

# Evaluation of the Current Handling Fees Paid to Certified Redemption Centers

June 23, 2023





**Crowe LLP**  
Independent Member Crowe Global

400 Capitol Mall, Suite 1400  
Sacramento, California 95814-4434  
Tel 916.441.1000  
Fax 916.441.1110  
[www.crowe.com](http://www.crowe.com)

June 23, 2023

Michael Burke, Solid Waste Coordinator  
Hawaii Department of Health  
2827 Waimano Home Road  
Pearl City, HI 96782

Dear Mr. Burke:

Crowe LLP (Crowe) is pleased to provide the enclosed Evaluation of the Handling Fees Paid to Certified Redemption Centers (CRC) Report. This report provides recommended statewide per container handling fees for aluminum, bi-metal, glass, and plastic (combined PET #1 and HDPE #2) beverage containers for the next contract period effective October 1, 2023, to September 30, 2024. This report also provides an analysis of the fiscal impact of the recommended handling fees on the Deposit Beverage Container (DBC) Special Fund through Fiscal Year 2027 (FY27).

Crowe's evaluation of the current handling fees paid to CRCs indicates that the Department of Health (DOH) should implement the following rates effective October 1, 2023:

- Increase the current glass handling fee rate by 5.34 percent from 8.7-cents to 9.2-cents per container
- Increase the current plastics handling fee rate by 3.24 percent from 4.3-cents to 4.4-cents per container
- Do not increase the current aluminum and bi-metal handling fee rates.

Our fiscal impacts analysis results indicate the DBC Special Fund can support our recommended handling fees with the existing 1-cent non-refundable container fee through FY27.

We greatly appreciate your team's responsiveness and diligence to provide us with the proper information to successfully perform this evaluation. Please reach out to Tommy Abeyta or me if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Wendy B. Pratt".

Wendy Pratt, Managing Director  
Crowe LLP  
400 Capitol Mall, Suite 1400  
Sacramento, California 95814-4434  
Direct 916.492.5173

# Table of Contents

<b>1. Introduction .....</b>	<b>1-1</b>
A. Purpose of the Evaluation of Current Handling Fees .....	1-1
B. Overall Approach to the Evaluation of Current Handling Fees .....	1-2
C. Summary of Handling Fee Evaluation Results and Recommendations.....	1-3
<b>2. Methodology.....</b>	<b>2-1</b>
A. Overview of the Handling Fee Adjustment Model .....	2-1
B. Overview of Fiscal Impacts Analysis and Assumptions .....	2-4
<b>3. Recommended Handling Fees .....</b>	<b>3-1</b>
A. Explanation of Recommended Handling Fees .....	3-1
B. Comparison to Current Handling Fee Payments.....	3-4
C. Justification for Recommended Handling Fees.....	3-5
<b>4. Fiscal Impacts Analysis .....</b>	<b>4-1</b>
A. Overview of Results.....	4-1
B. Baseline Results .....	4-4
C. Economic Downturn Results .....	4-5
D. Economic Growth Results .....	4-6
E. Summary and Implications .....	4-7
<b>Appendix A: Adjustment Indicators.....</b>	<b>A-1</b>



**Section 1**  
**Introduction**

# 1. Introduction

This evaluation of current handling fees paid to Certified Redemption Centers (CRCs) determines whether handling fee payments should remain the same or be adjusted for the next contract period (October 1, 2023, to September 30, 2024). In *Section 2*, we describe our methodology to conduct this evaluation. In *Section 3*, we provide detailed rationale, including an explanation and justification, for our recommended handling fees. In *Section 4*, we provide the results of the fiscal impact of the recommended handling fees on the DBC Special Fund through FY27. This remainder of this introductory section is organized as follows:

- A. *Purpose of the Evaluation of Current Handling Fees*
- B. *Overall Approach to the Evaluation of Current Handling Fees*
- C. *Summary of Handling Fee Evaluation Results and Recommendations.*

## A. Purpose of the Evaluation of Current Handling Fees

In March 2023, the Hawaii Department of Health (DOH) selected Crowe LLP (Crowe) to perform this evaluation of current handling fees paid to CRCs to provide a justifiable recommendation for potential new handling fees for the next contract period (October 1, 2023, to September 30, 2024). The CRCs' current handling fee contract period is from October 1, 2022, to September 30, 2023. The results of this evaluation will support potential updated handling fee payments for the CRCs' next contract period from October 1, 2023, to September 30, 2024.

**Exhibit 1-1** summarizes the handling fees paid per container implemented in Fiscal Year 2019 (FY19)<sup>1</sup>, FY20, FY21, previous handling fees<sup>2</sup>, and the current handling fees implemented on October 1, 2022.

**Exhibit 1-1**  
**Summary of Handling Fees Paid per Container (Fiscal Year 2019 to Current)**

DBC Material Type	Fiscal Year 2019	Fiscal Year 2020	Fiscal Year 2021	Previous Handling Fees	Current Handling Fees
Aluminum	2.5 cents	3.0 cents	3.3 cents	3.4 cents	3.4 cents
Glass	7.0 cents	7.0 cents	7.8 cents	8.1 cents	8.7 cents
Plastic	3.5 cents	3.5 cents	3.9 cents	4.0 cents	4.3 cents
Bi-metal	2.5 cents	3.0 cents	3.3 cents	3.4 cents	3.4 cents

<sup>1</sup> Fiscal Year 2019: July 1<sup>st</sup>, 2018, through June 30<sup>th</sup>, 2019.

<sup>2</sup> Previous Contract Period: October 1, 2021, to September 30, 2022.

## B. Overall Approach to the Evaluation of Current Handling Fees

Crowe's evaluation of current handling fees paid to CRCs builds off of the five (5) tasks identified in the RFQ. **Exhibit 1-2** summarizes the key tasks Crowe performed as part of this evaluation. In *Section 2*, we describe each of these tasks in further detail. In **Appendix A**, we provide background on the adjustment indicators that we utilized as part of this evaluation.

### **Exhibit 1-2**

#### **Evaluation of Current Handling Fees Paid to CRCs – Key Tasks**

##### **Evaluation of Current Handling Fees Paid to Certified Redemption Centers – Key Tasks**

- 1. Conduct an Evaluation of the Current Handling Fees Paid to CRCs** – conduct a detailed evaluation of the current (October 1, 2022, to September 30, 2023) handling fees paid to CRCs by utilizing the Model developed by Crowe.
- 2. Determine if an Adjustment to the Current Handling Fees is Needed** – based on the results of Task 1, determine whether handling fees for the next CRC contract period (October 1, 2023 to September 30, 2024) should remain at the same level or be adjusted (decreased or increased).
- 3. Recommend New Handling Fees (if applicable)** – based on the results of Task 2, recommend new handling fees, by material type, for the DOH to implement in the next CRC contract period (October 1, 2023 to September 30, 2024); provide justification for new handling fees, by material type, or a justification for not adjusting the handling fees in a final report.
- 4. Conduct a Fiscal Impact Analysis of the Proposed (Recommended) Handling Fees on the DBC Special Fund** – conduct a detailed fiscal analysis to evaluate whether the DBC Special Fund could support the proposed handling fee recommendations through FY27.
- 5. Prepare Draft and Final Reports** – Prepare draft and final reports describing work performed under Tasks 1 through 4; present methodology and results to the Office of Solid Waste Management (OSWM), Administrative Staff from the Department of Health, and conduct public hearings, if needed.

## C. Summary of Handling Fee Recommendations

Crowe's evaluation of the current handling fees paid to CRCs indicates that the DOH should implement new handling fees, effective October 1, 2023, for glass and plastic and no adjustment to the existing handling fees for aluminum and bi-metal. Crowe's recommendations represent an increase in per container statewide rates for glass and plastics, as follows:

- Glass per container handling fee increase from 8.7-cents per container to 9.2-cents per container
- Plastics (PET #1 and HPDE #2 combined) per container handling fee increase from 4.3-cents per container to 4.4-cents per container.

In total, CRCs would receive approximately \$560,000 more in handling fees payments with the recommended handling fees based on redemption data from October 2021 to September 2022. Individual CRC companies would see an increase in handling fee payments between 2 and 4 percent.

**Exhibit 1-3** provides a comparison of the current and recommended statewide per container handling fee rates by DBC material type. The "current handling fee" column provides the current per container statewide handling fees. The "adjustment" column reflects the recommended adjustments to CRCs' weighted recycling costs based on our evaluation. We do not recommend adjustments to aluminum and bi-metal handling fees based on our review of scrap market conditions, which indicate CRCs are likely benefiting from better than normal conditions for aluminum and bi-metal prices. Glass and plastic scrap market prices are currently not favorable to CRCs. The "recommended handling fee" column represents the results of the "current handling fee" multiplied by the "adjustment."

### Exhibit 1-3

#### Comparison of Recommended and Current per Container Handling Fees by DBC Material Type

DBC Material Type	Current Handling Fee	Adjustment	Recommended Handling Fee
Aluminum	\$0.034	0.00%	\$0.034
Glass	\$0.087	105.34%	\$0.092
Plastic	\$0.043	103.24%	\$0.044
Bi-Metal	\$0.034	0.00%	\$0.034



**Section 2**  
**Methodology**

## 2. Methodology

This section describes Crowe's overall methodology to evaluate the current handling fees paid to Certified Redemption Centers (CRCs). The first subsection provides an overview of the Handling Fee Adjustment Model (Adjustment Model), which Crowe utilized to evaluate current handling fees paid to CRCs and to determine recommended handling fees effective October 1, 2023. The second subsection describes Crowe's approach to evaluating the fiscal impacts of the recommended handling fees on the Deposit Beverage Container (DBC) Special Fund through Fiscal Year 2027 (FY27). This section is organized as follows:

- A. Overview of the Handling Fee Adjustment Model
- B. Overview of Fiscal Impacts Analysis and Assumptions.

### A. Overview of the Handling Fee Adjustment Model

The Adjustment Model is a Microsoft Excel-based tool that provides a framework to regularly evaluate and adjust DBC statewide handling fees by material type. In coordination with the Department of Health (DOH), Crowe developed the Adjustment Model to annually review key economic indicators representing CRC cost categories (i.e., labor, indirect labor, on/intra/off island transportation, etc.) and to determine if those indicators have changed significantly enough to warrant an adjustment in handling fees. There are six (6) potential adjustment factors in the model:

- Wage index adjustment
- Minimum wage adjustment
- Cost of living adjustment (COLA)
- Health Care adjustment
- Shipping adjustment
- Fuel adjustment.

Except for the shipping adjustment, all of the indices are available on government web pages. We provide a summary of the descriptions and sources of the adjustment factors in **Appendix A**. In order to determine a potential shipping adjustment, Crowe prepared and distributed a shipping survey to ten CRCs that ship materials off-island. Eight out of the ten CRCs responded with quarterly shipping invoices for glass shipments, which Crowe then utilized as support to calculate an adjustment factor representative of increases to off-island shipping for all DBC materials.

The Model takes the highest relevant adjustment factor for each cost component to apply to the relevant portion of costs specific to each of the three major material types. **Exhibit 2-1** summarizes the cost factors and components they apply to within the Model. If any adjustment factors are greater than the COLA, the model will apply them to the relevant cost component. The default adjustment is the Urban Hawaii COLA, less energy and food.

#### **Exhibit 2-1** Adjustment Factors for Recycling Cost Components

Recycling Cost Component	Applicable Adjustment
Direct Labor	Wage Index, Minimum Wage, or COLA
Indirect Labor	COLA or Health Care
Off-Island Transportation	COLA, Shipping, or Fuel
Inter- and On-Island Transportation	COLA or Fuel
All Other Costs	COLA

## Handling Fee Adjustment Model Components

The Adjustment Model contains six (6) key components: 1) Introduction, 2) Summary, 3) Adjustment Indicators, 4) Shipping Survey Results, 5) CRC Handling Fee Payments, and 6) DBC Special Fund Coverage. These components support Crowe's recommended handling fee adjustments. Below is a brief description of each component within the Model.

- 1. Introduction** – The *Introduction* outlines the steps involved in preparing and approving potential changes to the DBC Program's handling fees; the Introduction also provides a high-level guide for the DOH to obtain the adjustment indicators, enter the adjustment indicators into the Model, and then review the handling fee adjustments for approval and implementation.
- 2. Summary** – The *Summary* provides an overview of the handling fee adjustment results, including the adjusted recycling costs by DBC material type, and the key adjustment factors utilized to inform the results.
- 3. Adjustment Indicators** – The *Adjustment Indicators* provides the DOH with a form to obtain and then enter the adjustment indicator data from the identified sources in the Model; the Adjustment Indicator form automatically calculates the "Adjustment Factor," which informs the adjusted recycling costs by DBC material type.
- 4. Shipping Survey Results** – The *Shipping Survey Results* provides the DOH with a form to enter shipping survey responses, which serve as the basis for developing an updated shipping adjustment indicator based on the average shipping cost per glass shipping container. Crowe sent out a survey to the 10 selected CRCs to collect FY22 and year-to-date FY23 glass shipping costs by quarter. Crowe averaged the CRCs' shipping data collected through the survey to calculate an adjustment factor.
- 5. CRC Handling Fee Payments** – The *CRC Handling Fee Payments* provides the recommended percent change in handling fee payments for CRCs based on the handling fee adjustment results.
- 6. DBC Special Fund Coverage** – The *DBC Special Fund Coverage* provides the DOH with a fund projection model indicating the ending balance based on the projected handling fee payment results; this provides the DOH with assurance that the DBC Special Fund has the necessary funds on hand to cover the adjusted handling fee payments.

## Handling Fee Adjustment Calculations

The Adjustment Model automatically calculates handling fee adjustments based on key inputs within the *Adjustment Indicators* form. These indicators provide a basis to adjust the weighted costs of recycling, which inform the change in handling fee rates by DBC material type (aluminum/bi-metal, glass, and plastic). As mentioned, the model considers six (6) adjustment indicators. A link to the source for each indicator is located on the Adjustment Indicators tab.

In **Exhibit 2-2**, we provide a snapshot of the *Adjustment Indicators* form within the Adjustment Model. In the “Updated Indicator(s)” column, Crowe entered updated data for each of the adjustment indicators. The form then calculates an “adjustment factor,” which reflects the change, in percentage, from the base indicator. The “adjustment factor” is then applied to the current handling fee rate to calculate an adjusted rate.

**Exhibit 2-2**  
**Handling Fee Adjustment Indicators Form**

 <b>State of Hawaii, Department of Health</b> <b>Deposit Beverage Container Program</b> <b>Handling Fee Adjustment Model</b>				
<b>Directions:</b> The Office of Solid Waste Management will first obtain adjustment indicator data from the identified sources. The "Updated Indicator" column will then be populated with data obtained from the identified sources for each of the adjustment indicators. The "Base Indicator" column reflects the current indicators used to adjust for recycling costs. The "Adjustment Factor" column reflects the difference between the "Updated Indicator" and "Base Indicator," and will be used to adjust recycling costs by DBC material type.				
<b>Handling Fee Adjustment Results</b>				
Adjustment Indicators	Adjustment Factor	Base Indicator	Updated Indicator(s)	Source
		2021 Annual	2022 (Average Q1 to Q3)	
<b>Wage Index</b>	1.88%	1097	1118	<a href="#">Weekly Wages in Hawaii</a>
		Minimum Wage (2022)	Minimum Wage (2023)	
<b>Minimum Wage</b> <b>Note:</b> If there is no change in the minimum wage, then do not enter an updated indicator.	0.00%	\$12.00	\$12.00	<a href="#">Minimum Wage in Hawaii</a>
		March 2022 COLA	March 2023 COLA	
<b>Cost of Living Adjustment</b>	2.99%	308.08	317.29	<a href="#">COLA</a>
		2022	2023	
<b>Health Care</b>	-1.63%	\$490.00	\$482.00	<a href="#">Health Care</a>
		2022 Survey Results	2023 Survey Results	
<b>Shipping</b>	13.25%	\$3,400.00	\$3,850.35	<a href="#">Shipping Survey Results</a>
		Fuel May 2022	Fuel May 2023	
<b>Fuel</b>	-21.14%	\$5.628	\$4.438	<a href="#">Diesel Fuel Costs in HI</a>

## B. Overview of Fiscal Impacts Analysis and Assumptions

Crowe utilized two (2) Excel-based models to evaluate the impact of the recommended handling fees resulting from this evaluation on the DBC Special Fund through FY27. Crowe developed these models during the first study of DBC handling fees. Both models provide a framework to determine if the DBC Special Fund can adequately cover its liabilities with the recommended handling fees under three (3) scenarios: baseline, economic downturn, and economic growth. In the remainder of this section, we provide details about the assumptions used for each model – the Sales and Redemption Rate Projection Model and the Fiscal Impact Model.

### Sales and Redemption Rate Projection Model

Crowe utilized the sales and redemption model to estimate statewide beverage container sales and redemption rates under different economic conditions through FY27. We made sales and redemption assumptions within the model based on historical DBC sales and redemption data provided by the DOH. We utilized three (3) scenarios based on varying assumptions on the status of the economy, recycling, and beverage markets over the next four fiscal years. Each scenario assumes different sales and redemption rates in order to demonstrate the potential fiscal impacts to the DBC Special Fund in a “status quo” economy, downturn economy, and growth economy. It is important to note that the baseline, economic downturn, and economic upturn scenarios are based on historical beverage container sales and redemption rates.

#### Baseline Scenario

The baseline scenario represents a “status quo” economy and is based on a 15 fiscal year historical average (i.e., from FY08 to FY22) of statewide beverage container sales and redemption rates. It is important to note that our model does not adjust bi-metal sales or redemption rates because bi-metal makes up such a small share of beverage containers sold and redeemed. **Exhibit 2-3** summarizes projected beverage container sales and redemption rates for each DBC material within the baseline scenario.

#### **Exhibit 2-3**

#### **Sales and Redemption Assumption – Baseline Scenario**

DBC Material Type	% Change in Sales	% Change in Redemption
Aluminum	1.1%	-0.4%
Glass	-4.4%	-1.8%
Plastic	2.2%	-0.2%

### Economic Downturn Scenario

The economic downturn scenario projects for a slight decrease in beverage container sales and an increase in redemption rates due to the likely impacts of a downturn in the overall economy, such as increased unemployment and a decrease in household incomes. In this scenario, we decreased sales growth from the baseline scenario by 1 percent and increased redemption rates from the baseline scenario by 2 percent. **Exhibit 2-4** summarizes percent changes in sales and redemption rate for the economic downturn scenario in comparison to the baseline scenario.

### **Exhibit 2-4**

#### **Comparison between Baseline and Economic Downturn Scenarios**

##### **Sales and Redemption Assumptions**

DBC Material Type	Baseline % Change in Sales	Economic Downturn % Change in Sales	Baseline % Change in Redemption	Economic Downturn % Change in Redemption
Aluminum	1.1%	0.1%	-0.4%	1.6%
Glass	-4.4%	-5.4%	-1.8%	0.2%
Plastic	2.2%	1.2%	-0.2%	1.8%

### Economic Growth Scenario

The economic upturn scenario projects for an increase in beverage container sales and a decrease in redemption rates due to the likely impacts of an upturn in the overall economy, such as a decrease in unemployment and an increase in household income. In this scenario, we increased sales growth from the baseline scenario by 2 percent and decreased redemption rates from the baseline scenario by 1 percent. **Exhibit 2-5** summarizes percent changes in sales and redemption rate for the economic growth scenario in comparison to the baseline scenario.

### **Exhibit 2-5**

#### **Comparison between Baseline and Economic Growth Scenarios**

##### **Sales and Redemption Assumptions**

DBC Material Type	Baseline % Change in Sales	Economic Upturn % Change in Sales	Baseline % Change in Redemption	Economic Upturn % Change in Redemption
Aluminum	1.1%	3.1%	-0.4%	-1.4%
Glass	-4.4%	-2.4%	-1.8%	-2.8%
Plastic	2.2%	4.2%	-0.2%	-1.2%

**Exhibit 2-6** provides a snapshot of the sales and projection model under the baseline scenario. The color green represents the historical average sales growth (from FY08 to FY22), red is the historical average of the redemption growth rate (from FY08 to FY22), and blue represents the step percentage that influences how much sales and redemption rate increase. One can change the step percentages to reflect different scenarios to represent shifting future sales and redemption rates.

### Exhibit 2-6 Projection Model Baseline Scenario Example

**Historical average sales rate growth from previous 15 fiscal years (FY08–FY22)**

Aluminum (Baseline Scenarios)					2023	2024	2025	2026	2027	Step
FY2023E	FY2024E	FY2025E	FY2026E	FY2027E						
332,946,273	335,345,659	337,762,336	340,196,429	342,648,063	0.7%	0.7%	0.7%	0.7%	0.7%	1.1%
518,784,236	524,722,459	530,728,655	536,803,599	542,948,080	1.1%	1.1%	1.1%	1.1%	1.1%	0.0%
64.2%	63.9%	63.6%	63.4%	63.1%	(0.4%)	(0.4%)	(0.4%)	(0.4%)	(0.4%)	0.00%

**Historical average redemption rate growth from previous 15 fiscal years (FY08–FY25)**

**Percentage increase or decrease from base case scenario to project growth rate of sales and redemption**

**Percentage of growth from the forecasted sales rate +/- the step percentage**

Aluminum (Economic Downturn - Moderate)					2023	2024	2025	2026	2027	Step
FY2023E	FY2024E	FY2025E	FY2026E	FY2027E						
336,275,333	342,085,288	347,995,623	354,008,073	360,124,403	1.7%	1.7%	1.7%	1.7%	1.7%	0.1%
513,655,103	514,398,066	515,142,103	515,887,217	516,633,408	0.1%	0.1%	0.1%	0.1%	0.1%	(1.0%)
65.5%	66.5%	67.6%	68.6%	69.7%	1.6%	1.6%	1.6%	1.6%	1.6%	2.0%

**Percentage of growth from the average rate +/- the step percentage**

**Step Percentage of growth in the scenario determined by applicable economic factors**

## Fiscal Impacts Model

The fiscal impacts model projects the DBC Special Fund's revenues, expenditures, and beginning and ending balances through FY27. We utilized projected beverage container sales and redemption volumes developed in the sales and redemption projection model to project anticipated revenues and expenditures with the recommended handling fees.

**Exhibit 2-7** provides the current and recommended handling fees we utilized to project expenditures in FY23 through FY27. Within *Section 4* of this report, we also describe the relative impact the three (3) scenarios would have on the DBC Special Fund. We used the following key factors to project annual revenues and expenditures:

- Revenues
  - Annual beverage container sales projections
  - 5 cent beverage container deposit by material type
  - 1 cent container fee by material type
- Expenditures
  - Annual beverage container redemption projections
  - 5 cent beverage container deposit return by material type
  - Current and recommended handling fee payments by material type
  - DBC program's administrative expenses.

### Exhibit 2-7

#### Current and Recommended per Container Handling Fees

DBC Material Type	Current HF	Recommended HF
Aluminum	3.4 cents	3.4 cents
Glass	8.7 cents	9.2 cents
Plastic	4.3 cents	4.4 cents
Bi-Metal	3.4 cents	3.4 cents

### DBC Program Budget

The DOH provided the DBC Program's FY22 and FY23 budget data, which included personnel and operational costs. Crowe utilized personnel expenditures in FY23, representing estimated program administration and personnel expenditures. **Exhibit 2-8** illustrates how we incorporated the different factors into the fiscal impact model.

#### **Exhibit 2-8** Example Fiscal Impact Model for Baseline Scenario

	Baseline					
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	
DOH provided FY23 Beginning Balance.	<b>Beginning Balance</b>	\$ 57,200,000	\$ 59,827,877	\$ 62,873,046	\$ 66,324,340	\$ 70,171,855
1. Projected sales volumes × 5¢ deposit	<b>Revenues</b>	61,977,945	62,650,539	63,350,276	64,077,010	64,830,621
	AL Deposits	25,939,212	26,236,123	26,536,433	26,840,180	27,147,404
	GL Deposits	4,626,099	4,423,297	4,229,386	4,043,975	3,866,693
	PL Deposits	20,970,210	21,435,305	21,910,715	22,396,669	22,893,401
	BM Deposits	112,767	114,058	115,363	116,684	118,019
2. Projected sales volumes × 1¢ non-refundable container fee	AL Container Fee	5,187,842	5,247,225	5,307,287	5,368,036	5,429,481
	GL Container Fee	925,220	884,659	845,877	808,795	773,339
	PL Container Fee	4,194,042	4,287,061	4,382,143	4,479,334	4,578,680
	BM Container Fee	22,553	22,812	23,073	23,337	23,604
3. Projected redemption volumes × 5¢ deposit	<b>Expenditures</b>	56,850,068	57,042,870	57,272,420	57,537,269	57,836,072
	AL Deposit Return	16,647,314	16,767,283	16,888,117	17,009,821	17,132,403
	GL Deposit Return	2,553,491	2,397,771	2,251,547	2,114,241	1,985,307
	PL Deposit Return	11,494,070	11,723,193	11,956,883	12,195,232	12,438,332
	BM Deposit Return	85,192	85,192	85,192	85,192	85,192
4. Projected redemption volumes × handling fees in Exhibit 2-7	AL HF Payments	11,320,173	11,401,752	11,483,919	11,566,679	11,650,034
	GL HF Payments	4,634,587	4,351,955	4,086,558	3,837,347	3,603,333
	PL HF Payments	10,057,311	10,257,794	10,462,273	10,670,828	10,883,541
	BM HF Payments	57,930	57,930	57,930	57,930	57,930
DOH provided. We adjusted starting FY23.	<b>Fund Administration</b>	2,500,000	2,562,500	2,626,563	2,692,227	2,759,532
Calculated Ending Balance	Personnel Expenses	800,000	820,000	840,500	861,513	883,050
	Operating Expenses	1,700,000	1,742,500	1,786,063	1,830,714	1,876,482
	<b>Ending Balance</b>	\$ 59,827,877	\$ 62,873,046	\$ 66,324,340	\$ 70,171,855	\$ 74,406,872

**Section 3**

## **Recommended Handling Fees**

## 3. Recommended Handling Fees

This section provides our recommended handling fees resulting from the evaluation of the current handling fees paid to Certified Redemption Centers (CRCs). Our recommended handling fees indicate the new per container handling fees the Department of Health (DOH) should implement for the new contract period (October 1, 2023, to September 30, 2024). This section is organized as follows:

- A. *Explanation of Recommended Handling Fees*
- B. *Comparison to Current Handling Fee Payments*
- C. *Justification for Recommended Handling Fees.*

### A. Explanation of Recommended Handling Fees

We based our recommended handling fees on the Adjustment Model's results along with a review of current scrap market conditions<sup>1</sup> for aluminum, glass, and PET. Below is a summary of key factors that informed our recommended handling fees for the CRCs' next contract period:

#### Estimated Cost Factors

- From March 2022 to March 2023, COLA (less energy and food) increased 2.99%. In "normal" year, unlike the past couple of years, COLA typically reflects annual increases of approximately 1.5% to 3.5% based on long-term historical trends. The Adjustment Model (Model) utilized COLA to adjust for all of CRCs' weighted recycling costs for all material types, except for off-island shipping costs for glass.
- From March 2022 to March 2023, off-island shipping costs for glass increased roughly 13.25%<sup>2</sup> likely due to volatile supply chains that resulted in an increase in the demand for freight services. The Model utilized this increase to adjust for CRCs' glass recycling costs.

#### Estimated Scrap Revenue Factors

- Aluminum scrap market conditions in 2023 have decreased from 2022 market levels, which were at a five-year high, but have rebounded from 2021 levels when the market rate was approximately \$1,000 per ton. Current market data signals that the CRCs are likely still benefiting from improved overall aluminum scrap market conditions in 2023 and indicates the current aluminum and bi-metal handling fee rates does not require an adjustment.
- PET scrap market conditions in 2023 have slightly improved, but glass scrap market conditions continue to decline compared to 2022. Current market data signals that the CRCs are slightly benefiting from improved PET scrap market conditions but are not benefiting from a continued decline in glass market prices. This data indicates current glass and plastics handling fees likely require an adjustment to adequately cover CRCs' recycling costs for these material types.

Based on these estimated cost and scrap revenue factors, we do not recommend adjustments to aluminum and bi-metal handling fees. However, we do recommend adjustments to glass and plastic handling fees effective October 1, 2023. In the remainder of this section, we provide additional details and rationale to support our recommended handling fees.

<sup>1</sup> Based on Los Angeles Regional Average 2023 rates.

<sup>2</sup> Based on actual shipping data obtained through Crowe's shipping survey of eight (8) CRCs.

**Exhibit 3-1** provides a comparison of the current and recommended statewide per container handling fee rates by DBC material type. The “current handling fee” column provides the current per container statewide handling fees. The “adjustment” column reflects the recommended adjustments to CRCs’ weighted recycling costs based on our evaluation. The “recommended handling fee” column represents the results of the “current handling fee” multiplied by the “adjustment”.

### Exhibit 3-1

#### Comparison of Recommended and Current per Container Handling Fees by DBC Material Type

DBC Material Type	Current Handling Fee	Adjustment	Recommended Handling Fee
Aluminum	\$0.034	0%	\$0.034
Glass	\$0.087	105.34%	\$0.092
Plastic	\$0.043	103.24%	\$0.044
Bi-metal	\$0.034	0%	\$0.034

**Exhibit 3-2** summarizes CRCs’ adjusted recycling costs for each DBC material type based on the results generated by the Model. For discussion purposes, we show the Model’s results for aluminum/bi-metal even though we are not recommending an adjustment to the existing aluminum and bi-metal handling fee rate.

### Exhibit 3-2

#### Adjusted Recycling Costs by DBC Material Type

Recycling Costs	Aluminum / Bi-Metal		Glass		Plastic	
	Base	Adjusted	Base	Adjusted	Base	Adjusted
Direct Labor	42.08%	43.34%	32.90%	33.88%	43.21%	44.50%
Indirect Labor	12.20%	12.56%	9.65%	9.94%	12.64%	13.02%
Off-Island Transportation	4.02%	4.55%	22.88%	25.91%	2.65%	3.00%
Intra & On Island Transportation	6.42%	6.61%	5.69%	5.86%	6.28%	6.47%
All Other Costs	35.28%	36.34%	28.88%	29.74%	35.20%	36.25%
Total Base / Total Adjusted	100.00%	103.40%	100.00%	105.34%	98.98%	103.24%

In **Exhibit 3-3**, we provide a summary of the adjustment factors resulting from the annual change (in percentage) for each of the key adjustment indicators. This summary also provides context and rationale for each adjustment factor. We provide descriptions and sources for each of these adjustment indicators in Appendix A.

**Exhibit 3-3**  
**Key Adjustment Indicators and Adjustment Rationale**

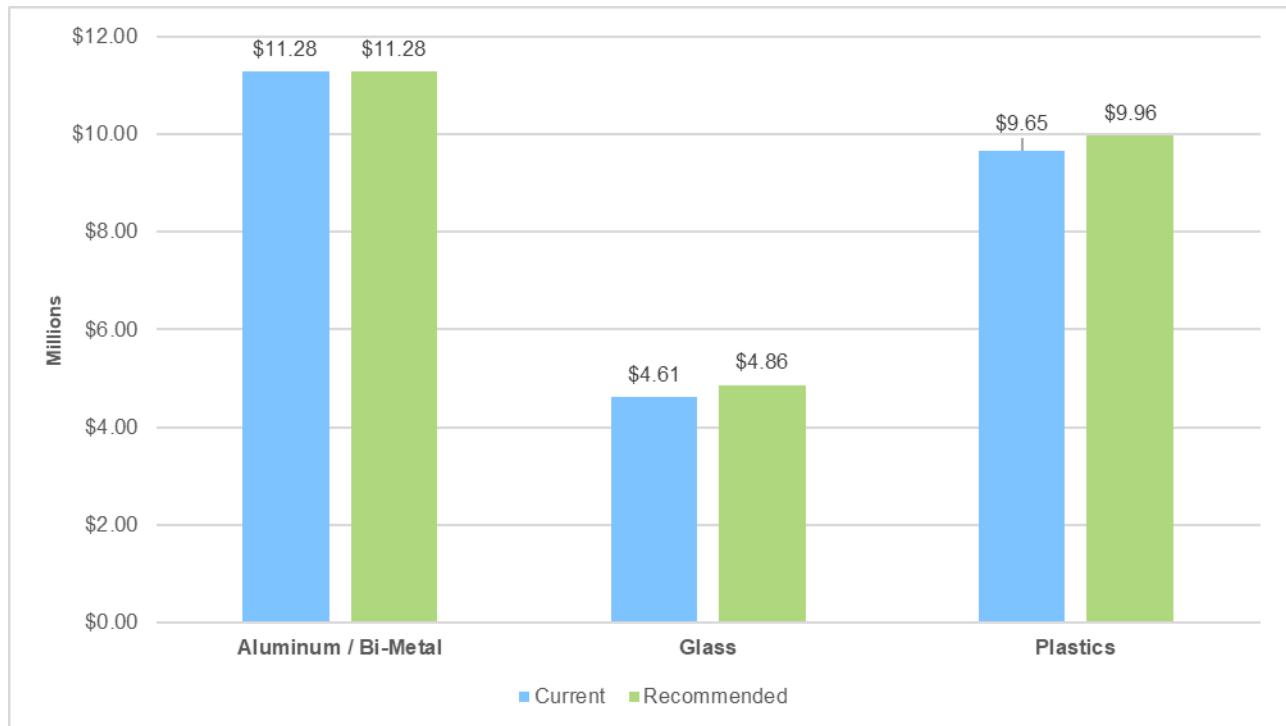
Adjustment Indicators	Adjustment	Adjustment Rationale
<b>Wage Index</b> <i>Source: Bureau of Labor Statistics (BLS), Average Weekly Wages in Hawaii</i>	1.88%	<ul style="list-style-type: none"> <li>Average weekly wages slightly increased from 2021 to 2022 (Q1 to Q3) by roughly 2%.</li> <li>This indicator is lower than the COLA adjustment. Therefore, the Model did not use this indicator to adjust CRCs' direct labor costs.</li> </ul>
<b>Minimum Wage</b> <i>Source: Minimum-wage.org/Hawaii</i>	0.0%	<ul style="list-style-type: none"> <li>No change in minimum wage; the current minimum wage in Hawaii is \$12.00 per hour. The minimum wage will rise to \$14.00 per hour on January 1, 2024, \$16.00 per hour on January 1, 2026, and \$18.00 per hour on January 1, 2028.</li> <li>This indicator is lower than the COLA adjustment. Therefore, the Model did not use this indicator to adjust CRCs' direct labor costs.</li> </ul>
<b>Cost of Living Adjustment (COLA), less food and energy</b> <i>Source: BLS, Consumer Price Index (CPI) All Urban Consumers Hawaii</i>	2.99%	<ul style="list-style-type: none"> <li>The cost-of-living adjustment (less food and energy) increased at a "normal" rate from March 2022 to March 2023; a "normal" increase is roughly 1.5 % to 3.0%.</li> <li>COLA (including food and energy) resulted in a 3.35% change.</li> <li>This indicator was higher than the wage index and minimum wage adjustment. Therefore, the Model used this indicator to adjust CRCs' direct labor costs.</li> </ul>
<b>Health Care</b> <i>Source: Value Penguin</i>	-1.63%	<ul style="list-style-type: none"> <li>Health care monthly premiums slightly decreased in Hawaii between 2022 and 2023.</li> <li>The Model utilized COLA to adjust indirect labor costs since this indicator was lower than COLA.</li> </ul>
<b>Shipping</b> <i>Source: Crowe's Shipping Survey Results</i>	13.25%	<ul style="list-style-type: none"> <li>Based on survey responses from eight (8) recyclers, glass shipping costs increased by 13.25% between 2022 and 2023.</li> <li>Shipping costs likely increased due to supply chain issues, which increased demand in freight services.</li> <li>The Model utilized this adjustment to adjust for CRC off-island transportation for glass since it was higher than both COLA and fuel adjustments.</li> </ul>
<b>Fuel</b> <i>Source: U.S. Energy Information Administration</i>	-21.14%	<ul style="list-style-type: none"> <li>Diesel price per gallon decreased roughly 21.14% from May 2022 to May 2023.</li> <li>Diesel prices likely decreased due to volatile oil market conditions, including both supply side and demand side factors.</li> <li>Since fuel costs decreased, the Model utilized the COLA adjustment to adjust for intra and on-island transportation costs.</li> </ul>

## B. Comparison to Current Handling Fee Payments

We compared current handling fee payments to recommended handling fee payments using redemption data from October 2021 through September 2022. We estimate that, in total, CRCs would receive roughly \$560,000 more in handling fees payments with the recommended handling fees, shown in Exhibit 3-1. In the next section of this report, we provide our fiscal impacts analysis of the recommended handling fees on the DBC fund under varying projections of beverage container sales and recycling rates through FY27.

**Exhibit 3-4** illustrates the estimated increase in handling fee payments by DBC material type from October 2023 through September 2024 based on redemption data from October 2021 through September 2022. We estimate that glass handling fee payments are projected to increase by roughly 5 percent (or \$246,000) and plastics (PET #1 and HDPE #2 combined) handling fee payments are projected to increase by approximately 3 percent (or \$313,000). Aluminum handling fee payments would remain the same based on our recommendation to not adjust the handling fee for aluminum.

**Exhibit 3-4**  
**Estimated Change in Handling Fee Payments by DBC Material Type**



## C. Justification for Recommended Handling Fees

Crowe relied on the Model, along with a review of current scrap market conditions, to evaluate and to determine our recommended handling fees effective October 1, 2023. The Model, including input from the shipping survey, provided a mechanism to estimate likely increases in CRCs' costs to recycle DBC materials. This approach provides a justifiable means to recommend appropriate handling fees reflective of these likely changes in CRC costs. We provide further justification below for our recommended adjustments to handling fees for each DBC material type:

### 1. Aluminum and Bi-Metal

We do not recommend an adjustment to the current handling fee rate for aluminum and bi-metal, which is currently 3.4-cents per container, due to the following:

- The Model resulted in a 3.4 percent change in CRCs' overall weighted recycling costs for aluminum and bi-metal. This increase was primarily driven by a 2.99 increase in COLA, which increased CRCs' estimated direct labor, indirect labor, intra/on-island transportation, and all other costs. Off-island shipping, which represents roughly 4 percent of CRCs' overall weighted recycling costs for aluminum and bi-metal, increased by 13.25 percent.
- While CRCs' estimated costs to recycle aluminum and bi-metal may have increased, current scrap market data indicates CRCs are likely still benefiting from aluminum and bi-metal scrap market conditions (i.e., CRCs' recycling costs for aluminum and bi-metal are adequately covered and are likely benefitting from returns at current scrap market prices).

### 2. Glass

We recommend a 5.34 percent adjustment to the current handling fee rate for glass from 8.7-cents per container to 9.2-cents per container, due to the following:

- The Model resulted in a 5.34 percent change in CRCs' overall weighted recycling costs for glass. This increase was primarily driven by: 1) a 2.99 increase in COLA, which increased CRCs' estimated direct labor, indirect labor, intra/on-island transportation, and all other costs; and, 2) a 13.25 increase to off-island shipping, which represents roughly 23 percent of CRCs' overall weighted recycling costs for glass.
- Current scrap market data indicates CRCs are not benefiting from glass scrap market conditions (i.e., CRCs' recycling costs for glass are not covered by current scrap market prices). Current scrap market data indicates glass continues to decline in value in comparison to historical scrap market prices over the last five years.

### 3. Plastics (Combined PET #1 and HDPE #2)

We recommend a 3.24 percent adjustment to the current handling fee rate for plastics from 4.3-cents per container to 4.4-cents per container, due to the following:

- The Model resulted in a 3.24 percent change in CRCs' overall weighted recycling costs for glass. This increase was primarily driven by a 2.99 increase in COLA, which increased CRCs' estimated direct labor, indirect labor, intra/on-island transportation, and all other costs. Off-island shipping, which represents roughly 3 percent of CRCs' overall weighted recycling costs for glass, increased by 13.25 percent.
- Current scrap market data indicates CRCs are slightly benefiting from minimal increases to PET scrap market conditions. Historical scrap market data indicates PET prices have been volatile over the last several years. It is unclear if current PET scrap market conditions are sufficient to adequately cover CRCs' recycling costs while providing a reasonable return.

**Section 4**  
**Fiscal Impacts Analysis**



## 4. Fiscal Impacts Analysis

This section provides the results our fiscal impacts analysis through Fiscal Year 2027 (FY27). We based our analysis on the methodology and scenarios described in *Section 2*. This section is organized as follows:

- A. *Overview of Results*
- B. *Baseline Results*
- C. *Economic Downturn Results*
- D. *Economic Growth Results*
- E. *Summary and Implications*.

### A. Overview of Results

Our fiscal impacts analysis results indicate the Deposit Beverage Container (DBC) Special Fund can likely support updated handling fees for glass and plastic effective October 1, 2023, with the existing 1-cent non-refundable container fee through FY27. Below we provide highlights from our results:

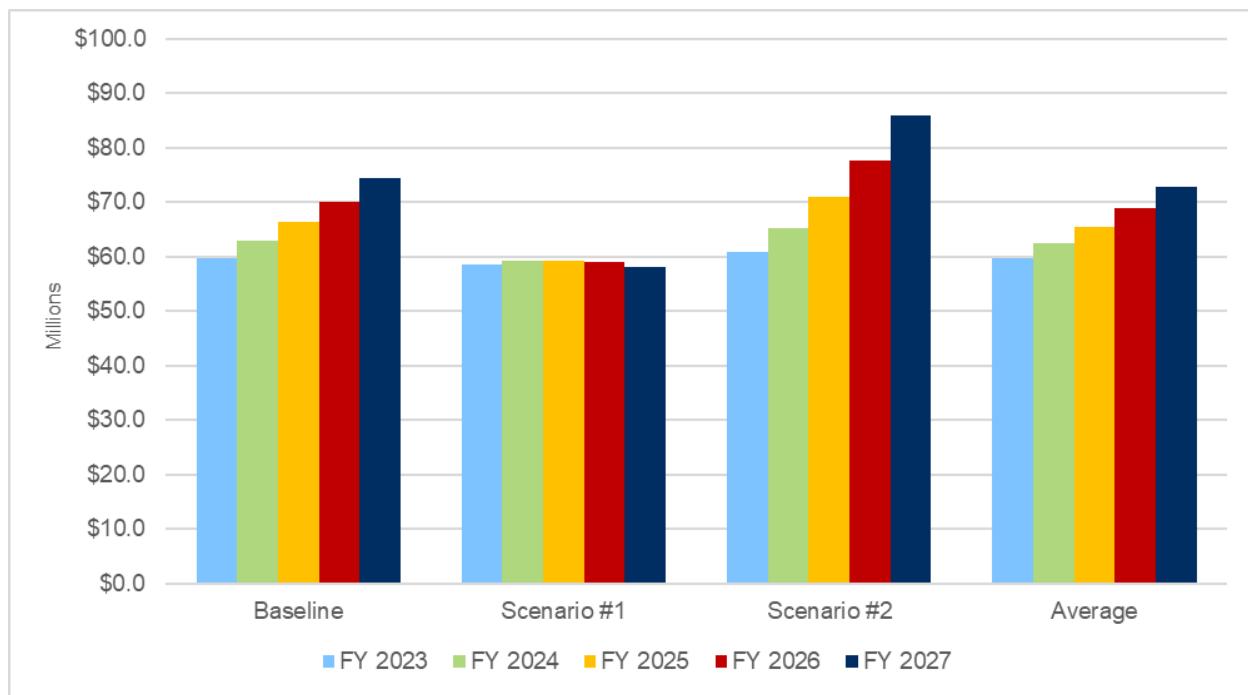
- The DBC Special Fund maintains an ending balance of approximately \$72.8 million, an average ending balance across all scenarios, through FY27. This indicates the DBC Special will maintain more than adequate coverage for its expenditures (e.g., deposit returns, handling fee payments, and fund administrative costs) through FY27.
- The DBC Special Fund maintains, on average, approximately 2.0x the amount needed to cover its expenditures through FY27.
- In the baseline scenario, the DBC Special Fund's revenues exceed expenditures through FY27 due to expenditures decreasing and revenues increasing, even with the increase in per container handling fees for glass and plastics. In the economic downturn scenario, the DBC Special Fund's ending balance is projected at \$74.4 million by FY27. Under the baseline scenario, overall redemption is projected to decrease approximately 0.3 percent year-over-year.
- In the economic downturn scenario, the DBC Special Fund's expenditures exceed revenues through FY27 due to an estimated increase in the projected redemption rate. In the economic downturn scenario, the DBC Special Fund's ending balance is projected at \$57.2 million by FY27. Under the economic downturn scenario, overall redemption is projected to increase approximately 1.0 percent year-over-year.
- In the economic upturn scenario, the DBC Special Fund's revenues exceed expenditures through FY27 due to an estimated decrease in the projected redemption rate. In the economic upturn scenario, the DBC Special Fund's ending balance is projected at \$79.0 million by FY27. Under the economic upturn scenario, overall redemption is projected to decrease approximately 0.8 percent year-over-year.
- The DBC Special Fund maintained a positive ending balance and a fund coverage ratio of above 1.0 through FY27 in all scenarios, indicating the DOH would not need to adjust the recommended handling fees or increase the non-refundable per container fee from 1-cent to 1.5-cent.

We provide further details of our fiscal impacts analysis for each scenario and the implications to the DBC Special Fund in the remainder of the report. We used a blended handling fee rate to project payments starting in FY24 since the CRCs' contract started effective October 1, 2023. The blended rate combines the first 3 months of current handling fee rates with 9 months of the recommended handling fee rates. Crowe used a blended rate to account for the difference between the old fiscal year start date (July 1) and the new fiscal/contract start date (October 1).

**Exhibit 4-1** provides a summary comparison of projected DBC Special Fund ending balances by scenario through FY27. The baseline and economic growth (Scenario 2) show an increase in the DBC Special Fund ending balance through FY27. The moderate economic downturn (Scenario 1) shows a slight decrease in the DBC Special Fund ending balance through FY27.

In **Exhibit 4-2**, we highlight in bold when the DBC Special Fund begins to utilize its excess funds due to expenditures exceeding revenues. In the economic downturn scenario, the DBC Special Fund will begin to utilize its excess funds in FY27. In the baseline and economic upturn scenarios, the DBC Special Fund will not utilize its excess funds due to projected decreases in overall redemption rates under these scenarios through FY27.

**Exhibit 4-1**  
**Comparison of Projected DBC Fund Ending Balances by Scenario**



**Exhibit 4-2**  
**Comparison of Projected DBC Fund Ending Balances**  
**Fiscal Year 2023 through Fiscal Year 2027**

Scenario	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
1. Baseline	\$59,827,877	\$62,873,046	\$66,324,340	\$70,171,855	\$74,406,872
2. Economic Downturn	\$58,646,026	\$59,310,891	\$59,164,922	\$58,177,862	\$57,159,935
3. Economic Growth	\$60,840,512	\$61,648,683	\$66,462,408	\$72,120,334	\$78,990,628
Average	\$59,771,471	\$61,277,540	\$63,983,890	\$66,823,350	\$70,185,811

## Fund Coverage Ratio

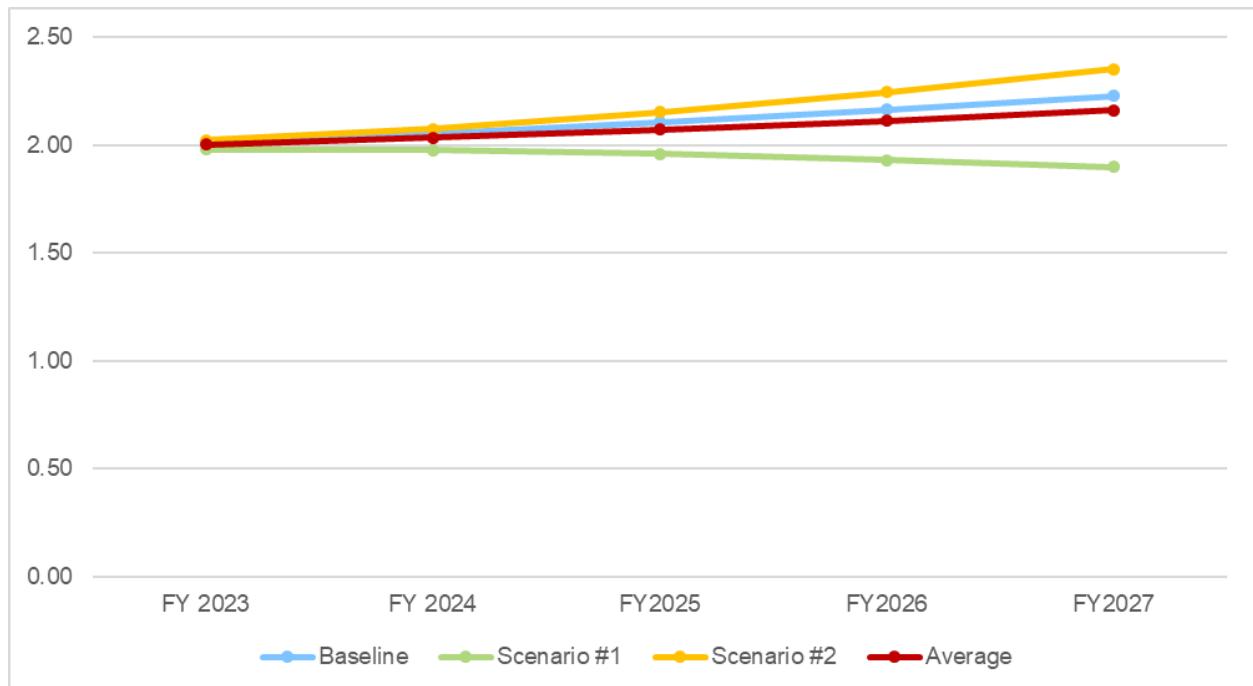
The fund coverage ratio is a comparative metric to determine if the DBC Special Fund can cover its expenditures under each scenario. The fund coverage ratio provides an assurance that the DBC Special Fund has the necessary funds on hand to weather any short-term economic volatility. For example, if the DBC Special Fund has a fund coverage ratio of 1.5, then this means the fund has 150 percent of the necessary funds to cover its expenditures. Conversely, if the DBC Special Fund has a fund coverage ratio of 0.9, then this means the fund has only 90 percent of the necessary funds to cover its expenditures. The fund coverage ratio is calculated as follows:

$$\text{Fund Coverage Ratio} = \frac{\text{Fund Beginning Balance} + \text{Revenues}}{\text{Expenditures}}$$

**Exhibit 4-3** provides a summary comparison of the DBC Special Fund projected coverage ratio under each scenario for recommendation Option 1. If the fund coverage ratio is above 1.0, then this signifies the DBC Special Fund can cover its expenditures. If the fund coverage ratio is below 1.0, then this signifies the DBC special Fund cannot cover its expenditures.

In all scenarios, the DBC Special Fund coverage ratio is above the 1.0 threshold through FY27. This indicates the DBC Special Fund has more than 100 percent of the necessary funds to cover its expenditures even under “stressed” conditions through FY27. In the event that the DBC Special Fund’s coverage ratio nears 1.0, the DOH should consider either increasing the existing 1-cent non-refundable container fee or decreasing the handling fee payments.

### Exhibit 4-3 Comparison of Projected DBC Fund Coverage Ratios



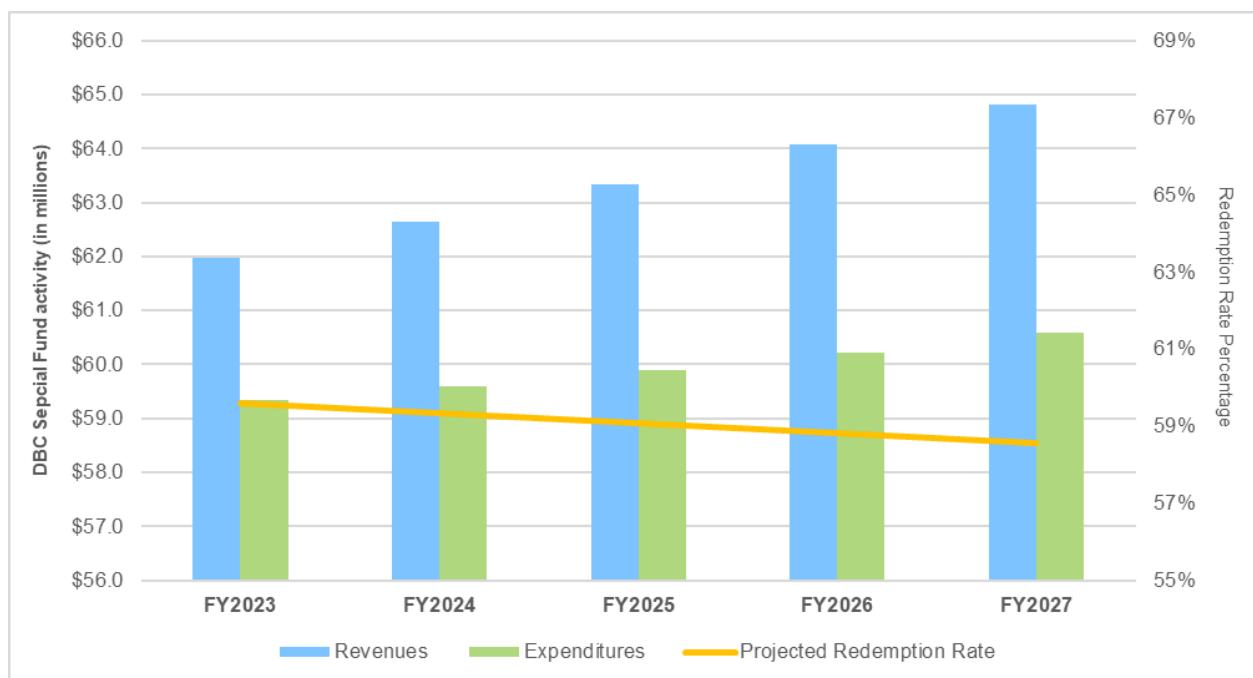
## B. Baseline Results

In the baseline scenario, the DBC Special Fund's revenues would increase by approximately \$670,000 and expenditures would decrease by approximately \$255,000 in FY24 as compared to FY23. **Exhibit 4-4** summarizes the DBC Special Fund projected revenue and expenditure activity through FY27 and **Exhibit 4-5** illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY27 under the baseline scenario.

**Exhibit 4-4**  
**Projected DBC Fund Activity – Baseline Results**

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
<b>Beginning Balance</b>	<b>\$57,200,000</b>	<b>\$59,827,877</b>	<b>\$62,873,046</b>	<b>\$66,324,340</b>	<b>\$70,171,855</b>
<b>Revenues</b>	<b>\$61,977,945</b>	<b>\$62,650,539</b>	<b>\$63,350,276</b>	<b>\$64,077,010</b>	<b>\$64,830,621</b>
Deposits	51,648,288	52,208,783	52,791,897	53,397,508	54,025,518
Container Fees	10,329,658	10,441,757	10,558,379	10,679,502	10,805,104
<b>Expenditures</b>	<b>\$59,350,068</b>	<b>\$59,605,370</b>	<b>\$59,898,982</b>	<b>\$60,229,496</b>	<b>\$60,595,604</b>
Deposit Returns	30,780,067	30,973,439	31,181,739	31,404,486	31,641,234
HF Payments	26,070,002	26,069,431	26,090,681	26,132,783	26,194,838
Fund Administration	2,500,000	2,562,500	2,626,563	2,692,227	2,759,532
<b>Net</b>	<b>\$2,627,877</b>	<b>\$3,045,169</b>	<b>\$3,451,294</b>	<b>\$3,847,514</b>	<b>\$4,235,017</b>
<b>Ending Balance</b>	<b>\$59,827,877</b>	<b>\$62,873,046</b>	<b>\$66,324,340</b>	<b>\$70,171,855</b>	<b>\$74,406,872</b>

**Exhibit 4-5**  
**Projected DBC Fund Activity and Redemption Rates – Baseline Results**



## C. Economic Downturn Results

In the economic downturn scenario, the DBC Special Fund's revenues would increase by approximately \$50,000 and expenditures would increase by approximately \$830,000 in FY24 as compared to FY23.

**Exhibit 4-6** summarizes the DBC Special Fund projected revenue and expenditure activity through FY27 and **Exhibit 4-7** illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY27 under the economic downturn scenario.

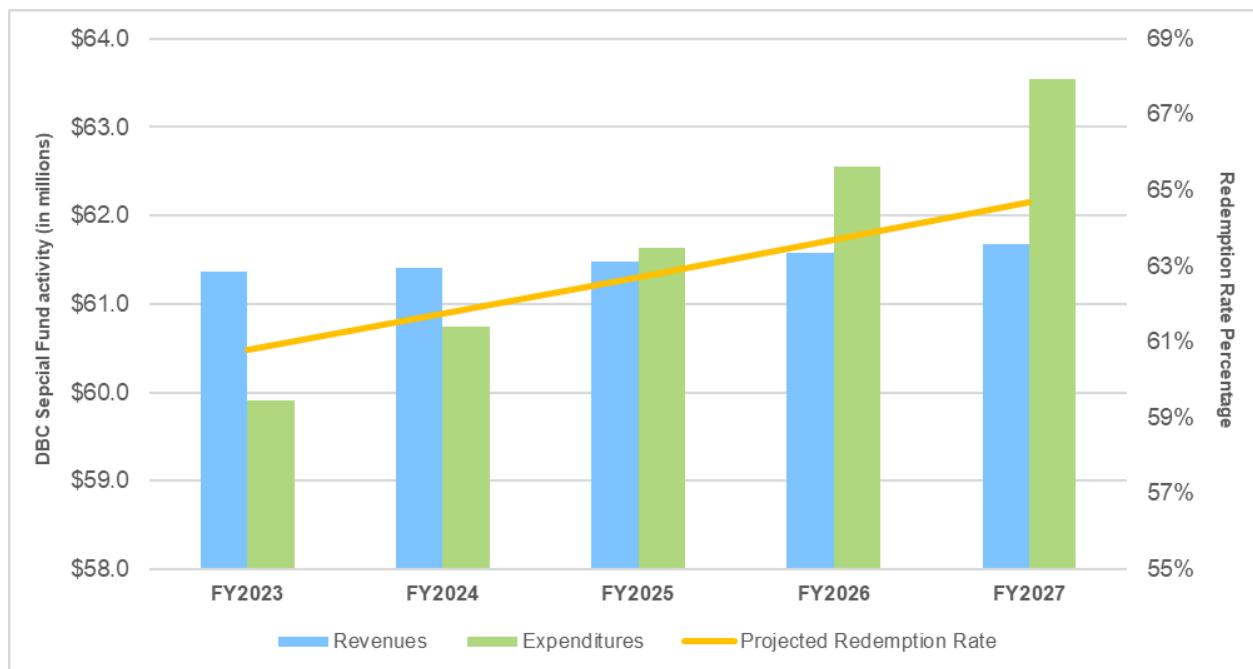
**Exhibit 4-6**

### Projected DBC Fund Activity – Economic Downturn Results

	FY 2022	FY 2023	FY 2024	FY 2025	FY 2027
<b>Beginning Balance</b>	<b>\$57,200,000</b>	<b>\$58,646,026</b>	<b>\$59,310,891</b>	<b>\$59,164,922</b>	<b>\$59,018,953</b>
<b>Revenues</b>	<b>\$61,362,526</b>	<b>\$61,412,956</b>	<b>\$61,483,095</b>	<b>\$61,572,131</b>	<b>\$61,679,299</b>
Deposits	51,135,439	51,177,463	51,235,912	51,310,110	51,399,416
Container Fees	10,227,088	10,235,493	10,247,182	10,262,022	10,279,883
<b>Expenditures</b>	<b>\$59,916,500</b>	<b>\$60,748,091</b>	<b>\$61,629,064</b>	<b>\$62,559,191</b>	<b>\$63,538,317</b>
Deposit Returns	31,087,078	31,594,542	32,124,554	32,677,160	33,252,435
HF Payments	26,329,422	26,591,048	26,877,947	27,189,805	27,526,350
Fund Administration	2,500,000	2,562,500	2,626,563	2,692,227	2,759,532
<b>Net</b>	<b>\$1,446,026</b>	<b>\$664,865</b>	<b>\$(145,969)</b>	<b>\$(987,060)</b>	<b>\$(1,859,018)</b>
<b>Ending Balance</b>	<b>\$58,646,026</b>	<b>\$59,310,891</b>	<b>\$59,164,922</b>	<b>\$58,177,862</b>	<b>\$57,159,935</b>

**Exhibit 4-7**

### Projected DBC Fund Activity and Redemption Rates – Economic Downturn Results



## D. Economic Growth Results

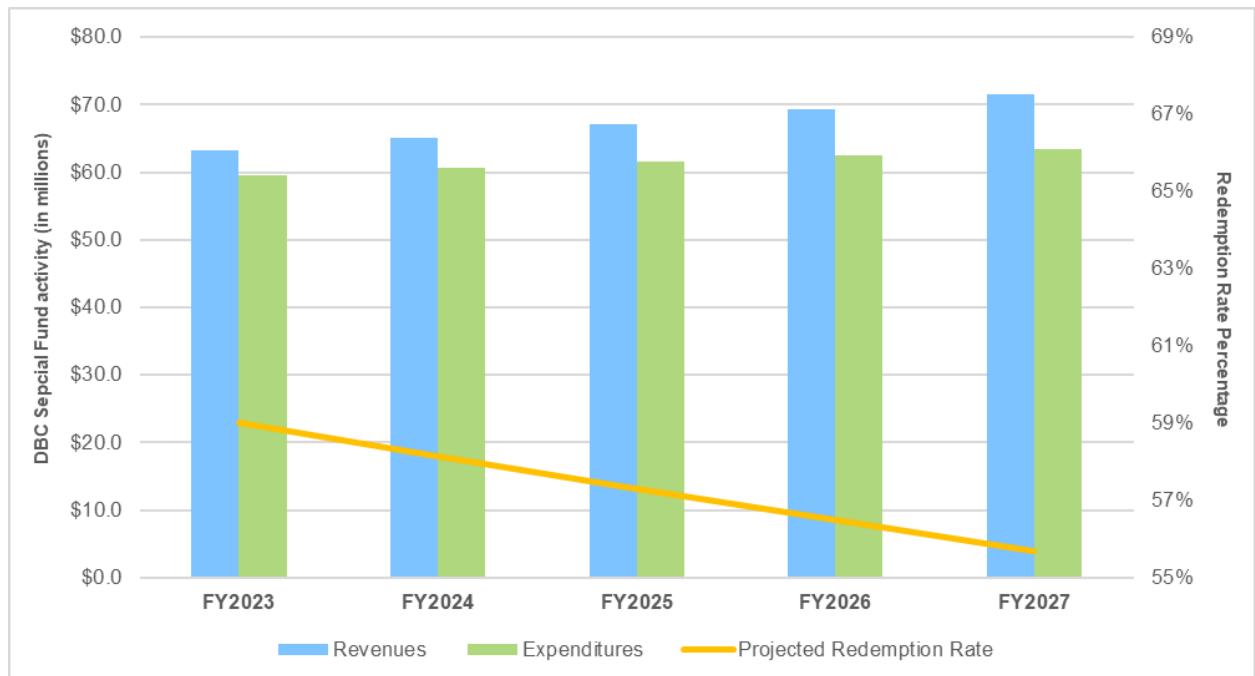
In the economic growth scenario, the DBC Special Fund's revenues would increase by approximately \$1.9 million, and expenditures would increase by approximately \$1.1 million in FY24 as compared to FY23.

**Exhibit 4-8** summarizes the DBC Special Fund projected revenue and expenditure activity through FY27 and **Exhibit 4-9** illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY27 under the economic growth scenario.

**Exhibit 4-8**  
**Projected DBC Fund Activity – Economic Growth Results**

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
<b>Beginning Balance</b>	<b>\$57,200,000</b>	<b>\$57,200,000</b>	<b>\$60,840,512</b>	<b>\$65,289,194</b>	<b>\$70,911,090</b>
<b>Revenues</b>	<b>\$63,204,599</b>	<b>\$65,154,190</b>	<b>\$67,184,173</b>	<b>\$69,297,386</b>	<b>\$71,496,785</b>
Deposits	52,670,499	54,295,158	55,986,811	57,747,822	59,580,654
Container Fees	10,534,100	10,859,032	11,197,362	11,549,564	11,916,131
<b>Expenditures</b>	<b>\$59,564,087</b>	<b>\$60,705,507</b>	<b>\$61,562,277</b>	<b>\$62,466,247</b>	<b>\$63,417,248</b>
Deposit Returns	30,742,419	31,568,457	32,083,989	32,621,140	33,179,971
HF Payments	26,321,668	26,574,551	26,851,725	27,152,880	27,477,745
Fund Administration	2,500,000	2,562,500	2,626,563	2,692,227	2,759,532
<b>Net</b>	<b>\$3,640,512</b>	<b>\$4,448,683</b>	<b>\$5,621,896</b>	<b>\$6,831,139</b>	<b>\$8,079,537</b>
<b>Ending Balance</b>	<b>\$60,840,512</b>	<b>\$61,648,683</b>	<b>\$66,462,408</b>	<b>\$72,120,334</b>	<b>\$78,990,628</b>

**Exhibit 4-9**  
**Projected DBC Fund Activity and Redemption Rates – Economic Growth Results**



## E. Summary and Implications

Our fiscal impacts analysis indicates the DBC Special Fund will likely be able to support our recommended adjustments to the glass and plastic handling fee payments, along with the existing handling fee payment for aluminum/bi-metal, with the existing 1-cent non-refundable container fee through FY27. Our baseline scenario, which is based on historical sales and redemption data, indicates the DBC Special Fund will maintain more than sufficient funding levels through FY27. We understand the DOH accounts for encumbered expenditures (e.g., future handling fee payments for the next fiscal year) each fiscal year, which would decrease the DBC Special Fund's ending balance by roughly \$20 to \$25 million each year. Even when accounting for encumbered expenditures, the DBC Special Fund will still likely maintain more than sufficient sources to cover the recommended increases to glass and plastic handling fees based on the analysis results presented in this section.

Appendix A  
**Adjustment Indicators**

## Appendix A

# Adjustment Indicators

**Exhibit A-1** provides a summary of the adjustment indicators and their application within the Model, including the relevant cost component and descriptions. **Exhibit A-2** provides URLs to the associated sources for the adjustment indicators.

### Exhibit A-1

#### Adjustment Indicators, Descriptions

Adjustment Indicator	Recycling Cost Component	Description
Wage Index	Direct Labor	The Wage Index source is linked to the U.S. Department of Labor, Bureau of Labor Statistics (BLS), Quarterly Census of Employment Wages website. The DOH or contractor will obtain and enter wage index data from the first two quarters of the current year. The Model will utilize the wage index data entered by the DOH or contractor to generate an adjustment factor for weighted direct labor costs associated with each DBC material type.
Minimum Wage	Direct Labor	The minimum wage adjustment indicator source is linked to Minimum-Wage.org. This website provides each states' minimum hourly wage, including historical and anticipated changes to hourly wage rates. The DOH or contractor will obtain and enter the anticipated hourly minimum wage in Hawaii. The Model will utilize the minimum wage data entered by the DOH to generate an adjustment factor for weighted direct labor costs associated with each DBC material type.  Crowe recognizes that there will be a minimum wage adjustment effective October 1, 2022, as a result of recent legislation signed by the Governor. Because the changes to minimum wage are forthcoming, Crowe did not incorporate this change into the adjustment indicators used in this study.
Cost of Living Adjustment	All Cost Components	The Cost of Living Adjustment (COLA) source is linked to the U.S. Department of Labor, BLS, CPI-All Urban Consumers Hawaii website. The BLS provides Consumer Price Index (CPI) data for the past ten years. The DOH or contractor will obtain and enter CPI data from the first two halves of the year analyzed. The Model will utilize the COLA data entered by the DOH or contractor to generate an adjustment factor for all costs associated with each DBC material type.
Health Care	Indirect Labor	The healthcare adjustment indicator source is linked to the ValuePenguin's website. ValuePenguin and its parent company, LendingTree®, maintains data on health insurance premium rates and increases in the United States sourced from prominent healthcare organizations. The DOH or contractor will obtain and enter the healthcare data for Hawaii.
Shipping	Off-Island Transportation	The DOH or contractor will survey a selected sample of CRCs to obtain relevant shipping data. The DOH or contractor will determine the shipping adjustment indicator based on the results identified in the initial study and the survey results. The Model contains a form for the DOH or contractor to enter the shipping survey results on the Shipping Survey Results tab.
Fuel	Inter-, On-, and Off-Island Transportation	The fuel adjustment indicator source is linked to the U.S. Energy Information Administration, Independent Statistics and Analysis on Petroleum and Other Liquids website. The data is available by weekly, monthly, and annual costs of U.S. No.2 Diesel Retail Prices. The Model will utilize the fuel data entered by the DOH or contractor to generate an adjustment factor for transportation costs associated with each DBC material type.

**Exhibit A-2**  
**Adjustment Indicators, Sources**

Adjustment Indicator	Source	URL
Wage Index	Bureau of Labor Statistics (BLS), Average Weekly Wages in Hawaii	<a href="https://data.bls.gov/timeseries/ENU1500040510">https://data.bls.gov/timeseries/ENU1500040510</a>
Minimum Wage	Minimum-wage.org/Hawaii	<a href="https://www.minimum-wage.org/hawaii">https://www.minimum-wage.org/hawaii</a>
Cost of Living Adjustment	BLS, Consumer Price Index (CPI), All Urban Consumers Hawaii	<a href="https://data.bls.gov/timeseries/CUURS49FSA0?amp%253bdata_tool=XGtable&amp;output_view=data&amp;include_graphs=true">https://data.bls.gov/timeseries/CUURS49FSA0?amp%253bdata_tool=XGtable&amp;output_view=data&amp;include_graphs=true</a>
Health Care	ValuePenguin	<a href="https://www.valuepenguin.com/average-cost-of-health-insurance">https://www.valuepenguin.com/average-cost-of-health-insurance</a>
Shipping	Crowe's Shipping Survey Results	Shipping Survey Results
Fuel	U.S. Energy Information Administration (EIA)	<a href="https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&amp;s=EMD_EPD2D_PTE_NUS_DPG&amp;f=W">https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&amp;s=EMD_EPD2D_PTE_NUS_DPG&amp;f=W</a>