

Evaluation of the Current Handling Fees Paid to Certified Redemption Centers

March 3, 2020

Purchase Order #00255408

Submitted to:

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March 3, 2020

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 Report. This report provides our recommended statewide per container handling fees for aluminum, bi-metal, glass, and plastic (combined PET #1 and HDPE #2) beverage containers effective Fiscal Year 2021 (July 1, 2020). 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 2024 (FY24).

This evaluation represents the second time that the Department of Health (DOH) evaluated whether potential adjustments to existing handling fees are warranted since the Deposit Beverage Container (DBC) Program's inception in 2005. In July 2019, the DOH implemented new handling fees for the first time based on a detailed statewide cost survey performed by Crowe that focused on CRCs' FY16 and FY17 labor and operational costs. As part of this first study, Crowe developed the Handling Fee Adjustment Model (Adjustment Model) to provide the DOH with a defensible framework for adjusting handling fees paid to CRCs in future years without performing a comprehensive cost study. Crowe utilized the Adjustment Model to perform this evaluation and to determine our recommended handling fees effective FY21.

Crowe's evaluation of the current handling fees paid to CRCs indicates that the DOH should implement new handling fees effective FY21. Crowe's handling fee recommendations represent an increase in per container statewide rates across all container types, as follows:

- Aluminum/bi-metal per container handling fee increase from 3-cents per container to 3.3-cents
- Glass per container handling fee increase from 7-cents per container to 7.8-cents
- Plastics (PET #1 and HPDE #2 combined) per container handling fee increase from 3.5- cents to 3.9-cents.

Using FY19 redemption data, the CRCs would receive approximately 11 percent (\$2.4 million) more in handling fees payments with the recommended handling fees. Individual CRC companies would see an increase in handling fee payments of between 10 percent and 12 percent. Further, our fiscal impacts analysis results indicate the DBC Special Fund can support our recommended handling fees effective with the existing 1-cent non-refundable container fee through FY24.

Over the course of the last several months, Crowe worked collaboratively with the DOH team to obtain necessary documentation and program data to perform this evaluation of handling fees paid to CRCs. We greatly appreciate the DOH team's responsiveness and diligence to provide us with the proper information to successfully perform this evaluation.

Sincerely,

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

Wendy Pratt, Managing Director
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Section 1
Introduction

1. Introduction

This Evaluation of Current Handling Fees Paid to Certified Redemption Centers (CRCs) was performed under contract by Crowe LLP (Crowe), for the Hawaii Department of Health (DOH). This evaluation provides our recommended statewide per container handling fees for aluminum, bi-metal, glass, and plastic (combined PET #1 and HDPE #2) beverage containers effective Fiscal Year 2021 (July 1, 2020). This report summarizes the approach and methodology Crowe utilized to perform this evaluation and to develop handling fee recommendations. Finally, this report provides an analysis of the fiscal impact of the recommended handling fees on the Deposit Beverage Container (DBC) Special Fund through Fiscal Year 2024 (FY24).

The remainder of this 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 July 2019, the DOH implemented new handling fees for the first time since the DBC program's inception in 2005. The new handling fees were based on a detailed statewide cost survey performed by Crowe that focused on CRCs' FY16 and FY17 labor and operational costs. **Exhibit 1-1** provides current DBC handling fees, which range from 3 cents to 7 cents per container, resulting from the initial cost survey.

Exhibit 1-1
Handling Fees Paid per Deposit Beverage Container
(as of July 2019)

DBC Material Type	Per Container Handling Fee
Aluminum	3 cents
Glass	7 cents
Plastic	3.5 cents
Bi-metal	3 cents

Due to ongoing changes in CRCs' costs, operations, and recycling markets, the DOH intended to evaluate whether an adjustment to existing handling fees is warranted. In October 2019, the DOH released a Request for Quotes (RFQ) for a contractor to evaluate the current handling fees paid to CRCs statewide. The RFQ specified that the recommended handling fees, by material type, would be based on results within the Handling Fee Adjustment Model (Adjustment Model), a Microsoft Excel-based tool developed by the DOH in coordination with Crowe. The Adjustment Model allows the DOH (or contractor) to: 1) evaluate handling fees on an annual basis, 2) determine the extent of adjustment needed (if any), and 3) implement the adjustment.

In November 2019, the DOH selected Crowe to perform this evaluation of current handling fees paid to CRCs in order to provide a justifiable recommendation for potential new handling fees effective FY21. The result of this evaluation will be a critical element supporting the daily operations and financial status of the CRCs and the Program. In addition, the evaluation results are fundamental to support recycling in the state and to the financial viability of the DBC Program.

A key component of this evaluation is the fiscal impacts analysis of the recommended handling fees on the DBC Special Fund through FY24. The results of the fiscal impacts analysis provide a forward-looking approach to informing the final recommended handling fees and potential policy or program recommendations that may be necessary as a result of implementing the potential new handling fees in FY21.

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 tasks identified in the RFQ. **Exhibit 1-2** summarizes the key tasks Crowe performed 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 CRCs – Key Tasks

1. **Conduct an Evaluation of the Current (FY 20) Handling Fees Paid** – conduct a detailed evaluation of current (FY20: July 1, 2019 to June 30, 2020) handling fees paid to CRCs by utilizing the Adjustment Model.
2. **Determine if an Adjustment to the Current Handling Fees is Needed** – based on the results of Task 1, determine whether handling fees for FY21 (July 1, 2020 to June 30, 2021) 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 FY21; provide justification for new handling fees, by material type, or a justification for not adjusting the handling fees.
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 FY21 handling fee recommendations through FY23¹.
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 Public Health, and public hearings, if needed.

In Section 2, *Methodology*, we describe each of these tasks in detail within context of the Adjustment Model and the fiscal analysis component of this evaluation.

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 FY21, July 1, 2020. Crowe's handling fee recommendations represent an increase in per container statewide rates across all container types, as follows:

- Aluminum/bi-metal per container handling fee increase from 3-cents per container to 3.3-cents
- Glass per container handling fee increase from 7-cents per container to 7.8-cents
- Plastics (PET #1 and HPDE #2 combined) per container handling fee increase from 3.5-cents to 3.9-cents.

Using FY19 redemption data, the CRCs would receive approximately 11 percent (\$2.4 million) more in handling fees payments with the recommended handling fees. Individual CRC companies would see an increase in handling fee payments of between 10 percent and 12 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 provides the results from the overall adjustments to CRCs' weighted recycling costs resulting from the Adjustment Model (i.e. – for aluminum, CRCs' costs increased by 10.68 percent). The "recommended handling fee" column represents the results of the "current handling fee" multiplied by the "adjustment".

¹ The RFQ requested for the fiscal impacts analysis to be performed through FY23. Crowe performed a fiscal impacts analysis through FY24 as part of this evaluation.

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	\$0.030	110.68%	\$0.033
Glass	\$0.070	111.75%	\$0.078
Plastic	\$0.035	110.69%	\$0.039
Bi-metal	\$0.030	110.68%	\$0.033

In *Section 3, Recommended Handling Fees*, we provide detailed rationale, including an explanation and justification, for our recommended handling fees in Exhibit 1-3. In *Section 4, Fiscal Impacts Analysis*, we provide the results of the fiscal impact of the recommended handling fees on the DBC Special Fund through FY24. The report concludes with a summary and discussion of the implications of this evaluation.

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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 Fiscal Year 2021 (FY21). 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 2024 (FY24).

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 defensible 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 Certified Recycling Center (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 upward adjustment in handling fees. There are six potential adjustment factors in the model:

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

With the exception of 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 a short on-line survey for CRCs. The DOH distributed the shipping survey to ten CRCs that ship materials off-island. The 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 will determine which, if any, indices to apply to the appropriate percentage of the current handling fee. For example, 42 percent of the 3-cent aluminum handling fee supports direct labor (1.26 cents per container). If the minimum wage were to increase from \$10.10 in 2018 to \$12 in 2020 (a 16 percent increase), the Model applies that 16 percent increase to 1.26 cents, resulting in a new labor cost per container of 1.46 cents.

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.

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

Once all of the relevant adjustment factors have been entered into the Model, the Model calculates the potential increases to handling fees for each material type.

Handling Fee Adjustment Model Components

The Adjustment Model contains six 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 provide a defensible documentation package to 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 in to 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 to 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.
- 5. CRC Handling Fee Payments** – The *CRC Handling Fee Payments* provides the DOH with a form to determine the recommended percent change in handling fee payments 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

State of Hawaii, Department of Health Deposit Beverage Container Program Handling Fee Adjustment Model					
Directions: 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.					
Handling Fee Adjustment Indicator Results					
			Enter Updated Data Here	Select Link to View Current Data	
Adjustment Indicators	Adjustment Factor	Base Indicator	Updated Indicator(s)		Source
		2017 Annual	Q1 (2019)	Q2 (2019)	
Wage Index	5.1%	905	963	939	Weekly Wages in Hawaii
		Minimum Wage (2019)	Minimum Wage (FY 21)		
Minimum Wage Note: If there is no change in the minimum wage, then do not enter an updated indicator.	0.0%	\$10.10	\$10.10		Minimum Wage in Hawaii
		Half 1 2018	Half 1 2019	Half 2 2019	
Cost of Living Adjustment	2.3%	275.20	280.67	282.50	COLA
		2017	2019		
Health Care	49%	\$330.00	\$493.00		Health Care
		Base Year Results	Survey Results		
Shipping	15%	\$2,632.00	\$3,016.07		Shipping Survey Results
		Fuel as of 2017 (Year 7)	Fuel as of 2019 (Year 9)		
Fuel	16.2%	\$2.948	\$3.427		Diesel Fuel Costs in HI

B. Overview of Fiscal Impacts Analysis and Assumptions

Crowe updated two Microsoft Excel-based models developed during the first study of DBC handling fees to evaluate the impact of the recommended handling fees resulting from this evaluation on the DBC Special Fund through FY24. Both models provided a framework to determine if the DBC Special Fund could cover its liabilities with the recommended handling fees under three varying scenarios: baseline, economic downturn, and economic growth. In the remainder of this section, we provide details about the development and assumptions used in each model.

1. Sales and Redemption Rate Projection Model

Crowe developed the sales and redemption model to demonstrate varying statewide beverage container sales and redemption rates under different economic conditions through FY24. Using historical DBC data provided by the DOH along with beverage container market data, we made projection assumptions within the model to increase and decrease sales (number of containers) and redemption rates. To perform these projections, Crowe developed three 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 potential fiscal impacts to the DBC Special Fund in a “status quo” economy, downturn economy, and growth economy.

Baseline Scenario

The baseline scenario represents a “status quo” economy and is based on a 12 fiscal year historical average 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	Baseline % Change in Sales	Baseline % Change in Redemption Rate
Aluminum	-0.3%	-0.2%
Glass	-2.2%	-1.3%
Plastic	2.2%	0.1%

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 3 percent and increased redemption rates from the baseline scenario by 1 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 Rate	Economic Downturn % Change in Redemption Rate
Aluminum	-0.3%	-3.3%	-0.2%	0.8%
Glass	-2.2%	-5.2%	-1.3%	-0.3%
Plastic	2.2%	0.8%	0.1%	1.1%

Economic Growth Scenario

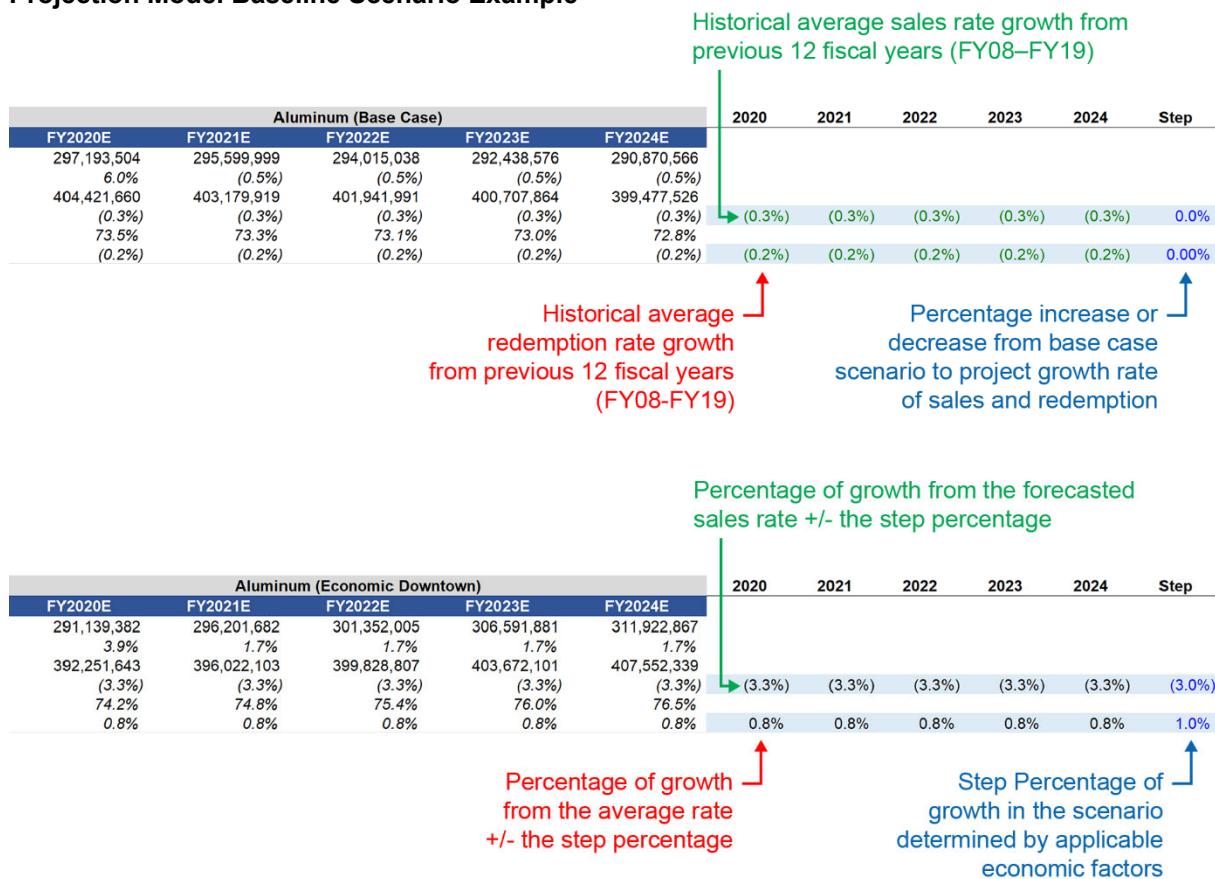
The economic upturn scenario projects for an increase in beverage container sales and a decrease in redemption rates due to the likely impacts of an upturn in the overall economy, such as a decrease in unemployment and an increase in household income. In this scenario, we increased sales growth from 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 Rate	Economic Upturn % Change in Redemption Rate
Aluminum	-0.3%	1.7%	-0.2%	-1.2%
Glass	-2.2%	-0.2%	-1.3%	-2.3%
Plastic	2.2%	4.2%	0.1%	-0.9%

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 FY19), red is the historical average of the redemption growth rate (from FY08 to FY19), 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



2. Financial Impacts Model

The fiscal impacts model projects the DBC Special Fund's revenues, expenditures, and beginning and ending balances through FY24. 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. We used the following key factors to project annual revenue 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 provides the current handling fees utilized to project expenditures in FY20 and the recommended handling fees used to project expenditures in FY21 through FY24.

Exhibit 2-7
Current and Recommended per Container Handling Fees

DBC Material Type	Current HF	Recommended HF
Aluminum	3 cents	3.3 cents
Glass	7 cents	7.8 cents
Plastic	3.5 cents	3.9 cents
Bi-metal	3 cents	3.3 cents

DBC Program Budget

The DOH provided the DBC Program's FY18 and FY19 budget data, which included personnel and operational costs. Crowe escalated DBC Program costs by 2.5 percent annually to project for increases in staff labor costs in future years. Crowe utilized personnel expenditures of approximately \$2M in FY20, representing estimated personnel expenditures.

Exhibit 2-8 illustrates how we incorporated the different factors in to the fiscal impact model.

Exhibit 2-8
Example Fiscal Impact Model for Baseline Scenario

The diagram illustrates the flow of data from DOH-provided beginning balance to calculated ending balance through four projected scenarios:

- FY20 Beginning Balance** (DOH provided)
- 1. Projected sales volumes × 5¢ deposit**
- 2. Projected sales volumes × 1¢ non-refundable container fee**
- 3. Projected redemption volumes × 5¢ deposit**
- 4. Projected redemption volumes × handling fees in Exhibit 2-7**
- DOH provided.
We adjusted starting FY21.**
- Calculated Ending Balance**

Arrows point from each scenario to the corresponding row in the table, which represents the **Baseline Scenario** over five years (FY 2020 to FY 2024).

Baseline Scenario					
	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Beginning Balance	\$ 43,127,905	\$ 43,532,926	\$ 41,688,539	\$ 40,151,493	\$ 38,912,008
Revenues	56,615,269	56,868,269	57,137,644	57,423,558	57,726,187
AL Deposits	20,221,083	20,158,996	20,097,100	20,035,393	19,973,876
GL Deposits	7,359,915	7,196,319	7,036,359	6,879,955	6,727,027
PL Deposits	19,452,030	19,888,997	20,335,780	20,792,599	21,259,681
BM Deposits	146,362	145,913	145,465	145,018	144,573
AL Container Fee	4,044,217	4,031,799	4,019,420	4,007,079	3,994,775
GL Container Fee	1,471,983	1,439,264	1,407,272	1,375,991	1,345,405
PL Container Fee	3,890,406	3,977,799	4,067,156	4,158,520	4,251,936
BM Container Fee	29,272	29,183	29,093	29,004	28,915
Expenditures	54,210,248	56,662,657	56,600,346	56,563,747	56,552,612
AL Deposit Return	14,859,675	14,780,000	14,700,752	14,621,929	14,543,528
GL Deposit Return	4,640,071	4,477,201	4,320,047	4,168,410	4,022,095
PL Deposit Return	11,262,455	11,521,872	11,787,263	12,058,768	12,336,526
BM Deposit Return	95,265	94,754	94,246	93,740	93,238
AL HF Payments	8,915,805	9,754,800	9,702,496	9,650,473	9,598,729
GL HF Payments	6,496,100	6,984,433	6,739,274	6,502,720	6,274,469
PL HF Payments	7,883,719	8,987,060	9,194,065	9,405,839	9,622,491
BM HF Payments	57,159	62,537	62,202	61,869	61,537
Fund Administration	2,000,000	2,050,000	2,074,344	2,099,296	2,124,872
Personnel Expenses	950,000	973,750	998,094	1,023,046	1,048,622
Operating Expenses	1,050,000	1,076,250	1,076,250	1,076,250	1,076,250
Ending Balance	\$ 43,532,926	\$ 41,688,539	\$ 40,151,493	\$ 38,912,008	\$ 37,960,711

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Section 3

Recommended Handling Fees

3. Recommended Handling Fees

Crowe's evaluation of the current handling fees paid to Certified Redemption Centers (CRCs) indicates the Department of Health (DOH) should implement new per container statewide handling fees effective July 1, 2020, Fiscal Year 2021 (FY21). Crowe utilized the Handling Fee Adjustment Model (Adjustment Model) described in *Section 2* to evaluate current handling fees paid to CRCs and to determine recommended handling fees effective FY21. 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

Crowe's recommended handling fees are based on adjustments to CRCs' weighted recycling costs for each DBC material type: aluminum/bi-metal, glass, and combined plastics (PET #1 and HDPE #2). It is important to note that "base" recycling costs for each DBC material are based on FY16 and FY17 CRC costs, which Crowe obtained through the first study of the DBC Program's handling fees. Our recommended handling fees for each DBC material type are based on adjustments to these "base" recycling costs. Crowe utilized the Adjustment Model to calculate adjustment factors derived from key economic adjustment indicators, which provided a basis to quantify changes in CRCs' weighted recycling costs. Overall, CRCs' weighted recycling costs increased for all DBC material types due to the following:

1. Significant increase to the health care adjustment indicator due to nearly a 50 percent increase in statewide premiums from 2017 to 2019, which increased indirect labor costs for all materials
2. Increase of approximately 15 percent to off-island shipping rates from FY16/FY17 to FY19, which increased off-island transportation costs for all materials; this increase in off-island shipping rates had the greatest impact on glass costs since approximately 23 percent of the material's "base" cost is made up of off-island shipping
3. Increase of approximately 16 percent to the fuel adjustment indicator from 2017 to 2019 due to an increase in West Coast diesel prices, resulting in an increase to intra and on-island transportation costs for all materials
4. Slight increase to direct labor costs from 2017 to 2019 based on a 5.1 percent increase to the wage index, which measures average weekly wages
5. Minimal increase to other costs from 2018 to 2019 based on a 2.3 percent increase to cost of living adjustment.

Exhibit 3-1 provides a comparison of the recommended and current statewide per container handling fee rates by DBC material type. The "current handling fee" column provides the per container statewide handling fee results from Crowe's initial cost survey based on FY16 and FY17 CRC weighted recycling costs. The "adjustment" column provides the results from the overall adjustments to CRCs' weighted recycling costs based on the economic adjustment indicators (i.e. – for aluminum, CRCs' costs increased by 10.68 percent). 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	\$0.030	110.68%	\$0.033
Glass	\$0.070	111.75%	\$0.078
Plastic	\$0.035	110.69%	\$0.039
Bi-metal	\$0.030	110.68%	\$0.033

Exhibit 3-2 summarizes CRCs' adjusted recycling costs for each DBC material type, which are based on the key adjustment indicators described in **Exhibit 3-3**. Indirect labor costs increased the most out of all of the cost categories due to an increase in statewide health care premiums from 2017 to 2019. The increase to indirect labor costs reflects approximately 50 percent of the increase to CRCs' costs to recycle aluminum/bi-metal and plastic and approximately a third of the increase to CRCs costs to recycle glass. Overall transportation costs (off/intra/on island transportation) increased for all DBC materials but had the biggest impact on overall glass costs. Glass off-island transportation represent a third of the increase in the total adjustment to glass costs.

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 3-2
Adjusted Recycling Costs by DBC Material Type

Recycling Costs	Aluminum / Bi-Metal		Glass		Plastic	
	Base	Adjusted	Base	Adjusted	Base	Adjusted
Direct Labor	42%	44%	33%	35%	43%	45%
Indirect Labor	12%	18%	10%	14%	13%	19%
Off-Island Transportation	4%	5%	23%	27%	3%	3%
Intra & On Island Transportation	6%	7%	6%	7%	6%	7%
All Other Costs	35%	36%	29%	30%	35%	36%
Total Base / Total Adjusted	100%	111%	100%	112%	100%	111%

Exhibit 3-3
Key Adjustment Indicators and Adjustment Rationale

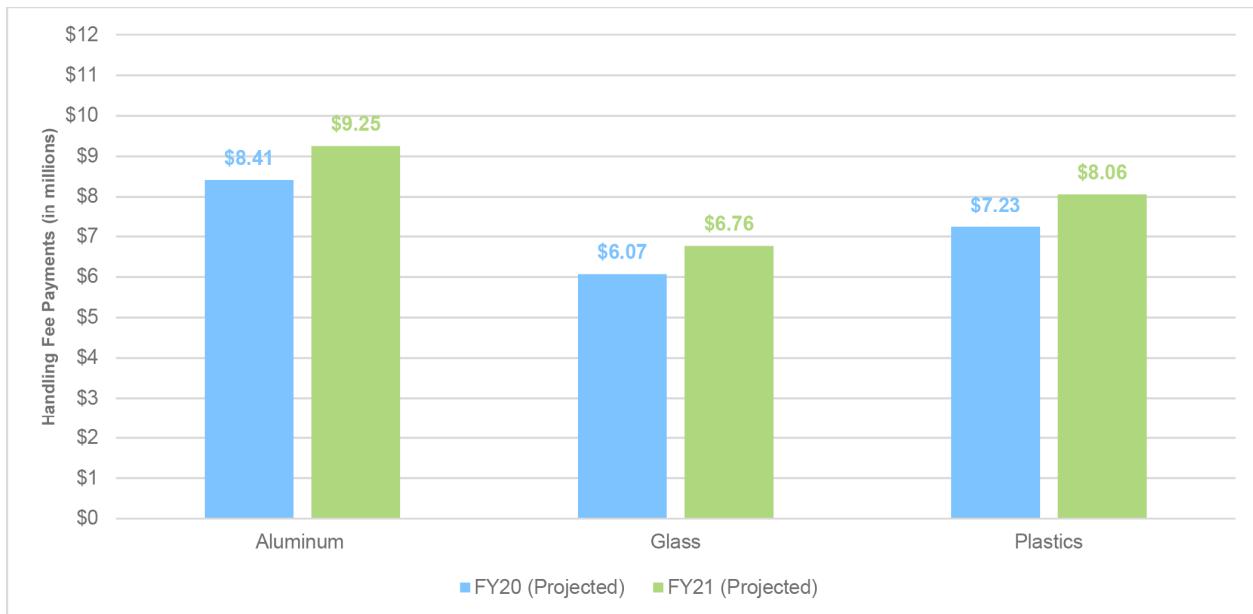
Adjustment Indicators	Adjustment	Adjustment Rationale
Wage Index Source: Bureau of Labor Statistics (BLS), Average Weekly Wages in Hawaii	5.1%	<ul style="list-style-type: none"> Average weekly wages in Hawaii from 2017 to 2019 increased by roughly 5%, resulting in an adjustment to CRC direct labor costs for all material types. The wage index was the highest direct labor adjustment indicator (in comparison to minimum wage and COLA adjustments). This increase in average weekly wages is consistent with the increase in overall wage jobs and decrease in unemployment rates in Hawaii since the Great Recession.
Minimum Wage Source: Minimum-wage.org/Hawaii	0.0%	<ul style="list-style-type: none"> Minimum wage has not changed since January 1, 2017, resulting in no impact to direct labor costs. Minimum wage is currently at \$10.10 per hour. There are current legislative efforts to increase the minimum wage to \$13.00 per hour by 2024. The increase in minimum wage by 2024 would most likely impact CRC direct labor costs in FY23 or sooner given that most recyclers pay slightly above the minimum wage to retain employees in a tight labor market. This indicator was lower than the wage index and was not used to adjust CRC direct labor costs.
Cost of Living Adjustment (COLA) Source: BLS, Consumer Price Index (CPI) All Urban Consumers Hawaii	2.3%	<ul style="list-style-type: none"> COLA increased 2.3% from 2018 to 2019; an annual increase of 2% is typical. This indicator was lower than the wage adjustment and was not used to adjust CRC direct labor costs.
Health Care Source: Kaiser Family Foundation (KFF)	49.4%	<ul style="list-style-type: none"> Marketplace average benchmark premiums increased from \$330 in 2017 to \$493 in 2019, nearly a 50% increase. The KFF's marketplace average benchmark premiums come from Healthcare.gov and state rate reviews. Premiums were analyzed using the second-lowest cost silver (benchmark) premium for a 40-year-old in each county. The rate increase was primarily due to the assumption that the federal government would not continue to fund cost-sharing reductions (CSR). In October 2017, the Hawaii Department of Insurance instructed insurers to assume that the CSR funding would not continue, and to apply the resulting additional premiums to on-exchange silver plans. Crowe utilized this adjustment to adjust for CRC indirect labor costs for all materials.
Shipping Source: Crowe's Shipping Survey Results	14.6%	<ul style="list-style-type: none"> Based on survey responses from 8 recyclers, glass shipping costs increased by nearly 15 percent from base year results to 2019. This increase in shipping costs is in alignment with increase to fuel (diesel) prices. Crowe utilized this adjustment to adjust for CRC off-island transportation.
Fuel Source: U.S. Energy Information Administration	16.2%	<ul style="list-style-type: none"> According to the U.S. Energy Information Administration, cost per gallon of diesel on the West Coast (excluding California) increased from \$2.95 in 2017 to \$3.43 in 2019, a 16.2% increase. This percentage increase in diesel prices is in alignment with the percentage increase in shipping costs obtained through Crowe's survey. Crowe utilized this increase to adjust for intra and on-island transportation costs for all materials.

B. Comparison to Current Handling Fee Payments

As a first step in understanding the impact of the recommended handling fees paid to CRCs, we compared current handling fee payments to recommended handling fee payments using FY19 redemption data. In total, CRCs would receive approximately 11 percent (\$2.4 million) more in handling fees payments with the recommended handling fees in Exhibit 3-1. Individual CRC companies would see an increase in handling fee payments of between 10 percent and 12 percent. In the next section of this report, we provide our fiscal impacts analysis of the recommended handling fee on the DBC fund under varying projections of beverage container sales and recycling over the next several years.

Exhibit 3-4 illustrates the increase in handling fee payments by DBC material type from FY20 to FY21 based on FY19 redemption data. Aluminum handling fee payments are projected to increase by approximately 10 percent from FY20 to FY21, whereas, glass and plastics (PET #1 and HDPE #2 combined) handling fee payments are projected to increase approximately 11 percent from FY20 to FY21.

Exhibit 3-4
Change in Handling Fee Payments by DBC Material Type (Based on FY19 Redemption Data)



C. Justification for Recommended Handling Fees

Without performing a comprehensive survey of CRCs' costs similar to our first study of the DBC Program's handling fees, we relied on the Adjustment Model to evaluate and to determine our recommended handling fees effective FY21, July 1, 2020. As mentioned throughout this report, the Adjustment Model, including input from the shipping survey, provided a mechanism to estimate likely increases in CRCs' costs to recycle DBC materials. This approach provided a justifiable means to recommend appropriate handling fees reflective of these likely changes in CRC costs. We also found this method of adjusting CRCs' recycling costs to be further substantiated given that the status of the economy and recycling landscape has not changed significantly since our last study of the DBC Program's handling fees.

Further, we recently performed and finalized a processing and handling fee study for the California Department of Resources Recycling and Recovery (CalRecycle) that resulted in a 13 percent increase in the cost per container between 2016 and 2018 primarily due to increases in recyclers' labor and transportation costs. The increase in per container handling fees for DBC materials resulted in 11 to 12 percent increases primarily due to increases in labor (indirect) and transportation costs, which is in alignment with the results from the California study. In the remainder of this subsection, we provide a brief summary describing the justification of our recommended handling fees for each DBC material type.

1. Aluminum and Bi-Metal

CRCs' overall aluminum and bi-metal costs increased by 10.7 percent, resulting in a half-cent increase to the current per container handling fee rate for these materials. Our recommended adjustment to the current handling fee rate for aluminum and bi-metal, from 3-cents to 3.3-cents per container, is based on the 10.7 percent increase in CRCs' costs to recycle these materials. Below is a breakdown and explanation of the 10.7 percent increase in costs for aluminum and bi-metal:

- Indirect labor costs for aluminum and bi-metal increased nearly 50 percent based on the health care indicator, which resulted in nearly half of the increase in overall aluminum and bi-metal costs, or roughly 5 percent
- Direct labor had the second largest impact on CRCs' aluminum and bi-metal overall costs with an increase of roughly 2 percent based on the wage index indicator, which increased by 5 percent due to increases to weekly wages in Hawaii
- Transportation (off/intra/on island) and "All Other Costs" slightly increased, but had the least impact on overall CRCs' aluminum/bi-metal recycling costs.

2. Glass

CRCs' overall glass costs increased by 11.8 percent, resulting in a one-cent increase to the current per glass per container handling fee rate. Our recommended adjustment to the current handling fee rate for glass, from 7-cents to 7.8-cents per container, is based on the 11.8 percent increase in CRCs' costs to recycle this material. Below is a breakdown and explanation of the 11.8 percent increase in glass costs:

- Indirect labor costs for glass increased nearly 50 percent based on the health care indicator, which resulted in nearly a third of the increase in overall glass costs, or roughly 4 percent.
- Off-island transportation costs increased nearly 15 percent, which had the second largest impact after indirect labor with an increase of roughly 3 percent or a fourth of CRCs' glass overall costs; in comparison to other materials, off-island transportation had a greater impact on overall glass costs because off-island transportation represented nearly one fourth (23%) of glass costs
- Direct labor and "All Other Costs" slightly increased, but had the least impact on overall CRCs' glass recycling costs.

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

CRCs' overall plastics costs increased by 10.7 percent, resulting in a half-cent increase to the current per container handling fee rate for these materials. Our recommended adjustment to the current handling fee rate for glass, from 3.5-cents to 3.9-cents per container, is based on the 10.7 percent increase in CRCs' costs to recycle this material. Below is a breakdown and explanation of the 10.7 percent increase in glass costs:

- Indirect labor costs for plastics increased nearly 50 percent based on the health care indicator, which resulted in nearly half of the increase in overall plastics costs, or roughly 5 percent
- Direct labor had the second largest impact on CRCs' plastics overall costs with an increase of roughly 2 percent based on the wage index indicator, which increased by 5 percent due to increases to weekly wages in Hawaii
- Transportation (off/intra/on island) and "All Other Costs" slightly increased, but had the least impact on overall CRCs' plastics recycling costs.



Section 4
Fiscal Impacts Analysis

4. Fiscal Impacts Analysis

This section provides the results our fiscal impacts analysis through Fiscal Year 2024 (FY24). 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. *Uncertainty and Unknowns*
- F. *Summary and Implications*.

A. Overview of Results

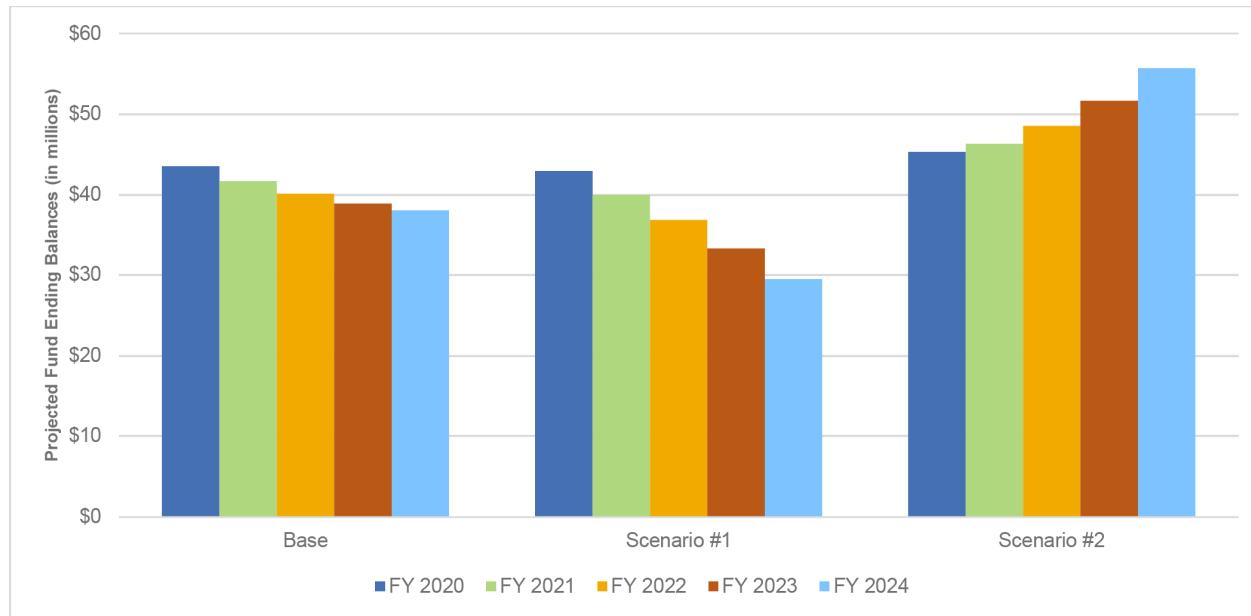
Our fiscal impacts analysis results indicate the Deposit Beverage Container (DBC) Special Fund can support our recommended handling fees effective July 1, 2020 (FY21) with the existing 1-cent non-refundable container fee through FY24. The DBC Special Fund maintained a positive ending balance and a fund coverage ratio of above 1.0 through FY24 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. Note that our analyses start with a FY20 ending fund balance of roughly \$43 million. Below we provide highlights from our results:

- The DBC Special Fund maintains, on average, an ending balance of approximately \$41 million through FY24. This signifies the DBC Special Fund will maintain adequate coverage for its expenditures (deposit returns, handling fee payments, and fund administrative costs) through FY24 even under economic downturn conditions.
- The DBC Special Fund maintains, on average, approximately 1.7x the amount needed to cover its expenditures through FY24.
- In the baseline scenario, the DBC Special Fund's expenditures exceed revenues in FY21 due to the increase in the recommended handling fees.
- As expected, the economic downturn scenario creates the most "stress" on the DBC Special Fund. In the economic downturn scenario, the DBC Special Fund's expenditures exceed revenues starting in FY20, the current fiscal year, due to increases to projected redemption rates. The DBC Special Fund's ending balance is projected at \$29 million by FY24 indicating that the DOH would *not* need to increase the non-refundable per container fee from 1-cent to 1.5-cents or adjust handling fee payments downward.
- In the economic growth scenario, revenues exceed expenditures due to an increase in projected beverage container sales and a decrease in redemption rates.

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.

Exhibit 4-1 provides a summary comparison of projected DBC Special Fund ending balances by scenario through FY24. The baseline and economic downturn scenario (#1 and #2) show a decline in the DBC Special Fund ending balance through FY24. The economic growth scenario (#3) shows an increase in the DBC Special Fund ending balance through FY24.

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



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 baseline and economic downturn scenarios, the DBC Special Fund will begin to utilize its excess funds as follows: the baseline scenario in FY21 and, the economic downturn scenario in FY20. The DBC Special Fund ending balance increases in the economic growth scenario. The baseline and economic downturn scenarios are the only scenarios where the DBC Special Fund FY24 balance is lower than its FY20 ending balance.

Exhibit 4-2
Comparison of Projected DBC Fund Ending Balances
Fiscal Year 2020 through 2024

Scenario	FY20	FY21	FY22	FY23	FY24
1. Baseline	\$43,532,926	\$41,688,539	\$40,151,493	\$38,912,008	\$37,960,711
2. Economic Downturn	\$42,939,506	\$39,984,776	\$36,762,589	\$33,256,819	\$29,451,902
3. Economic Growth	\$45,310,477	\$46,314,410	\$48,524,047	\$51,642,114	\$55,686,588
Average	\$43,927,636	\$42,662,575	\$41,812,710	\$41,270,314	\$41,033,067

Note: The bolded dollars indicate when DBC expenditures exceed revenues.

Fund Coverage Ratio

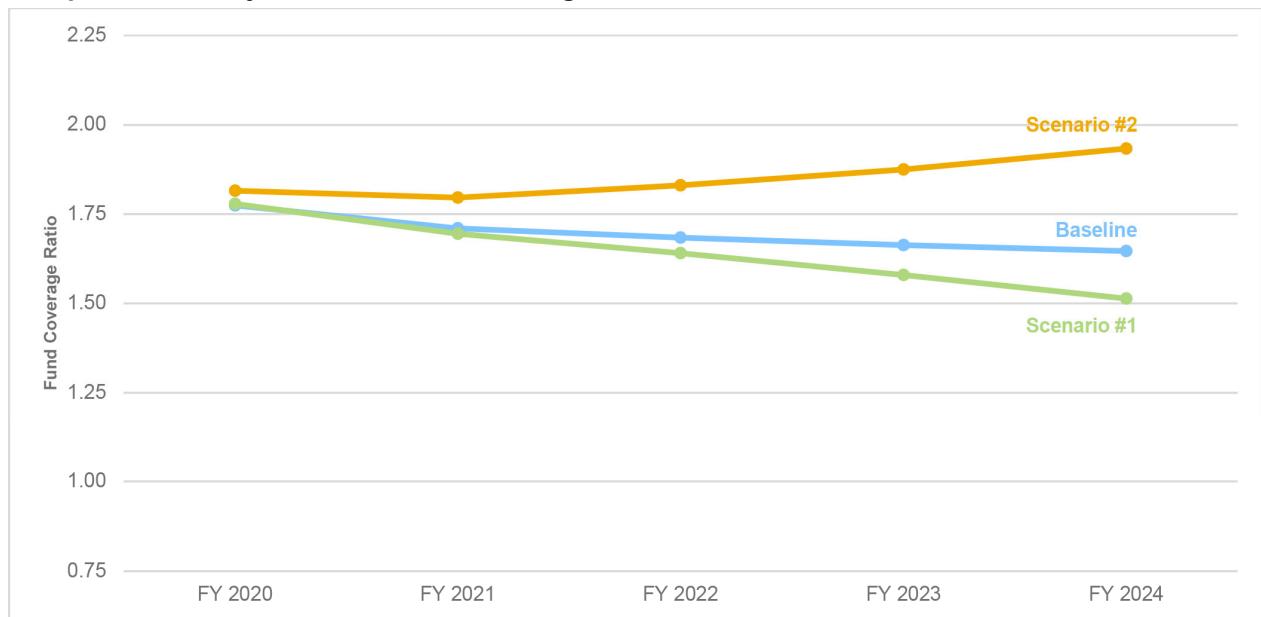
The fund coverage ratio is a comparative metric to determine if the DBC Special Fund can cover its expenditures under each scenario. The fund coverage ratio provides an assurance that the DBC Special Fund has the necessary funds on hand to weather any short-term economic volatility. For example, if the 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. 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 FY24. This indicates the DBC Special Fund has more than 100 percent of the necessary funds to cover its expenditures even under “stressed” conditions through FY24. 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

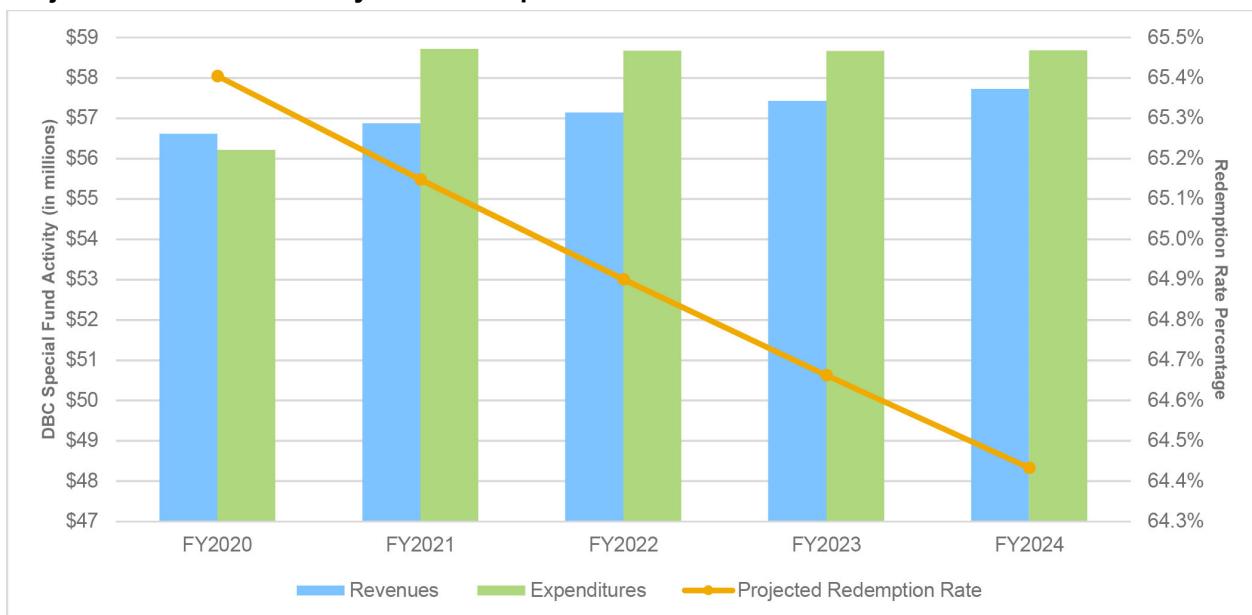
In the baseline scenario, the recommended handling fees implemented in FY21 would increase the DBC Special Fund expenditures by approximately \$2.4 million as compared to FY20. The baseline scenario results indicate the DBC Special Fund will maintain adequate funds to cover the recommended handling fees through FY24.

Exhibit 4-4 summarizes the DBC Special Fund projected revenue and expenditure activity through FY24. The DBC Special Fund would begin to utilize its excess funds in FY21 with expenditures exceeding revenues by approximately \$1.8 million. **Exhibit 4-5** illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY24.

Exhibit 4-4
Projected DBC Fund Activity – Baseline Results

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Beginning Balance	\$43,127,905	\$43,532,926	\$41,688,539	\$40,151,493	\$38,912,008
Revenues	\$56,615,269	\$56,868,269	\$57,137,644	\$57,423,558	\$57,726,187
Deposits	47,179,390	47,390,225	47,614,703	47,852,965	48,105,156
Container Fees	9,435,878	9,478,045	9,522,941	9,570,593	9,621,031
Expenditures	\$56,210,248	\$58,712,657	\$58,674,689	\$58,663,043	\$58,677,485
Deposit Returns	30,857,466	30,873,826	30,902,308	30,942,847	30,995,388
HF Payments	23,352,782	25,788,830	25,698,037	25,620,900	25,557,225
Fund Administration	2,000,000	2,050,000	2,074,344	2,099,296	2,124,872
Net	\$405,020	\$(1,844,387)	\$(1,537,046)	\$(1,239,485)	\$(951,297)
Ending Balance	\$43,532,926	\$41,688,539	\$40,151,493	\$38,912,008	\$37,960,711

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



C. Economic Downturn Results

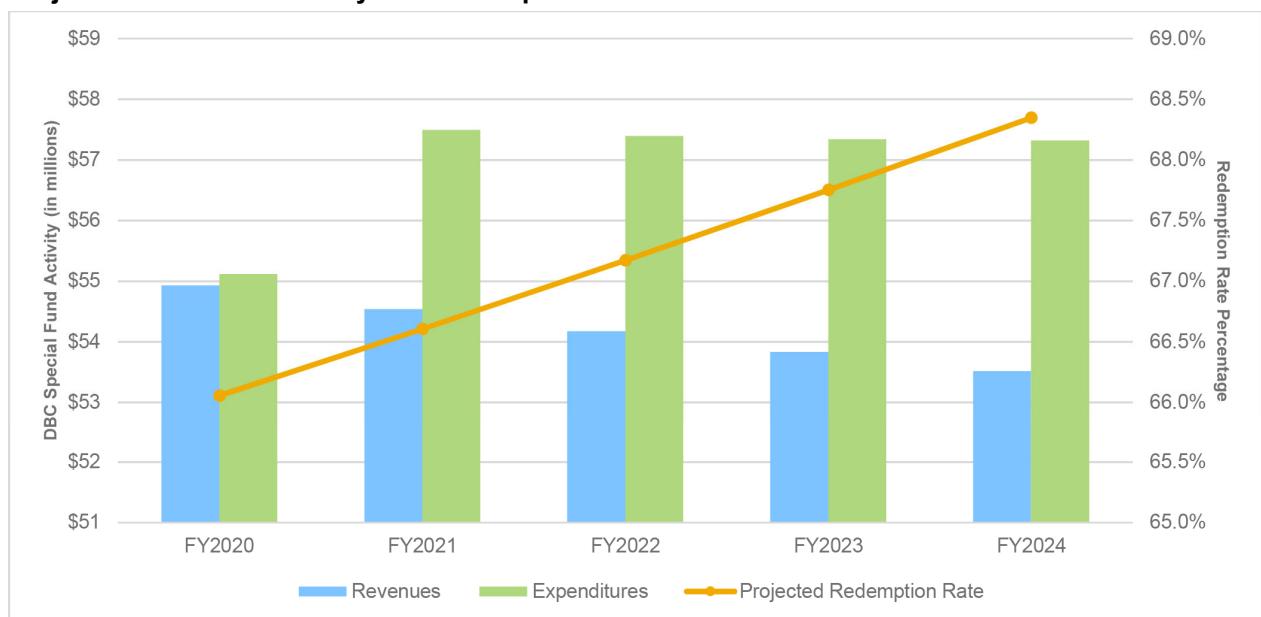
In the economic downturn scenario, the recommended handling fees implemented in FY21 would increase the DBC Special Fund's expenditures by approximately \$2.3 million as compared to FY20. The economic downturn (moderate) results indicate the DBC Special Fund will maintain adequate funds to cover the recommended handling fees through FY24.

Exhibit 4-6 summarizes the DBC Special Fund projected revenue and expenditure activity through FY24 under the economic downturn scenario. The DBC Special Fund would begin to utilize its excess funds in FY20 with expenditures exceeding revenues by approximately \$190 thousand. This trend will continue into FY24. **Exhibit 4-7** illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY24 under the economic downturn (moderate) scenario.

Exhibit 4-6
Projected DBC Fund Activity – Economic Downturn Results

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Beginning Balance	\$43,127,905	\$42,939,506	\$39,984,776	\$36,762,589	\$33,256,819
Revenues	\$54,929,199	\$54,537,017	\$54,171,649	\$53,831,888	\$53,516,590
Deposits	45,774,333	45,447,514	45,143,041	44,859,907	44,597,158
Container Fees	9,154,867	9,089,503	9,028,608	8,971,981	8,919,432
Expenditures	\$55,117,598	\$57,491,747	\$57,393,836	\$57,337,658	\$57,321,506
Deposit Returns	30,236,779	30,270,946	30,323,470	30,393,662	30,480,878
HF Payments	22,880,819	25,170,801	24,996,023	24,844,700	24,715,756
Fund Administration	2,000,000	2,050,000	2,074,344	2,099,296	2,124,872
Net	\$(188,399)	\$(2,954,731)	\$(3,222,187)	\$(3,505,770)	\$(3,804,917)
Ending Balance	\$42,939,506	\$39,984,776	\$36,762,589	\$33,256,819	\$29,451,902

Exhibit 4-7
Projected DBC Fund Activity and Redemption Rates – Economic Downturn Results



D. Economic Growth Results

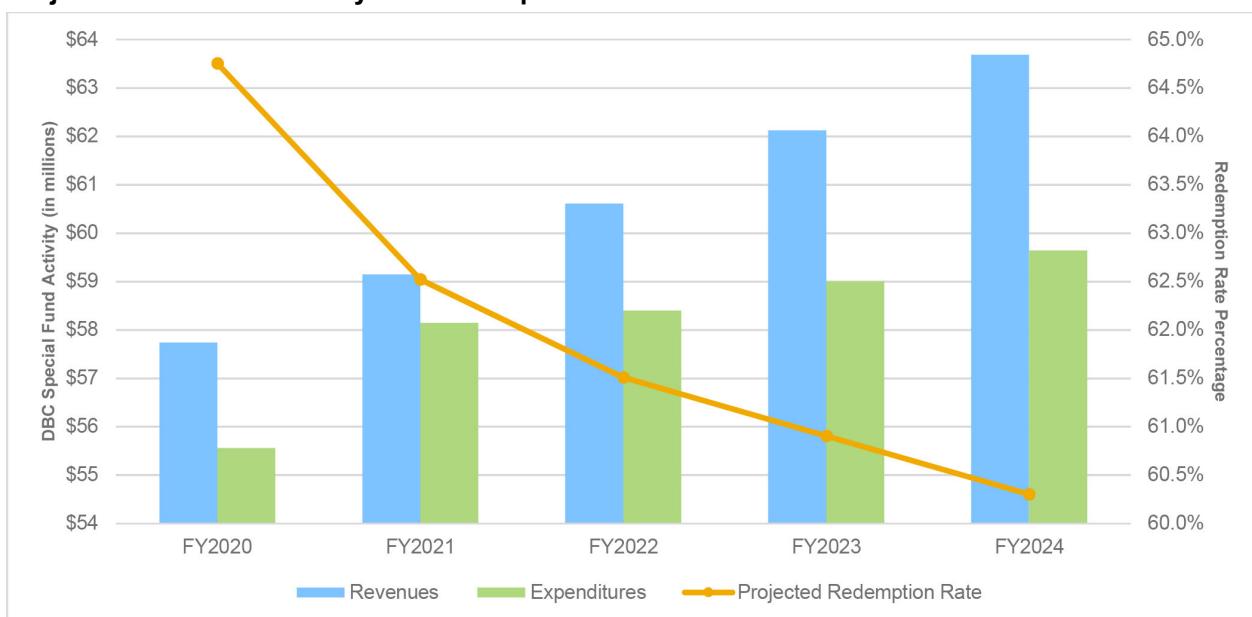
In the economic growth scenario, the recommended handling fees implemented in FY21 would increase the DBC Special Fund's expenditures by approximately \$1.7 million as compared to FY20. The economic growth scenario results indicate the DBC Special Fund will maintain adequate funds to cover the recommended handling fees through FY24.

Exhibit 4-8 summarizes the DBC Special Fund projected revenue and expenditure activity through FY24 under the economic growth scenario. The DBC Special Fund would not utilize its excess funds through FY24. **Exhibit 4-9** illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY24 under the economic growth scenario.

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

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Beginning Balance	\$43,127,905	\$45,310,477	\$46,314,410	\$48,524,047	\$51,642,114
Revenues	\$57,739,315	\$59,148,336	\$60,607,411	\$62,118,484	\$63,683,574
Deposits	48,116,096	49,290,280	50,506,176	51,765,403	53,069,645
Container Fees	9,623,219	9,858,056	10,101,235	10,353,081	10,613,929
Expenditures	\$55,556,744	\$58,144,402	\$58,397,774	\$59,000,417	\$59,639,100
Deposit Returns	29,976,675	30,827,337	31,027,259	31,252,667	31,503,234
HF Payments	23,580,068	25,267,065	25,296,172	25,648,454	26,010,993
Fund Administration	2,000,000	2,050,000	2,074,344	2,099,296	2,124,872
Net	\$2,182,571	\$1,003,934	\$2,209,637	\$3,118,067	\$4,044,474
Ending Balance	\$45,310,477	\$46,314,410	\$48,524,047	\$51,642,114	\$55,686,588

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



E. Uncertainty and Unknowns

The fiscal impacts analysis reveals trends that are useful in preparing the DBC Special Fund for uncertain economic, recycling, and regulatory conditions beyond FY24. The analysis, in general, indicates the following trends:

- In an economic downturn, the DBC Special Fund's expenditures exceed revenues due to a decrease in beverage container sales and an increase in redemption rates
- In economic growth, the DBC Special Fund's revenues exceed its expenditures due to an increase in beverage container sales and a decrease in redemption rates.

By knowing these trends, the DOH can establish redemption rate thresholds that would signal when to adjust either handling fees or the non-refundable per container fee in order to maintain a positive fund balance.

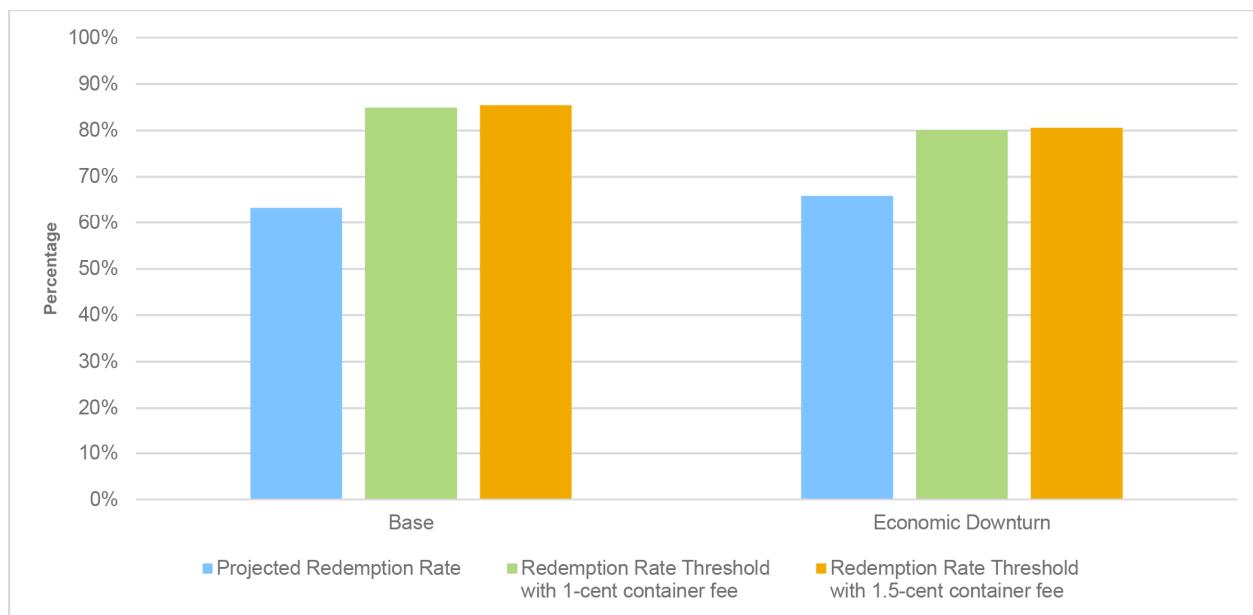
Fund Sensitivity Analysis

In the baseline and economic downturn scenarios, the DBC Special Fund's expenditures exceeded its revenues within the projection time frame. Crowe performed additional analyses to determine at what redemption rate the DOH should consider adjusting fees in order to mitigate potential funding risk under each of these scenarios. We calculated redemption rate thresholds that would signal when the DOH should decrease the per container handling fees or increase the 1-cent non-refundable container fee to maintain sufficient funds. In our analysis, we assumed that the DOH would want to maintain a reserve of at least \$20 million to ensure a positive fund balance.

Exhibit 4-10 provides the results of the sensitivity analysis assuming that the DOH would not increase the 1-cent non-refundable container fee. In the baseline scenario, the DOH would not need to adjust fees until redemption rates exceeded approximately 85 percent; we project a redemption rate of approximately 63 percent in FY24 under this scenario. In the economic downturn scenario, the DOH would not need to adjust fees until redemption rates exceeded approximately 80 percent; we project a redemption rate of approximately 66 percent in FY24 under this scenario.

Exhibit 4-10

Comparison of Projected Redemption Rates and Redemption Rate Thresholds – FY 2024 With 1-cent container fee



F. Summary and Implications

Our fiscal impacts analysis indicates the DBC Special Fund will be able to support the recommended handling fee payments with the existing 1-cent non-refundable container fee through FY24. As a result of the first study of handling fees, we recommended the implementation of the following:

- A reserve of at least three to four times the DBC Special Fund's monthly expenditures or \$20 million
- Fund Coverage Ratio(s) to measure the DBC Special Fund's ability to consistently maintain adequate funds above the designated reserve amount
- DBC Special Fund reserve policy that provides formal documentation on how to determine an appropriate reserve on an ongoing basis.

We still support these recommendations and find that they will safe-guard the DBC Special Fund against uncertain recycling, economic, and regulatory conditions. More importantly, the implementation of these recommendations would assist the DOH with ensuring that the DBC Special Fund can support the new handling fee payments through FY24.

Handling Fee Adjustments in Future Years

The results of this evaluation show that the Handling Fee Adjustment Model, including input from the shipping cost survey provides a reasonable mechanism for the DOH to estimate likely increases in CRC costs to recycle annually. This approach provides a means to determine the need to adjust handling fees as long as there are no significant changes to the industry or economic climate. Factors that could result in more significant changes in CRC costs to recycle include, but are not limited to:

- Shifts in the mix of beverage containers sold (container types and/or beverages)
- Shifts in recycling markets and the availability of end-use markets
- Increase or decrease in the number of CRCs operating in the State or in specific regions
- Shifts in the number of processor or non-processor CRCs
- Increase or decrease in recycling rates for one or more DBC materials
- Other changes in the beverage or recycling industries
- Recycling or solid waste policy and program changes
- Significant shifts (positive or negative) in economic indicators such as unemployment and household income.

There is no formula for when changes in these factors could lead to changes in the cost of recycling DBC beverage containers. Given the dynamic state of recycling and the economy, it is likely that within two to four years of the initial study performed in 2018, there will have been enough change in one or more of these factors to warrant a new survey of CRC costs to recycle. We recommend that the DOH conduct a Study of DBC Handling Fees within the next few years, and every two to four years subsequently, depending on the extent of changes to the industry and the economic climate.

Appendix A
Adjustment Indicators

Appendix A

Adjustment Indicators

Exhibit A-1 provides a summary of the adjustment indicators, 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.
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 Kaiser Family Foundation's website. The Kaiser Family Foundation (KFF) 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	https://data.bls.gov/timeseries/ENU1500040510
Minimum Wage	Minimum-wage.org/Hawaii	https://www.minimum-wage.org/hawaii
Cost of Living Adjustment	BLS, Consumer Price Index (CPI), All Urban Consumers Hawaii	https://data.bls.gov/timeseries/CUURS49FSA0?amp%253bdata_tool=XGtable&output_view=data&include_graphs=true
Health Care	Kaiser Family Foundation (KFF)	https://www.kff.org/health-reform/state-indicator/marketplace-average-benchmark-premiums
Shipping	Crowe's Shipping Survey Results	Shipping Survey Results
Fuel	U.S. Energy Information Administration (EIA)	https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMD_EPD2D_PTE_NUS_DPG&f=W