology. We combine all plastic hours in the labor allocation cost model, prior to splitting costs between plastic resins in the Indirect Cost Allocation Sub-Model for All Plastics. PET #1 comprises approximately 94% of all plastic tons and costs. Therefore, total plastic labor hours generally are reflective of PET #1 hours. We also use a similar allocation method, the Indirect Cost Allocation Sub-Model for aluminum/bi-metal, to split costs between aluminum and bi-metal, for the relatively few RCs that handle both materials. Total costs and tons of bi-metal are less than 0.03% of aluminum costs and tons. Therefore, the hour analysis reflects time spent on aluminum.

While RCs may be able to reduce labor hours in response to lower tons of CRV material, RCs still must employ one, or more, employee on site during all hours of operation. To the extent that employees spend more time on site handling less material, the hours per ton will increase. Our cost survey does distinguish time spent waiting for CRV customers. All time is allocated to CRV materials, non-CRV materials, or other business.

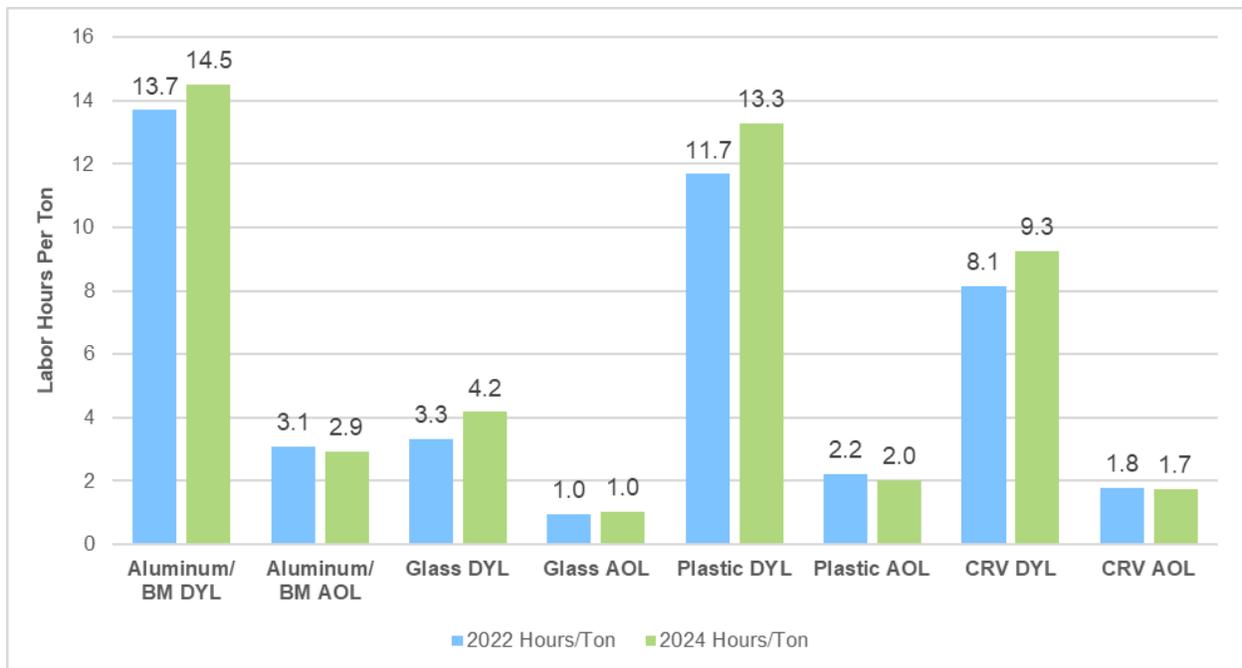
**Exhibit 58**  
**Average Labor Hours per Ton of Aluminum, Glass, and All Plastic Recycled**  
**(2010 to 2024)**



## Increased Hours Handling CRV Materials

Building on the labor hour analysis, we calculated average labor hours per ton by material type based on survey sample hours by category and survey sample tons for each material type. **Exhibit 59** illustrates that labor hours per ton increased between 2022 and 2024 across all materials for DYL and decreased (or, in the case of glass, stayed the same) across all materials for AOL. CRV DYL labor hours per ton increased by 14% while the CRV AOL labor hours per ton decreased slightly by 3%. This increase for CRV DYL hours per ton (more time spent on the same volume of material) contributes to higher costs per ton, which does not completely align with stable average tons per RC and ultimately points to other factors contributing to lower efficiency.

**Exhibit 59**  
**Labor Hours per Ton CRV Material by Activity (2022 and 2024)**

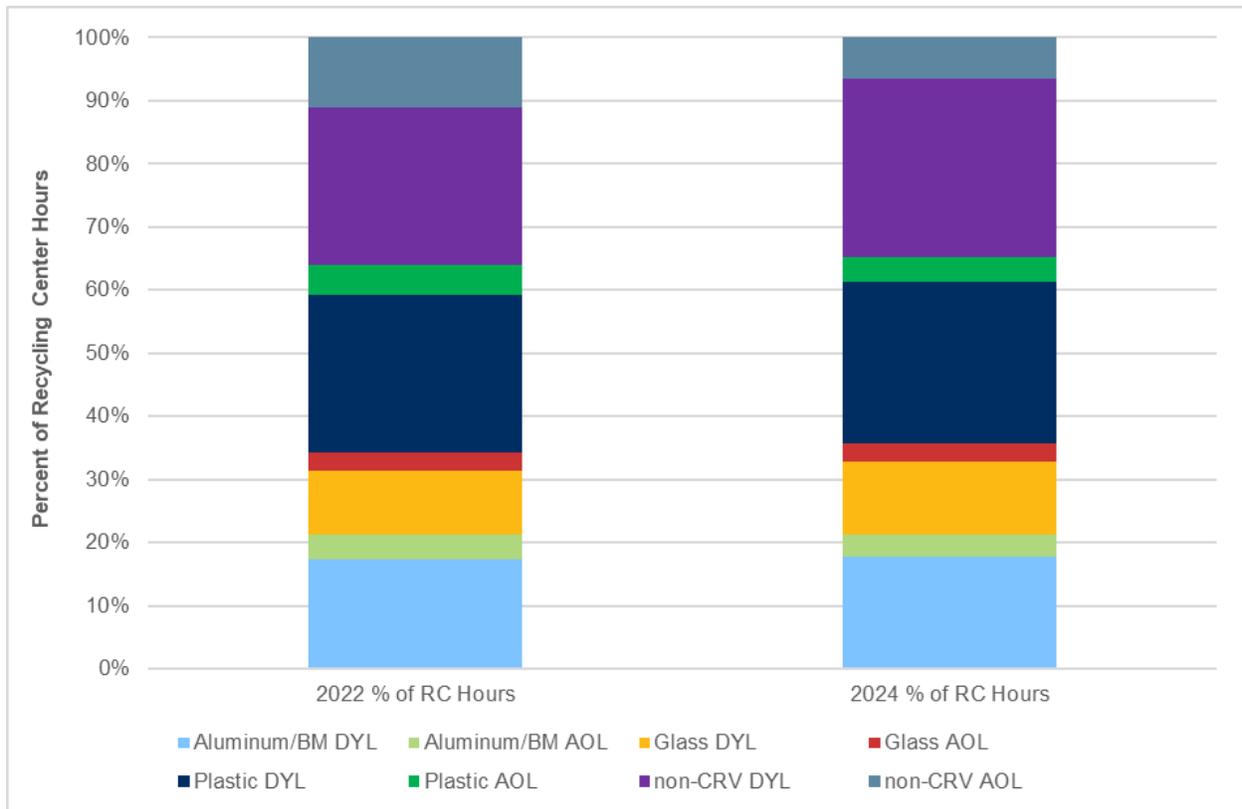


## Labor Allocations

Determining the cost per ton by material type depends on labor allocations at the recycler level. We recognize that it is difficult for recyclers to allocate labor hours across non-CRV and CRV material types. Crowe has developed extensive experience conducting thousands of recycling center cost surveys and labor allocations to help recyclers through this process. Because this process is not straightforward, we evaluated whether the increase in cost per ton was a result of allocating more labor hours to CRV materials. We analyzed total labor hours by category between 2022 and 2024 surveyed recyclers, comparing percent of recycling center hours by various categories, illustrated in **Exhibit 60**.

As the exhibit illustrates, there were not significant changes in the allocation of CRV hours between material types or hours per ton by material type between surveyed processing fee recyclers among the two years. The percentage of hours allocated to AOL non-CRV activity decreased the most, which indicates recyclers are spending more time on CRV than non-CRV activities.

**Exhibit 60**  
**Percent of Recycling Center Labor Hours by Activity (2022 and 2024)**



## High Wage Sites

To determine whether higher profits/owner wages were a factor in the change in cost per ton, we evaluated sites with the highest AOL wages per hour for the two survey samples. In two past surveys (2006 and 2008), high scrap prices (for aluminum and scrap metals) drove up owner wages significantly. We considered whether the higher AOL wages per hour might have been a factor in the higher cost per ton. To evaluate this, we compared high AOL wage sites for 2020, 2022, and 2024, summarized in **Exhibit 61**. AOL wages would be reflective of higher owner wages, as most high-wage owners are not working in the yard. AOL hourly wages include both CRV and non-CRV wages and hours, and on average account for approximately 20% of total recycler hours.

For this initial analysis, we focused on recycling centers with high AOL wages of over \$100 per hour to give us an indication of whether high profits were impacting cost per ton. In 2024, 5% of sampled sites had AOL wages over \$100 per hour. This is consistent with the significant increase in average AOL wage per hour for recyclers in LA County. The higher wages for the sites under minimum wage and higher wage sites in 2024 indicate both contribute to higher overall costs.

### Exhibit 61

#### Comparison of High AOL Wage per Hour Sites (2020, 2022, and 2024)

Category	2020	2022	2024
Number of Sites	7	0	8
Strata	2,1,1,2,2,3,3	NA	1,1,2,2,2,3,3,3
AOL Wage per Hour Range	\$106.15 to \$280.65	NA	\$100 to \$497
Percent of Surveyed Sites	4.8%	0.0%	5.0%
Percent of Surveyed Site AOL Hours	2.3%	0.0%	1.4%
Percent of Surveyed Site CRV Labor Costs	7.5%	0.0%	6.7%
Percent of Surveyed Site Total CRV Costs	2.3%	0.0%	5.9%

## G. Changes in Transportation Costs

Crowe analyzed CRV transportation costs to gain a better understanding of how transportation costs impacted the increase in cost per ton between 2022 and 2024. Transportation and fuel costs remain among the larger contributors to overall CRV costs. Other factors such as higher wages provided a counterbalance to the lower transportation costs, reflected in increased cost per ton as compared to 2022 for all materials. To evaluate the impact of transportation on recycler costs, Crowe evaluated transportation and fuel costs for each material type by hauling method. The transportation and fuel line items include non-labor costs that should generally reflect the cost to recyclers of hauling material to processors. Although fuel includes general transportation costs and fuel for forklifts, they are subject to the same economic forces. In 2024, transportation (and fuel) costs represent 7.2% of total CRV costs for PF recyclers, which decreased from 8.4% in 2022.

As gasoline and diesel underlies all transportation costs, changes in market price will have a direct impact. In 2022, all grades of gasoline in California averaged \$5.41 per gallon, while diesel averaged \$6.03 per gallon. In 2024, the average price of gasoline decreased to \$4.64 per gallon, or a decrease of 14%, while diesel decreased to \$4.93 per gallon, or a decrease of 18%.<sup>18</sup> The decrease in the proportion of transportation as a share of total costs as well as the decrease in transportation cost per ton for each material type in 2024 (besides glass, which increased) are directly linked to lower fuel prices. The percentage of recyclers utilizing scrap value deduction increased by 5% to 18% points among each material type, which further reduces transportation costs. A scrap value deduction occurs when recyclers use processor pickup and are paid net revenue for materials after the processor subtracts hauling costs, meaning these costs are not shown separately but are instead reflected in the reduced revenue.

**Exhibit 62** shows a comparison between 2022 and 2024 for transportation cost per ton for aluminum, glass, and plastic. Transportation cost per ton was calculated by taking the sum of transportation and fuel costs divided by the total tons for each material. The results show that transportation cost per ton for aluminum and plastic decreased slightly (-6% and -4%), and glass increased by 18%. The decreases for aluminum and plastic are consistent with the decrease in fuel prices, while there are other factors influencing the transportation costs of glass to cause it to increase.

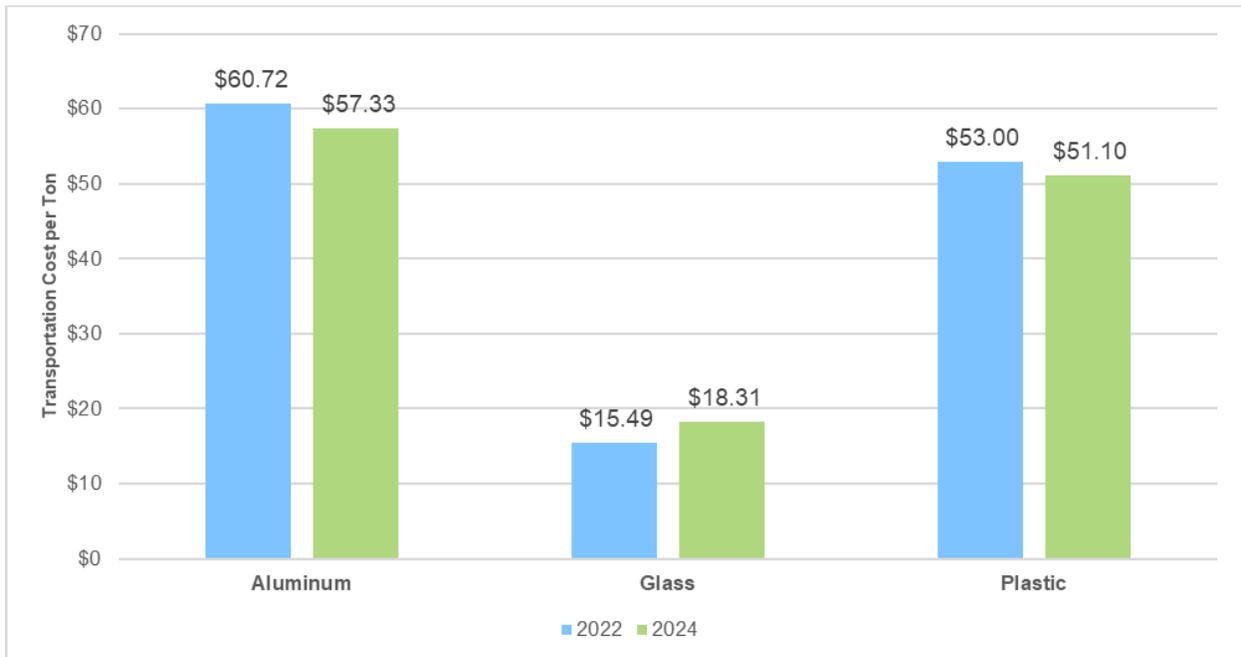
**Exhibit 63, Exhibit 64, and Exhibit 65** examine differences among small, medium, and large recyclers for aluminum, glass, and plastic transportation. For 2024, all materials showed that the larger the recycler, the lower the transportation cost per ton. In 2024, transportation costs were higher across all strata for glass, higher for strata 2 and 3 for aluminum, and higher for stratum 3 for plastic. Transportation costs were lower for stratum 1 for aluminum, and strata 1 and 2 for plastic. However, changes from 2022 to 2024 varied by stratum and material, so there is no consistent pattern in the direction of change by recycler size.

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<sup>18</sup> Annual Retail Gasoline and Diesel Prices. U.S. Energy Information Administration. Accessed 11/9/2023.

**Exhibit 66** shows a comparison between 2022 and 2024 for the percentage of recyclers that utilized scrap value deduction. The percentages are based on the recyclers that have a processor pick-up material, which is roughly 60% for 2024 and roughly 50% for 2022. The rate of scrap value deduction increased 5% for glass, 9% for aluminum and 17% for plastic. Because scrap value deduction nets hauling costs out of revenue rather than recording them as a separate expense, greater use of scrap value deduction reduces reported transportation costs in the cost survey, even if underlying hauling costs do not change.

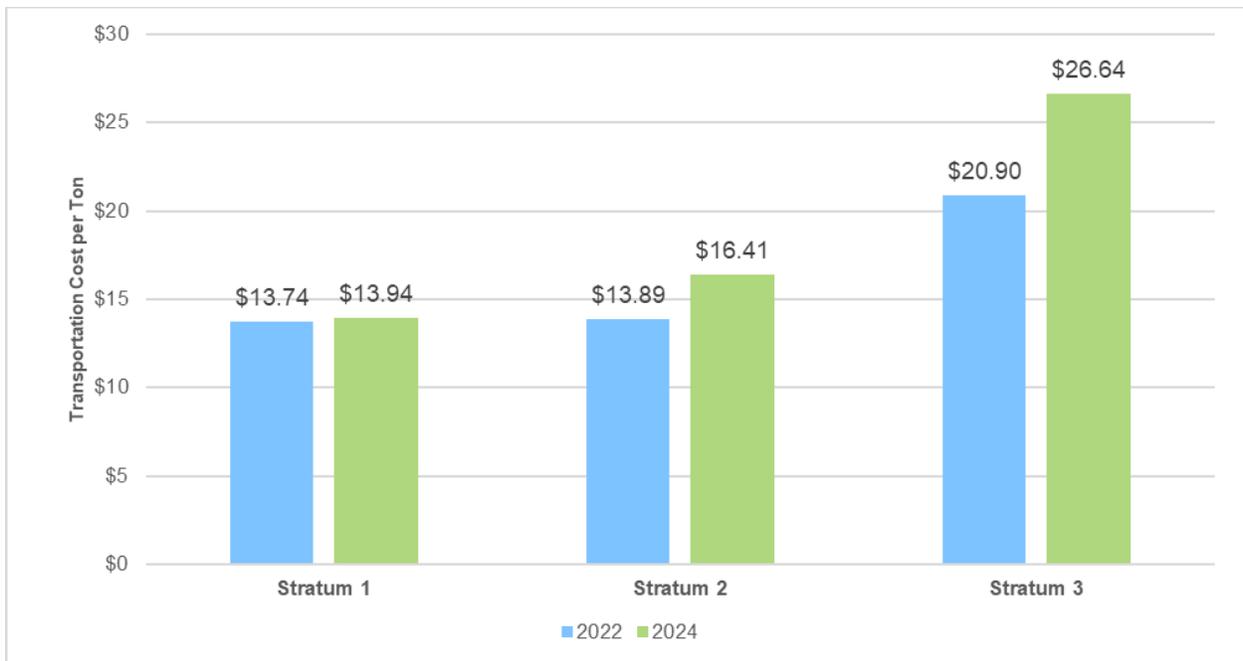
**Exhibit 62**  
**Aluminum, Glass, and Plastic Transportation Cost Per Ton (2022 and 2024)**



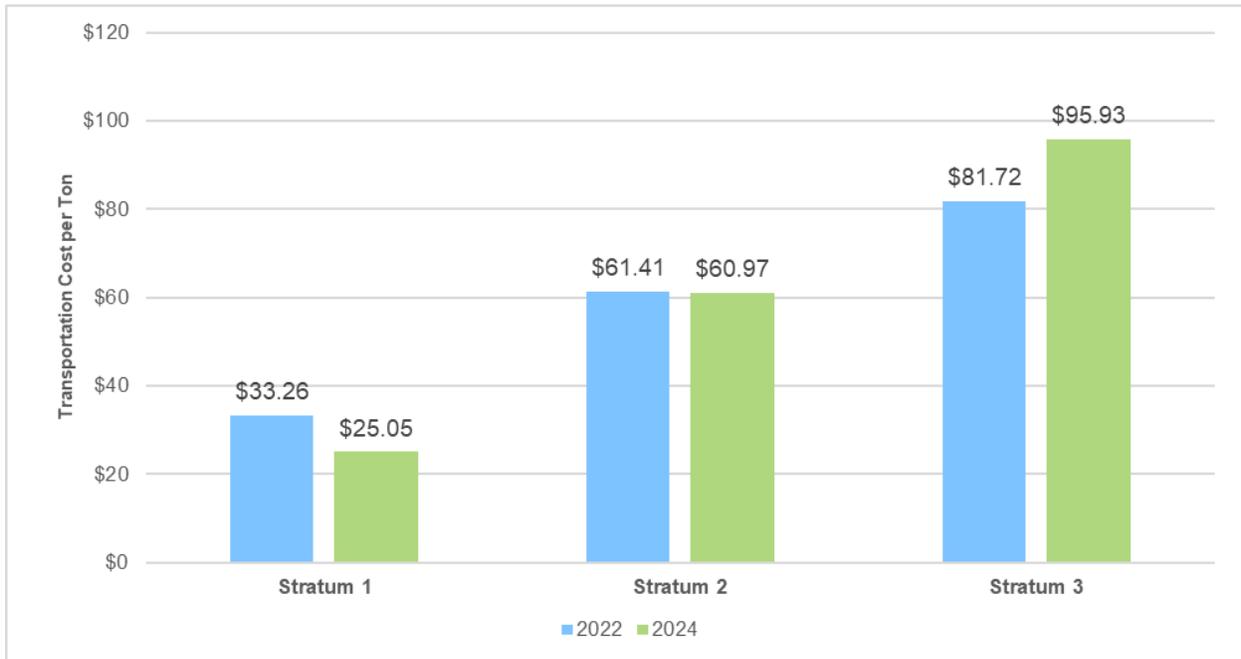
**Exhibit 63**  
**Aluminum Transportation Cost Per Ton by Stratum (2022 and 2024)**



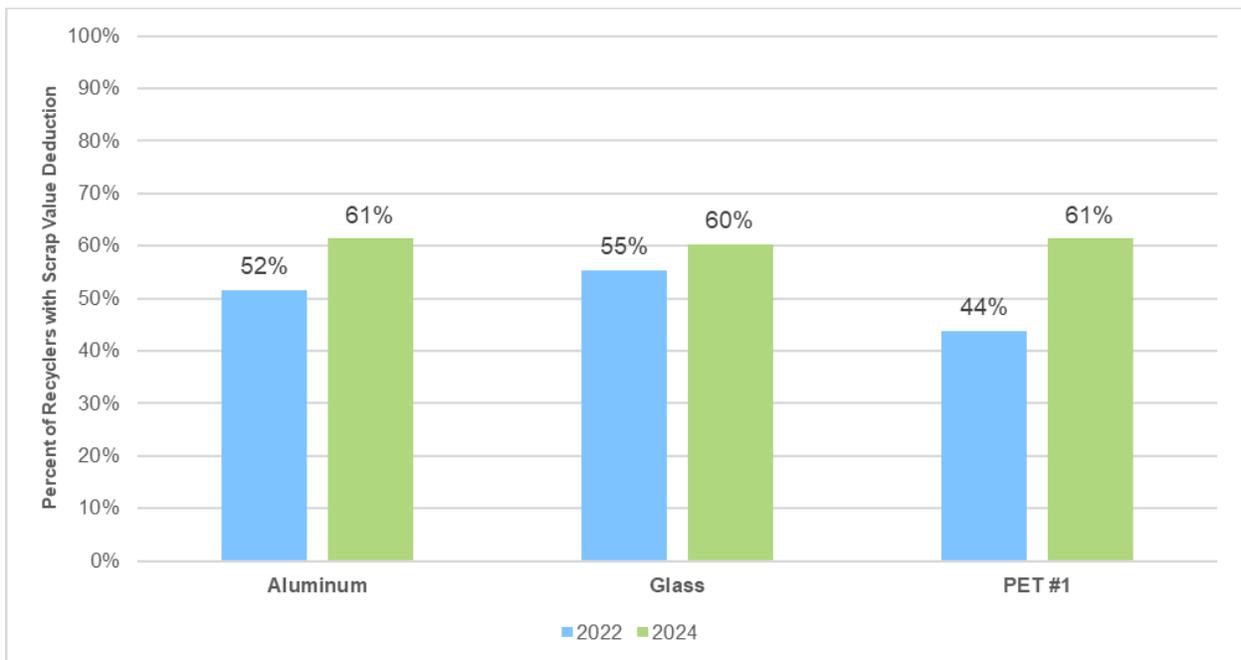
**Exhibit 64**  
**Glass Transportation Cost Per Ton by Stratum (2022 and 2024)**



**Exhibit 65**  
**Plastic Transportation Cost Per Ton by Stratum (2022 and 2024)**



**Exhibit 66**  
**Aluminum, Glass, and PET #1 Transportation with Scrap Value Deduction (2022 and 2024)**



## H. WDS-BBP Analysis

This summary presents the first statewide calculation of recycler cost per ton for WDS-BBP—representing a combined cost for wine and distilled spirits boxes, bladders, and pouches—within the beverage container recycling program. As shown in **Exhibit 67**, WDS-BBP accounts for 65.51 tons, or 0.02383% of total program tons,<sup>19</sup> making it one of the lowest material categories by volume (higher in volume only than PVC #3 and LDPE #4).

With such low volumes and many sites handling only a few WDS-BBP containers per week, traditional per-ton methods based solely on the labor allocation model are unreliable. This motivated the activity-based approach summarized in Exhibit 18. The implementation of separate cost profiles for the three types of containers beginning January 1, 2026, may make it even more challenging to capture these calculations, as each of the three categories will be reduced even further after the separation. The handling and logistics of these containers are evolving as the recyclers and processors learn how to process these new materials. The current dataset therefore provides an early indication of the operational complexity and cost sensitivity the program will need to manage during the next survey cycle and in establishing WDS-BBP-specific processing payments and fees for 2026.

**Exhibit 67**  
**WDS-BBP Tons of Population Tons**

Material	Population Tons	% of Total Tons
Aluminum	54,656.55	19.88298%
Glass	135,744.42	49.38115%
PET #1	81,874.61	29.78437%
HDPE #2	1,990.89	0.72425%
Bi-Metal	174.66	0.06354%
PVC #3	0.04	0.00002%
LDPE #4	1.01	0.00037%
PP #5	97.16	0.03535%
PS #6	100.05	0.03640%
Other #7	186.27	0.06776%
<b>WDS-BBP</b>	<b>65.51</b>	<b>0.02383%</b>
<b>Total</b>	<b>274,891.20</b>	<b>100.00000%</b>

<sup>19</sup> Program population represents those certified recycling centers that do not receive a handling fee, consistent with the population surveyed for the Processing Fee Cost Survey and applied in developing the WDS-BBP secondary material cost estimates.

**Exhibit 68** provides the weighted-average cost-per-ton calculations. The top portion of the table are the sample results for the 39 RCs included in our study; the bottom portion extrapolates those sample results to the full population of 117 RCs reporting WDS-BBP tonnage, using the same estimation methodology applied to aluminum, glass, PET, and HDPE. Based on this population-level analysis, the statewide weighted-average cost per ton for WDS-BBP is \$1,290.11. In both the sample and population, WDS-BBP tons are highest in stratum 1 and decrease for both stratum 2 and 3.

**Exhibit 68**  
**Calculation of 2024 Statewide, Weighted-Average Cost per Ton for WDS-BBP**

<b>Stratum</b>	<b>WDS-BBP Sample Tons</b>	<b>WDS-BBP Sample Cost</b>	<b>Sample Cost per Ton</b>
Stratum 1	24.71	\$8,616.00	\$348.71
Stratum 2	12.23	\$29,856.37	\$2,440.38
Stratum 3	6.60	\$8,915.87	\$1,350.90
<b>Sample Total</b>	<b>43.54</b>	<b>\$47,388.24</b>	<b>\$1,088.32</b>

<b>Stratum</b>	<b>WDS-BBP Population Tons</b>	<b>WDS-BBP Population Cost</b>	<b>Population Cost per Ton</b>
Stratum 1	30.97	\$10,798.30	N/A
Stratum 2	24.83	\$60,594.33	N/A
Stratum 3	9.72	\$13,128.24	N/A
<b>Sample Total</b>	<b>65.51</b>	<b>\$84,520.87</b>	<b>\$1,290.11</b>

Statewide costs per ton are highly variable across strata. The sample cost per ton for stratum 1 is \$348.71, significantly below the statewide average of \$1,088.32. This suggests larger sites may leverage economies of scale that allow them to collect and process WDS-BBP more efficiently than sites with lower overall volumes. Stratum 2 represents most of the sample and population costs (63.1% and 71.7%, respectively), meaning sites with medium reported volumes encounter challenges in collection, sorting, and storing these materials.

**Exhibit 69** summarizes the distribution of WDS-BBP-reporting RCs across the three strata and compares sample counts to the full population of reporting sites (117 out of 467 statewide). Of the sample of 39 RCs for determining cost per ton, time spent handling WDS-BBP represents about a quarter of 1% of overall CRV time (0.25%), which highlights how little these new materials impact overall recycler operations.

**Exhibit 69**  
**WDS-BBP Recycler Counts – Sample and Population**

<b>Stratum</b>	<b>WDS-BBP Population Tons</b>	<b>WDS-BBP Population Cost</b>	<b>Population Cost per Ton</b>
Stratum 1	30.97	\$10,798.30	
Stratum 2	24.83	\$60,594.33	
Stratum 3	9.72	\$13,128.24	
<b>Sample Total</b>	65.51	\$84,520.87	<b>\$1,290.11</b>

Interviews conducted at recycling centers during the 2025 cost survey revealed several insights. Across all surveyed recycling sites, WDS-BBP activity remains low volume, inconsistent, and highly variable. For those sites that received WDS-BBP containers, weekly customer transactions ranged from as few as 2 per week at small sites to 70 or more per week at the highest-volume locations, though most sites fell between 5 and 20 transactions per week. Containers per transaction also varied widely, from just 1 to 3 units at most buyback centers to spikes of 20 to 50 containers. When WDS-BBP containers are redeemed, they tend to come in irregular bursts rather than as a steady flow of material. Certain formats, such as BeatBox Beverages® cocktail cartons and wine bag-in-box containers, are most common. Several sites noted that customers increasingly bring in more containers over time, suggesting a gradual rise in awareness of CRV eligibility. Still, the overall throughput is too small to support stable, continuous processing operations. The extremely low tonnage moves slowly through the system, often accumulating for one to six months before transportation to a processor.

Separation and storage practices at recycling centers vary. Some sites keep pouches, bag-in-box bladders, and paperboard cartons separate; others store all WDS-BBP materials together because volumes are too low to justify individual sorting. Several recyclers emphasized that weighing WDS-BBP is not feasible because scales are not certified to weigh extremely light materials, leading many to count items manually instead. Storage constraints are also common—because WDS-BBP is bulky but lightweight, it consumes warehouse or yard space disproportionately relative to its material value.

Because these containers are lightweight, non-rigid, and often composed of multiple polymer layers, they may not behave predictably in existing collection and compaction systems. BeatBox cartons, because they are waxed and made from non-corrugated fiber, are usually not accepted by cardboard mills and must be stored separately or ultimately disposed of. Bag-in-box containers require separating the bladder from the cardboard shell, and the bladders themselves contain multiple resin types, such as urethane, making them effectively unrecyclable. Residual liquid inside the bladders also complicates weighing, handling, stormwater compliance, and contamination control. Processors report that flexible pouches and bladders can wrap around screens, jam conveyor lines, and increase contamination of PET and HDPE streams if not properly separated. Additionally, because bag-in-box systems contain both a cardboard shell and an inner pouch, processing of these materials is more complex.

All 39 recyclers in the WDS-BBP sample consistently noted a lack of any meaningful end markets, and contamination, lack of buyers, and insufficient quantity make recovery impractical. Under state regulations, processors may request approval to landfill CRV-eligible material when no recycling market exists by submitting the “Rejection & Request to Dispose of Empty Beverage Containers” form (CalRecycle 847). CalRecycle’s forms page includes both the blank CalRecycle 847 and a sample version completed specifically for WDS-BBP, which signals the department’s awareness that WDS-BBP materials are largely non-recyclable under current market conditions and that processors may resort to disposal when storage becomes untenable.

One processor described mixing small quantities of WDS-BBP into lower-grade cardboard bales, essentially as a contaminant, as a temporary solution to dispose of the material. They noted that this practice is only feasible at extremely low volumes and depends on the specific preferences of the end market. If WDS-BBP volumes increase or cardboard mills tighten specifications, processors expect they would need to segregate and landfill WDS-BBP rather than blending it into outgoing fiber loads.

Transportation patterns reinforce these themes. A large share of recyclers transport WDS-BBP materials infrequently, in some cases only at year-end when enough material has accumulated to justify a load. Many do not transport at all, instead waiting for destruction approvals. When shipments do occur, WDS-BBP is often moved alongside Bi-Metal, HDPE, and minority plastics, serving as a “ride-along” material due to its small share of total volume. Overall, the recycler interviews showed that WDS-BBP is a material stream characterized by low density, high handling effort, long storage times, and no market outlets.

Dual-site (recycler-processor) facilities experience many of the same challenges as recyclers, but these challenges are magnified by their role in receiving material from other recyclers. Many dual sites report that inbound WDS-BBP deliveries from external recyclers are irregular, low-volume, and unpredictable, often amounting to a few pieces or a single bag at a time. Several dual sites clarified that although they are technically certified processors, they do not actively process CRV materials at that location— instead, they operate primarily as buyback centers and hold WDS-BBP until it can be transported to another affiliated processor or disposed of.

Storage and handling at dual sites mirror recycler practices: WDS-BBP is typically kept in dumpsters, supersacks, or warehouse bins for long periods. Every dual site reported zero end markets, and two stated that even if a buyer existed, the volumes are not high enough to justify recycling the material. Processing activities, when they occur at all, consist mainly of counting, verifying load weight, and then discarding the material, with no baling or value-added processing. Two dual-site managers warned that the lack of markets and extremely small volumes mean processors may simply stockpile WDS-BBP bales indefinitely if required to segregate them for reporting in 2026.

## I. Summary of Processing Fee Cost Analyses

Our analyses identify a combination of factors that may be impacting recycling costs. The cost per ton for glass increased 21% and HDPE #2 increased 51%, while aluminum and PET #1 increased by 5% and 7%, respectively. Many factors combine to influence recycling center costs, tons, and cost per ton, both upward and downward.

Cost per ton is the quotient determined by dividing recycling center costs (numerator) by recycling center tons (denominator). Because costs and tons for the surveyed PF recycling centers can each increase, decrease, or not change between subsequent cost surveys, and because these changes can differ in their rate of change, causes for changes in cost per ton over time are complex. In addition, because the cost per ton calculation is a statewide, weighted average, based on a stratified sample, changes within the population of recycling centers can also influence cost per ton results.

Between 2022 and 2024 there was a reduction in the overall survey population of PF recycling centers, and to a greater extent, a decrease in the total tons of CRV material recycled. This combination alone could suggest a possible increase in cost per ton between 2022 and 2024. Our analysis of 2022 and 2024 data identify four factors that appear to have contributed to increases in cost per ton between 2022 and 2024. We discuss these factors further in the remainder of this section and will conduct further analysis in later reports. The four factors are:

- **Higher wages:** This is driven by a 7% increase in statewide minimum wage (8% increase in LA County). There was also additional pressure from California's fast food worker minimum wage of \$20 per hour beginning April 2024, which is 33% higher than the \$15 per hour statewide minimum wage in 2022. Since overall recycler wages increased more (12%) than the increase in statewide minimum wage (7%), it suggests recyclers are raising pay to stay competitive with fast food and other minimum wage jobs.

- **Less efficient operations:** This is driven by 14% higher direct yard labor hours per ton (more time spent on the same volume). However, average tons per RC remained stable between 2024 and 2022, which means, on average, there are other factors at play contributing to the loss of efficiency.
- **More high wage sites:** In 2024, there were eight recyclers, representing 5% of sampled recyclers, with AOL wages per hour of over \$100 per hour. In 2022, there were no sites with average wages over \$100 per hour. A higher share of sites with high wages contribute to higher costs.
- **Higher wages at low wage sites:** Although the share of low wage sites in 2024 is slightly higher than 2022, recycler wages for sites under minimum wage were higher. Low wage sites with higher wages contribute to higher costs.

The processing fee cost survey is a complex, primary data gathering exercise. We drew from 159 diverse recycling centers across the state, additional 19 sites selected for their WDS-BBP volumes (totaling 39 of which met WDS-BBP volume thresholds), to determine five cost per ton results. The cost per ton results must make sense in the historical context of prior cost surveys, as well as within the context of current recycling operations and market dynamics. The nine key factors are summarized in **Exhibit 70**. In the exhibit, the number of arrows corresponds to the magnitude of impact on the cost per ton, with more arrows indicating greater impact.

**Exhibit 70**

**Summary of Key Factors for Changes in Costs between 2022 and 2024**

<b>Key Factor</b>	<b>2022 Value</b>	<b>2024 Value</b>	<b>% Change</b>	<b>Impact to Cost Per Ton</b>	<b>Description</b>
<b>Labor Factor:</b> Increased CRV and DYL hourly wages	\$20.00	\$22.34	12%	Significant increase	<i>Result: The average CRV and DYL hourly wages increased from 2022 to 2024.</i>  Reason: This largely reflects increases to the state’s minimum wage and the fast-food industry’s minimum wage.  Reference: <b>Exhibit 54</b>
<b>Labor Factor:</b> Increased AOL and Overall hourly wages	\$29.00	\$40.41	39%	Moderate increase	<i>Result: The average AOL (shown in 2022 and 2024 values) and overall hourly wages increased from 2022 to 2024.</i>  Reason: This was caused by higher profitability from CRV business or scrap business.  Reference: <b>Exhibit 55</b>
<b>Labor Factor:</b> Increased number of low wage sites	20	28	40%	Slight increase	<i>Result: The number of sites with an average wage below the minimum wage increased from 2022 to 2024.</i>  Reason: Despite these low wages, these sites also experienced rising costs.  Reference: <b>Exhibit 57</b>

Key Factor	2022 Value	2024 Value	% Change	Impact to Cost Per Ton	Description
<b>Labor Factor:</b> Increased labor hours per ton recycled	13.9	15.3	10%	Slight increase	<i>Result: The number of hours required by a recycler to handle 1 ton of CRV material increased.</i>  Reason: More time is spent handling smaller volumes of plastic (shown in 2022 and 2024 values), aluminum, and glass per recycling center.  Reference: <b>Exhibit 58</b>
<b>Labor Factor:</b> Increased hours per ton handling CRV materials	8.1	9.3	14%	Slight increase	<i>Result: The number of hours a recycler spent handling 1 ton of CRV material on average increased from 2022 to 2024.</i>  Reason: Direct yard laborers are spending more time handling CRV materials, reducing efficiency.  Reference: <b>Exhibit 59</b>
<b>Labor Factor:</b> Increased number of high wage sites	0	8	--	Slight increase	<i>Result: The number of sites in which the owner(s) earned a relatively high wage compared to site employees increased from 2022 to 2024.</i>  Reason: Eight sites had AOL wages over \$100 per hour, which increases costs and diverges from previous years.  Reference: <b>Exhibit 61</b>
<b>Material Volume Factor:</b> Decreased total population tons	335	275	-18%	Slight increase	<i>Result: The total number of tons of CRV material recycled per recycler decreased from 2022 to 2024.</i>  Reason: Decreased tons of aluminum, glass, PET #1, and HDPE #2 increase cost per ton.  Reference: <b>Exhibit 35</b>

Key Factor	2022 Value	2024 Value	% Change	Impact to Cost Per Ton	Description
<b>Recycler Population Factor:</b> Decreased number of recycling centers	577	506	-12%	Slight decrease	<i>Result: The number of PF recycling center sites decreased from 2022 to 2024.</i>  Reason: The overall decline in recycling centers is commonly believed to be directly related to poor recycling markets and the market shift from high-value aluminum to lower-value PET #1. The substantially lower 506 PF population recyclers is lower than any other year since 2002. If volumes are held the same, this would mean that average tons per recycler increases, which decreases cost per ton.  Reference: <b>Exhibit 48</b>
<b>Transportation Factor:</b> Decreased fuel prices	\$6.03	\$4.93	-18%	Slight decrease	<i>Result: Diesel and gasoline prices in California decreased from 2022 to 2024.</i>  Reason: Diesel (shown in 2022 and 2024 values) and gasoline prices in California decreased, contributing to lower transportation cost per ton.  Reference: <b>Section 3G. Changes in Transportation Costs (page 85)</b>

## 4. Processing Payments and Processing Fees

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In this section, we describe how processing payments and processing fees are calculated. We then compare current and historical processing payments and processing fees based on survey results from 2004 to 2024 and examine historical scrap value trends. The section is organized as follows:

- A. Review of Reasonable Financial Return
- B. Processing Payment and Processing Fee Calculations
- C. Scrap Values
- D. Comparison of Historical Processing Payments and Processing Fees.<sup>20</sup>

### A. Review of Reasonable Financial Return

The California Beverage Container Recycling and Litter Reduction Act, section 14575(b)(2) specifies “a reasonable financial return for recyclers” should be included in the processing payment calculation. The RFR is multiplied by the cost of recycling to determine the cost of recycling, with financial return. As described, the cost of recycling is also multiplied by a COLA. This cost is used in the processing payment and processing fee calculations. **Exhibit 71** provides the RFRs since 2004.

#### Exhibit 71

##### Historical Reasonable Financial Return Values (2004 to 2025)

Year	Reasonable Financial Return
2004	2.55%
2005	3.60%
2006	5.43%
2007	4.43%
2008	5.60%
2009	6.45%
2010	5.76%
2011	2.65%
2012	3.94%
2013	3.12%
2014	4.10%

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<sup>20</sup> Subsections B through D of the final report will be complete once the Processing Payments and Processing Fees notice is released.

<b>Year</b>	<b>Reasonable Financial Return</b>
2015	2.81%
2016	0.92%
2017	-5.85%
2018 Nonrural	11.5%
2018 Rural	16.6%
2019 Nonrural	11.5%
2019 Rural	16.6%
2020	10.00%
2021	10.00%
2022	10.00%
2023	10.00%
2024	10.00%
2025	10.00%

Note: The year represents the publication year for the processing payments and processing fees.

Starting with the January 1, 2022, processing payment and processing fee calculations, the RFR has been set to 10% in accordance with California Code of Regulations (CCR) section 2975, as follows:

“For calendar year 2023, the Department is proposing using a reasonable financial return of 10% when calculating processing payments instead of the Dun and Bradstreet index as stated in regulations. The reasonable financial return determined from the Dun and Bradstreet index will likely be much lower than 10 percent. This change will help support beverage container recycling in California by establishing a reasonable financial return that provides a balance between the risk associated with operating a beverage container recycling center under current market conditions and a return on investment that retains current operators. This measure is expected to stem ongoing recycling center closures which will preserve convenient redemption opportunities to consumers.”

The January 1, 2026, processing payment calculation includes a COLA. Thus, the cost of recycling per ton used for calculating processing payments is equal to the Cost of Recycling  $\times (1 + \text{RFR}) \times (1 + \text{COLA})$ . The addition of the COLA aligns the survey year to the year in which processing payment and processing fees are applied. The cost data for the January 1, 2026, processing payments and fees is from 2024, and the scrap value is based on average scrap values from October 1, 2024, through September 30, 2025. The difference in time periods is a result of the time lag in gathering and processing data for each of these measures. Implementing a COLA was recommended in the 2015 cost survey. By instituting the COLA, CalRecycle aligns the cost data with the processing payment and processing fee time period.

## B. Processing Payment and Processing Fee Calculations

Section 14575(a) of the California Beverage Container Recycling and Litter Reduction Act specifies that: “if any type of empty beverage container with a refund value established pursuant to Section 14560 has a scrap value less than the cost of recycling, the Department shall, on January 1, 2000, and on or before January 1 annually, thereafter, establish a processing fee and a processing payment for the container, by the type of the material of the container.”

The original intent of the processing payments and processing fees was that each container type should cover its own cost of recycling in order to create and maintain a marketplace that provides consumers with convenient recycling opportunities. For example, if the scrap value for glass were not enough to cover the cost of recycling glass, then the processing fee, paid by beverage manufacturers and passed through to recyclers, would cover that additional cost. Thus, the processing fee would, in theory, create an incentive for beverage manufacturers to use material types that were less costly to recycle, and/or that did not have a processing fee. At the same time, the recycler, who was required to accept these materials because of the beverage container program, would not suffer a loss.

The processing payment is defined as the difference between the statewide, weighted-average cost of recycling (as determined by this cost to recycle survey), multiplied by a COLA of 6.1% and a RFR, and the average scrap value paid to recyclers (for the period October through September of the previous year). The equation is as follows:

$$\text{Processing Payment} = (\text{Cost of Recycling} \times \text{COLA} \times \text{Reasonable Financial Return}) - (\text{Scrap Value})$$

The processing payment is paid by CalRecycle to processors, who then pass the payment on to recyclers, based on the weight of material redeemed.

The processing fee, earlier in the history of the beverage recycling program, was equal to the processing payment, and was paid to CalRecycle by beverage manufacturers on every container sold. Over time, the processing fee has been modified, and currently, when adequate funds are available in the Beverage Container Recycling Fund (Fund), the amount of processing fee paid by manufacturers is reduced, depending on the recycling rate of the material. When funds are available, the difference between the processing fee paid to the department, and the processing payment paid to recyclers, is made up by the Fund, essentially from CRV paid on unredeemed containers.

In 2003, AB 28 (Jackson, Chapter 753, Statutes of 2003) established the current system whereby unredeemed funds, when available, are used to subsidize the processing fee by a minimum of 35%, up to 90%, depending on the recycling rate (and availability of funds).

Under current statutory requirements, the processing fee for a given container type is equal to a specified percentage of the processing payment, depending on the recycling rate in the previous fiscal year, as shown in **Exhibit 72**. The fiscal year 2017/2018 recycling rates were used to determine the maximum processing fee reduction factors for glass, bi-metal, and plastic resins. **Exhibit 73** presents the actual percent of processing payment for each material type, published by CalRecycle in the processing payments and processing fee notice on December 16, 2025.<sup>21</sup> The percent of processing payment is multiplied by the processing payment for each material to determine the amount of processing fee paid by beverage manufacturers.

**Exhibit 72**  
**Processing Fee Reduction Factors with Adequate Funds**

Recycling Rate	Percent of Processing Payment
75% or above	10%
65 to 74%	11%
60 to 64%	12%
55 to 59%	13%
50 to 54%	14%
45 to 49%	15%
40 to 44%	18%
30 to 39%	20%
Less than 30%	65%

**Exhibit 73**  
**Processing Fee Reduction Factors for January 1, 2026, Processing Fees**

Material	Percent of Processing Payment
Glass	13%
PET #1	11%
HDPE #2	13%
PVC #3	65%
LDPE #4	65%
PP #5	11%
PS #6	65%
Other #7	65%
Bi-Metal	65%
WDS-BBP	65%

<sup>21</sup> The notice is dated December 15, 2025; however, CalRecycle publicly released the notice on December 16, 2025.

**Exhibit 74** provides the per ton processing payments for recyclers, effective January 1, 2026, published by CalRecycle in the processing payments and processing fee notice on December 16, 2025.

**Exhibit 74**  
**January 1, 2026 Processing Payments per Ton**

Material	Processing Payment per Ton
Glass	\$252.32
PET #1	480.79
HDPE #2	1,240.04
PVC #3	2,416.83
LDPE #4	3,446.30
PP #5	3,087.84
PS #6	1,912.20
Other #7	2,097.34
Bi-Metal	1,921.20
WDS-BBP	1,500.13

**Exhibit 75** presents a copy of the 2026 Processing Fees notice, published by CalRecycle on December 16, 2025. The Exhibit provides components of the processing payment calculations, as well as the processing payments per ton and per pound; and the processing fees per container. Exhibit 73 also documents the section 14575(f) reduction in the processing fee for glass and PET #1.

**Exhibit 75**  
**Processing Fees Public Notice (December 16, 2025)**

(Effective January 1, 2026)	Glass	PET	HDPE	Vinyl	LDPE	PP	PS	Other	BiMetal	WDS-BIB	WDS-MLP	WDS-PC
Cost of Recycling per Ton with Reasonable Financial Return & COLA	\$ 258.52	\$ 753.81	\$ 1,536.58	\$ 2,416.83	\$ 3,447.81	\$ 3,093.16	\$ 1,915.94	\$ 2,099.22	\$ 1,936.77	\$ 1,505.69	\$ 1,505.69	\$ 1,505.69
Scrap Value per Ton	\$ 6.20	\$ 273.02	\$ 296.54	\$ -	\$ 1.51	\$ 5.32	\$ 3.12	\$ 1.88	\$ 15.57	\$ 5.56	\$ 5.56	\$ 5.56
Processing Payment per Ton	\$ 252.32	\$ 480.79	\$ 1,240.04	\$ 2,416.83	\$ 3,446.30	\$ 3,087.84	\$ 1,912.82	\$ 2,097.34	\$ 1,921.20	\$ 1,500.13	\$ 1,500.13	\$ 1,500.13
<b>Processing Payment per Pound</b>	<b>\$ 0.12616</b>	<b>\$ 0.24039</b>	<b>\$ 0.62002</b>	<b>\$ 1.20842</b>	<b>\$ 1.72315</b>	<b>\$ 1.54392</b>	<b>\$ 0.95641</b>	<b>\$ 1.04867</b>	<b>\$ 0.96060</b>	<b>\$ 0.75007</b>	<b>\$ 0.75007</b>	<b>\$ 0.75007</b>
Containers per Pound	1.79	26.70	9.30	9.70	39.70	11.20	109.00	3.10	8.60	1.50	17.40	17.10
Manufacturers' Percentage of Processing Payment	13%	11%	13%	65%	65%	11%	65%	65%	65%	65%	65%	65%
Processing Fee Pursuant to Section 14575(f)	\$ 0.00916	\$ 0.00099	\$ 0.00867	\$ 0.08098	\$ 0.02821	\$ 0.01516	\$ 0.00570	\$ 0.21988	\$ 0.07260	\$ 0.32503	\$ 0.02802	\$ 0.02851
Section 14575(j) Processing Fee Reduction	\$ 0.00061	\$ 0.00014	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Processing Fee per Container</b>	<b>\$ 0.00855</b>	<b>\$ 0.00085</b>	<b>\$ 0.00867</b>	<b>\$ 0.08098</b>	<b>\$ 0.02821</b>	<b>\$ 0.01516</b>	<b>\$ 0.00570</b>	<b>\$ 0.21988</b>	<b>\$ 0.07260</b>	<b>\$ 0.32503</b>	<b>\$ 0.02802</b>	<b>\$ 0.02851</b>

## C. Scrap Values

CalRecycle is required to calculate the average scrap values paid to recyclers for the 12 months between October 1 and September 30 directly preceding the year for which processing payments and fees are calculated. For example, for the January 1, 2026, processing payments and fees, the average scrap value used for the calculation covers the time period from October 1, 2024, through September 30, 2025.

CCR section 2955 specifies how CalRecycle shall conduct the scrap value survey. CalRecycle surveys all certified processors each month using a standard form, the Scrap Value Purchases Survey Form. Processors are required to complete the form and submit it to CalRecycle by the tenth of the following month. CalRecycle publishes average scrap values monthly and reports the final annual (October through September) average scrap value for use in the processing payment and processing fee calculations, by December 1.

**Exhibit 76** shows the annual average scrap values for the 10 beverage container material types from October 1, 2024, through September 30, 2025. These are the values used for the January 1, 2026, processing payment and processing fee calculations.

### Exhibit 76

#### Statewide Average Scrap Values for the January 1, 2026, Processing Payment and Processing Fee Calculations

Material	Scrap Value (per Ton)
1. Aluminum	\$1649.87
2. Glass	6.20
3. PET #1	273.02
4. HDPE #2	296.54
5. Bi-Metal	15.57
6. PVC #3	0.00
7. LDPE #4	1.51
8. PP #5	5.32
9. PS #6	3.12
10. Other #7	1.88
11. WDS-BBP	5.56

## D. Comparison of Historical Processing Payments and Processing Fees

In any given year, processing payments and processing fees reflect the combined results of the cost survey and scrap value survey. **Exhibit 77** compares the processing payments for the 12 relevant material types for the years following the 10 most recent cost surveys (i.e., for the January 1, 2004 to January 1, 2026 processing payments to recyclers). For 2025, all three types of WDS-BBP — bag-in-box (BIB), multi-layer pouch (MLP), and paperboard carton (PC) — were combined into one metric. Starting in 2026, these three groups each have their own processing payments.

**Exhibit 78** compares the percentage change in the processing payment per ton between each succeeding cost survey. The processing payment per ton increased for all materials except for PET #1. The percentage change calculation for WDS products is the change from the 2024 WDS-BBP value to the 2026 value for the three specific WDS products.

Processing fees are paid by beverage manufacturers on each beverage container sold. **Exhibit 79** compares the per-container processing fees from 2004 to 2026. The percentage change calculation for WDS products is the change from the 2024 WDS-BBP value to the 2026 value for the three specific WDS products. **Exhibit 80** compares the percentage change in the per container processing fees between each succeeding cost survey.

**Exhibit 77**

**Comparison of Processing Payments (per Ton) (2004 to 2026)**

Material	2004	2006	2008	2010 <sup>a</sup>	2012	2014	2016	2018 Nonrural (NR)	2018 Rural (R)	2020	2022	2024	2026
1. Glass	\$74.52	\$83.68	\$94.52	\$66.87	\$88.26	\$94.72	\$101.07	\$119.96	\$125.26	\$153.00	\$165.32	\$212.47	<b>\$252.32</b>
2. PET #1	330.41	226.39	197.68	249.44	0.00	117.26	165.96	250.88	272.99	378.14	265.58	552.02	<b>480.79</b>
3. HDPE #2	510.62	402.65	216.33	207.77	289.94	317.56	183.01	420.44	449.15	755.38	615.27	757.00	<b>1,240.04</b>
4. Bi-metal	519.70	629.54	920.47	654.52	797.66	801.93	624.03	775.37	811.56	1,196.10	1,289.09	1,252.35	<b>1,921.20</b>
5. PVC #3	1,079.05	1,658.89	755.49	834.62	980.95	1,066.50	845.24	768.87	814.03	1,496.40	1,609.73	1,581.90	<b>2,416.83</b>
6. LDPE #4	3,395.76	1,511.58	1,919.68	1,189.57	1,248.65	1,263.96	1,179.64	1,406.01	1,470.44	2,128.76	2,296.17	2,252.49	<b>3,446.30</b>
7. PP #5	1,516.52	686.77	831.95	1,068.99	1,294.45	1,219.73	1,064.38	1,229.57	1,287.37	1,886.32	2,048.81	1,996.12	<b>3,087.84</b>
8. PS #6	6,293.42	3,085.51	871.41	650.27	786.51	772.55	562.76	710.32	746.13	1,173.60	1,266.52	1,251.16	<b>1,912.20</b>
9. Other #7	770.83	1,273.97	687.68	724.4	837.07	852.64	706.23	855.69	894.91	1,298.23	1,395.28	1,370.52	<b>2,097.34</b>
10. WDS-BIB <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>1,500.13</b>
11. WDS-MLP <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>1,500.13</b>
12. WDS-PC <sup>b</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>1,500.13</b>

<sup>a</sup> Includes the proportional reduction required due to insufficient funds.

<sup>b</sup> Starting January 1, 2026, WDS-BBP processing payments and fees are split into WDS-BIB, WDS-MLP, and WDS-PC (see subsection H. WDS-BBP Analysis for additional information).

**Exhibit 78**

**Comparison of the Percentage Change in Processing Payments (per Ton) (2004 to 2026)**

Material	2004 to 2006	2006 to 2008	2008 to 2010	2010 to 2012	2012 to 2014	2014 to 2016	2016 to 2018 NR	2016 to 2018 R	2018 NR to 2020	2020 to 2022	2022 to 2024	2024 to 2026
1. Glass	12%	13%	-29%	32%	7%	7%	19%	24%	27%	8%	29%	19%
2. PET #1	-31%	-13%	26%	-100%	N/A	42%	51%	64%	50%	-30%	108%	-13%
3. HDPE #2	-21%	-46%	-4%	40%	10%	-42%	130%	145%	79%	-19%	23%	64%
4. Bi-metal	21%	46%	-29%	22%	1%	-22%	24%	30%	54%	8%	-2%	53%
5. PVC #3	54%	-54%	10%	18%	9%	-21%	-9%	-4%	93%	8%	-2%	53%
6. LDPE #4	-55%	27%	-38%	5%	1%	-7%	19%	25%	51%	8%	-3%	53%
7. PP #5	-55%	21%	28%	21%	-6%	-13%	16%	21%	52%	9%	-1%	55%
8. PS #6	-51%	-72%	-25%	21%	-2%	-27%	26%	33%	65%	8%	-2%	53%
9. Other #7	65%	-46%	5%	16%	2%	-17%	21%	27%	51%	8%	-3%	53%
10. WDS-BIB <sup>a</sup>	N/A	N/A	N/A	N/A	N/A	N/A						
11. WDS-MLP <sup>a</sup>	N/A	N/A	N/A	N/A	N/A	N/A						
12. WDS-PC <sup>a</sup>	N/A	N/A	N/A	N/A	N/A	N/A						

<sup>a</sup> Starting January 1, 2026, WDS-BBP processing payments and fees are split into WDS-BIB, WDS-MLP, and WDS-PC. Percent changes are not applicable for WDS materials because wine and distilled spirits beverage containers were newly incorporated into the BCRP in 2024, resulting in no historical processing payment data (see subsection H. WDS-BBP Analysis for additional information).

**Exhibit 79**  
**Comparison of Processing Fees (per Container) (2004 to 2026)**

Material	2004	2006	2008	2010 <sup>a</sup>	2012	2014	2016	2018	2020	2022	2024	2026
1. Glass	\$0.00181	\$0.00229	\$0.00240	\$0.01373	\$0.00237	\$0.00182	\$0.00232	\$0.00283	\$0.00375	\$0.00426	\$0.00576	<b>\$0.00855</b>
2. PET #1	0.00167	0.00159	0.00072	0.00569	0.00000	0.00016	0.00024	0.00045	0.00066	0.00045	0.00110	<b>0.00085</b>
3. HDPE #2	0.01042	0.00503	0.00216	0.01821	0.00213	0.00215	0.00140	0.00384	0.00602	0.00574	0.00697	<b>0.00867</b>
4. Bi-metal	0.02194	0.02557	0.04825	0.04526	0.04470	0.03671	0.03027	0.03457	0.04799	0.05371	0.05088	<b>0.07260</b>
5. PVC #3	0.03578	0.05501	0.02525	0.02768	0.01194	0.03895	0.00755	0.02248	0.05014	0.05393	0.05300	<b>0.08098</b>
6. LDPE #4	0.03153	0.01181	0.01691	0.00982	0.01082	0.01017	0.00924	0.01124	0.01696	0.01794	0.01794	<b>0.02821</b>
7. PP #5	0.07468	0.0248	0.09013	0.10857	0.04727	0.04505	0.05765	0.04912	0.05573	0.06109	0.05952	<b>0.01516</b>
8. PS #6	0.0293	0.01437	0.00507	0.00176	0.00227	0.00223	0.00166	0.00206	0.00348	0.00385	0.00406	<b>0.00570</b>
9. Other #7	0.0216	0.03664	0.04217	0.05009	0.07353	0.08660	0.07173	0.08716	0.13610	0.14628	0.14368	<b>0.21988</b>
10. WDS-BIB <sup>a</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>0.32503</b>
11. WDS-MLP <sup>a</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>0.02802</b>
12. WDS-PC <sup>a</sup>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	<b>0.02851</b>

<sup>a</sup> Includes an increased manufacturer's percentage share as a result of the proportional reduction required due to insufficient funds.

<sup>b</sup> Starting January 1, 2026, WDS-BBP processing payments and fees are split into WDS-BIB, WDS-MLP, and WDS-PC

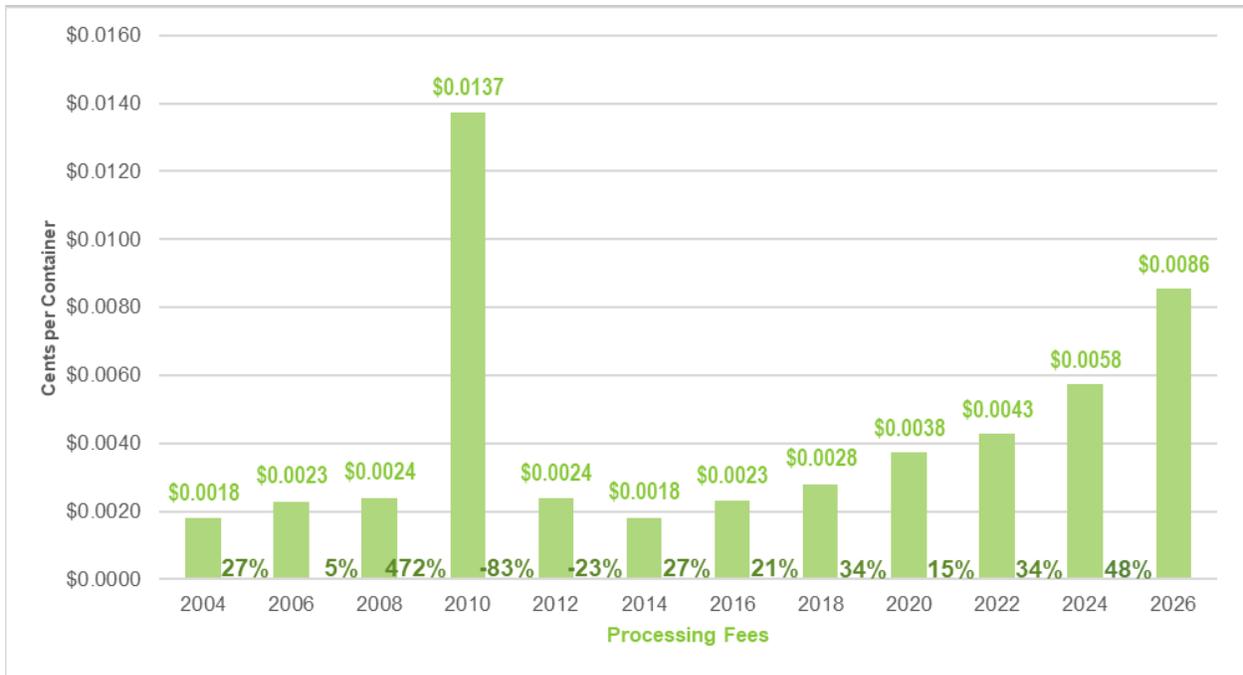
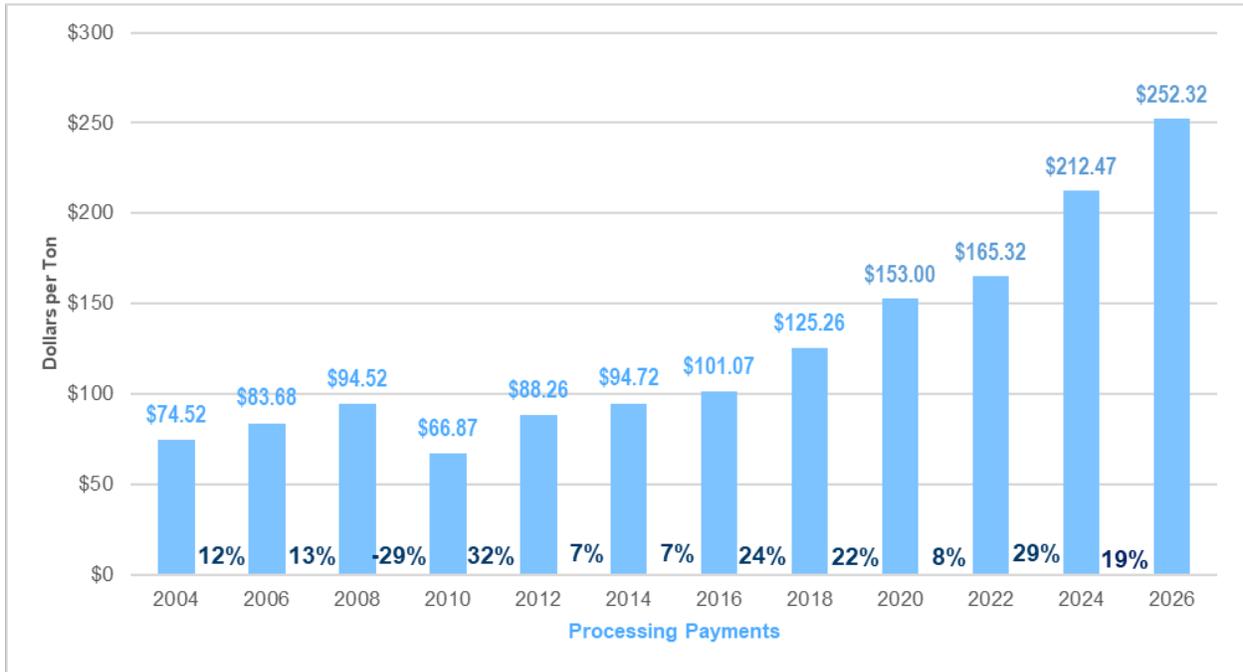
**Exhibit 80**  
**Comparison of the Percentage Change in Processing Fees (per Container) (2004-2026)**

Material	2004 to 2006	2006 to 2008	2008 to 2010	2010 to 2012	2012 to 2014	2014 to 2016	2016 to 2018	2018 to 2020	2020 to 2022	2022 to 2024	2024 to 2026
1. Glass	27%	5%	472%	-83%	-23%	27%	22%	33%	14%	35%	<b>48%</b>
2. PET #1	-5%	-55%	690%	-100%	N/A	50%	88%	47%	-32%	144%	<b>-23%</b>
3. HDPE #2	-52%	-57%	743%	-88%	1%	-35%	174%	57%	-5%	21%	<b>24%</b>
4. Bi-metal	17%	89%	-6%	-1%	-18%	-18%	14%	39%	12%	-5%	<b>43%</b>
5. PVC #3	54%	-54%	10%	-57%	226%	-81%	198%	123%	8%	-2%	<b>53%</b>
6. LDPE #4	-63%	43%	-42%	10%	-6%	-9%	22%	51%	6%	0%	<b>57%</b>
7. PP #5	-67%	263%	20%	-56%	-5%	28%	-15%	13%	10%	-3%	<b>-75%</b>
8. PS #6	-51%	-65%	-65%	29%	-2%	-26%	24%	69%	11%	5%	<b>40%</b>
9. Other #7	70%	15%	19%	47%	18%	-17%	22%	56%	7%	-2%	<b>53%</b>
10. WDS-BIB <sup>a</sup>	N/A	<b>N/A</b>									
11. WDS-MLP <sup>a</sup>	N/A	<b>N/A</b>									
12. WDS-PC <sup>a</sup>	N/A	<b>N/A</b>									

<sup>a</sup> Starting January 1, 2026, WDS-BBP processing payments and fees are split into WDS-BIB, WDS-MLP, and WDS-PC. Percent changes are not applicable for WDS materials because wine and distilled spirits beverage containers were newly incorporated into the BCRP in 2024, resulting in no historical processing payment data (see subsection H. WDS-BBP Analysis for additional information).

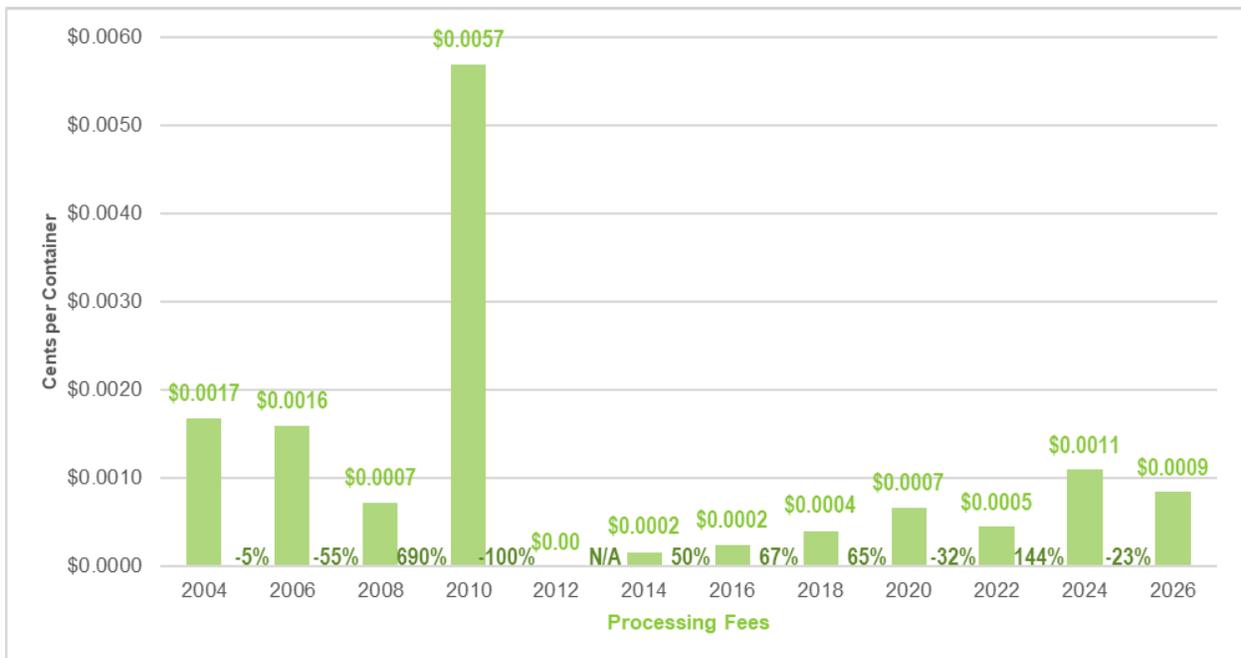
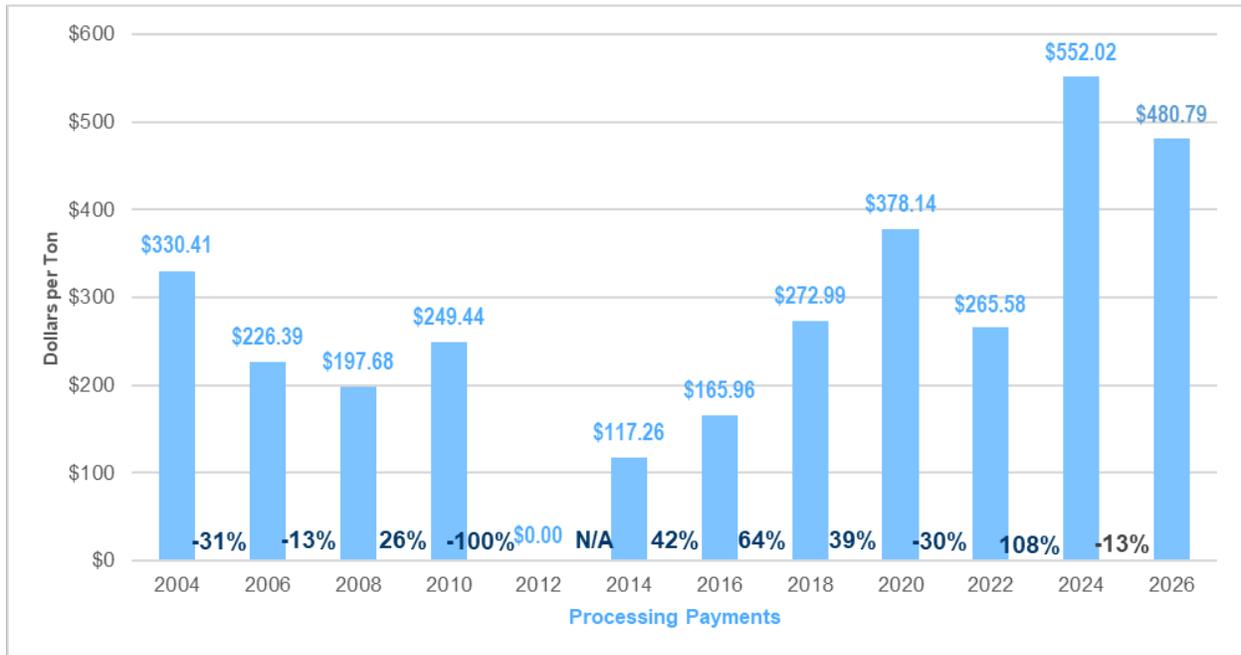
**Exhibit 81, Exhibit 82, and Exhibit 83** compare the processing payments and processing fees for 2004 to 2026 for the three majority material types, glass, PET #1, and HDPE #2. The percentage label next to the bars represents the percentage change from two years prior.

**Exhibit 81  
Comparison of Glass Processing Payments and Processing Fees (2004 to 2026)**



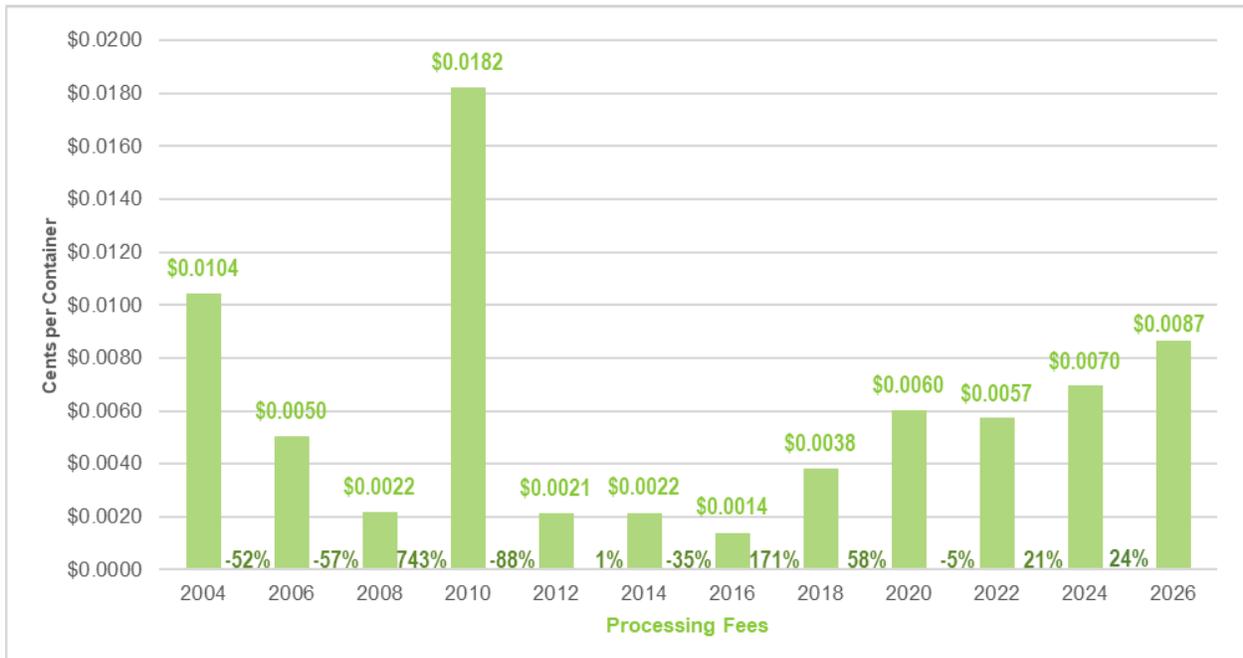
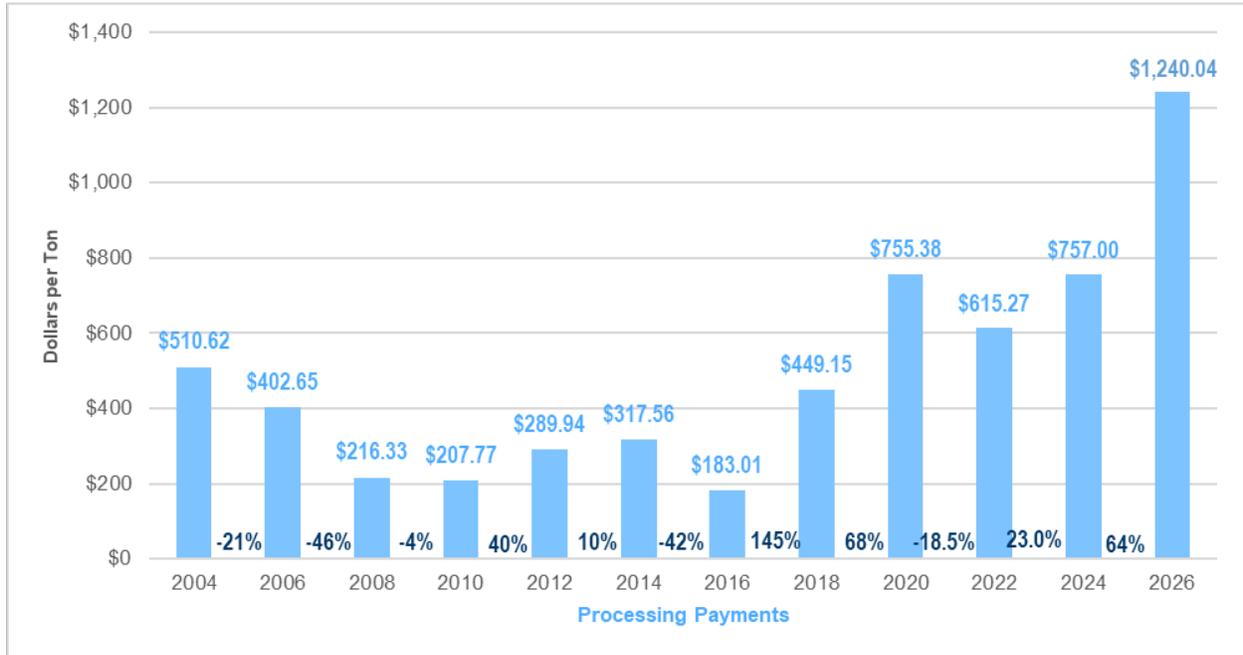
## Exhibit 82

### Comparison of PET #1 Processing Payments and Processing Fees (2004 to 2026)



### Exhibit 83

### Comparison of HDPE #2 Processing Payments and Processing Fees (2004 to 2026)



# Appendix A:

## Accessibility Additional Information

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This appendix provides additional data and explanations for the various bar graph and line chart exhibits presented in this report.

### Exhibit 3

#### Summary Comparison of Aluminum, Glass, PET and HDPE Plastic Processing Fee Recycler Cost per Ton Cost Survey Results (2004 to 2024)

Year	Aluminum	Glass	PET #1	HDPE #2
2004	\$465.90	\$82.45	\$493.31	\$671.73
2006	\$516.13	\$94.98	\$477.73	\$500.64
2008	\$559.23	\$81.60	\$426.76	\$501.67
2010	\$537.06	\$89.76	\$440.61	\$611.62
2012	\$609.81	\$92.88	\$462.79	\$612.50
2014	\$537.29	\$97.50	\$428.55	\$524.23
2016	\$539.11	\$101.04	\$421.30	\$547.11
2018	\$626.61	\$132.68	\$502.44	\$838.00
2020	\$569.76	\$136.73	\$446.34	\$885.21
2022	\$727.46	\$183.45	\$605.19	\$874.10
2024	\$762.23	\$221.51	\$645.88	\$1,316.58

**Exhibit 4****Summary Comparison of Aluminum, Glass, PET and HDPE Plastic Processing Fee Recycler Cost per Ton Cost Survey Results, CPI Adjusted (2004 to 2024)**

<b>Year</b>	<b>Aluminum</b>	<b>Glass</b>	<b>PET #1</b>	<b>HDPE #2</b>
2004	\$803.68	\$142.23	\$850.96	\$1,158.73
2006	\$835.61	\$153.77	\$773.44	\$810.54
2008	\$847.79	\$123.71	\$646.97	\$760.53
2010	\$808.28	\$135.09	\$663.12	\$920.49
2012	\$873.86	\$133.10	\$663.18	\$877.71
2014	\$744.68	\$135.14	\$593.97	\$726.58
2016	\$724.56	\$135.80	\$566.23	\$735.32
2018	\$792.66	\$167.84	\$635.59	\$1,060.07
2020	\$689.41	\$165.44	\$540.07	\$1,071.10
2022	\$779.84	\$196.66	\$648.76	\$937.04
2024	\$762.23	\$221.51	\$645.88	\$1,316.58

**Exhibit 12**  
**2024 Sampled Processing Fee Recyclers,**  
**Distribution of Aluminum Cost per Ton**

<b>Cost Per Ton</b>	<b>Number of Recyclers</b>
\$0–\$150	4
\$150–\$300	15
\$300–\$450	20
\$450–\$600	30
\$600–\$750	35
\$750–\$900	14
\$900–\$1,050	11
\$1,050–\$1,200	7
\$1,200–\$1,350	2
\$1,350–\$1,500	4
\$1,500–\$1,650	0
\$1,650–\$1,800	3
\$1,800–\$1,950	0
\$1,050–\$1,200	0
\$1,950–\$1,100	0
\$1,100–\$1,250	1
\$1,250–\$1,400	3
\$1,400–\$1,550	0
\$1,550–\$1,700	2
\$1,700–\$1,850	2
\$3,000–\$3,150	1
\$3,150–\$3,300	0
>\$3,300	5

**Exhibit 13**  
**2024 Sampled Processing Fee Recyclers,**  
**Distribution of Glass Cost per Ton**

<b>Cost Per Ton</b>	<b>Number of Recyclers</b>
\$0–\$50	6
\$50–\$100	29
\$100–\$150	27
\$150–\$200	26
\$200–\$250	14
\$250–\$300	12
\$300–\$350	11
\$350–\$400	4
\$400–\$450	5
\$450–\$500	4
\$500–\$550	4
\$550–\$600	0
\$600–\$650	2
\$650–\$700	2
\$700–\$750	0
\$750–\$800	3
\$800–\$850	0
\$850–\$900	0
\$900–\$950	0
\$950–\$1,000	0
\$1,000–\$1,050	0
\$1,050–\$1,100	0
>\$1,100	7

**Exhibit 14**  
**2024 Sampled Processing Fee Recyclers,**  
**Distribution of PET #1 Cost per Ton**

<b>Cost Per Ton</b>	<b>Number of Recyclers</b>
\$0–\$150	8
\$150–\$300	30
\$300–\$450	26
\$450–\$600	36
\$600–\$750	17
\$750–\$900	5
\$900–\$1,050	14
\$1,050–\$1,200	3
\$1,200–\$1,350	4
\$1,350–\$1,500	3
\$1,500–\$1,650	2
\$1,650–\$1,800	1
\$1,800–\$1,950	2
\$1,950–\$2,100	0
\$2,100–\$2,250	1
\$2,250–\$2,400	0
\$2,400–\$2,550	1
\$2,550–\$2,700	0
\$2,700–\$2,850	0
\$2,850–\$3,000	1
\$3,000–\$3,150	1
>\$3,150	3

**Exhibit 15**  
**2024 Sampled Processing Fee Recyclers,**  
**Distribution of HDPE #2 Cost per Ton**

<b>Cost Per Ton</b>	<b>Number of Recyclers</b>
\$0–\$250	5
\$250–\$500	18
\$500–\$750	21
\$750–\$1,000	24
\$1000–\$1,250	20
\$1,250–\$1,500	16
\$1,500–\$1,750	9
\$1,750–\$2,000	5
\$2,000–\$2,250	8
\$2,250–\$2,500	3
\$2,500–\$2,750	2
\$2,750–\$3,000	3
\$3,000–\$3,250	2
\$3,250–\$3,500	1
\$3,500–\$3,750	3
\$3,750–\$4,000	1
\$4,000–\$4,250	1
\$4,250–\$4,500	0
\$4,500–\$4,750	1
\$4,750–\$5,000	0
>\$5,000	6

**Exhibit 24****Aluminum, Glass, PET, and HDPE Plastic Processing Fee Recycler Cost per Ton (2004 to 2024)**

- A line graph that provides the historical cost per ton results for past 10 years in which recycler cost surveys were conducted. The following is a table describing the graph.

<b>Year</b>	<b>Aluminum</b>	<b>Glass</b>	<b>PET #1</b>	<b>HDPE #2</b>
2004	\$465.90	\$82.45	\$493.31	\$671.73
2006	\$516.13	\$94.98	\$477.73	\$500.64
2008	\$559.23	\$81.60	\$426.76	\$501.67
2010	\$537.06	\$89.76	\$440.61	\$611.62
2012	\$609.81	\$92.88	\$462.79	\$612.50
2014	\$537.29	\$97.50	\$428.55	\$524.23
2016	\$539.11	\$101.04	\$421.30	\$547.11
2018	\$626.61	\$132.68	\$502.44	\$838.00
2020	\$569.76	\$136.73	\$446.34	\$885.21
2022	\$727.46	\$183.45	\$605.19	\$874.10
2024	\$762.23	\$221.51	\$645.88	\$1,316.58

**Exhibit 26****Summary Comparison of Aluminum, Glass, PET and HDPE Plastic Processing Fee Recycler Cost per Ton Cost Survey Results, CPI Adjusted (2004 to 2024)**

- A line graph that provides the historical cost per ton results, adjusted for CPI for past 10 years in which recycler cost surveys were conducted. The following is a table describing the graph.

<b>Year</b>	<b>Aluminum</b>	<b>Glass</b>	<b>PET #1</b>	<b>HDPE #2</b>
2004	\$803.68	\$142.23	\$850.96	\$1,158.73
2006	\$835.61	\$153.77	\$773.44	\$810.54
2008	\$847.79	\$123.71	\$646.97	\$760.53
2010	\$808.28	\$135.09	\$663.12	\$920.49
2012	\$873.86	\$133.10	\$663.18	\$877.71
2014	\$744.68	\$135.14	\$593.97	\$726.58
2016	\$724.56	\$135.80	\$566.23	\$735.32
2018	\$792.66	\$167.84	\$635.59	\$1,060.07
2020	\$689.41	\$165.44	\$540.07	\$1,071.10
2022	\$779.84	\$196.66	\$648.76	\$937.04
2024	\$762.23	\$221.51	\$645.88	\$1,316.58

**Exhibit 27****Aluminum Processing Fee Recycler Cost per Ton and Tons Recycled (2004 to 2024)**

<b>Year</b>	<b>Cost/Ton</b>	<b>Percent Change</b>
2004	\$465.90	11%
2006	\$516.13	11%
2008	\$559.23	8%
2010	\$537.06	-4%
2012	\$609.81	14%
2014	\$537.29	-12%
2016	\$539.11	0.3%
2018	\$626.61	16%
2020	\$569.76	-9%
2022	\$727.46	28%
2024	\$762.23	5%

<b>Year</b>	<b>Tons Recycled</b>	<b>Percent Change</b>
2004	74,565	3%
2006	70,762	-5%
2008	82,299	16%
2010	86,261	5%
2012	89,410	4%
2014	77,350	-13%
2016	74,391	-4%
2018	66,714	-10%
2020	65,104	-2%
2022	63,554	-2%
2024	54,657	-14%

**Exhibit 28****Glass Processing Fee Recycler Cost per Ton and Tons Recycled (2004 to 2024)**

<b>Year</b>	<b>Cost/Ton</b>	<b>Percent Change</b>
2004	\$82.45	3%
2006	\$94.98	15%
2008	\$81.60	-14%
2010	\$89.76	10%
2012	\$92.88	3%
2014	\$97.50	5%
2016	\$101.04	4%
2018	\$132.68	31%
2020	\$136.73	3%
2022	\$183.45	34%
2024	\$221.51	21%

<b>Year</b>	<b>Tons Recycled</b>	<b>Percent Change</b>
2004	244,557	7%
2006	257,139	5%
2008	318,694	24%
2010	317,030	-1%
2012	337,396	6%
2014	255,763	-24%
2016	256,637	0.3%
2018	230,671	-10%
2020	196,273	-15%
2022	165,599	-16%
2024	135,744	-18%

**Exhibit 29****PET #1 Processing Fee Recycler Cost per Ton and Tons Recycled (2004 to 2024)**

<b>Year</b>	<b>Cost/Ton</b>	<b>Percent Change</b>
2004	\$493.31	3%
2006	\$477.73	-3%
2008	\$426.76	-11%
2010	\$440.61	3%
2012	\$462.79	5%
2014	\$428.55	-7%
2016	\$421.30	-2%
2018	\$502.44	19%
2020	\$446.34	-11%
2022	\$605.19	36%
2024	\$645.88	7%

<b>Year</b>	<b>Tons Recycled</b>	<b>Percent Change</b>
2004	48,820	46%
2006	65,456	34%
2008	95,239	46%
2010	97,915	3%
2012	113,019	15%
2014	102,048	-10%
2016	110,536	8%
2018	107,815	-2%
2020	102,963	-5%
2022	102,429	-1%
2024	81,875	-20%

**Exhibit 30****HDPE #2 Processing Fee Recycler Cost per Ton and Tons Recycled (2004 to 2024)**

<b>Year</b>	<b>Cost/Ton</b>	<b>Percent Change</b>
2004	\$671.73	4%
2006	\$500.64	-25%
2008	\$501.67	0%
2010	\$611.62	22%
2012	\$612.50	0%
2014	\$524.23	-14%
2016	\$547.11	4.4%
2018	\$838.00	53%
2020	\$885.15	6%
2022	\$874.10	-1%
2024	\$1,316.58	51%

<b>Year</b>	<b>Tons Recycled</b>	<b>Percent Change</b>
2004	5,720	73%
2006	7,325	28%
2008	11,943	63%
2010	12,117	1%
2012	13,548	12%
2014	5,170	-62%
2016	4,775	-8%
2018	3,783	-21%
2020	3,005	-21%
2022	2,504	-17%
2024	1,991	-20%

**Exhibit 31**

**Bi-Metal, Plastics #3 to #7, and WDS-BBP Processing Fee Recycler Cost per Ton and Tons Recycled, 2024**

- A bar graph that illustrates the processing fee recycler costs per ton and tons recycled for each of the six minority material types, bi-metal and the five plastic resin types: PVC #3, LDPE #4, PP #5, PS #6, and Other #7. The following is a table describing the graph.

<b>Material</b>	<b>Cost/Ton</b>
Bi-Metal	\$1,659.47
PVC #3	\$2,070.80
LDPE #4	\$2,954.17
PP #5	\$2,650.29
PS #6	\$1,641.62
Other #7	\$1,798.66
WDS-BBP	\$1,290.11

<b>Material</b>	<b>Tons Recycled</b>
Bi-Metal	174.66
PVC #3	0.04
LDPE #4	1.01
PP #5	97.16
PS #6	100.05
Other #7	186.27
WDS-BBP	65.51

**Exhibit 34****Total Population Costs for Processing Fee Recyclers (2004 to 2024)**

Population	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022	2024
Aluminum	\$34,740,163	\$36,522,001	\$46,023,789	\$46,327,388	\$38,035,847	\$41,559,304	\$40,104,850	\$41,803,720	\$37,093,346	\$46,232,748	\$41,660,619
Glass	\$20,162,822	\$24,421,969	\$26,004,432	\$28,455,835	\$22,182,615	\$24,935,661	\$25,931,830	\$30,606,169	\$26,836,684	\$30,378,613	\$30,068,640
PET #1	\$24,083,401	\$31,270,355	\$40,644,150	\$43,142,783	\$37,703,897	\$43,732,676	\$46,568,725	\$54,171,104	\$45,956,362	\$61,989,422	\$52,881,236
HDPE #2	\$3,842,372	\$3,669,033	\$5,991,360	\$7,411,290	\$5,544,897	\$2,710,146	\$2,612,527	\$3,170,047	\$2,660,125	\$2,188,586	\$2,621,162
Bi-Metal	\$53,874	\$93,333	\$143,305	\$126,303	\$100,930	\$11,485	\$123,170	\$157,206	\$147,555	\$159,397	\$289,848
Plastics #3 to #7	\$11,358	\$21,820	\$51,525	\$115,964	\$147,211	\$196,907	\$265,408	\$388,410	\$436,212	\$463,588	\$759,869
Total Sites	674	677	729	842	763	955	778	674	581	577	467
Total Costs	\$82,893,990	\$95,998,511	\$118,858,561	\$125,579,563	\$103,715,397	\$113,146,179	\$115,606,510	\$130,296,656	\$113,130,284	\$141,412,354	\$128,365,894

**Exhibit 35****Total Population Tons for Processing Fee Recyclers (2004 to 2024)**

Population	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022	2024
Aluminum	74,656	70,762	82,299	86,261	62,374	77,350	74,391	66,714	65,104	63,554	54,657
Glass	244,557	257,139	318,697	317,030	239,837	255,763	256,637	230,671	196,273	165,599	135,744
PET #1	48,820	65,456	95,239	97,915	81,471	102,048	110,536	107,815	102,963	102,429	81,875
HDPE #2	5,720	7,325	11,943	12,117	9,053	5,170	4,775	3,783	3,005	2,504	1,991
Bi-Metal	89	106	227	164	131	155	178	149	132	145	175
Plastics #3 to #7	9	29	76	138	176	278	356	340	356	369	384
Total Sites	674	677	729	842	763	955	778	674	581	577	506
Total Tons	373,851	400,817	508,481	513,625	393,042	440,764	446,873	409,471	367,832	334,600	274,826

**Exhibit 41****Aluminum Cost per Ton and Survey Population Size by Strata for Processing Fee Recyclers (2024)**

<b>Strata</b>	<b>Costs per Ton</b>	<b>Sites</b>
Stratum 1	\$583.22	32
Stratum 2	\$750.00	47
Stratum 3	\$948.12	80
Statewide Average	\$762.23	N/A

**Exhibit 42****Glass Cost per Ton and Survey Population Size by Strata for Processing Fee Recyclers (2024)**

<b>Strata</b>	<b>Costs per Ton</b>	<b>Sites</b>
Stratum 1	\$218.78	32
Stratum 2	\$215.21	47
Stratum 3	\$229.07	80
Statewide Average	\$221.51	N/A

**Exhibit 43****PET #1 Cost per Ton and Survey Population Size by Strata for Processing Fee Recyclers (2024)**

<b>Strata</b>	<b>Costs per Ton</b>	<b>Sites</b>
Stratum 1	\$520.17	32
Stratum 2	\$615.01	47
Stratum 3	\$810.85	80
Statewide Average	\$645.88	N/A

**Exhibit 44****HDPE #2 Cost per Ton and Survey Population Size by Strata for Processing Fee Recyclers (2024)**

<b>Strata</b>	<b>Costs per Ton</b>	<b>Sites</b>
Stratum 1	\$1,263.85	32
Stratum 2	\$1,175.61	47
Stratum 3	\$1,549.56	80
Statewide Average	\$1,316.58	N/A

**Exhibit 45****Glass, Percent of Population Tons Recycled and Percent of Total Costs (2014 to 2024)**

Strata	2014 Tons	2016 Tons	2018 Tons	2020 Tons	2022 Tons	2024 Tons	2014 Costs	2016 Costs	2018 Costs	2020 Costs	2022 Costs	2024 Costs
Stratum 1	42%	52%	24%	27%	25%	27%	30%	37%	18%	25%	22%	27%
Stratum 2	46%	37%	33%	35%	34%	34%	50%	45%	25%	33%	28%	33%
Stratum 3	12%	11%	42%	38%	42%	38%	20%	18%	56%	42%	50%	40%

**Exhibit 46****Aluminum, Percent of Population Tons Recycled and Percent of Total Costs (2014 to 2024)**

Strata	2014 Tons	2016 Tons	2018 Tons	2020 Tons	2022 Tons	2024 Tons	2014 Costs	2016 Costs	2018 Costs	2020 Costs	2022 Costs	2024 Costs
Stratum 1	33%	50%	26%	32%	32%	34%	29%	44%	21%	26%	23%	26%
Stratum 2	48%	37%	30%	33%	29%	31%	49%	38%	26%	32%	27%	31%
Stratum 3	19%	13%	44%	35%	39%	35%	22%	18%	53%	42%	50%	43%

**Exhibit 47****PET #1, Percent of Population Tons Recycled and Percent of Total Costs (2014 to 2024)**

Strata	2014 Tons	2016 Tons	2018 Tons	2020 Tons	2022 Tons	2024 Tons	2014 Costs	2016 Costs	2018 Costs	2020 Costs	2022 Costs	2024 Costs
Stratum 1	37%	54%	28%	32%	33%	34%	40%	32%	45%	55%	28%	28%
Stratum 2	48%	36%	33%	35%	32%	33%	45%	50%	40%	27%	32%	32%
Stratum 3	15%	10%	40%	33%	35%	32%	15%	18%	15%	50%	40%	41%

**Exhibit 48****Number of Processing Fee Recycling Centers (2004 to 2024)**

- A line graph that provides the average tons of aluminum, glass, and PET #1 recycled per recycling center for each cost survey year, 2004 through 2024. The following is a table describing the graph.

Year	Number
2004	674
2006	677
2008	729
2010	842
2012	1,032
2014	955
2016	778
2018	705
2020	611
2022	577
2024	506

**Exhibit 49****Average Tons of Aluminum, Glass, and PET #1 Recycled per Processing Fee Recycler (2004 to 2024)**

Year	Aluminum	Glass	PET #1
2004	111	363	72
2006	104	379	96
2008	113	437	131
2010	102	377	116
2012	82	313	107
2014	81	268	107
2016	96	330	142
2018	99	342	160
2020	112	350	179
2022	114	296	183
2024	117	298	177

**Exhibit 50****Percentage Change in Tons per Recycler, Costs per Recycler, and Statewide, Weighted-Average Processing Fee Recycler Cost per Ton (2022 to 2024)**

Category	Aluminum	Glass	PET #1	HDPE #2
Tons per Recycling Center	3.2%	-2.4%	-4.8%	5.1%
Cost per Recycling Center	8%	18%	2%	45%
Cost per Ton	5%	21%	7%	51%

**Exhibit 51****Comparison of Average Processing Fee Recycler Category Costs (2022 and 2024)**

Cost Category	2024 (n=159)	% of CRV Costs	2022 (n=140)	% of CRV Costs	\$ Change 2022 to 2024	% Change 2022 to 2024
Direct Labor	\$173,432	52.7%	\$149,514	48.8%	\$23,918	16.0%
Indirect Labor	\$22,198	6.7%	\$20,360	6.6%	\$1,837	9.0%
General Business Overhead	\$20,282	6.2%	\$23,507	7.7%	-\$3,225	-13.7%
Transportation	\$23,627	7.2%	\$25,702	8.4%	-\$2,076	-8.1%
Rent	\$38,351	11.7%	\$37,361	12.2%	\$991	2.7%
Depreciation	\$7,254	2.2%	\$9,401	3.1%	-\$2,147	-22.8%
Property Tax	\$1,987	0.6%	\$811	0.3%	\$1,176	145.1%
Utilities	\$10,828	3.3%	\$10,060	3.3%	\$768	7.6%
Supplies	\$9,455	2.9%	\$10,317	3.4%	-\$862	-8.4%
Fuel	\$2,503	0.8%	\$2,009	0.7%	\$494	24.6%
Insurance	\$8,148	2.5%	\$7,237	2.4%	\$911	12.6%
Interest	\$1,873	0.6%	\$848	0.3%	\$1,025	120.9%
Maintenance	\$9,091	2.8%	\$9,383	3.1%	-\$292	-3.1%
<b>Total CRV Costs per Site</b>	<b>\$329,029</b>	<b>100.0%</b>	<b>\$306,509</b>	<b>100.0%</b>	<b>\$22,520</b>	<b>7.3%</b>

**Exhibit 52**  
**Labor and Non-Labor Cost per Ton (2020, 2022, and 2024)**

Material	2020 Labor	2022 Labor	2024 Labor	2020 Non-Labor	2022 Non-Labor	2024 Non-Labor
Aluminum	\$301.58	\$356.08	\$402.81	\$268.18	\$371.38	\$359.42
Glass	\$75.57	\$92.67	\$119.73	\$61.16	\$90.78	\$101.78
PET #1	\$231.29	\$289.98	\$335.52	\$215.05	\$315.21	\$310.36

**Exhibit 53**  
**Average CRV Wages per Hour (2010 to 2024)**

Category	2010	2012	2014	2016	2018	2020	2022	2024
Average CRV Wages per Hour	\$14.43	\$13.89	\$13.69	\$15.09	\$17.65	\$19.48	\$20.00	\$22.34
CPI Adjusted	\$20.26	\$18.56	\$17.70	\$18.92	\$20.82	\$21.99	\$21.44	N/A
Minimum Wage	\$8.00	\$8.00	\$9.00	\$10.00	\$11.00	\$13.00	\$15.00	\$16.00

**Exhibit 54**  
**Comparison of CRV Hourly Wages Overall and by Strata (2022 and 2024)**

Year	Overall	Stratum 1	Stratum 2	Stratum 3
2022	\$20.00	\$20.90	\$21.43	\$17.47
2024	\$22.34	\$23.85	\$22.94	\$19.81

**Exhibit 58**

**Average Labor Hours per Ton of Aluminum, Glass, and All Plastic Recycled (2010 to 2024)**

- A bar graph that shows the labor hours allocated per ton of material recycled. The following is a table describing the graph.

Year	Aluminum	Glass	All Plastic
2010	17.8	2.8	14.4
2012	21.9	3.2	16.8
2014	19.0	3.1	15.2
2016	17.9	3.1	14.1
2018	17.7	3.5	14.6
2020	15.4	3.7	12.7
2022	16.8	4.3	13.9
2024	17.4	5.2	15.3

**Exhibit 59**

**Labor Hours per Ton CRV Material by Activity (2022 and 2024)**

Year	AL/ BM DYL	AL/ BM AOL	Glass DYL	Glass AOL	Plastic DYL	Plastic AOL	CRV DYL	CRV AOL
2022	13.70	3.07	3.34	0.96	11.68	2.22	8.14	1.79
2024	14.5	2.9	4.2	1.0	13.3	2.0	9.3	1.7

**Exhibit 60**

**Percent of Recycling Center Labor Hours by Activity (2022 and 2024)**

Year	AL/ BM DYL	AL/ BM AOL	Glass DYL	Glass AOL	Plastic DYL	Plastic AOL	non-CRV DYL	non-CRV AOL
2022	17%	4%	10%	3%	25%	5%	25%	11%
2024	18%	4%	12%	3%	26%	4%	28%	7%

**Exhibit 62**

**Aluminum, Glass, and Plastic Transportation Cost Per Ton (2022 and 2024)**

Year	Aluminum	Glass	Plastic
2022	\$60.72	\$15.49	\$53.00
2024	\$57.33	\$18.31	\$51.10

**Exhibit 63****Aluminum Transportation Cost Per Ton by Stratum (2022 and 2024)**

Year	Stratum 1	Stratum 2	Stratum 3
2022	\$42.10	\$64.35	\$94.04
2024	\$26.16	\$73.92	\$105.25

**Exhibit 64****Glass Transportation Cost Per Ton by Stratum (2022 and 2024)**

Year	Stratum 1	Stratum 2	Stratum 3
2022	\$13.74	\$13.89	\$20.90
2024	\$13.94	\$16.41	\$26.64

**Exhibit 65****Plastic Transportation Cost Per Ton by Stratum (2022 and 2024)**

Year	Stratum 1	Stratum 2	Stratum 3
2022	\$33.26	\$61.41	\$81.72
2024	\$25.05	\$60.97	\$95.93

**Exhibit 66****Aluminum, Glass, and PET #1 Transportation with Scrap Value Deduction (2022 and 2024)**

Year	Aluminum	Glass	Plastic
2022	52%	55%	44%
2024	61%	60%	61%

**Exhibit 81****Comparison of Glass Processing Payments and Processing Fees (2004 to 2026)**

<b>Year</b>	<b>Dollars per Ton</b>	<b>Percent Change</b>
2004	\$74.52	N/A
2006	\$83.68	12%
2008	\$94.52	13%
2010	\$66.87	-29%
2012	\$88.26	32%
2014	\$94.72	7%
2016	\$101.07	7%
2018	\$125.26	24%
2020	\$153.00	22%
2022	\$165.32	8%
2024	\$212.47	29%
2026	\$252.32	19%

<b>Year</b>	<b>Cents per Container</b>	<b>Percent Change</b>
2004	\$0.0018	N/A
2006	\$0.0023	27%
2008	\$0.0024	5%
2010	\$0.0137	472%
2012	\$0.0024	-83%
2014	\$0.0018	-23%
2016	\$0.0023	27%
2018	\$0.0028	21%
2020	\$0.0038	34%
2022	\$0.0043	15%
2024	\$0.0058	34%
2026	0.00855	48%

**Exhibit 82****Comparison of PET #1 Processing Payments and Processing Fees (2004 to 2026)**

<b>Year</b>	<b>Dollars per Ton</b>	<b>Percent Change</b>
2004	\$330.41	N/A
2006	\$226.39	-31%
2008	\$197.68	-13%
2010	\$249.44	26%
2012	\$0.00	-100%
2014	\$117.26	N/A
2016	\$165.96	42%
2018	\$272.99	64%
2020	\$378.14	39%
2022	\$265.58	-30%
2024	\$552.02	108%
2026	\$480.79	-13%

<b>Year</b>	<b>Cents per Container</b>	<b>Percent Change</b>
2004	\$0.0017	N/A
2006	\$0.0016	-5%
2008	\$0.0007	-55%
2010	\$0.0057	690%
2012	\$0.0000	-100%
2014	\$0.0002	N/A
2016	\$0.0002	50%
2018	\$0.0004	67%
2020	\$0.0007	65%
2022	\$0.0005	-32%
2024	\$0.0011	144%
2026	\$0.00085	-23%

**Exhibit 83****Comparison of HDPE #2 Processing Payments and Processing Fees (2004 to 2026)**

<b>Year</b>	<b>Dollars per Ton</b>	<b>Percent Change</b>
2004	\$510.62	N/A
2006	\$402.65	-21%
2008	\$216.33	-46%
2010	\$207.77	-4%
2012	\$289.94	40%
2014	\$317.56	10%
2016	\$183.01	-42%
2018	\$449.15	130%
2020	\$755.38	79%
2022	\$615.27	-19%
2024	\$757.00	23%
2026	\$1,240.04	64%

<b>Year</b>	<b>Cents per Container</b>	<b>Percent Change</b>
2004	\$0.0104	N/A
2006	\$0.0050	-52%
2008	\$0.0022	-57%
2010	\$0.0182	743%
2012	\$0.0021	-88%
2014	\$0.0022	1%
2016	\$0.0014	-35%
2018	\$0.0038	174%
2020	\$0.0060	57%
2022	\$0.0057	-5%
2024	\$0.0070	21%
2026	\$0.0087	24%