Evaluation of the Current Handling Fees Paid to Certified Redemption Centers

April 6, 2021
Purchase Order #00263233

Submitted to:
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April 6, 2021

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 2022 (July 1, 2021). 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 2025 (FY25).

Crowe’s evaluation of the current handling fees paid to CRCs indicates that the DOH should implement new handling fees effective FY22. 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 3.3-cents per container to 3.4-cents
- Glass per container handling fee increase from 7.8-cents per container to 8.1-cents
- Plastics (PET #1 and HPDE #2 combined) per container handling fee increase from 3.9-cents to 4.0-cents.

Using FY20 redemption data, the CRCs would receive approximately 2.8 percent ($700 thousand) more in handling fees payments with the recommended handling fees. Individual CRC companies would see an increase in handling fee payments of between 3 percent and 4 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 FY25.

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,

Wendy Pratt, Managing Director
Crowe LLP
400 Capitol Mall, Suite 1400
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Section 1

Introduction
1. Introduction

This proposed evaluation of current handling fees paid to Certified Redemption Centers (CRCs) will determine whether handling fee payments should be adjusted in Fiscal Year 2022 (FY22) or remain the same. The recommended handling fee adjustments, by material type, will be based on results within the Handling Fee Adjustment Model (Model), a Microsoft Excel-based tool developed by the DOH in coordination with Crowe LLP (Crowe). The result of this evaluation will be a critical element supporting the daily operations and financial status of the CRCs and the Program. The evaluation results are fundamental to support recycling in the state and to the financial viability of the Program.

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

This evaluation will determine whether handling fee payments should be adjusted in Fiscal Year 2022 (FY22) or remain the same. The recommended handling fee adjustments, by material type, will be based on results within the Handling Fee Adjustment Model (Model), a Microsoft Excel-based tool developed by the DOH in coordination with Crowe LLP (Crowe). The result of this evaluation will be a critical element supporting the daily operations and financial status of the CRCs and the Program. The evaluation results are fundamental to support recycling in the state and to the financial viability of the Program.

Recent Handling Fee Adjustment Results

In July 2019, the DOH implemented new FY20 handling fees for the first time since the DBC program’s inception in 2005. The handling fees were based on a detailed cost survey performed by Crowe that focused on CRCs’ FY16 and FY17 labor and operational costs. The DOH implemented the current FY21 per container handling fees on July 1, 2020. The current per container handling fees were based on Crowe’s evaluation of handling fees paid to certified redemption centers (CRCs). Crowe utilized the Model to perform the evaluation and to determine recommended handling fees effective FY21, which resulted in an increase of approximately 11 to 12 percent for each DBC material type. Exhibit 1-1 provides FY21 (current) handling fees resulting from the adjustment to FY20 handling fees.

Exhibit 1-1
Handling Fees Paid per Deposit Beverage Container (FY20 and FY21)

<table>
<thead>
<tr>
<th>DBC Material Type</th>
<th>FY20 Per Container Handling Fee</th>
<th>Adjustment</th>
<th>FY21 Per Container Handling Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>3 cents</td>
<td>110.68%</td>
<td>3.3 cents</td>
</tr>
<tr>
<td>Glass</td>
<td>7 cents</td>
<td>111.75%</td>
<td>7.8 cents</td>
</tr>
<tr>
<td>Plastic</td>
<td>3.5 cents</td>
<td>110.69%</td>
<td>3.9 cents</td>
</tr>
<tr>
<td>Bi-metal</td>
<td>3 cents</td>
<td>110.68%</td>
<td>3.3 cents</td>
</tr>
</tbody>
</table>

1 As part of the first study of DBC handling fees, Crowe developed the Handling Fee Adjustment Model (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.
In December 2020, 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 FY22. A key component of this evaluation is the fiscal impacts analysis of the recommended handling fees on the DBC Special Fund through FY25. 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 FY22.

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

<table>
<thead>
<tr>
<th>Evaluation of Current Handling Fees Paid to Certified Redemption Centers – Contractor Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Conduct an Evaluation of the Current (FY 21) Handling Fees Paid</strong> – conduct a detailed evaluation of current (FY21: July 1, 2020 to June 30, 2021) handling fees paid to CRCs by utilizing the Handling Fee Adjustment Model developed by Crowe.</td>
</tr>
<tr>
<td>2. <strong>Determine if an Adjustment to the Current Handling Fees is Needed</strong> – based on the results of Task 1, determine whether handling fees for FY22 (July 1, 2021 to June 30, 2022) should remain at the same level or be adjusted (decreased or increased).</td>
</tr>
<tr>
<td>3. <strong>Recommend New Handling Fees (if applicable)</strong> – based on the results of Task 2, recommend new handling fees, by material type, for the DOH to implement in FY22; provide justification for new handling fees, by material type, or a justification for not adjusting the handling fees.</td>
</tr>
<tr>
<td>4. <strong>Conduct a Fiscal Impact Analysis of the Proposed (Recommended) Handling Fees on the DBC Special Fund</strong> – conduct a detailed fiscal analysis to evaluate whether the DBC Special Fund could support the proposed FY22 handling fee recommendations through FY25.</td>
</tr>
<tr>
<td>5. <strong>Prepare Draft and Final Reports</strong> – 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 public hearings, if needed.</td>
</tr>
</tbody>
</table>

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 FY22, July 1, 2021. 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 3.3-cents per container to 3.4-cents
- Glass per container handling fee increase from 7.8-cents per container to 8.1-cents
- Plastics (PET #1 and HPDE #2 combined) per container handling fee increase from 3.9-cents to 4.0-cents.

Using FY20 redemption data, the CRCs would receive approximately 3 percent ($700 thousand) more in handling fees payments with the recommended handling fees. Individual CRC companies would see an increase in handling fee payments between 3 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 provides the results from the overall adjustments to CRCs’ weighted recycling costs resulting from the Adjustment Model (e.g. – for aluminum, CRCs’ costs increased by 3.36 percent). 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

<table>
<thead>
<tr>
<th>DBC Material Type</th>
<th>Current Handling Fee</th>
<th>Adjustment</th>
<th>Recommended Handling Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>$0.033</td>
<td>103.36%</td>
<td>$0.034</td>
</tr>
<tr>
<td>Glass</td>
<td>$0.078</td>
<td>103.93%</td>
<td>$0.081</td>
</tr>
<tr>
<td>Plastic</td>
<td>$0.039</td>
<td>103.31%</td>
<td>$0.040</td>
</tr>
<tr>
<td>Bi-Metal</td>
<td>$0.033</td>
<td>103.36%</td>
<td>$0.034</td>
</tr>
</tbody>
</table>

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 FY25. The report concludes with a summary and discussion of the implications of this evaluation.
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 2022 (FY22). 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 2025 (FY25).

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.

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 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 determines which, if any, indices to apply to the appropriate percentage of the current handling fee. For example, 42 percent of the 3.33-cent aluminum handling fee supports direct labor (1.4 cents per container). The wage index increased 5.3 percent in 2020, so the Model applied that 5.3 percent increase to 3.4 cents, resulting in a new labor cost per container of 1.5 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

<table>
<thead>
<tr>
<th>Recycling Cost Component</th>
<th>Applicable Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Labor</td>
<td>Wage Index, Minimum Wage, or COLA</td>
</tr>
<tr>
<td>Indirect Labor</td>
<td>COLA or Health Care</td>
</tr>
<tr>
<td>Off-Island Transportation</td>
<td>COLA, Shipping, or Fuel</td>
</tr>
<tr>
<td>Inter- and On-Island Transportation</td>
<td>COLA or Fuel</td>
</tr>
<tr>
<td>All Other Costs</td>
<td>COLA</td>
</tr>
</tbody>
</table>
Once all 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 handing 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. This year, Crowe sent out a survey to the 11 recyclers participating in the program to collect FY20 and year-to-date FY21 glass shipping costs by quarter. The average of FY21 shipping costs was used as the shipping adjustment factor. The FY21 shipping cost average is indicative of whether shipping costs are on an upward or downward trend for the remainder of the year.

5. CRC Handling Fee Payments – The CRC Handling Fee Payments provides the DOH with a form to determine the recommended percent change in handing fee payments based on the handling fee adjustment results. Crowe provided estimated FY21 Handling Fee Payments by recycler as well as Recommended FY22 Handling Fee Payments by recycler within this tab.

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(s)" 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 Results

<table>
<thead>
<tr>
<th>Adjustment Indicators</th>
<th>Adjustment Factor</th>
<th>Base Indicator</th>
<th>Updated Indicator(s)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wage Index</strong></td>
<td>5.3%</td>
<td>963</td>
<td>991, 1038</td>
<td>Weekly Wages in Hawaii</td>
</tr>
<tr>
<td><strong>Minimum Wage</strong></td>
<td>0.0%</td>
<td>$10.10</td>
<td>$10.10</td>
<td>Minimum Wage in Hawaii</td>
</tr>
<tr>
<td><strong>Cost of Living Adjustment</strong></td>
<td>1.6%</td>
<td>281.59</td>
<td>286.09, 286.93</td>
<td>COLA</td>
</tr>
<tr>
<td><strong>Health Care</strong></td>
<td>-10%</td>
<td>$497.00</td>
<td>$446.00</td>
<td>Health Care</td>
</tr>
<tr>
<td><strong>Shipping</strong></td>
<td>6%</td>
<td>$3,018.07</td>
<td>$3,210.55</td>
<td>Shipping Survey Results</td>
</tr>
<tr>
<td><strong>Fuel</strong></td>
<td>-16.5%</td>
<td>$3,056</td>
<td>$2,551</td>
<td>Diesel Fuel Costs in Hawaii</td>
</tr>
</tbody>
</table>
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 FY25. 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. To illustrate the short term fiscal impact of the COVID-19 pandemic, we also developed an aggressive economic downturn scenario to forecast the DBC Special Fund's condition should economic downturn conditions continue based on FY21 estimated sales and redemption rates through FY25. In the remainder of this section, we provide details about the assumptions used in each model and the basis for our aggressive downturn scenario.

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 FY25. 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 four (4) 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, growth economy, and an aggressive downturn 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. Whereas, the aggressive economic downturn scenario projects future sales and redemption rates using FY21 estimated sales and redemption data.

Baseline Scenario

The baseline scenario represents a "status quo" economy and is based on a 13 fiscal year historical average (i.e., from FY08 to FY20) 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 2-5
Sales and Redemption Assumption – Baseline Scenario

<table>
<thead>
<tr>
<th>DBC Material Type</th>
<th>Baseline % Change in Sales</th>
<th>Baseline % Change in Redemption Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>0.2%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>Glass</td>
<td>-3.4%</td>
<td>-1.4%</td>
</tr>
<tr>
<td>Plastic</td>
<td>1.7%</td>
<td>-0.3%</td>
</tr>
</tbody>
</table>

Economic Downturn (Moderate) 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 2-3
Comparison between Baseline and Economic Downturn Scenarios
Sales and Redemption Assumptions

<table>
<thead>
<tr>
<th>DBC Material Type</th>
<th>Baseline % Change in Sales</th>
<th>Economic Downturn % Change in Sales</th>
<th>Baseline % Change in Redemption Rate</th>
<th>Economic Downturn % Change in Redemption Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>0.2%</td>
<td>-0.8%</td>
<td>-0.1%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Glass</td>
<td>-3.4%</td>
<td>-4.4%</td>
<td>-1.4%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Plastic</td>
<td>1.7%</td>
<td>0.7%</td>
<td>-0.3%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

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 2-4
Comparison between Baseline and Economic Growth Scenarios
Sales and Redemption Assumptions

<table>
<thead>
<tr>
<th>DBC Material Type</th>
<th>Baseline % Change in Sales</th>
<th>Economic Upturn % Change in Sales</th>
<th>Baseline % Change in Redemption Rate</th>
<th>Economic Upturn % Change in Redemption Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>0.2%</td>
<td>2.2%</td>
<td>-0.1%</td>
<td>-1.1%</td>
</tr>
<tr>
<td>Glass</td>
<td>-3.4%</td>
<td>-1.4%</td>
<td>-1.4%</td>
<td>-2.4%</td>
</tr>
<tr>
<td>Plastic</td>
<td>1.7%</td>
<td>3.7%</td>
<td>-0.3%</td>
<td>-1.3%</td>
</tr>
</tbody>
</table>

Economic Downturn (Aggressive) Scenario
Crowe developed a fourth scenario to project the DBC Special Fund’s condition should economic downturn trends continue through FY25. The DOH provided Crowe with estimated FY21 beverage container sales data through December 2020 and estimated FY21 beverage container redemption data through February 2021. Crowe averaged monthly sales data from July 2020 to December 2020 to project sales for the remainder of FY21 (i.e., from January to June) and average monthly redemption data from July 2020 to February 2021 to project containers redeemed for the remainder of FY21 (i.e., from March to June). In FY22 through FY25, we then project a 1 percent decrease in beverage container sales each year and a 2 percent increase in redemption each year (this is consistent with the moderate economic downturn scenario) based on estimated FY21 beverage container sales and redemption rates.

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 FY21), red is the historical average of the redemption growth rate (from FY08 to FY21), 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.
2. Fiscal Impacts Model

The fiscal impacts model projects the DBC Special Fund’s revenues, expenditures, and beginning and ending balances through FY25. 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 FY21 and the recommended handling fees used to project expenditures in FY22 through FY25.
Exhibit 2-6
Current and Recommended per Container Handling Fees

<table>
<thead>
<tr>
<th>DBC Material Type</th>
<th>Current HF</th>
<th>Recommended HF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>3.3 cents</td>
<td>3.4 cents</td>
</tr>
<tr>
<td>Glass</td>
<td>7.8 cents</td>
<td>8.1 cents</td>
</tr>
<tr>
<td>Plastic</td>
<td>3.9 cents</td>
<td>4.0 cents</td>
</tr>
<tr>
<td>Bi-Metal</td>
<td>3.3 cents</td>
<td>3.4 cents</td>
</tr>
</tbody>
</table>

DBC Program Budget
The DOH provided the DBC Program’s FY20 and FY21 budget data, which included personnel and operational costs. Utilized personnel expenditures of approximately $2M in FY21, representing estimated program administration and personnel expenditures. Exhibit 2-8 illustrates how we incorporated the different factors into the fiscal impact model.

Exhibit 2-7
Example Fiscal Impact Model for Baseline Scenario

<table>
<thead>
<tr>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2024</th>
<th>FY 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Balance</td>
<td>$48,265,901</td>
<td>$48,196,747</td>
<td>$49,618,816</td>
<td>$51,345,236</td>
</tr>
<tr>
<td>Revenues</td>
<td>$56,503,215</td>
<td>$56,805,221</td>
<td>$57,018,135</td>
<td>$57,247,791</td>
</tr>
<tr>
<td>AL Deposits</td>
<td>22,354,962</td>
<td>22,400,847</td>
<td>22,477,311</td>
<td>22,494,713</td>
</tr>
<tr>
<td>GL Deposits</td>
<td>5,893,552</td>
<td>5,692,896</td>
<td>5,499,072</td>
<td>5,311,846</td>
</tr>
<tr>
<td>PL Deposits</td>
<td>18,784,001</td>
<td>19,085,027</td>
<td>19,411,546</td>
<td>19,743,651</td>
</tr>
<tr>
<td>BM Deposits</td>
<td>157,731</td>
<td>157,247</td>
<td>156,744</td>
<td>156,283</td>
</tr>
<tr>
<td>AL Container Fee</td>
<td>4,470,812</td>
<td>4,480,169</td>
<td>4,499,546</td>
<td>4,508,946</td>
</tr>
<tr>
<td>GL Container Fee</td>
<td>1,176,710</td>
<td>1,138,579</td>
<td>1,099,814</td>
<td>1,062,369</td>
</tr>
<tr>
<td>PL Container Fee</td>
<td>3,752,800</td>
<td>3,817,005</td>
<td>3,862,309</td>
<td>3,948,730</td>
</tr>
<tr>
<td>BM Container Fee</td>
<td>31,546</td>
<td>31,449</td>
<td>31,353</td>
<td>31,257</td>
</tr>
<tr>
<td>Expenditures</td>
<td>52,873,369</td>
<td>53,330,454</td>
<td>53,190,146</td>
<td>53,073,313</td>
</tr>
<tr>
<td>AL Deposit Return</td>
<td>15,164,226</td>
<td>15,162,071</td>
<td>15,199,336</td>
<td>15,217,822</td>
</tr>
<tr>
<td>GL Deposit Return</td>
<td>3,599,089</td>
<td>3,429,581</td>
<td>3,268,056</td>
<td>3,114,139</td>
</tr>
<tr>
<td>PL Deposit Return</td>
<td>10,186,639</td>
<td>10,325,350</td>
<td>10,465,950</td>
<td>10,608,465</td>
</tr>
<tr>
<td>BM Deposit Return</td>
<td>93,294</td>
<td>92,793</td>
<td>92,296</td>
<td>91,801</td>
</tr>
<tr>
<td>AL HF Payments</td>
<td>10,008,389</td>
<td>10,356,477</td>
<td>10,368,683</td>
<td>10,380,880</td>
</tr>
<tr>
<td>GL HF Payments</td>
<td>5,614,579</td>
<td>5,560,378</td>
<td>5,284,949</td>
<td>5,048,952</td>
</tr>
<tr>
<td>PL HF Payments</td>
<td>7,945,579</td>
<td>8,320,504</td>
<td>8,433,805</td>
<td>8,548,647</td>
</tr>
<tr>
<td>BM HF Payments</td>
<td>61,574</td>
<td>63,299</td>
<td>62,960</td>
<td>62,622</td>
</tr>
<tr>
<td>Fund Administration</td>
<td>2,000,000</td>
<td>2,050,000</td>
<td>2,101,250</td>
<td>2,153,781</td>
</tr>
<tr>
<td>Personnel Expenses</td>
<td>650,000</td>
<td>666,250</td>
<td>682,906</td>
<td>699,979</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>1,350,000</td>
<td>1,383,750</td>
<td>1,418,344</td>
<td>1,453,802</td>
</tr>
<tr>
<td>Ending Balance</td>
<td>$48,195,747</td>
<td>$49,618,515</td>
<td>$51,345,236</td>
<td>$53,365,932</td>
</tr>
</tbody>
</table>
[This page intentionally left blank.]
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, 2021, Fiscal Year 2022 (FY22). 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 FY22. 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 last 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. Increase to the wage index indicator of 5 percent due average weekly wages increasing between 2019 and 2020. The increase in the wage index increased the direct labor adjustment for all material types.
2. Increase of approximately 6 percent to off-island shipping rates from FY19 to FY20, 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 24 percent of the material’s “base” cost is made up of off-island shipping.
3. Minimal increase to other costs, inter and on-island transportation, and indirect labor from 2019 to 2020 based on a 1.6 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 FY20 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 3.36 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

<table>
<thead>
<tr>
<th>DBC Material Type</th>
<th>Current Handling Fee</th>
<th>Adjustment</th>
<th>Recommended Handling Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>$0.033</td>
<td>103.36%</td>
<td>$0.034</td>
</tr>
<tr>
<td>Glass</td>
<td>$0.078</td>
<td>103.93%</td>
<td>$0.081</td>
</tr>
<tr>
<td>Plastic</td>
<td>$0.039</td>
<td>103.31%</td>
<td>$0.040</td>
</tr>
<tr>
<td>Bi-metal</td>
<td>$0.033</td>
<td>103.36%</td>
<td>$0.034</td>
</tr>
</tbody>
</table>

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. Direct labor costs increased the most out of all of the cost categories due to an increase in the wage index between 2019 and 2020. The increase to direct labor costs reflects approximately 45 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

<table>
<thead>
<tr>
<th>Recycling Costs</th>
<th>Aluminum / Bi-Metal</th>
<th>Glass</th>
<th>Plastic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base</td>
<td>Adjusted</td>
<td>Base</td>
</tr>
<tr>
<td>Direct Labor</td>
<td>42.08%</td>
<td>44.33%</td>
<td>32.90%</td>
</tr>
<tr>
<td>Indirect Labor</td>
<td>12.20%</td>
<td>12.39%</td>
<td>9.65%</td>
</tr>
<tr>
<td>Off-Island Transportation</td>
<td>4.02%</td>
<td>4.28%</td>
<td>22.88%</td>
</tr>
<tr>
<td>Intra &amp; On Island Transportation</td>
<td>6.42%</td>
<td>6.52%</td>
<td>5.69%</td>
</tr>
<tr>
<td>All Other Costs</td>
<td>35.28%</td>
<td>35.83%</td>
<td>28.88%</td>
</tr>
<tr>
<td>Total Base / Total Adjusted</td>
<td>100.00%</td>
<td><strong>103.36%</strong></td>
<td>100.00%</td>
</tr>
</tbody>
</table>
### Exhibit 3-3
Key Adjustment Indicators and Adjustment Rationale

<table>
<thead>
<tr>
<th>Adjustment Indicators</th>
<th>Adjustment</th>
<th>Adjustment Rationale</th>
</tr>
</thead>
</table>
| Wage Index                             | 5.3%       | • Average weekly wages in Hawaii from 2019 to 2020 increased by roughly 5 percent, resulting in an adjustment to CRC direct labor costs for all material types.  
• This indicator is higher than the minimum wage and was used to adjust CRC direct labor costs.                                                                                                                                                                                                 |
| **Source:** Bureau of Labor Statistics (BLS), Average Weekly Wages in Hawaii |            |                                                                                                                                                                                                                                                                                                                                                      |
| Minimum Wage                           | 0.0%       | • Recent legislation to increase minimum wage from $10.10 to $11 did not pass; as a result, there is no change to the minimum wage factor. There are current legislative efforts to increase the minimum wage to $13.00 per hour by 2024.  
• This indicator was lower than the wage index and was not used to adjust CRC direct labor costs.                                                                                                                                                                                                 |
| **Source:** Minimum-wage.org/Hawaii |            |                                                                                                                                                                                                                                                                                                                                                      |
| Cost of Living Adjustment (COLA)       | 1.6%       | • COLA increased 1.6% from 2019 to 2020; an annual increase of 2% is typical.  
• This indicator was lower than the wage index and was not used to adjust CRC direct labor costs.                                                                                                                                                                                                                                               |
| **Source:** BLS, Consumer Price Index (CPI) All Urban Consumers Hawaii |            |                                                                                                                                                                                                                                                                                                                                                      |
| Health Care                            | -10.3%     | • Marketplace average benchmark premiums decreased from $497 in 2019 to $446 in 2020.  
• Premiums were analyzed using the second-lowest cost silver (benchmark) premium for a 40-year-old in each county.  
• Healthcare spending most likely went down because of orders issued at the start of the pandemic that limited the services providers could deliver, including high-profit elective surgeries and non-emergent care.  
• Since health care costs decreased, Crowe utilized COLA to adjust indirect labor costs.                                                                                                                                                                                                |
| **Source:** Kaiser Family Foundation (KFF) |            |                                                                                                                                                                                                                                                                                                                                                      |
| Shipping                               | 6.4%       | • Based on survey responses from 10 recyclers, glass shipping costs increased by 6 percent between 2019 and 2020.  
• Shipping costs increased across the county in 2020 due to an increase in demand for transportation and freight services.  
• Crowe utilized this adjustment to adjust for CRC off-island transportation since it was higher than both COLA and fuel adjustments.                                                                                                                                 |
| **Source:** Crowe’s Shipping Survey Results |            |                                                                                                                                                                                                                                                                                                                                                      |
| Fuel                                   | -16.5%     | • According to the U.S. Energy Information Administration, cost per gallon of diesel on the West Coast (excluding California) decreased from $3.05 in 2019 to $2.64 in 2020, a 16% decrease.  
• Fuel and diesel cost per gallon decreased from 2019 to 2020 due an increase in global supply and a decrease in demand.  
• Since fuel costs decreased, Crowe utilized the COLA adjustment to adjust for intra and on-island transportation costs.                                                                                                                                                                          |
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 FY20 redemption data. In total, CRCs would receive between 3 to 4 percent ($700 thousand) more in handling fees payments with the recommended handling fees in Exhibit 3-1. 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 FY21 to FY22 based on FY20 redemption data. Aluminum and plastics (PET #1 and HDPE #2 combined) handling fee payments are projected to increase by approximately 3 percent from FY21 to FY22, whereas, glass handling fee payments are projected to increase approximately 4 percent from FY21 to FY22.

Exhibit 3-4
Change in Handling Fee Payments by DBC Material Type (Based on FY20 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 FY22, July 1, 2021. 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.

1. Aluminum and Bi-Metal

CRCs’ overall aluminum and bi-metal costs increased by 3.36 percent, resulting in a tenth-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 3.3-cents to 3.4-cents per container, is based on the 3 percent increase in CRCs’ costs to recycle these materials. Below is a breakdown and explanation of the 3 percent increase in costs for aluminum and bi-metal:

- Direct labor had the largest impact on CRCs’ aluminum and bi-metal overall costs with an increase of roughly 2 percent based on the wage index increasing 5.3 percent.
- Off-island transportation had the second largest impact on after direct labor due to shipping costs increasing 6.4 percent.
- Indirect labor, inter and on-island transportation, and “All Other Costs” slightly increased due to COLA at 1.6 percent, but had the least impact on overall CRCs’ aluminum/bi-metal recycling costs.

2. Glass

CRCs’ overall glass costs increased by 3.93 percent, resulting in a 0.3 cent increase to the current per glass per container handling fee rate. Our recommended adjustment to the current handling fee rate for glass, from 7.8-cents to 8.1 cents per container, is based on the 3.93 percent increase in CRCs’ costs to recycle this material. Below is a breakdown and explanation of the 3.93 percent increase in glass costs:

- Direct labor had the largest impact on CRCs’ glass overall costs with an increase of roughly 2 percent based on the wage index increasing 5.3 percent.
- Off-island transportation had the second largest impact on after direct labor due to shipping costs increasing 6.4 percent.
- Indirect labor, inter and on-island transportation, and “All Other Costs” slightly increased due to COLA at 1.6 percent, 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 3.31 percent, resulting in an 0.1 cent increase to the current per container handling fee rate for these materials. Our recommended adjustment to the current handling fee rate for plastic, from 3.9-cents to 4.0-cents per container, is based on the 3.31 percent increase in CRCs’ costs to recycle this material. Below is a breakdown and explanation of the 3.31 percent increase in plastic costs:

- Direct labor had the largest impact on CRCs’ plastic overall costs with an increase of roughly 2 percent based on the wage index increasing 5.3 percent.
- Off-island transportation had the second largest impact on after direct labor due to shipping costs increasing 6.4 percent.
- Indirect labor, inter and on-island transportation, and “All Other Costs” slightly increased due to COLA at 1.6 percent, but had the least impact on overall CRCs’ plastic recycling costs.
Section 4

Fiscal Impacts Analysis
4. Fiscal Impacts Analysis

This section provides the results of our fiscal impacts analysis through Fiscal Year 2025 (FY25). 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 (Moderate) Results
D. Economic Growth Results
E. Economic Downturn (Aggressive) Results
F. Uncertainty and Unknowns
G. 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, 2021 (FY22) with the existing 1-cent non-refundable container fee through FY25. The DBC Special Fund maintained a positive ending balance and a fund coverage ratio of above 1.0 through FY25 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 FY21 beginning balance of roughly $46 million. Below we provide highlights from our results:

- The DBC Special Fund maintains an ending balance of approximately $45.5 million, an average ending balance across all scenarios, through FY25. This signifies the DBC Special Fund will maintain adequate coverage for its expenditures (deposit returns, handling fee payments, and fund administrative costs) through FY25 even under aggressive and moderate economic downturn conditions.
- The DBC Special Fund maintains, on average, approximately 1.8x the amount needed to cover its expenditures through FY25.
- In the baseline scenario, the DBC Special Fund’s revenues exceed expenditures through FY25 due to expenditures slightly decreasing and revenues increasing, even with the increase in per container handling fee for all DBC material types because overall redemption is projected to decrease approximately 0.2 percent year-over-year.
- As expected, in both the aggressive and moderate economic downturn scenarios, the DBC Special Fund’s expenditures exceed revenues due to an increase in the projected redemption rate. In the aggressive economic downturn scenario, the DBC Special Fund’s ending balance is projected at $20.5 million by FY25. In the moderate economic downturn scenario, the DBC Special Fund’s ending balance is projected at $39 million by FY25.
- In both downturn scenarios, 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 slight 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 FY25. The baseline and economic growth (scenario 2) show an increase in the DBC Special Fund ending balance through FY25. The moderate economic downturn (scenario 1) and the aggressive economic downturn scenario (scenario 3) show a decrease in the DBC Special Fund ending balance through FY25.
Exhibit 4-1
Comparison of Projected DBC Fund Ending Balances by Scenario

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 aggressive economic downturn scenario, the DBC Special Fund will begin to utilize its excess funds in FY21. In the moderate economic downturn scenario, the DBC Special Fund will begin to utilize its excess funds in FY22. The DBC Special Fund ending balance increases in the baseline scenario and the economic growth scenario.

Exhibit 4-2
Comparison of Projected DBC Fund Ending Balances
Fiscal Year 2021 through 2025

<table>
<thead>
<tr>
<th>Scenario</th>
<th>FY21</th>
<th>FY22</th>
<th>FY23</th>
<th>FY24</th>
<th>FY25</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Economic Downturn</td>
<td>$47,114,256</td>
<td>$46,357,585</td>
<td>$44,813,548</td>
<td>$42,469,562</td>
<td>$39,312,641</td>
</tr>
<tr>
<td>(Moderate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Aggressive)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td><strong>$47,345,146</strong></td>
<td><strong>$47,345,466</strong></td>
<td><strong>$47,044,450</strong></td>
<td><strong>$46,437,072</strong></td>
<td><strong>$45,518,668</strong></td>
</tr>
</tbody>
</table>

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:

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

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 FY25. This indicates the DBC Special Fund has more than 100 percent of the necessary funds to cover its expenditures even under “stressed” conditions through FY25. 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 FY22 would increase the DBC Special Fund expenditures by approximately $700 thousand as compared to FY21. The baseline scenario results indicate the DBC Special Fund will maintain adequate funds to cover the recommended handling fees through FY25.

Exhibit 4-4 summarizes the DBC Special Fund projected revenue and expenditure activity through FY25. The DBC Special Fund would continue to increase since revenues will increase more than expenditures are predicted to. Exhibit 4-5 illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY25.

Exhibit 4-4
Projected DBC Fund Activity – Baseline Results

<table>
<thead>
<tr>
<th></th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2024</th>
<th>FY 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Balance</td>
<td>$46,265,901</td>
<td>$48,195,747</td>
<td>$49,618,515</td>
<td>$51,345,236</td>
<td>$53,365,932</td>
</tr>
<tr>
<td>Revenues</td>
<td>$56,603,215</td>
<td>$56,803,221</td>
<td>$57,018,135</td>
<td>$57,247,791</td>
<td>$57,492,035</td>
</tr>
<tr>
<td>Deposits</td>
<td>47,169,346</td>
<td>47,336,018</td>
<td>47,515,113</td>
<td>47,706,493</td>
<td>47,910,029</td>
</tr>
<tr>
<td>Container Fees</td>
<td>9,433,869</td>
<td>9,467,204</td>
<td>9,503,023</td>
<td>9,541,299</td>
<td>9,582,006</td>
</tr>
<tr>
<td>Expenditures</td>
<td>$54,673,369</td>
<td>$55,380,454</td>
<td>$55,291,414</td>
<td>$55,227,095</td>
<td>$55,186,635</td>
</tr>
<tr>
<td>Deposit Returns</td>
<td>29,043,248</td>
<td>29,029,795</td>
<td>29,026,238</td>
<td>29,032,227</td>
<td>29,047,429</td>
</tr>
<tr>
<td>HF Payments</td>
<td>23,630,121</td>
<td>24,300,658</td>
<td>24,163,926</td>
<td>24,041,086</td>
<td>23,931,580</td>
</tr>
<tr>
<td>Fund Administration</td>
<td>2,000,000</td>
<td>2,050,000</td>
<td>2,101,250</td>
<td>2,153,781</td>
<td>2,207,626</td>
</tr>
<tr>
<td>Net</td>
<td>$1,929,846</td>
<td>$1,422,768</td>
<td>$1,726,721</td>
<td>$2,020,697</td>
<td>$2,305,400</td>
</tr>
<tr>
<td>Ending Balance</td>
<td>$48,195,747</td>
<td>$49,618,515</td>
<td>$51,345,236</td>
<td>$53,365,932</td>
<td>$55,671,332</td>
</tr>
</tbody>
</table>

Exhibit 4-5
Projected DBC Fund Activity and Redemption Rates – Baseline Results
C. Economic Downturn (Moderate) Results

In the economic downturn (moderate) scenario, the recommended handling fees implemented in FY22 would increase the DBC Special Fund’s expenditures by approximately $1.2 million as compared to FY21. The economic downturn (moderate) results indicate the DBC Special Fund will maintain adequate funds to cover the recommended handling fees through FY25.

Exhibit 4-6 summarizes the DBC Special Fund projected revenue and expenditure activity through FY25 under the economic downturn scenario. The DBC Special Fund would begin to utilize its excess funds in FY22 with expenditures exceeding revenues by approximately $750 thousand. This trend will continue into FY25. Exhibit 4-7 illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY25 under the economic downturn (moderate) scenario.

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

<table>
<thead>
<tr>
<th></th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2024</th>
<th>FY 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Balance</td>
<td>$46,265,901</td>
<td>$47,114,256</td>
<td>$46,357,585</td>
<td>$44,813,548</td>
<td>$42,469,562</td>
</tr>
<tr>
<td>Revenues</td>
<td>$56,040,931</td>
<td>$55,680,565</td>
<td>$55,336,567</td>
<td>$55,008,334</td>
<td>$54,695,289</td>
</tr>
<tr>
<td>Deposits</td>
<td>46,700,776</td>
<td>46,400,471</td>
<td>46,113,806</td>
<td>45,840,278</td>
<td>45,579,407</td>
</tr>
<tr>
<td>Container Fees</td>
<td>9,340,155</td>
<td>9,280,094</td>
<td>9,222,761</td>
<td>9,168,056</td>
<td>9,115,881</td>
</tr>
<tr>
<td>Expenditures</td>
<td>$55,192,576</td>
<td>$56,437,237</td>
<td>$56,880,604</td>
<td>$57,352,320</td>
<td>$57,852,209</td>
</tr>
<tr>
<td>Deposit Returns</td>
<td>29,329,680</td>
<td>29,605,337</td>
<td>29,893,888</td>
<td>30,195,296</td>
<td>30,509,533</td>
</tr>
<tr>
<td>HF Payments</td>
<td>23,862,896</td>
<td>24,781,900</td>
<td>24,885,466</td>
<td>25,003,243</td>
<td>25,135,051</td>
</tr>
<tr>
<td>Fund Administration</td>
<td>$848,000</td>
<td>$756,671</td>
<td>$(1,544,037)</td>
<td>$(2,343,986)</td>
<td>$(3,156,921)</td>
</tr>
<tr>
<td>Net</td>
<td>$848,000</td>
<td>$(756,671)</td>
<td>$(1,544,037)</td>
<td>$(2,343,986)</td>
<td>$(3,156,921)</td>
</tr>
<tr>
<td>Ending Balance</td>
<td>$47,114,256</td>
<td>$46,357,585</td>
<td>$44,813,548</td>
<td>$42,469,562</td>
<td>$39,312,641</td>
</tr>
</tbody>
</table>

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 FY22 would increase the DBC Special Fund’s expenditures by approximately $1.2 million as compared to FY21. The economic growth scenario results indicate the DBC Special Fund will maintain adequate funds to cover the recommended handling fees through FY25.

Exhibit 4-8 summarizes the DBC Special Fund projected revenue and expenditure activity through FY25 under the economic growth scenario. The DBC Special Fund would not utilize its excess funds through FY25. Exhibit 4-9 illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY25 under the economic growth scenario.

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

<table>
<thead>
<tr>
<th></th>
<th>FY 2021</th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Balance</td>
<td>$46,265,901</td>
<td>$49,043,698</td>
<td>$51,947,334</td>
<td>$55,825,442</td>
<td>$60,698,512</td>
</tr>
<tr>
<td>Revenues</td>
<td>$57,727,784</td>
<td>$59,082,270</td>
<td>$60,483,153</td>
<td>$61,931,882</td>
<td>$63,429,954</td>
</tr>
<tr>
<td>Deposits</td>
<td>48,106,487</td>
<td>49,235,225</td>
<td>50,402,628</td>
<td>51,609,901</td>
<td>52,858,295</td>
</tr>
<tr>
<td>Container Fees</td>
<td>9,621,297</td>
<td>9,847,045</td>
<td>10,080,526</td>
<td>10,321,980</td>
<td>10,571,659</td>
</tr>
<tr>
<td>Expenditures</td>
<td>$54,949,987</td>
<td>$56,178,633</td>
<td>$56,605,046</td>
<td>$57,058,811</td>
<td>$57,539,747</td>
</tr>
<tr>
<td>Deposit Returns</td>
<td>29,089,194</td>
<td>29,351,572</td>
<td>29,626,387</td>
<td>29,913,588</td>
<td>30,213,133</td>
</tr>
<tr>
<td>HF Payments</td>
<td>23,860,793</td>
<td>24,777,061</td>
<td>24,877,409</td>
<td>24,991,442</td>
<td>25,118,988</td>
</tr>
<tr>
<td>Fund Administration</td>
<td>2,000,000</td>
<td>2,050,000</td>
<td>2,101,250</td>
<td>2,153,781</td>
<td>2,207,626</td>
</tr>
<tr>
<td>Net</td>
<td>$2,777,797</td>
<td>$2,903,637</td>
<td>$3,878,107</td>
<td>$4,873,070</td>
<td>$5,890,208</td>
</tr>
<tr>
<td>Ending Balance</td>
<td>$49,043,698</td>
<td>$51,947,334</td>
<td>$55,825,442</td>
<td>$60,698,512</td>
<td>$66,588,720</td>
</tr>
</tbody>
</table>

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

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

Exhibit 4-9: Projected DBC Fund Activity and Redemption Rates – Economic Growth Results
E. Economic Downturn (Aggressive) Results

In the economic downturn (aggressive) scenario, the recommended handling fees implemented in FY22 would increase the DBC Special Fund’s expenditures by approximately $1.8 million as compared to FY21. The economic downturn (aggressive) scenario results indicate the DBC Special Fund will maintain adequate funds to cover the recommended handling fees through FY25 should overall redemption rates, based on estimated FY21 data, continue to reflect a decrease in beverage container sales and an increase in containers redeemed.

Exhibit 4-10 summarizes the DBC Special Fund projected revenue and expenditure activity through FY25 under the economic downturn (aggressive) scenario. The DBC Special Fund would not utilize its excess funds through FY25, but would most likely need to closely monitor DBC inflows and outflows in order to maintain a fund balance of at least $20 million by the end of FY25. Exhibit 4-11 illustrates the DBC Special Fund projected revenue and expenditure activity and corresponding projected redemption rates through FY25 under the economic growth scenario.

**Exhibit 4-10**
Projected DBC Fund Activity – Economic Downturn (Aggressive) Results

<table>
<thead>
<tr>
<th></th>
<th>FY 2021</th>
<th>FY 2021</th>
<th>FY 2022</th>
<th>FY 2023</th>
<th>FY 2025</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Beginning Balance</strong></td>
<td>$46,265,901</td>
<td>$45,026,883</td>
<td>$41,458,432</td>
<td>$36,193,576</td>
<td>$29,214,280</td>
</tr>
<tr>
<td><strong>Revenues</strong></td>
<td>$54,369,868</td>
<td>$53,826,169</td>
<td>$53,287,907</td>
<td>$52,755,028</td>
<td>$52,227,478</td>
</tr>
<tr>
<td>Deposits</td>
<td>45,308,223</td>
<td>44,855,141</td>
<td>44,406,590</td>
<td>43,962,524</td>
<td>43,522,898</td>
</tr>
<tr>
<td>Container Fees</td>
<td>9,061,645</td>
<td>8,971,028</td>
<td>8,881,318</td>
<td>8,792,505</td>
<td>8,704,580</td>
</tr>
<tr>
<td><strong>Expenditures</strong></td>
<td>$55,608,886</td>
<td>$57,394,620</td>
<td>$58,552,763</td>
<td>$59,734,324</td>
<td>$60,939,780</td>
</tr>
<tr>
<td>Deposit Returns</td>
<td>29,828,092</td>
<td>30,424,654</td>
<td>31,033,147</td>
<td>31,653,810</td>
<td>32,286,886</td>
</tr>
<tr>
<td>HF Payments</td>
<td>23,780,794</td>
<td>24,919,967</td>
<td>25,418,366</td>
<td>25,926,734</td>
<td>26,445,268</td>
</tr>
<tr>
<td>Fund Administration</td>
<td>2,000,000</td>
<td>2,050,000</td>
<td>2,101,250</td>
<td>2,153,781</td>
<td>2,207,626</td>
</tr>
<tr>
<td><strong>Net</strong></td>
<td>$(1,239,018)</td>
<td>$(3,568,451)</td>
<td>$(5,264,855)</td>
<td>$(6,979,296)</td>
<td>$(8,712,302)</td>
</tr>
<tr>
<td><strong>Ending Balance</strong></td>
<td>$45,026,883</td>
<td>$41,458,432</td>
<td>$36,193,576</td>
<td>$29,214,280</td>
<td>$20,501,978</td>
</tr>
</tbody>
</table>

**Exhibit 4-11**
Projected DBC Fund Activity and Redemption Rates – Economic Downturn Results
F. Uncertainty and Unknows

The fiscal impacts analysis reveals trends that are useful in preparing the DBC Special Fund for uncertain economic, recycling, and regulatory conditions beyond FY25. 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 economic downturn scenario, 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 4-12 provides the results of the sensitivity analysis assuming that the DOH would not need to increase the 1-cent non-refundable container fee. In the economic downturn scenario, the DOH would not need to adjust fees until redemption rates exceeded approximately 90 percent with the 1 cent container fee and approximately 100 percent with the 1.5 container fee; we project a redemption rate of approximately 66 percent in FY25 under this scenario. The sensitivity analysis presented in Exhibit 4-10 indicates that it is unlikely that the DOH will need to increase the container fee.

Exhibit 4-12
Comparison of Projected Redemption Rates and Redemption Rate Thresholds – FY 2025
With 1-cent container fee
G. 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 FY25. Our base scenario indicates the DBC Special will maintain more than sufficient funding levels through FY25. To maintain an appropriate reserve to cover program expenditures through FY25 and beyond, we recommend:

- A reserve of at least three to four times the DBC Special Fund's monthly expenditures or $20 million.
- A deeper examination of the DBC Special Fund’s reserve and funding needs given the uncertain economic terrain the beverage container recycling program is operating in due to the COVID-19 pandemic. Specifically, we recommend a better understanding of the long-term impact of COVID-19 and the recent economic downturn on the fund and how that may change over time. Making decisions on the status of the fund in the current period of uncertainty is not recommended.

These recommendations will safeguard 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 FY25.

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:

- Additional operational and safety costs incurred due to mandated COVID-19 regulations
- 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 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

<table>
<thead>
<tr>
<th>Adjustment Indicator</th>
<th>Recycling Cost Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage Index</td>
<td>Direct Labor</td>
<td>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.</td>
</tr>
<tr>
<td>Minimum Wage</td>
<td>Direct Labor</td>
<td>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.</td>
</tr>
<tr>
<td>Cost of Living</td>
<td>All Cost Components</td>
<td>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.</td>
</tr>
<tr>
<td>Health Care</td>
<td>Indirect Labor</td>
<td>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.</td>
</tr>
<tr>
<td>Shipping</td>
<td>Off-Island Transportation</td>
<td>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.</td>
</tr>
<tr>
<td>Fuel</td>
<td>Inter-, On-, and Off-Island Transportation</td>
<td>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.</td>
</tr>
</tbody>
</table>
## Exhibit A-2
### Adjustment Indicators, Sources

<table>
<thead>
<tr>
<th>Adjustment Indicator</th>
<th>Source</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Wage</td>
<td>Minimum-wage.org/Hawaii</td>
<td><a href="https://www.minimum-wage.org/hawaii">https://www.minimum-wage.org/hawaii</a></td>
</tr>
<tr>
<td>Cost of Living</td>
<td>BLS, Consumer Price Index (CPI), All Urban Consumers Hawaii</td>
<td><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></td>
</tr>
<tr>
<td>Shipping</td>
<td>Crowe’s Shipping Survey Results</td>
<td>Shipping Survey Results</td>
</tr>
</tbody>
</table>

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