Proposed Solid Waste Rate Restructure for 2023

November 2021

King County

I. Contents

II. Executive Summary

The King County Executive is proposing an Ordinance that, if enacted, would change King County's rate structure for the disposal of municipal solid waste. This report provides supplemental information about the proposed new rate structure.

The Department of Natural Resources and Parks' (DNRP) Solid Waste Division (SWD) is an enterprise fund.[1] About 90 percent of King County's solid waste system's revenue is derived from its basic fee (often referred to as the "tipping fee"),[2] a per-ton fee charged to dispose of waste at the County's solid waste facilities. Under the current rate structure, when tonnage declines, revenues decline, resulting in a funding gap. In this instance, either services are cut or fees are increased to close the revenue gap and preserve services. The current rate structure is at odds with the County's environmental goals. The County is close to completing the Re+ Plan,[3] which will outline actions the County should take to achieve its zero waste of resources goal. Instituting the Re+ Plan could dramatically decrease revenue raised through the basic fee over the next ten years as it reduces landfill-bound waste.

To ensure a sound financial foundation for future operations, DNRP engaged FCS Group, a local consultant specializing in public utility rate design, to complete a cost-of-service rate study with a multi-year financial forecast and evaluate and propose options for restructuring the rate so it is less dependent on landfill tons. While the FCS Group report focuses on a cost-of-service basis for rate design, it also provides guidance on other considerations the County should take into account, such as pricing signals[4] and ease of implementation.[5] DNRP also convened a Rate Restructure Task Force[6] comprised of subject matter experts, stakeholders, and interested community members to review options and provide feedback on elements of the restructure, including, but not limited to, design, implementation considerations, and to identify preferred options.

FCS Group identified three restructure options, or alternatives, to the status quo, which is the basic fee charged for all commercially hauled tons:

- Option 1: Lower basic fee, add new service volume fee and new account fee
- Option 2: Lower basic fee, add new account fee
- Option 3: Lower basic fee, add new fixed-annual charge fee

Of the three options identified for rate restructuring, the fixed-annual charge option (FAC) best met the department's objectives for the restructure because it would:

- Provide rate stability by mitigating the need for large rate increases due to tonnage declines;

[1] An enterprise fund is a fund that may be used to report any activity for which a fee is charged to external users for goods or services – Office of the Washington State Auditor

[2] Referred to in the attached FCS Group report (Appendix D) as the "tipping fee."

[3] Formerly known as the Zero Waste of Resources Plan

[4] "Pricing signals" means setting prices higher or lower in order to incentivize certain behaviors. For example, DNRP does not charge customers for bringing co-mingled recycling to County transfer stations for disposal. Managing those recyclable materials costs money, but not charging sends a price signal to customers that the County wants them to recycle.

[5] See Appendix D.

[6] See Appendix C for a list of task force members.

- Is revenue neutral and preserves services because the same amount of revenue would be collected under the restructure as is collected in the status quo;
- Preserve existing intraclass cost equity so customers who use County solid waste services in the same way pay the same rates;
- Maintain intercity cost equity as shifts in disposal costs between cities are minimized or eliminated; and
- Preserves the existing incentives to reduce waste and recycling/composting more (i.e. the more waste a city generates, the more it pays in disposal costs).

The FAC would restructure the revenue DNRP receives from commercial waste haulers by a) reducing the variable basic fee per ton[7] and b) adding a new fixed fee.[8] The restructure from variable fees to a mix of fixed and variable fees mitigates the loss of revenue when tonnage declines. The basic fee and the FAC are then balanced such that the same amount of revenue is collected as the status quo, but in a more stable way. This restructure proposal would not increase the total disposal cost burden for cities or shift costs from one city to another. However, how the restructure ultimately impacts curbside rate payers would be determined by the terms of city/hauler waste collection contracts.

The FAC was identified as the preferred option as identified by the County's two solid waste advisory committees. [9] Six meetings were held with MSWAC and six with SWAC between May 2021 and October 2021. Each of the options were discussed with both committees, along with the recommendations of the Rate Restructure Task Force. The committees agreed that mitigating jurisdictional impacts (intercity cost equity) was important, and the majority of the membership present at the September meetings voiced support for the FAC or stated their neutrality.

A proposed Ordinance to restructure the solid waste rates and implement the FAC starting in 2023 has been transmitted to the King County Council concurrently with this document. Notably, there is no rate increase included within this proposed restructure legislation. Letters of support for the proposed rate restructure from both advisory committees are included with this proposed legislation.

III. Background

Department Overview: The King County Department of Natural Resources and Parks (DNRP) works in support of sustainable and livable communities and a clean and healthy natural environment. Its mission is to foster environmental stewardship and strengthen communities by providing regional parks; protecting the region's water, air, land, and natural habitats; and reducing, safely disposing of, and creating resources from wastewater and solid waste.

The department operates eight transfer stations, two rural drop boxes, and the only operational landfill in the county, Cedar Hills Regional Landfill (CHRLF). Stakeholders include residents and business owners in unincorporated King County and 37 cities throughout the county, except the cities of Seattle and

[7] The basic fee is a variable revenue source because the number of tons the solid waste system receives fluctuates from year to year.
[8] Fixed revenues change very little over a specified time horizon because they are based on more stable factors.
[9] King County's solid waste advisory committees are the Metropolitan Solid Waste Advisory Committee (MSWAC) and the Solid Waste Advisory Committee (SWAC). A full list of members for each committee is provided in Appendix E.

Milton, which are not part of King County's solid waste system. The department's solid waste mission is to deliver value to its customers and stakeholders, and to continuously improve waste prevention, resource recovery, and waste disposal.

Key Historical Context: The DNRP's Solid Waste Division (SWD) is an Enterprise Fund. About 90 percent of DNRP's revenue from the solid waste system is derived from its basic fee (also known as the "tipping fee"), a per-ton fee charged to dispose of waste at solid waste facilities.

When tonnage declines, the basic fee on each ton must increase to generate the same amount of revenue (see Table 1).

Table 1: Falling Tons Require Higher Rate for Same Revenue

Tons	Tip Fee	Revenue
1,000,000	$100.00	$100,000,000
850,000	$118.00	$100,000,000

Key Current Context: As outlined by King County Code, it is King County's goal to achieve zero waste of resources by 2030 through maximum feasible and cost-effective prevention, reuse, and reduction of solid wastes going into its landfills and other processing facilities, and to enhance the environment through collaboration and innovation.[10]

The County is close to completing the Re+ Plan, which will outline the primary actions the County will take to achieve its zero waste of resources goal. However, successful implementation of this plan over the next ten years could significantly reduce landfill-bound tonnage and its associated revenue, meaning rates would have to increase.

Report Methodology: To aid in the development of the rate restructure, DNRP engaged FCS Group, a local consultant specializing in public utility rate design. The scope of work for the consultant included completion of a cost-of-service rate study; a multi-year financial forecast; and identification and initial evaluation of potential options for restructuring the solid waste rate. FCS Group was also tasked with presenting findings of its analysis and restructure options and gathering feedback from the Rate Restructure Task Force (Task Force) convened by DNRP in mid-2020.

FCS Group was provided with data on SWD's costs, revenues, staffing levels, tonnage, transaction data, financial policies, and the existing rate model. FCS Group used this information to develop its cost-of-service analysis and presentations for the Rate Restructure Task Force in February and March of 2021. Taking feedback from the Rate Restructure Task Force, DNRP staff, and the County's two solid waste advisory committees, FCS Group refined its analysis and provided a draft for review and comment to DNRP staff, the Prosecuting Attorney's Office, and the Office of Performance, Strategy and Budget (PSB). The attached report was updated with feedback from these internal stakeholders and is included with this report as Appendix D. Once the internal review was completed, the final report was also shared with the County's solid waste advisory committees, the Municipal Solid Waste Advisory Committee and the Solid Waste Advisory Committee (see Appendix E). As noted in the Executive Summary of this report, these advisory committees provided feedback on a preferred option.

[10] King County Code Title 10, Section 10.14.020 County goals

IV. Report Components

A. Rate Restructure Objectives

The department, with input from the Rate Restructure Task Force and the consultant, identified the following five key objectives.

1. **Improve Rate Stability:** In order to preserve services and avoid large rate increases due to tonnage declines for consumers, a key objective is to stabilize rates. Because about 90 percent of solid waste revenue comes from the basic fee on landfill-bound waste, when tonnage declines, revenues decline. This dynamic puts the existing rate structure at odds with the County's zero waste of resources goal to divert all material with economic value away from the landfill by 2030.[11] Success in that goal could mean a 70 percent reduction in tonnage over the next nine years, which without a rate restructure, would result in significant increases to customers. For example, if disposal tonnage decreases from 870,000 tons to 350,000 (a drop of about 60 percent), the basic fee would need to increase from $141 to $350 per ton to generate the same amount of revenue to continue existing services.[12] This objective maintains existing services while avoiding large rate increases caused by decreasing tonnage.

2. **Revenue Neutrality:** The proposed restructure should generate the same amount of revenue that would be collected under the status quo rate structure, thereby avoiding reduction in services. The restructure only targets a subset of solid waste revenues (at present) and does not avoid reductions in service by itself, but it does make them less necessary as tonnage drops. This objective recognizes the need to generate the same amount of revenue in a more stable and sustainable way.

3. **Maintaining Intraclass Cost Equity:** This means customers within the same class of service face uniformly applied charges (e.g., a utility cannot arbitrarily charge a higher or lower rate for customers within the same class)."[13] The enclosed FCS Group report defines seven different customer classes and the cost to the department to provide service to each of these classes. This objective addresses the need to maintain cost equity between customers who use the County system in similar ways.

4. **Preserving Intercity Cost Equity:** Intercity cost equity means avoiding shifts in disposal costs between cities (referred to as jurisdictional differences, see Appendix B for more information). Avoiding these shifts was a key concern for members of the Task Force and MSWAC. For example, two of the three options would have shifted some of the disposal cost burden from cities that have a high concentration of business and institutional waste to cities that have mostly residential waste. The third option, discussed below, does not create a shift in costs.

5. **Incentives:** The County seeks to preserve the existing incentives for cities and their residents/businesses have to reduce waste and recycle or compost more, as this helps the County meet its waste reduction goals. Currently, the fewer tons a city generates, the less it pays in disposal costs. Any new restructure should include the same rate-related incentive.

[11] Achieving this zero waste of resources goal is what the actions in the Re+ Plan are intended to accomplish.
[12] FCS Group report, (Appendix D) Section II.E.2.c, Exhibit 2.2
[13] FCS Group report, (Appendix D) Section VI.C. Rate Design Considerations

B. Rate Restructure Analysis

The FCS Group report approaches rate restructure based on three key components that are "generally accepted and widely followed throughout the industry": revenue requirement, cost of service, and rate design. [14] These three elements provide the framework for understanding revenue needs in the context of financial policy (e.g., financial reserve requirements); how those needs relate to the customers it serves; and how best to design a rate structure to meet the Executive's objectives. These elements are described below and are also found in Section III of the FCS Group report.

Revenue Requirement: The FCS Group report defines this as the total revenue required to fully fund solid waste services on a standalone basis and includes operating and maintenance expenditures, capital funding needs, and fiscal policy objectives.[15]

Cost of Service: This is the equitably distribution of costs to customer classes based on their proportional demands on and use of the system.[16]

Rate Design: This is the development of a rate structure that generates sufficient revenue to meet each system's revenue requirement forecast, successfully addresses the County's pricing objectives. In this case, the [primary] objective is to stabilize the revenue.[17]

Methodology and Analysis: The first two analyses indicate how much the system costs and how much of that cost is incurred by each customer class. Adhering strictly to the cost-of-service[18] analysis would mean shifting rates for each customer class over time, such that each class would eventually be charged approximately the total cost of providing them with the services they use.

Once the overall revenue requirement was determined, the next step determined how those costs are associated with the various customers. FCS Group worked with DNRP staff to identify the primary services (or functions) the County solid waste system provides and how much each customer group used each of those services. The consultant then identified ten specific functions and an eleventh broad category that captures the cost of activities not directly related to the other ten functions (e.g., general administration).[19]

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[14] FCS Group report, (Appendix D) Section III.A. Overview.
[15] Ibid.
[16] Ibid.
[17] Ibid.
[18] While there is some discussion of these other dimensions of rate design in the FCS Group report, these were not the primary focus of that report. The FCS Group report focuses primarily on the findings of the cost-of-service analysis in terms of setting rates within the three rate design options it provided. However, the report clarifies the County may take other considerations into account with rate design. For example, sending pricing signals to encourage recycling, ease of implementation for the department and its customers, and risks such as changes in economic activity or price elasticity. (Price elasticity, often referred to as price elasticity of demand, is a measure of consumers' responsiveness to price changes. For example, if demand for a product or service rises and customers dramatically reduce their consumption of it, the price of that product or service is said to be highly elastic.)
[19] The full list of functions and customer groups (or customer classes) is found in the FCS Group report sections V.B. Solid Waste Classes of Service and V.C. Defining Solid Waste Functions.

Next, FCS Group worked with DNRP to group solid waste system customers with similar usage characteristics into customer classes. This enables identification of the cost of service for customers that use the system in a similar way. For this study, FCS Group identified seven distinct customer classes[20] including: transfer station (commercial), transfer station (self-haul), special waste, and yard waste. For example, private waste haulers under contract with a city collect garbage from residential and commercial customers then bring that waste to a transfer station are considered "transfer station (commercial)" customers. They move more quickly through the scale house, due to automated billing, and spend less time on the tipping floor than self-haul customers do. However, they also account for more tonnage, and therefore more transfer drivers, to haul the material to the landfill. The transfer station (commercial) and transfer station (self-haul) customers impose different costs on the system.

The final step of the cost-of-service analysis was to allocate the cost of each function with the customer classes. Tonnage, transactions, and staffing levels were used to allocate a function cost across different customer classes. For example, the cost of the scale house function was allocated across the various customer classes based on the relative number of transactions each customer class generates. So, if yard waste customers account for eight percent of the transactions at the scale houses, eight percent of the cost of operating the scale houses was allocated to the yard waste customer class.

C. Restructure Options

Considering the findings of the analyses described above, the FCS Group report outlines three alternatives to the current rate structure. Each option focuses exclusively on the transfer station commercial customer class revenue requirement and rate structure.[21] This commercial revenue stream was chosen because it represents the single largest revenue stream for the Solid Waste Division and therefore has the greatest potential for stabilizing revenue. Each option keeps and reduces the basic fee charged for each ton of solid waste received, and also adds one or more new fees with more stable bases (see Appendix A for the rate schedule of each option). Each option includes a more fixed (or stable) revenue source(s). FCS Group also designed each option to meet the revenue neutrality and intraclass equity objectives and discusses how each option impacts intercity cost equity.

Fees, Invoicing, and Billing: It is important to note that under each option, the invoice for the new fee(s) goes to the entity[22] responsible for billing retail or curbside customers, along with basic fee charges, which those entities already receive. For example, the private waste hauler Republic Services (Republic) currently has a contract with the City of Bellevue (Bellevue) to provide curbside collection services to residents and businesses/institutions and bills those customers directly. DNRP currently sends Republic a disposal invoice each month for the tons of waste it brings from Bellevue to one of the transfer

[20] The seven customer classes include: transfer station (commercial), transfer station (self-haul), transfer station (self-haul minimum), regional direct, special waste, yard waste, and appliances. These are described in more detail in the FCS Group report, (Appendix D) Section V.B. Solid Waste Classes of Service.

[21] The revenue requirement for the transfer stations (commercial) customer class is approximately $100 Million for 2022. FCS Group used 2022 as the test year for their report and rates in the proposed ordinance are set at these levels so the proposal will not constitute a rate increase.

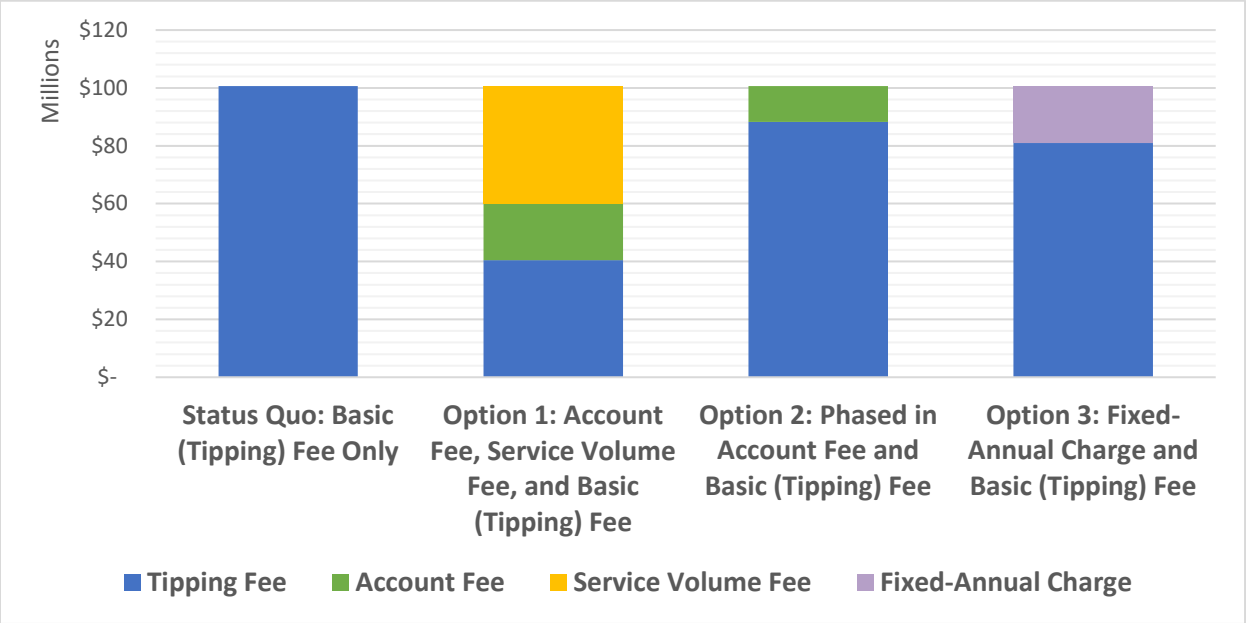
[22] These are referred to as "billing entities." The billing entity is usually a hauler, but in some cases, cities do their own billing, in which case, disposal charges are sent directly to those cities (or passed through to those cities by their hauler).

stations. Republic then passes those charges through to curbside customers in the disposal portion of their monthly bill. At no time does the disposal invoice go from DNRP to Bellevue or to curbside customers to pay directly.

The process of DNRP invoicing the billing agencies and not curbside customers will remain the same under the restructure. For example, even though the account fee is calculated on a "per account" basis (i.e., the total fee is based on the number and type of solid waste collection accounts in a service area) the account fee invoice would go to the billing entity, not the individual customer accounts. The charge would still go to Republic, not the curbside customer (account holder) because Republic is the billing entity.[23] In this example, Republic would receive a monthly disposal invoice for tons delivered as usual, but the new invoice would also include the new charge (in this example, the account fee). How those disposal charges are passed through to curbside customers is something cities and haulers will need to negotiate.

The following figure shows how much of the basic fee revenue from Commercial customers is replaced by a new fee.

Figure 1: Sources of Disposal Fee Revenue by Rate Structure Option[24]



Option 1 – Account Fee and Service Volume Fee: This option reduces the basic fee and adds two new fees: a new account fee and a new service volume fee. The account fee is similar to the fee charged by the King County Hazardous Waste Management Program in that it is based on the number and type of waste collection accounts in a given service area, and charged to the billing entity, rather than the individual account holders. The account fee is discussed in greater detail under Option 2, below. The service volume fee is calculated by determining the total monthly collection capacity of all curbside customer accounts participating in the County disposal system. Taking that total capacity (in cubic yards) and dividing it by the revenue requirement target creates a monthly rate of $3.75/cubic yard. DNRP

[23] DNRP is not permitted to charge fees directly to curbside collection customers. King County's authority over solid waste is governed by RCW 36.58.040.
[24] FCS Group report (Appendix D) Exhibit 6.3

would then invoice each billing entity a monthly service volume fee based on the number of cubic yards of capacity in their service areas.

Option 2 – Account Fee: This option reduces the basic fee and adds one new account fee. This new account fee organizes solid waste customer accounts into four tiers based on the size of the largest collection container on the account. Each customer tier has a monthly fee, which is multiplied by the number of customers in that tier. The total charge for any billing entity is based on the number of accounts in each tier within their service area. The following table shows how the monthly account fee disposal bill would be calculated for a hypothetical billing entity.

Table 2: Example of Account Fee Calculation

Customer Account Tiers[25]	Container Size (gal)	Account Fee Charge per Month	Account Holders	Total Monthly Account Fee Revenue per Tier
SF – Single Family	96	$ 1.37	22,284	$ 30,529
C1 – Commercial (carts)	96	$ 1.37	406	$ 556
C2 – Commercial (dumpsters)	1,600 (8 cubic yards)	$ 22.38	872	$ 19,515
C3 – Commercial (roll off containers)	8,000 (40 cubic yards)	$ 113.87	47	$ 5,352
			Total Monthly Account Fee Revenue	**$ 55,953**

Option 3 – Fixed-Annual Charge: This option reduces the basic fee and adds one new fixed-annual charge (FAC). The FCS Group's cost of service analysis found that providing service to transfer station commercial customers costs the County about $100 million each year, so the basic fee and FAC together should generate that amount of revenue. The total amount of the new FAC is based on the non-disposal-related portion of the commercial customer class cost of service, including Zero Waste of Resources work (now known as the Re+ program), regional planning, and regulatory compliance work . For 2022, the commercial customer class share of these non-disposal-related costs comes to an annual total of $19.7 million. The remaining $80 million will still be collected through the basic fee on transfer station commercial customers' tons as they come into the transfer stations.[26]
The $19.7 million FAC is charged in shares to each service area (city or unincorporated area) on a monthly basis. Each service area's share of the FAC is based on the percentage of tons that service area contributed to the total commercial tons the County received in the most recent calendar year for which data is available.[27] For example, if Bellevue residents and business/institutions generated 10 percent of

[25] SF = single-family accounts, C1 = commercial accounts with a 96-gallon container, C2 = commercial accounts with containers up to 8 cubic yards, C3 = commercial accounts with containers up to 40 cubic yards (roll off containers).
[26] Together, the amount of the FAC ($19.7 million) and the revenue generated from the basic fee on commercial tons should match the total cost of providing disposal services to the transfer station commercial customer class (about $100 million). Subtracting the FAC revenue leaves about $80 million in costs the basic fee will need to cover. Assuming approximately 650,000 tons of commercial waste from which to recover that cost reduces the basic fee from $154.02 (the effective rate in 2022) to $123.82.
[27] For example, the 2023-2024 rate proposal is created in 2022, so the most recent calendar year of available tonnage data is 2021. Thus, the 2023 shares of tonnage (and by extension shares of the FAC) will be based on 2021 shares of tonnage.

all commercial tons in the most recent calendar year, its billing entity (in this example, Republic) would be billed 10 percent (or approximately $1.97 Million) over the course of that year. How Republic recovers this cost from its curbside customers is, or will be, dictated by the terms of their contract with the City of Bellevue. The County is not authorized to charge curbside customers directly.

The FCS Group report recommends approximately 20 percent of commercial hauler revenue to come from the FAC and the remaining 80 percent to come from the revised basic fee. Using the most recent calendar year of tonnage data to set FAC shares allows haulers (and cities that do their own solid waste billing) more certainty about the amount of revenue they need to raise from curbside customers to cover their disposal costs. This approach makes billing easier for all parties, simplifies city/hauler contract updates, and allows more time to verify tonnage data from haulers and correct any discrepancies.

D. Stakeholder Engagement

A Rate Restructure Task Force comprised of representatives from cities, waste haulers, and community members (see Appendix C) provided input and guidance to the development of the options. The Rate Restructure Task Force met 11 times from June 2020 to April 2021 to discuss rate restructure topics and provide feedback to the County and the consultant. The FCS Group provided presentations to Task Force meetings in February and March of 2021 to discuss rate design principles, share cost-of-service analysis methodology and findings, and present the restructure options. The proposed restructure (FAC) was not reviewed by the Task Force as it was created after the Task Force meetings in response to its concerns about the jurisdictional differences created by the service volume and account fees.[28] The FAC was reviewed by the advisory committees and was identified as the top choice.

The primary feedback from the Task Force is summarized below. The Rate Restructure Task Force:

- Supported the introduction of the account fee for commercially hauled garbage; identified a preference for a phased-in approach for the account fee to mitigate jurisdictional differences;
- Supported future consideration of the service volume fee to further stabilize the rate (once the Re+ Plan begins to affect tonnage), but not as part of the initial implementation; and
- Expressed strong preference about mitigating jurisdictional differences (shifts in disposal costs among member cities/unincorporated areas).

The FAC, which was not one of the original options FCS Group presented to the Task Force, was developed in response to this feedback.

Following the meetings with the Task Force, DNRP held six meetings each with both MSWAC and SWAC from May 2021 to October 2021. Each of the three options was discussed with these two committees, along with the recommendations and feedback of the Task Force.
The committees agreed that mitigating jurisdictional impacts was important and the majority of the membership present at the September 2021 meetings voiced support for the FAC or stated neutrality. Some committee members abstained from expressing an opinion on which choice they preferred.

[28] The considerable majority (about 80 percent) of Rate Restructure Task Force members are on one of the County's two solid waste advisory committees, so it was deemed unnecessary to convene additional Task Force meetings.

However, both committees voted, in the October meetings, to send letters of support for this proposal to the Executive and Council.

E. FCS Group Report Recommendations

In addition to the three restructure options identified above, the FCS Group report also included guidance for the County on rate design and implementation in the form of recommendations. Those recommendations cover a variety of topics important to consider during implementation and beyond. The department is using these recommendations to guide internal discussions and work with partner cities and haulers to prepare for implementation should this proposal be approved by the Council. Those recommendations most relevant to this proposal are summarized here:[29]

- Update the cost-of-service analysis every three to five years or as needed based on significant shifts in spending among functions;
- Consider mitigating jurisdictional differences as a critical factor in choosing a restructure option;
- Consider future adjustments to the solid waste rate structure as disposed tonnage decreases;
- Allow at least nine months lead time between when the new rate structure is adopted by Council and the first bills go out;
- If Option 3 (FAC) is chosen, establish quality controls for tonnage data; and
- The Executive should update this analysis as part of the 2023 rate setting process to account for changes in operating and capital expenditures, disposal tonnage, and available financial reserves.

The full FCS Group report, and these recommendations, were reviewed and agreed to by DNRP and staff from PSB. The final report was also distributed to all members of the department's two advisory committees in early October 2021.

F. Implementation of the Fixed-Annual Charge

The proposed restructure option (FAC) is favored by the advisory committees. It creates little or no shift in cost burden among partner cities and is relatively easy to implement compared to other options. However, some administrative steps will need to occur in advance of implementation if this proposal is approved by the Council, which is true of all three options.
All three options in the FCS Group report will likely require cities and waste haulers to update the terms of their collection and billing contracts. Most contracts handle disposal charges as a pass-through based on the percent change in the basic fee whenever that changes. However, since disposal costs under any option would pair basic fee charges with one or more new fees, the standard language would need to be updated. This is a concern raised by some cities due to staffing limitations and a reluctance to open contracts for negotiation.

Cities and haulers need time to update their contracts and billing systems and cannot do so until the new structure is approved by the King County Council. For this reason, the Executive has transmitted a proposed Ordinance, which changes the rate structure for 2023 and beyond. This timeframe is intended

[29] The full list of recommendations is the FCS Group report, (Appendix D) Section VIII.B. Summary of Recommendations.

to provide cities and haulers with time to update their contracts and billing systems, and for them to communicate any anticipated billing changes to their customers.

V. Conclusion

A proposed Ordinance to change King County's rate structure for the disposal of municipal solid waste is transmitted simultaneously with this report.

The rate restructure provides a framework to preserve services, meet the County's waste reduction goals, and avoid large rate increases due to falling tonnage. Notably, there is no rate increase included within this proposed restructure legislation.

The department is using the recommendations from the FCS Group report to guide internal discussions and work with partner cities and haulers to prepare for implementation should this proposal be approved by the Council.

VI. Appendices

Appendix A: Test Year Fee Schedule for Solid Waste Services
Appendix B: Change in Disposal Fees by Jurisdiction (Test Year 2022)
Appendix C: Rate Restructure Task Force Members
Appendix D: FCS Group Report "Solid Waste Cost of Service and Rate Restructure Study" October 2021
Appendix E: Advisory Committee Members

Appendix A: Test Year Fee Schedule for Solid Waste Services[1]

	Existing 2021	Adopted 2022	Test Year 2022
Tonnage Fees			
Transfer Station Waste			
Transfer Station (Self-Haul)	$ 140.82	154.02	$ 153.37
Cedar Hills - Other	140.82	154.02	153.37
Other Waste	140.82	154.02	153.37
Regional Direct	120.00	131.00	131.00
Special Waste	169.00	185.00	185.00
Yard Waste	75.00	100.00	100.00
Transaction Fees			
Transfer Station Waste			
Transfer Station (Self-Haul Minimum)	$ 22.53	$ 24.64	$ 24.54
Appliances	30.00	30.00	30.00
LIFT Discounts	(12.00)	(14.00)	(14.00)
Unsecured Load	25.00	25.00	25.00
CF Drop Box	22.53	24.64	24.54
Alternative #1: Account Fee, Service Volume Fee, and Commercial Tipping Fee			
Account Fee			
SF	$ -	$ -	$ 2.19
C1	-	-	2.19
C2	-	-	36.50
C3	-	-	182.50
Service Volume Fee	$ -	$ -	$ 3.75
Tipping Fee	$ 140.82	$ 154.02	$ 61.91
Alternative #2: Phased-In Account Fee and Commercial Tipping Fee			
Account Fee			
SF	$ -	$ -	$ 1.37
C1	-	-	1.37
C2	-	-	22.83
C3	-	-	114.17
Service Volume Fee	$ -	$ -	$ -
Tipping Fee	$ 140.82	$ 154.02	$ 135.11
Alternative #3: Fixed Annual Charge and Commercial Tipping Fee			
Fixed Annual Charge			$ 19,737,266
Tipping Fee	$ 140.82	$ 154.02	$ 123.82

[1] FCS Report Exhibit 6.13

Appendix B: Change in Disposal Fees by Jurisdiction (Test Year 2022)[1]

Commercial Hauler / Jurisdiction	Status Quo Disposal Fees	Alternative #1 Accout Fee, Service Volume Fee, and Tipping Fee	Alternative #2 Phased-In Accout Fee and Tipping Fee	Alternative #3 Fixed Annual Charge and Tipping Fee
Auburn	$ 6,401,931	$ (285,272)	$ (92,430)	$ -
Enumclaw	747,286	223,202	37,892	-
Kirkland	5,406,878	22,945	12,375	-
Recology Cleanscapes	19,993,050	(246,895)	(101,137)	-
Renton	6,499,664	453,868	85,845	-
Republic Services - Auburn	726,922	(71,825)	(3,838)	-
Republic Services - Bellevue	9,840,910	(388,295)	(86,155)	-
Republic Services - Clyde Hill	133,219	(4,886)	1,678	-
Republic Services - Covington	1,245,782	(69,531)	(3,939)	-
Republic Services - Kent	11,696,955	(412,800)	(129,674)	-
Republic Services - Lake Forest Park	477,363	98,500	29,957	-
Republic Services - North Bend	636,361	66,313	9,468	-
Republic Services - Renton	-	-	-	-
Republic Services - Sammamish	1,765,090	225,221	87,299	-
Republic Services - Snoqualmie	-	-	-	-
Republic Services - UTC North	2,051,388	112,753	36,330	-
Republic Services - UTC South	4,078,784	420,966	136,375	-
Skykomish	242,207	(128,848)	(26,219)	-
Vashon-Waste Connections	399,381	254,631	47,393	-
Waste Management - Algona	290,721	15,746	4,252	-
Waste Management - Bothell	324,749	(52,116)	(7,539)	-
Waste Management - Duvall	344,249	80,305	20,686	-
Waste Management - Federal Way	6,878,431	(880,783)	(174,671)	-
Waste Management - Normandy Park	312,834	(7,253)	2,393	-
Waste Management - Pacific	527,005	21,015	3,301	-
Waste Management - Redmond	5,386,908	(453,757)	(101,006)	-
Waste Management - Sammamish	23,976	(12,911)	(2,582)	-
Waste Management - Snoqualmie	803,611	30,360	14,049	-
Waste Management - Tukwila	4,281,145	(365,787)	(111,781)	-
Waste Management - UTC - King County	2,376,203	204,209	46,340	-
Waste Management - UTC - King County Sno-King	2,599,002	277,002	98,411	-
Waste Management - UTC - King County South Sound	1,541,573	112,007	28,051	-
Waste Management - UTC - Newcastle	554,870	10,245	8,967	-
Waste Management - WUTC - Woodinville	2,064,925	(270,973)	(68,095)	-
Waste Management Combined	-	978,295	199,035	-
Total	**$ 100,653,375**	**$ (44,350)**	**$ 1,031**	**$ -**

Notes

Differences in total revenue due to rounding (account, service volume, and tipping fees rounded to nearest penny)

Estimated fees for Alternative 3 include annual true-up

[1] FCS Report Exhibit 7.3

Appendix C: Rate Restructure Task Force Members

Name	City/Organization	Role	Voting Member
Aaron Moldver	Redmond	MSWAC	Y
Jenna McInnis	Kirkland	MSWAC	Y
John MacGillivray	Kirkland	MSWAC	Y
Linda Knight	Renton	MSWAC	Y
April Atwood	Seattle University	SWAC	Y
Rob Van Orsow	Federal Way	MSWAC	Y
Karen Dawson	Cedar Grove	SWAC	Y
Heather Trim	Zero Waste Washington	SWAC	Y
Kenneth Marshall	Teamsters 174	SWAC	Y
Penny Sweet	Kirkland	MSWAC	Y
Toby Nixon	Kirkland	MSWAC	Y
Tony Donati	Kent	MSWAC	Y
Cameron Reed	Shoreline	MSWAC	Y
Mason Giem	SeaTac	MSWAC	Y
Gib Dammann	Vashon	SWAC	Y
Philipp Schmidt-Pathman	Newcastle (representing)	Community member selected by Newcastle to represent the city	Y
Ali Lee	Climate Reality Project	Community member	Y
Amanda Miller	South King Tool Library	Community member	Y
Wendy Weiker	Republic	Hauler	Y
Hannah Scholes	Waste Management	Hauler	Y
Kevin Kelly	Recology	SWAC/Hauler	Y
Sego Jackson	Seattle	Advisor	N
Stephanie Schwenger	Seattle	Advisor	N
Susan Fife-Ferris	Seattle	Advisor	N

Appendix D

King County

King County Solid Waste Division

SOLID WASTE COST OF SERVICE AND RATE RESTRUCTURE STUDY

FINAL REPORT
(including addendum)

October 2021

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October 4, 2021

Brian Halverson, Strategic Planning Manager
King County Solid Waste Division
201 S Jackson St.
Seattle, WA 98104

Subject: Final Report for Solid Waste Cost of Service and Rate Restructure Study

Dear Brian,

FCS GROUP is pleased to submit the final report of the Solid Waste Cost of Service and Rate Restructure Study. The report summarizes the methodology, findings, and recommendations for each of the core elements of the study.

It has been a pleasure working with King County Solid Waste Division staff and the Rate Restructure Task Force on this effort. Please let me know if you have any questions or need additional information on this report. I can be reached at (425) 336-4157.

Sincerely,

Angie Sanchez-Virnoche	Matt Hobson	Amanda Levine
Principal and Vice President	Project Manager	Analyst

OCTOBER 2021 ADDENDUM TO FINAL REPORT

Background

The Division presented the study findings to the MSWAC committee on October 8, 2021. The Division requested that FCS GROUP provide additional guidance on a rate structure discussed during the presentation. This addendum describes this rate structure and provides an evaluation based on the rate-setting principles and objectives outlined in the report.

Rate Structure

The rate structure discussed during the October 8 presentation is similar to the third rate alternative (fixed annual charge and tipping fee) described in page 37 of the report. The key difference is that the allocation of the fixed annual charge to jurisdictions would be based on actual disposal tonnage from a previous year instead of a projection for the rate-setting year.

This rate structure option is consistent with the cost-of-service principles outlined in the report – the share of Division revenues generated from commercial solid waste haulers would align with the cost to provide service. The key differences between this rate structure and the other alternatives focus on *how* the share of revenue from commercial solid waste haulers is collected by the Division. The development of rate structures to collect the appropriate share of revenue is referred to as rate design in utility rate-setting. The rate structure is also consistent with the rate design objectives and considerations as outlined on pages 33 and 34 of the report.

Advantages

The anticipated advantages relate to the implementation of the rate restructure. By allocating the fixed charge to jurisdictions based on a previous year's disposal tonnage, the fixed charge "shares" would be known by the Division and commercial solid waste haulers when annual rate changes are adopted by the County. There would not be a need for an annual true-up to adjust the cost shares at the end of the year. This change is anticipated to provide greater financial certainty to commercial solid waste haulers on their respective share of disposal fees earlier in the annual rate-setting process.

Considerations

The intent of the annual true-up is to align the allocation of the fixed charge in a given year with the disposal activity that occurred during that year. The true-up mechanism maintains the relationship between the allocation of the fixed charge and disposal activity for that year. Without the true-up mechanism, service areas that implement waste reduction strategies at a faster pace than other areas would not see a corresponding impact on the fixed charge share for at least one year. The rate structure would not affect the tipping fee component of the rate structure (e.g., disposal fees paid based on weight of disposed waste), so service areas would realize immediate tipping fee cost savings from waste reduction/recycling activities.

TABLE OF CONTENTS

Section I. EXECUTIVE SUMMARY

I.A. BACKGROUND

The King County Solid Waste Division ("Division") provides solid waste transfer and disposal services to thirty-seven cities in King County as well as unincorporated areas of the county. The Division is also responsible for leading regional planning of the solid waste system and provides resource recovery, waste diversion, and waste reduction programs and coordinates similar programs with partner cities.

I.B. THE ISSUE

The majority (>90 percent) of Division revenue is generated from tipping fees – fees assessed to transfer station and landfill customers based on the weight of solid waste. The Division's existing rate structure, while common for transfer stations and landfills in the U.S., presents financial sustainability challenges for the utility:

- Some of the services provided by the Division are unrelated to disposed solid waste (e.g., recycling), but exclusively supported by a rate structure dependent on disposed solid waste.
- Disposal tons historically fluctuates from year to year in response to economic conditions and effects of resource recovery programs, creating a funding challenge for disposal services that are generally fixed relative to changes in disposed tons.
- The region's zero waste of resources goal by 2030, including the interim goal of a 70% recycling rate, is expected to exacerbate these existing financial sustainability challenges as disposed tonnage decreases in response to new resource recovery programs.

The Division contracted with FCS GROUP to evaluate several rate restructure options to improve revenue stability, establish a funding source for current and future waste reduction programs, and, to the extent possible, mitigate potential rate impacts to its customers.

I.C. STUDY PROCESS

The methods used to develop the rate restructure options are based on principles that are generally accepted and widely followed throughout the industry. These principles are designed to produce rates that equitably recover the costs of the utility by setting the appropriate level of revenue to be collected from ratepayers.

The four key analyses completed as part of the study process are listed below:

- **Revenue Requirement.** This analysis identifies the total revenue requirement to fully fund the Division on a standalone basis, considering operating and maintenance expenditures, capital funding needs, and fiscal policy objectives.
- **Cost of Service.** This analysis equitably distributes costs to customer classes based on their proportional demands on and use of the system.

- **Rate Design.** Rate design is the third technical step in utility rate setting and the focus point of the rate restructure. The first two technical steps provide the revenue targets for rate design. The study explores three rate restructure options for the County's major customer class – commercial and municipal solid waste haulers.
- **Jurisdictional Impacts.** With any change in rate design, there may be "winners" and "losers" – some customers will pay less, while others will pay more relative to the existing rate structure. This section evaluates the degree to which these costs shift as a result of the rate restructure options.

I.D. RESULTS AND ALTERNATIVES

The Division's multi-year financial plan includes a proposed 9.4 percent rate increase to the tipping fee in 2022. With this increase, the Division is projected to generate approximately $152 million in rate revenue in 2022. Based on the cost of service analysis, FCS GROUP estimates the share of revenue to be generated from the commercial hauler customer class is $100.6 million – the basis for the three rate restructure alternatives is described in **Exhibit ES-1**.

Exhibit ES-1
Summary of Rate Restructure Alternatives

Alternative	Description	Considerations
Account Fee, Service Volume Fee, and Tipping Fee	This rate structure would recover the Division's costs unrelated to disposal activities through a fixed monthly account fee assessed to each commercial hauler. The volume fee would be based on each hauler's monthly customer service volume as measured in cubic yards. The volume fee would recover 50 percent of the cost of disposal-related activities. The existing tipping fee structure would recover the remaining 50 percent of the cost of disposal-related activities.	This option is anticipated to provide the highest and most immediate level of fixed revenue to the Division. It would result in largest shifts in disposal fees among jurisdictions. Implementation would need to be delayed until a data management system is established to track/bill for solid waste collection service volume.
Phased-In Account Fee and Tipping Fee	This rate alternative was developed through discussions with the Rate Restructure Task Force. Similar in design to the first option, this rate restructure includes a fixed monthly account fee assessed to each commercial hauler which would recover Division costs unrelated to disposal activities. However, the account fee would be phased-in over several years to limit potential impacts to haulers and jurisdictions. All other revenues would be recovered through the tipping fee.	Account fee phase-in strategy is consistent with feedback from the Rate Restructure Task Force. Commercial haulers already provide account data to the County through the Hazardous Waste Management Program. Mitigates but does not eliminate the initial shifts in disposal fees among jurisdictions.
Fixed Annual Charge and Tipping Fee	This alternative was explored following discussions with the Rate Restructure Task Force to minimize the impacts of a rate restructure to haulers and jurisdictions. The fixed annual charge would recover Division costs unrelated to disposal activities. The fixed annual charge would be assessed based on the projected shares of disposed tons from each hauler (and jurisdiction) for the year. The annual fixed charges would then be reconciled through a true-up process the following year to account for the actual share of disposed tons. All other revenues would be recovered from the tipping fee.	Through the annual true-up process, this option has the potential to eliminate cost shifts among jurisdictions. The Division already receives the data required for implementing this structure from commercial haulers. The amount of the annual credits or payments from the true-up process may be affected by sudden changes in waste disposal.

I.E. SUMMARY RECOMMENDATIONS

- The basis of the rate restructure selected by the Division should reasonably reflect the cost of service for commercial solid waste haulers. We recommend that the Division update the cost of service analysis results every three to five years or as major shifts in programs or services occur.
- We recommend that the Division consider the shifts in disposal fees paid by jurisdictions from a rate restructure as a critical factor for selecting an option. Of the three alternatives considered, the third alternative (fixed annual charge) was designed to minimize potential shifts in disposal fees paid by jurisdictions. The alternative establishes a fixed revenue source to the Division. Additionally, the true-up mechanism provides annual credit/charge adjustments for individual jurisdictions, so the net change in disposal fee increases to jurisdictions compared to the status quo rate structure is zero.
- While disposal fees estimated in this report are expressed on an annual basis, we recommend that the Division establish a billing system for the account fee, service volume fee, and annual fixed charge on a monthly basis. This billing frequency is consistent with the existing frequency for invoicing tipping fees to commercial solid waste haulers.
- The initial cost basis for the fixed account fee (Alternative #1 and Alternative #2) and the fixed annual charge (Alternative #3) is the estimated cost of non-disposal services provided by the Division today. As such, these fees would need to increase in response to the cost of future resource recovery programs. Additionally, the Division and its partners may explore expanding the basis for these fees to include disposal-related expenses that are generally fixed relative to disposal tonnage (e.g., debt service). We recommend that the Division and its partners consider future adjustments to these fixed fees as disposed tonnage decreases in response to the region's advancement towards zero waste of resources.
- Based on preliminary discussions between the Division and commercial solid waste haulers (and jurisdictions that administer solid waste billing), we recommend at least a nine-month lead time between the County decision to create the rate structure and the first payments under the new structure. During this time, the Division would routinely collect and review required billing data to administer the rate restructure, coordinate the rate structure changes with cities, commercial solid waste haulers, the WUTC, and other stakeholders, and test the revenue that would be generated from the new rate structure.
- If an account fee is implemented, we recommend the Division phase-in the fee over two to four years to mitigate the shifts in disposal fees between jurisdictions. This recommendation is consistent with the general feedback received from the Rate Restructure Task Force.
- We recommend the implementation of a rate restructure option which includes a service volume fee component be delayed within the short-term (1 to 2 years) due to the lack of administrative processes to gather, aggregate, and report solid waste collection service volume data.
- A fixed annual charge (Alternative #3) requires that the Division rely on tonnage data for each jurisdiction when setting individual cost shares for each commercial solid waste hauler and jurisdiction. While this data is already transmitted to the Division by solid waste haulers, FCS GROUP identified several anomalies in the tonnage data from 2015 to 2020 – particularly for smaller jurisdictions. We recommend that the Division establish quality control tests for the tonnage data and follow-up with commercial solid waste haulers as needed to ensure that the annual tonnage data is accurate prior to setting the annual fixed charge.

  - » Unlike the other alternatives, the fixed annual charge for Alternative #3 is not based on a rate per account or service unit. As such, revenue from the fixed annual charge would not automatically increase in response to future increases to population or garbage collection service levels. We recommend that the Division increase the fixed annual charge revenue target by a recognized index of cost inflation in between updates to the cost of service analysis.
  - » We recommend that true-up payments or credits resulting from the fixed annual disposal charge in a given year be included in the following year's fixed annual disposal charge for each jurisdiction.

- The results of the rate restructure study are based on the Division's revenue requirement in 2022 as published in the 2022 Rate Proposal. We recommend that the County update the analysis as part of the 2023 rate setting process to account for changes in operating and capital expenditures, disposal tonnage, and available financial reserves.

Section II. INTRODUCTION

II.A. SCOPE OF WORK

The County contracted with FCS GROUP in January 2021 to conduct an update of a rate restructure study completed in 2017 as well as to complete a comprehensive cost of service rate study. FCS GROUP was tasked to revisit the cost and rate assumptions of the 2017 study and update them to existing and projected levels. The scope of work also included a multi-year financial forecast and cost of service analysis of the solid waste utility and an evaluation of rate restructure options.

II.B. 2017 RATE RESTRUCTURE STUDY

In 2017, the Division contracted with FCS GROUP to evaluate an alternative solid waste revenue structure that would reduce reliance on the existing tipping fee structure. The alternative revenue structure included fixed disposal charges paid by commercial haulers based on the number of solid waste accounts and waste volume (cubic yards of service) served by each hauler. Commercial haulers would continue to be assessed a tipping fee based on the weight of material delivered to the Division. The tipping fee would be lower compared to the existing rate structure to reflect the fixed disposal charges assessed to the commercial haulers. Restructuring disposal charges based on disposed tons *and* the characteristics of the commercial haulers' customer base was projected to improve revenue stability. The report summarized the advantages and disadvantages of this alternative revenue structure compared to the status quo, noting the initial and on-going administrative requirements and drawbacks of assessing the new rate structures.

II.C. REPORT ORGANIZATION

This report is organized into nine sections:

- **Section I** presents a high-level executive summary, detailing the cost of service study and rate restructure update results.
- **Section II** introduces and provides background to the Division, explains the goals of the rate restructure, and describes the project scope of work.
- **Section III** describes the general purpose of a utility rate study, as well as the industry standard methodology and framework for the analysis.
- **Section IV** explains the step-by-step process and results of the revenue requirement analysis, which details the overall needs of the system (operating expenses, existing debt, capital programs, etc.), and the revenue (rate increases) required to cover those needs.
- **Section V** details the cost of service analysis, which addresses cost equity between the Division's customer classes. This analysis explores whether different customer classes are paying their equitable share of the revenue requirement.
- **Section VI** outlines the third and final technical step in utility rate setting (rate design) and the focus point of the rate restructure. The principal objective of rate design is to implement rate structures that collect the appropriate level of revenue and are reasonably aligned with cost of service. Three alternative rate structures are explored and evaluated.

- **Section VII** analyzes the potential shifts in disposal charges that commercial solid waste haulers and jurisdictions in King County would pay under each rate restructure alternative. The differences between the status quo and restructure options were a critical consideration for the Rate Restructure Task Force.
- **Section VIII** summarizes the study results and recommendations from FCS GROUP.
- **Section IX** presents the detailed technical analyses as appendices to the report.

II.D. KING COUNTY SOLID WASTE DIVISION

The King County Solid Waste Division partners with 37 cities, commercial solid waste haulers, and material processing facilities to manage the region's solid waste system. The system includes garbage, recycling, and organic material collection (performed primarily by commercial waste haulers), sorting, and salvage of reuse, recycling, and compostable materials, and solid waste disposal. The extensive service area covers approximately 2,050 square miles, 1.5 million residents, and employs about 771,000 people. (To minimize repetition, this report will refer to "King County Solid Waste Division", the "Division", the "County" interchangeably.)

Because of the influence of environmental legislation passed in the 1960s and 1970s, and higher environmental protection standards in the state of Washington (WAC 173-304), what began as a basic system of garbage collection has evolved into a complex solid waste division. The County operates and maintains eight transfer stations, two drop boxes, and the active Cedar Hills landfill, which in 2020 received over 872,000 tons of garbage. The County also maintains nine closed landfills (Cedar Falls, Duvall, Enumclaw, Hobart, Houghton, Puyallup/Kit Corner, Vashon, Bow Lake and Corliss).

According to RCW 81.77.020, authority for regulating curbside solid waste cannot be controlled by Counties, so consequently, the curbside solid waste collection responsibility is shared between the State (acting through the Washington Utilities and Transportation Commission "UTC"), and the individual cities. It is important to note that as a result of RCW 81.77, cities have the choice to opt out of the UTC, and can hire a company from the private sector to administer their curbside collection (most of which work through the UTC), or they can offer a city-operated collection service. Therefore, the collection of solid waste and recyclables in King County is a collaborative effort between the County, the State and commercial solid waste haulers.

II.D.1. Commercial and Municipal Waste Hauler Partners

Of the thirty-nine cities in King County, thirty-seven of them are served by the County (City of Seattle and City of Milton are excluded as Seattle has its own debris management plan, and Milton participates in Pierce County's plan). These cities are Algona, Auburn, Avondale, Beaux Arts Village, Bellevue, Black Diamond, Bothell, Burien, Carnation, Clyde Hill, Covington, Des Moines, Duvall, Enumclaw, Federal Way, Hunts Point, Issaquah, Kenmore, Kent, Kirkland, Lake Forest Park, Maple Valley, Medina, Mercer Island, Newcastle, Normandy Park, North Bend, Pacific, Redmond, Renton, Sammamish, Shoreline, Skykomish, Snoqualmie, Tukwila, Woodinville, and Yarrow Point. The commercial solid waste haulers that work with the individual cities on curbside collections in the County are Waste Management Inc., Republic Services Inc., Waste Connections, and Recology Cleanscapes Inc. The cities of Enumclaw and Skykomish collect solid waste within their respective jurisdictions. The term "commercial solid waste hauler" will be used throughout the report to refer to both commercial and municipal solid waste haulers.

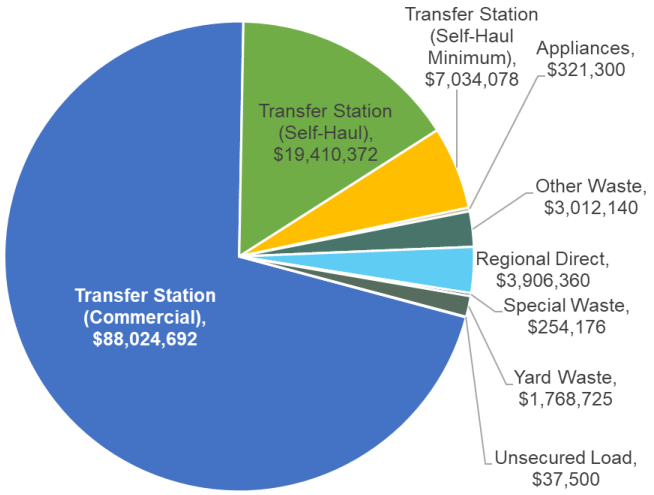
II.E. SOLID WASTE RATES AND RATE RESTRUCTURE

II.E.1. Existing Rate Structure

The Division collects rate revenue from commercial haulers through a "tipping fee" based on the amount of weight (in tons) of solid waste that is delivered to the transfer stations or directly to the Cedar Hills Regional Landfill. Residents and businesses, known as self-haulers, that deliver discarded material at the transfer stations are also assessed tipping fees based on the weight and type of material. Smaller loads or specific items like appliances are assessed a fixed fee per load or per item.

Exhibit 2.1 illustrates the 2020 rate revenue by source. Commercial hauler tipping fees (71 percent) comprise the majority of rate revenue. Self-haulers that are assessed the tipping fee or the small load minimum fee represent an additional 16 percent and 6 percent of rate revenue respectively. Commercial haulers authorized by the Division to deliver waste directly to the Cedar Hills Regional Landfill are assessed a regional direct tipping fee, which made up 3 percent of rate revenue in 2020. The Division also assesses tipping or load fees on special types of waste (e.g., asbestos), yard waste, and appliances.

Exhibit 2.1
2020 Rate Revenue by Source



II.E.2. Why Is Rate Restructure Needed?

The existing tipping fee rate structure where disposal charges are based on the weight of the discarded material is the most common rate structure used by transfer stations and landfills in the

United States.[1] If it is so widely used across the industry, then why would a rate restructure be needed in King County? There are three main disadvantages to relying exclusively on a tipping fee rate structure for the Division:

II.E.2.a Cost of Services Unrelated to Solid Waste Disposal

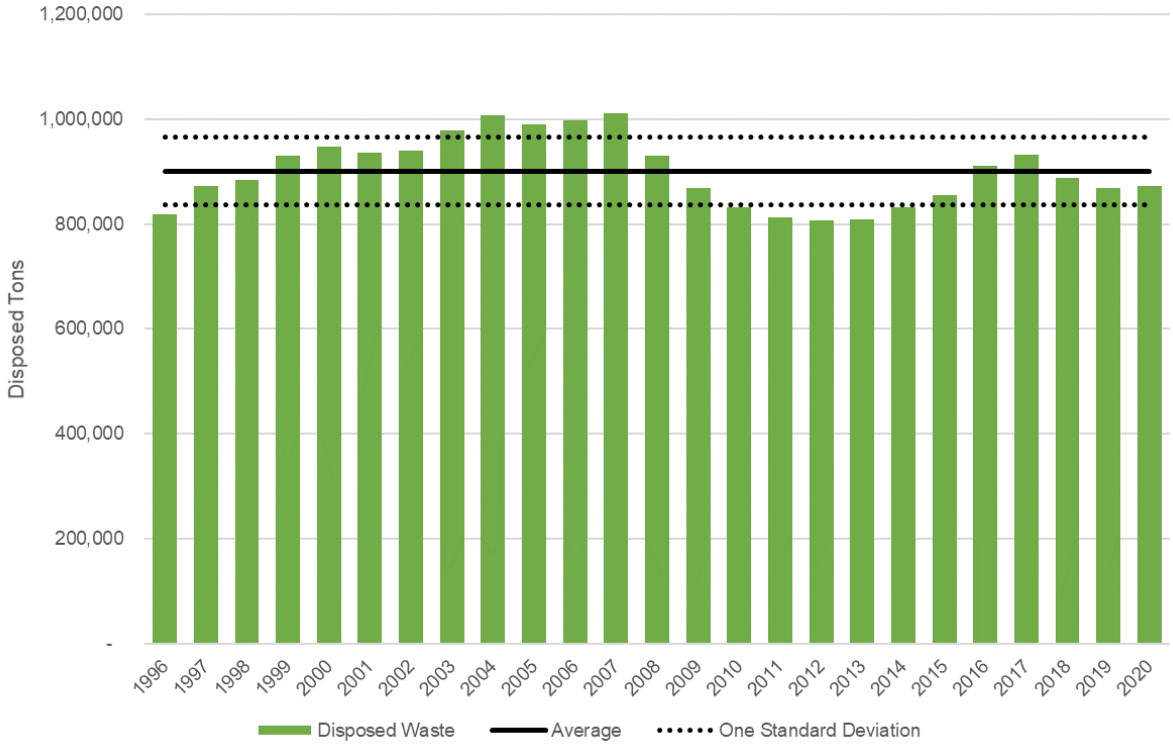
In addition to providing solid waste transfer and disposal services within King County, the Division is also tasked with administering programs and services that are unrelated to solid waste disposal. The Division administers waste prevention and re-use programs, facilitates comprehensive solid waste management planning, provides maintenance, and regulatory monitoring for closed landfills within the County's service area. Generally, the cost of these programs and services would be incurred by the Division regardless of the amount of disposal tons that were delivered to the transfer stations or landfill. These program costs have no logical connection to the number of tons of solid waste disposed; instead, these costs are driven primarily by other factors (e.g., the number of residents and businesses within the County, regulatory requirements, waste diversion goals, etc.).

II.E.2.b Short-Term Revenue Variability

The tipping fee rate structure is a variable rate structure where customers that deliver more waste to the transfer station pay more than customers that deliver smaller amounts of waste. This concept can be applied to understand annual changes in disposal revenue. Years with relatively strong waste activity will result in higher disposal revenue compared to years with relatively lower waste activity. **Exhibit 2.2** illustrates the annual change in disposed tons at the Cedar Hills Regional Landfill from 1996 to 2020. The Division disposed an average of 900,000 tons each year with a high of 1,010,000 tons in 2007 and a low of 807,000 tons in 2012.

[1] The Environmental Research and Education Foundation (EREF) publishes a national survey of disposal charges at municipal solid waste landfills in the United States. This annual survey is used by the solid waste industry, trade publications, and researchers to gauge annual changes in disposal pricing. The results of the survey are expressed in tipping fees ($ per ton).

Exhibit 2.2
25-Year History of Disposed Waste



Due to the existing tipping fee structure, the variability in annual disposed tons directly translates to variability in disposal fee revenue. If disposed tons in a given year are 10 percent *higher* than expected, then the Division would generate 10 percent more revenue than expected. Conversely, if disposed tons were 10 percent *lower* than expected, the Division would generate 10 percent less revenue than expected.

The revenue variability that results from the existing tipping fee structure creates two financial challenges for the Division:

- **Revenue Planning.** Under the existing tipping fee structure, the Division forecasts expected disposed tons for the upcoming budget and forecast periods. The Division's tonnage forecast is designed to account for changes in economic activity, population, waste behavior, and other factors. The tipping fee is set based on budgeted expenses and the tonnage forecast. Depending on the degree to which actual tonnage deviates from the tonnage forecast, the Division will over- or under-collect tipping fee revenue. At the existing tipping fee ($140.82 per ton), a one percentage point difference in forecast and actual tons translates to a swing of $1.2 million in tipping fee revenue.
- **Cost Variability and Management.** While each additional (or less) ton has a direct impact on rate revenue, the impact of disposed tonnage on Division costs is less direct. Some expenses like business and occupation taxes and the transfer to King County Public Health are assessed per ton of waste – so these costs would change in proportion to changes in disposed waste. However, the cost impacts of changes in disposed tons to the majority of Division expenses are more nuanced.
  - » Transfer station staffing levels are impacted by operating hours, safety requirements, and service levels *in addition* to disposed tonnage.

- The operation of compactors and tippers at the landfill are generally fixed until waste volumes reach a threshold that would justify changes in equipment/staffing requirements.[2]
- Scalehouse expenses may be limited by the physical space in a scalehouse and the number of scales.
- Costs unrelated to waste disposal (e.g., comprehensive planning, closed landfill monitoring) are relatively fixed as a function of annual tonnage.

Because disposed tonnage is not the only factor than impacts Division costs, the existing rate structure, which is based on disposed tons, can result in cost management challenges. A one percent decrease in disposed tons will not automatically reduce costs by one percent. To manage short-term revenue volatility, the Division has historically relied on adjusting contributions to capital projects, the landfill reserve fund, the equipment replacement reserves, the use of financial reserves, in addition to personnel lay-offs.

II.E.2.c Zero Waste of Resources Policies and Goals

The County's 2019 Solid Waste Comprehensive Management Plan outlines goals, policies, and strategies to advance the solid waste system. The plan's overall waste prevention and recycling goal is to achieve zero waste of resources – eliminate the disposal of materials with economic value by 2030 with an interim recycling rate goal of 70 percent. Advancing the County's solid waste system towards these goals requires reducing the commodity from which the Division generates revenue: the disposed ton. The existing rate structure is not a sustainable structure for financing the future solid waste system.

- **Potential New Business Lines.** To achieve zero waste of resources, the Division is coordinating with industry and municipal stakeholders to identify and develop new business lines for preventing and diverting materials from disposal. The cost and cost drivers for these programs are expected to diverge from status quo disposal activities. Continuing to use disposal tons as the rate mechanism for cost recovery may create a misalignment with how costs are incurred and recovered for services provided by the Division.
- **Increased Revenue Volatility.** The Division estimates that achieving a 70 percent recycling goal would reduce disposed tons to approximately 320,000 to 350,000 tons per year. If the Division were to retain the existing tipping fee structure, the current challenges of tonnage forecasting would likely be exacerbated. Differences between the planned and actual impacts of zero waste policies would result in increased revenue volatility and cost management challenges. **Exhibit 2.3** illustrates this challenge — as disposed tonnage decreases over time, the tipping fee would need to increase to generate the same amount of revenue. If disposal tonnage decreased from

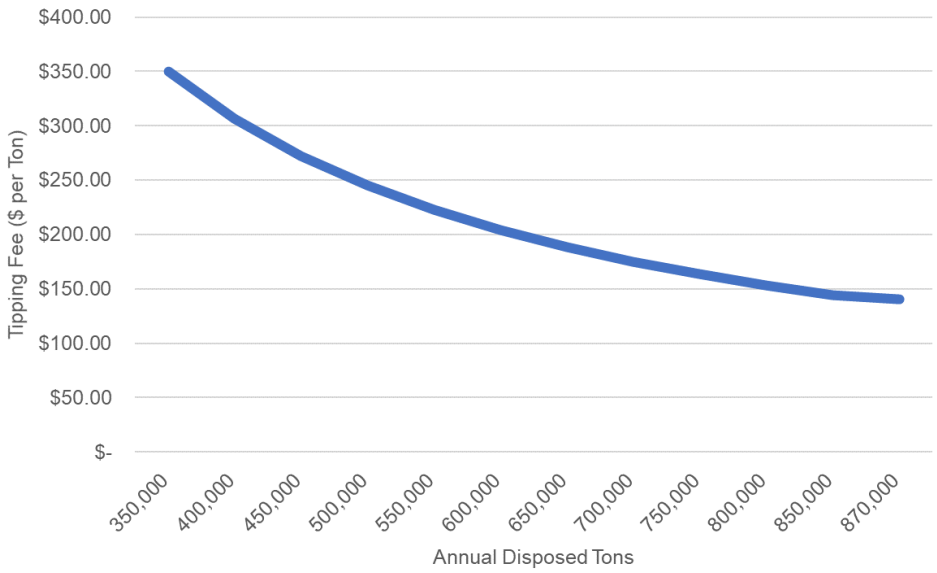
[2] A 2018 benchmarking survey of MSW landfill costs conducted by the Solid Waste Association of North America (SWANA) Applied Research Foundation noted similar trends for personnel, equipment, and operating costs at landfills. Larger landfills reported lower operating costs per ton compared to smaller landfills indicating that operating costs at landfills are not directly driven by disposed tons.

870,000 tons to 350,000 tons, the tipping fee would need to increase from $140.82 to $350.04 per ton to generate the same amount of revenue.

» With less disposal tons to recover Division expenses, the revenue value of each ton increases as does the risk of tonnage forecasting and revenue planning. If the annual disposal tonnage forecast is off by one percent (8,700 tons) today, the Division would experience a revenue swing of $1.2 million (8,700 tons multiplied by $140.82 per ton).

» If the annual disposal tonnage forecast were 350,000 tons and actual tons were 8,700 tons lower than expected, then the Division would experience a revenue swing of $3.0 million (8,700 tons multiplied by $350.04 per ton). As the region advances towards zero waste of resources, the tipping fee revenue volatility experienced by the Division today would likely increase.

Exhibit 2.3
Required Tipping Fee Based on Declining Annual Disposal Tonnage and Existing Revenue Needs



Section III. Rate Setting Principles and Methodology

III.A. OVERVIEW

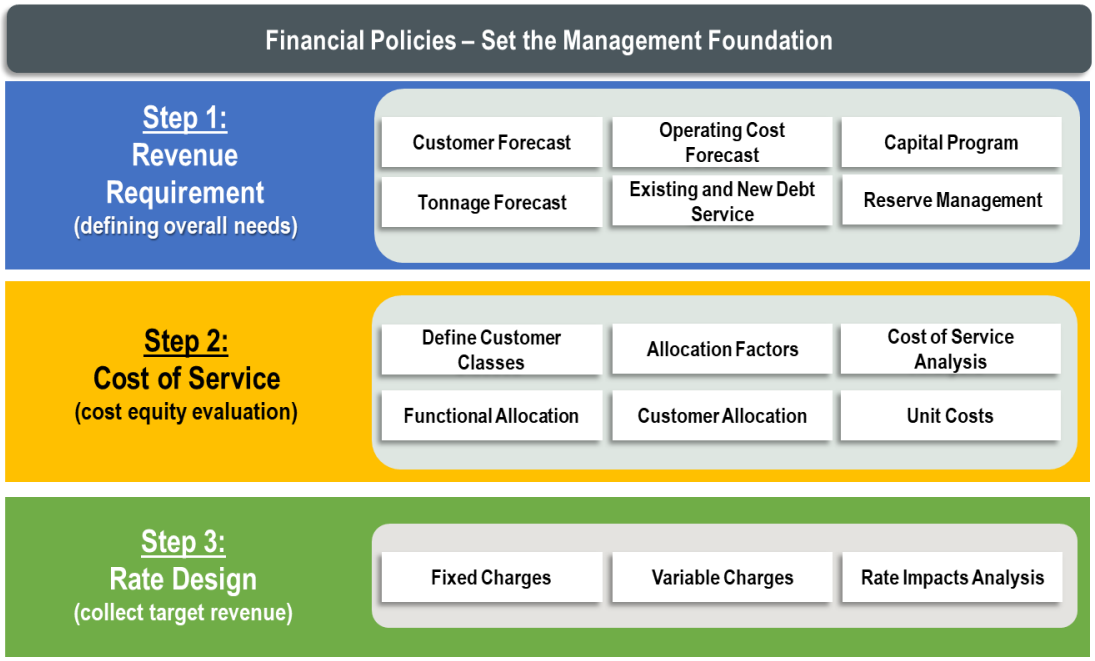
The methods used to establish rates are based on principles that are generally accepted and widely followed throughout the industry. These principles are designed to produce rates that equitably recover the costs of the utility by setting the appropriate level of revenue to be collected from ratepayers and utilizing the established rate structure to collect those revenues.

The three key analyses completed as part of the rate study process are listed below:

- **Revenue Requirement.** This analysis identifies the total revenue requirement to fully fund the Division on a standalone basis, considering operating and maintenance expenditures, capital funding needs, and fiscal policy objectives.
- **Cost of Service.** This analysis equitably distributes costs to customer classes based on their proportional demands on and use of the system.
- **Rate Design.** This analysis includes the development of a rate restructure that generates sufficient revenue to meet each system's revenue requirement forecast, and to address the County's pricing objectives. In this case, the objective is to stabilize the revenue.

Exhibit 3.1 illustrates the entire rate study process.

Exhibit 3.1
Overview of Rate Study Process



III.B. FISCAL POLICIES

The basic framework for evaluating utility revenue needs is founded on a set of fiscal policies. These policies, which can address a variety of topics including cash management, capital funding strategy, financial performance, and rate equity, are intended to promote long-term financial viability for the County. The fiscal policy assumptions in the rate model were provided by the County.

III.B.1. Utility Reserves

Reserves are a key component of any utility financial strategy, as they provide the flexibility to manage variations in costs and revenues that could otherwise have an adverse impact on ratepayers. The rate study included the following financial reserves:

- **Operating Reserve (Rainy Day Reserve)** – Operating reserves are designed to provide a liquidity cushion to ensure that adequate cash will be maintained to deal with significant cash balance fluctuations such as seasonal fluctuations in billings and receipts, unanticipated cash expenses, or lower than expected revenue collections. Industry standard is to maintain a minimum balance in the operating reserve equal to 30 to 60 days of operations and maintenance (O&M) expenses for a solid waste utility. These, of course, are guidelines and actual levels should be established based upon each jurisdiction's unique needs and risk tolerance. The current operating reserve target for the County's Solid Waste Division is 8 percent of eligible O&M expenses (equivalent to about 30 days). It is assumed that any operating funds above the operating reserve and recession reserve minimum targets is assigned to the rate stabilization reserve.
- **Recession Reserve** – This reserve is a percentage of annual revenues set aside for years with lower than expected revenue collections due to a recession. The minimum target for this reserve is 5 percent of annual revenue – equivalent to approximately $7.0 million in 2022.
- **Rate Stabilization Reserve** – Consistent the County's Comprehensive Financial Management Policies, the Division maintains a rate stabilization reserve. The reserve provides a financial tool to mitigate the effects on tipping fees from significant shifts in expenses or revenue.

Reserves should fluctuate above and below targets, and such experience does not reflect on the quality of budgeting or management. In fact, if a reserve remains static for extended periods of time without use, this may indicate that it is not set appropriately, or is unnecessary. Utility reserves are intended to absorb fluctuation in revenues or expenditures without abrupt rate impacts. As reserve levels vary, a policy structure can define the mechanisms for regulating those levels and returning them to intended targets.

III.B.2. Debt Management

Debt issuance is a valuable tool for the Division to use to finance certain costs, as it allows the Division to spread a relatively large capital project cost over several years. Debt repayment structures can be quite flexible (e.g. deferred principal repayment), allowing the Division to "shape" its cost structure and facilitate a stable progression of moderate rate adjustments. When developing its capital funding strategy, the Division must weigh the pros and cons of issuing debt to pay for a project. Too much debt issuance may limit the ability to manage rates. However, excessive aversion to issuing debt can also create problems, shifting the burden of funding capital investment to existing customers. It is prudent to consider policies related to debt management as part of a broader utility financial policy structure. Common debt management policies may include the level of acceptable outstanding debt, debt repayment terms, bond coverage and total debt coverage targets.

III.C. REVENUE REQUIREMENT

A revenue requirement analysis forms the basis for a long-range financial plan and multi-year rate management strategy for the solid waste utility. A revenue requirement enables the Division to set utility rate increases which fully recover the total cost of operating the utility: capital improvement and replacement, operations, maintenance, administration, fiscal policy attainment, cash reserve management, and debt repayment. Linking rate levels to a financial plan such as this helps to enable not only sound financial performance for the Division, but also establishes a clear and defensible relationship between the rates imposed on utility customers and the costs incurred to provide the service.

A revenue requirement analysis establishes the total annual financial obligations of the utility by bringing together the following core elements:

- **Fiscal Policy Analysis**. Identifies formal and informal fiscal policies of the Division to ensure that current policies are maintained, including reserve levels and debt service coverage.
- **Capital Funding Plan**. Defines a strategy for funding the capital improvement program, including an analysis of available resources from rate revenues, debt financing, and any special resources that may be readily available (e.g., grants, outside contributions, etc.).
- **Operating Forecast.** Identifies future annual non-capital costs associated with the operation, maintenance, and administration of the system.
- **Sufficiency Testing.** Evaluates the sufficiency of revenues in meeting all financial obligations, including any coverage requirements associated with long-term debt.
- **Strategy Development.** Designs a forward-looking strategy for adjusting rates to fully fund all financial obligations on a periodic or annual basis over the planning period.

III.D. COST OF SERVICE

The purpose of a cost of service analysis is to provide a rational basis for distributing the full costs of each utility service to each class of customers in proportion to the demands they place on the system. Detailed cost allocations, along with appropriate customer class designations, help to sharpen the degree of equity that can be achieved in the resulting rate structure design. The key analytical steps of the cost of service analysis are as follows:

- **Functional Cost Allocation.** Apportions the annual revenue requirement (e.g., operating expenses, annual debt service, use/funding of financial reserves) to the major functions of the solid waste service:
  - » Scalehouse, Transfer, Transport, Disposal, Recycling, Yard/Wood Waste, Zero Waste of Resources, Regional Planning, MRW, and Regulatory Compliance.
- **Cost Classification.** Establishes a rational relationship between functions (activities) and costs. For example, the cost of disposing waste at an area landfill is determined by the tonnage sent to the landfill. An allocation of these disposal costs to a particular customer class would be based on the tons generated by that customer class. Tonnage and transaction statistics are developed to allocate the cost of service to customers classes.
- **Customer Class Designation**. Identifies the customer classes that will be evaluated as part of the study. Existing as well as new or revised customer classes or class definitions may be considered. It is appropriate to group customers that exhibit similar usage characteristics and service requirements. The classes in this study are Transfer Station (commercial), Transfer Stations (self-

haul), Transfer Stations (self-haul minimum), Regional Direct, Special Waste, Yard Waste and Appliances.

- **Cost Allocation.** Allocates the costs from the functional cost allocation to different customer classes based on their unique demands for each service as defined through the cost classification process. The results identify shifts in cost recovery by customer class from that experienced under the existing rate structure.

III.E. RATE DESIGN

Rate design is the third and final technical step in utility rate setting and the focus point of the rate restructure. The first two technical steps (identifying the total rate revenue needs and determining the equitable distribution of those revenue needs to the utility's customer classes of service) provide the revenue targets for rate design. The principal objective of rate design is to implement rate structures that collect the appropriate level of revenue and be reasonably aligned with cost of service.

No one rate structure will work well for every utility nor will one rate structure work equally well for all customer classes within a single utility. Solid waste utilities recover charges through a variety of rate structures from tipping fees, fixed fees, fees based on container size and container compaction rating, as well as service frequency. Given the range and complexity of potential rate structures, a solid waste utility should carefully plan and evaluate changes to an existing rate structure. Several considerations (e.g., data availability, implementation feasibility, intraclass equity) can help a utility understand the degree to which different rate structures will advance the agency's objectives.

III.F. JURISDICTIONAL IMPACTS

Assessing disposal charges based on weight is the most common rate structure used by transfer stations and landfills in the United States – but it is unique among public utility rate structures as the rate structure is completely dependent on a variable rate (e.g., number of tons) to fund both fixed and variable costs. Public utilities generally rely on both fixed and variable rate structures to fund services. The fixed rate structure provides a stable revenue source to the utility and offsets those costs that would likely not change with short-term shifts in demand. The variable rate structure aligns variable revenue with variable costs and provides a pricing signal to customers for efficient use of utility services.

Because the status quo structure is perfectly variable, jurisdictions that generate less disposed waste relative to another jurisdiction pay proportionally less disposal fees to the Division. Every ton of waste that a jurisdiction can divert from landfill through recycling and organics programs or shifts in garbage collection frequency reduces the disposal fees paid to the Division.

Any rate restructure that introduces a fixed rate element that is independent of disposed waste (e.g., account or service volume rates) will result in disposal fees that are less sensitive to the amount of disposed waste that is generated within a jurisdiction. Transitioning to a rate structure with fixed and variable rate elements is anticipated to increase the disposal fees paid by jurisdictions that generate low amounts of waste relative to the status quo rate structure. Jurisdictions that generate more waste would likely pay less disposal fees relative to the status quo. A key difference in the design of the first two rate restructure options is the degree to which the shifts in disposal fees between jurisdictions is mitigated. The third rate restructure option was specifically developed to completely mitigate the relative shifts in disposal fees between jurisdictions.

Section IV. Solid Waste Revenue Requirements

IV.A. OVERVIEW

A revenue requirement analysis forms the basis for a long-range financial plan and multi-year rate management strategy. The analysis is developed by completing an operating forecast that identifies future annual operating costs and a capital funding plan that defines a strategy for funding the capital improvement needs of the Division.

IV.A.1. Financial Forecast Period

The financial forecast for the rate model starts in 2021 and continues through 2040.

IV.B. OPERATING FORECAST ASSUMPTIONS

The purpose of the operating forecast is to determine whether the existing rates and charges are sufficient to recover the costs the Division incurs to operate and maintain the utility. The basis for this forecast is the Division's 2022 rate proposal, which forecasts operating expenditures and revenues through 2026. A longer-term operating forecast that extends through 2040 was developed as part of this study. The following list highlights some of the key assumptions used in the development of the operating forecast.

IV.B.1. Operating Revenue

- **Rate Revenue** was based on forecasted tonnage and transaction data and existing rates.
  - ***Tonnage*** was based on the Division's April 2021 tonnage forecast as included in the Division's 2022 Rate Proposal.
    - Disposal tonnage by jurisdiction was based on the April 2021 tonnage forecast and allocated to each jurisdiction based on 2019 actual tonnage as reported by the haulers. There were some line item adjustments for Mercer Island and Maple Valley to assign all the tons that came in 2019 to the current solid waste hauler. Tonnage data from 2020 was not used as the basis for forecasting future tonnage because of the significant shifts in waste generation in 2020 as a result of the COVID-19 pandemic. The forecast for disposal tonnage by jurisdiction is used to evaluate potential financial impacts to jurisdictions for the three evaluated rate restructure options (see Section VII).
    - Transfer station disposed tonnage were split among the commercial, self-haul and self-haul minimum customers. In 2021, 76.82 percent of the total tons disposed were attributed to the commercial class, 17.67 percent was attributed to the self-hauler class, and 5.51 percent to the self-haul minimum customers. These tonnage splits were provided by the County project team based on a historical analysis of tonnage load tickets.

  - » ***Transactions*** were provided by the County project team. Transfer station transactions were provided in aggregate and allocated to commercial haulers, self-haulers and minimum self-haulers based on a historical analysis of tonnage load tickets. In 2021, 13.04 percent of the total transactions at the transfer stations were attributed to the commercial class, 50.44 percent to the self-hauler class, and 36.52 percent to the self-haul minimum customers.
  - » ***Accounts*** are based on the King County hazardous waste management program (2nd quarter 2020 report). Account data by jurisdiction was provided by Waste Management, Republic Services, and cities that administer their own solid waste billing services. Account data for cities served by Recology Cleanscapes are reported in aggregate.
  - » ***Solid Waste Collection Service Volume*** was estimated based on data provided by solid waste haulers in 2016, adjusted for growth in solid waste accounts from 2016 to 2020. As such, the calculated service volume fee is a planning level estimate to evaluate rate restructure options.
- **Non-Rate Revenue** consists of construction and demolition (C&D) tipping fees, transfer station properties, interest earnings, sale of real property, grants, residential recycling accounts, recycle material proceeds, moderate risk waste reimbursement, landfill gas, facility rental revenue and other miscellaneous revenue. Non-rate revenue is estimated at $12.9 million in 2022 and are not expected to see significant changes in the future and were therefore forecast with minimal to no increase. Exceptions include:
  - » ***C&D Tipping Fees*** are calculated from the tons of C&D disposed multiplied by the charge per ton of C&D disposed ($4.25). This information was provided by the County based on the Division's 2022 Rate Proposal.
  - » ***Interest Earnings*** are based on the August 2020 forecast of investment pool nominal rate of return published by the King County Office of Economic and Financial Analysis.
  - » ***Moderate Risk Waste Reimbursement*** is a direct offset of the Moderate Risk Waste cost center within the Division's operating expense forecast.
  - » ***Landfill Gas*** is the sale of electricity and natural gas, provided by the County. The forecast also includes $650,000 in annual renewable gas credits starting in 2021.
  - » ***Facility Rental Revenue*** is rental income from Humble Design, T-Mobile West, LLC, ATC/Sequoia-Cedar Hills, Seattle Bulk Shipping, Inc., Ray-Mont Logistics, Seattle Bulk Rail Station, Inc., BEW/Ingenco, and King County Department of Information Technology. These forecasts were provided by the County.

IV.B.2. O&M Expenses

- Operating expenditures increase by general inflation factors included within the Division's 2022 rate proposal to forecast the majority of the line-items in the operating expenditure forecast.
- Notable expenditures that are escalated by other forecast metrics include:
  - » ***Public Health Transfer*** is set by total disposed tons and the Public Health Transfer Rate ($ per disposed ton), which is projected at $1.11 per ton in 2022, increasing to $1.18 by 2026.
  - » ***Cedar Hills Rent Expense*** forecast was provided by the Division.
  - » ***Transfer to Landfill Reserve Fund*** is based on total disposal tons and reserve contribution rate ($ per ton). The rate was provided by the Division and is estimated at $14.42 per ton in 2022, decreasing to $12.91 per ton by 2026.

- ***Transfer to CERP Fund*** are designated transfer amounts to the Division's Capital Equipment Replacement Program (CERP). Annual transfers begin at $3.4 million in 2022, increase and remain at $8.0 million from 2023 to 2026.
- ***Transfer to Construction Fund*** are designated transfer amounts to the Division's Capital Construction Fund. Annual transfers are projected at $2.0 million from 2022 to 2026.
- ***Capital Project Cost Inflation*** was included in the capital project schedule provided by the Division. FCS GROUP did not apply forecast cost inflation to the capital projects.
  - **Capital Realization Factor:** The capital program assumes an annual 85 percent realization factor.
- ***City Mitigation Payments*** are estimated at approximately $37,000 each year of the forecast.
- ***Additional Cost Changes.*** The Division's 2022 rate proposal includes additional expenditures for each year of the forecast based on 2.5 percent of the previous year's expenditures. As a financial planning practice, the Division forecasts the cost of new program costs in addition to cost inflation on existing programs. This assumption only impacts forecasted operating expenditures from 2023 onward. The basis for these new expenditures was not reviewed as part of the cost of service study; however, they are included in the forecast to be consistent with the Division's rate proposal.
- ***B&O Taxes*** were based on 1.50 percent of rate revenue to be consistent with the Division's 2022 rate proposal. FCS GROUP recommends that future rate proposals developed by the Division account for the additional 0.25 percent B&O tax rate enacted by the state to fund the Workforce Education Investment surcharge (see RCW 82.04.299(2).

IV.B.3. Debt Service

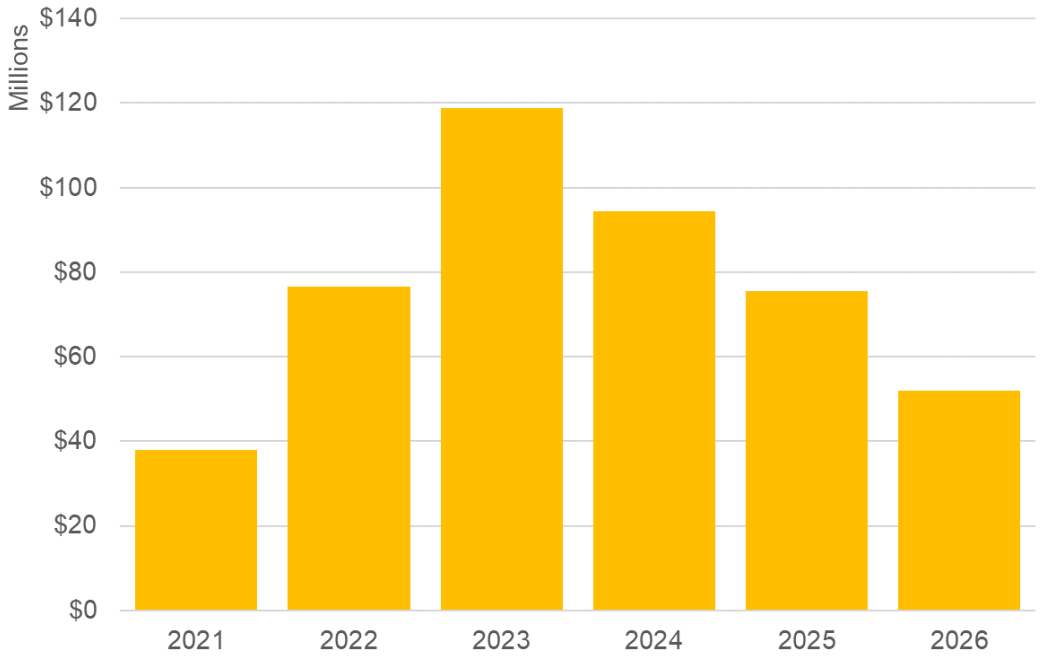
- **Existing Debt Service:**
  - The solid waste program has eight limited tax general obligation (LTGO) bonds.
    - 2017B LTGO Various Purpose Bond: For FRED Bow Lake Lighting
    - 2017A LTGO (Green Bonds): Solid Waste Capital Program
    - 2015D LTGO (Fed Tax Exempt): Solid Waste Capital Improvement Project
    - 2015D LTGO REF2007E (Solid Waste): Solid Waste Capital Program Allocation
    - 2015B LTGO (Fed Tax Exempt): Solid Waste Lighting (FRED)
    - 2014C LTGO & Refunding 2007E: Solid Waste Capital Program
    - 2013 LTGO Refunding: Refunding BAN12
    - 2020B LTGO REFG (Taxable) Bonds: Refunding LTGO 2013
- **New Debt Service:**
  - The forecast includes $117.3 million in new debt issued from the Landfill Reserve Bonds (Fund 3910), and $292.4 million in new debt issued from the Solid Waste Bonds (Fund 3901) from 2022 to 2026. The new debt assumes a repayment schedule of 19 years in 2021, with decreasing term years through 2029. There is one year of interest only payments assumed for all new debt, and a 2.5 percent interest rate and 2.5 percent issuance cost.
  - Amortization schedules for new debt were adjusted to align with the Division's 2022 rate proposal.

IV.C. CAPITAL FUNDING PLAN

The financial planning period includes the design and construction of the Northeast Transfer Station and the South County Transfer Station. Additionally, the capital program includes the construction of the new Area 9 landfill cell as well as the relocation of the facilities at Cedar Hills Regional Landfill to accommodate the new landfill cell. The solid waste program is anticipating $417.5 million in capital costs from 2022 through 2026.

Exhibit 4.1 provides a summary of the capital expenditures. A detailed capital plan can be found in the technical appendix of the report.

Exhibit 4.1
2021-2026 Capital Improvement Program



IV.C.1. Division Capital Funding Summary

Funding for the capital plan comes from the following sources:

- **Landfill Reserve Bonds (Fund 3910) Proceeds:** Landfill reserve bond proceeds are estimated to fund $117.3 of capital projects during the planning period.
- **Solid Waste Bonds (Fund 3901) Proceeds:** Solid waste bonds are estimated to fund $292.4 million of capital projects during the planning period.
- **Transfer from Fund 4040:** Remaining capital funding is provided by the annual transfers from the solid waste operating fund.

Exhibit 4.2 provides a summary of the funding sources for the capital expenditures. A detailed capital plan can be found in the technical appendix of the study.

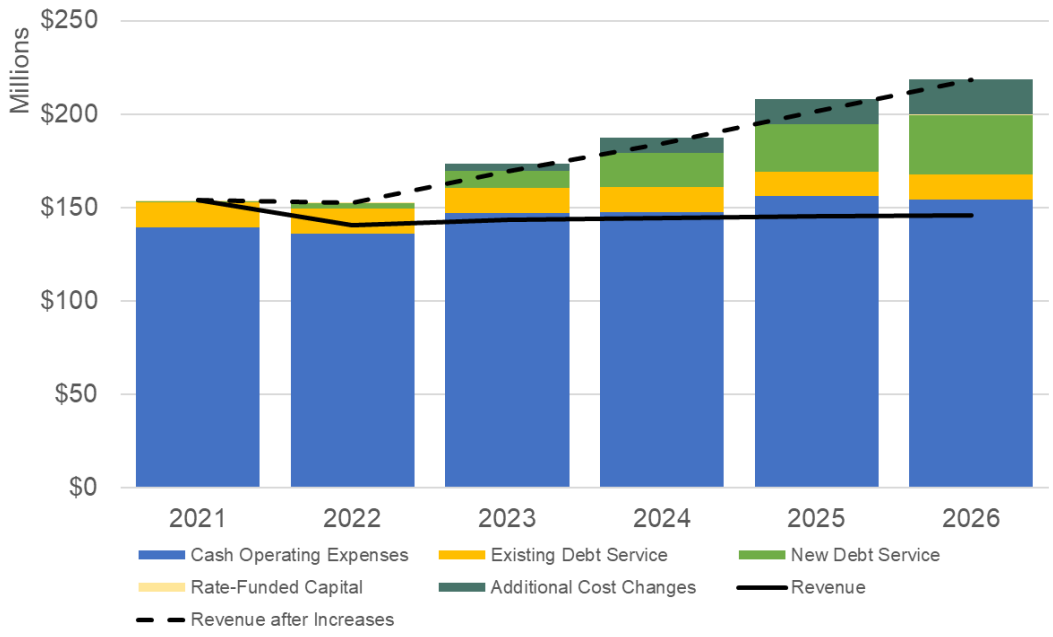
Exhibit 4.2
Solid Waste Division's Capital Funding Summary

Funding Summary	2022	2023	2024	2025	2026
Capital Costs	$ 90,163,411	$ 139,834,186	$ 111,076,825	$ 88,906,479	$ 61,166,201
85% Capital Accomplishment Adjustment	(13,524,512)	(20,975,128)	(16,661,524)	(13,335,972)	(9,174,930)
Total Capital Costs	**$ 76,638,899**	**$ 118,859,058**	**$ 94,415,301**	**$ 75,570,507**	**$ 51,991,271**
Funding Sources					
Transfer from Fund 4040	988,899	1,559,058	1,765,301	1,620,507	1,841,271
Landfill Reserve Bonds (Fun 3910) Proceeds	19,550,000	34,850,000	30,600,000	27,200,000	5,100,000
Solid Waste Bonds (Fun 3901) Proceeds	56,100,000	82,450,000	62,050,000	46,750,000	45,050,000
Total Capital Funding	**$ 76,638,899**	**$ 118,859,058**	**$ 94,415,301**	**$ 75,570,507**	**$ 51,991,271**

IV.D. SUMMARY OF REVENUE REQUIREMENT

The operating forecast components for O&M expenses, debt service and rate-funded capital come together to form the multi-year revenue requirement. The revenue requirement compares the overall revenue available to the Division to the expenses to evaluate the sufficiency of rates on an annual basis. **Exhibit 4.3** provides a summary of the solid waste revenue requirement findings.

Exhibit 4.3
Solid Waste Program Revenue Requirement Summary



A summary of solid waste revenue requirement is listed below:

- Revenues at current rate levels are projected to generate $140.4 million in 2022 compared to $152.1 million in expenditures – resulting in a cash deficit of $11.7 million.
  - » The Division recognized the one-time sale of the Eastgate property in 2021 which is primary factor for the decrease in forecasted revenue in 2022 as compared to 2021.
- Annual operating expenses are projected to continue to outpace revenues over the rate-setting period. By 2026, the annual cash deficit is projected to be $72.1 million.

  - » Debt service from bond financing the capital program is the major driver for cost increases within the planning period. Annual debt service is projected to increase from $13.7 million in 2021 to $44.9 million in 2026. By 2026, debt service will comprise approximately one-fifth of all operating expenses compared to 9 percent in 2021.

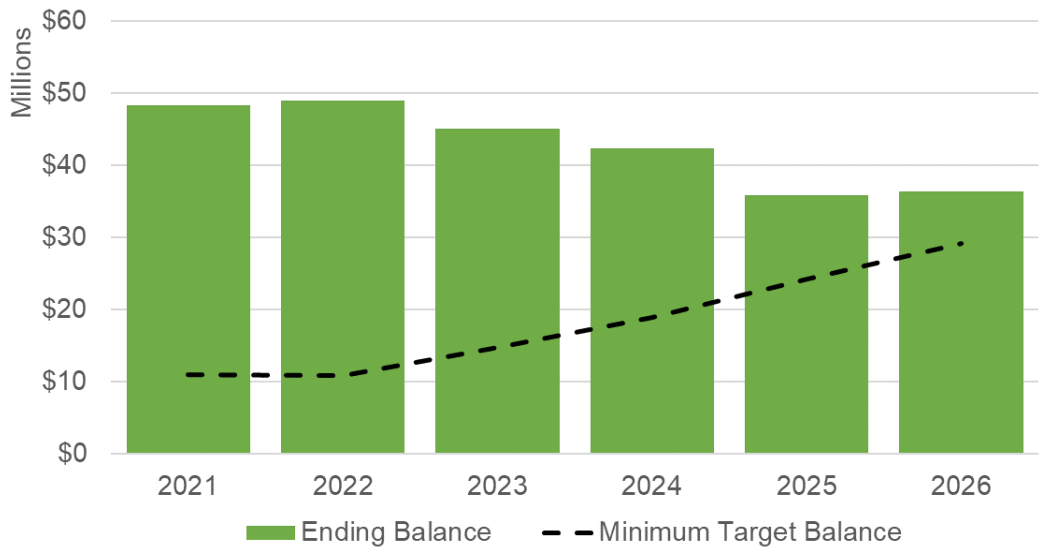
- To meet the projected financial obligations of the utility, the 2022 rate proposal includes 9.4 percent annual increases to the basic tipping fee as well as the use of available financial reserves. Because some rates are not projected to increase at the same level as the basic tipping fee, overall rate revenue is projected to increase between 8.9 percent and 9.4 percent over the planning period. The 2022 basic tipping fee is projected at $154.02 per ton.

IV.E. FUND BALANCE AND FINANCIAL RESERVES

The Division's policies establish a rainy day financial reserve equivalent to 30 days of eligible expenditures.[3] The recession reserve target is based on a percentage of annual revenue (5 percent). In addition to the planned rate adjustments, the Division's financial plan includes the use of available recession reserves. Reserves would be used from 2022 to 2025 and then replenished beginning in the 2026 time period.

Exhibit 4.4 shows a summary of the projected ending fund balance through the planning period. With the annual rate adjustments, the fund balance is projected to remain above the financial reserve target for each year of the forecast.

Exhibit 4.4
Operating Fund Balance and Reserve Target



[3] Eligible expenditures excludes transfers to the Landfill Reserve, the CERP Fund, the Construction Fund, all grants, and the Moderate Risk Waste reimbursement.

Section V. COST OF SERVICE

V.A. OVERVIEW

A cost of service analysis determines the equitable recovery of costs from customers according to unique demands each customer class places on the system. There are three fundamental steps to allocating the annual revenue requirement to customer classes and developing the final rates – 1) allocate utility assets and total utility costs by function, 2) develop customer-specific allocation factors and 3) allocate costs to customer classes. The methodology conforms to industry standards as well as principles established in the American Public Works Association Rate Setting and Financing Guide for Solid Waste.

V.B. SOLID WASTE CLASSES OF SERVICE

A class of service is a grouping of utility customers with similar usage characteristics who are served at similar costs. Classes of service can be defined based on several factors such as demand levels and patterns, service requirements, geography, and waste material. A cost of service analysis determines the equitable recovery of costs from each class of service based on these unique demands. The classes of services evaluated as part of the rate restructure were generally based on the County's existing rates and include:

- **Transfer Station (Commercial):** Municipal and commercial waste haulers that deliver refuse to the County's transfer stations from cities and unincorporated areas of King County.
- **Transfer Station (Self-Haul):** Private residents and businesses that deliver refuse and recyclables to the County's transfer stations.
- **Transfer Station (Self-Haul Minimum):** Private residents and businesses that deliver small loads of refuse, recyclables, or household hazardous waste to the County's transfer stations.
- **Regional Direct:** Commercial waste haulers that are authorized to deliver refuse directly to the Cedar Hills Regional Landfill.
- **Special Waste:** Waste delivered to Cedar Hills Regional Landfill which requires special handling (e.g., asbestos).
- **Yard Waste:** Private residents and businesses that deliver loads of yard and wood waste to the County's transfer stations.
- **Appliances:** Private residents and businesses that deliver appliances and white goods to the County's transfer stations.

V.C. DEFINING SOLID WASTE FUNCTIONS

The first step in the cost of service analysis is to allocate the revenue requirement for the County's solid waste fund into several functions or activities. This allocation assigns costs to functional categories based on documented program requirements (e.g., staffing levels, fixed asset records) and industry standard practices based on the relationship of each function and the costs incurred by the utility. This cost "causation" provides the framework for the cost of service analysis. The functions of service to which the revenue requirement was allocated are discussed below.

- **Scalehouse:** associated with the operation of the scalehouses at the County's transfer stations and Cedar Hill Regional Landfill.
- **Transfer:** associated with receiving, consolidating, and loading refuse into trailers for transport to the Cedar Hills Regional Landfill.
- **Transport:** associated with transportation of refuse from the transfer stations to the Cedar Hills Regional Landfill.
- **Disposal:** associated with the operation (e.g., refuse disposal; cell construction, management, and closure; gas generation) at the Cedar Hills Regional Landfill.
- **Recycling:** associated with receiving, processing, and marketing of recyclables collected at the County's transfer stations as well as County's construction and demolition program.
- **Yard/Wood Waste:** associated with the receiving, transportation, and processing of yard and wood waste collected at the County's transfer stations.
- **Zero Waste of Resources:** associated with regional Re+ initiatives and programs to reduce or repurpose generated waste.
- **Regional Planning:** associated with regional comprehensive waste planning, rate-setting, and communication activities provided by Division.
- **Moderate Risk Waste:** associated with the management of moderate risk waste programs.
- **Regulatory Compliance:** associated with the long-term management of closed regional landfills, landfill gas and water monitoring, and environmental liability expenses for operation of the Cedar Hills Regional Landfill.
- **All Other.** associated to activities not directly related to the functions described above (e.g., general administration).

V.C.1. Functional Cost of Service

The second step of the cost of service analysis is to allocate the revenue requirement for a test year to each solid waste function to determine the annual costs of each function. A test year is a period for which the utility's cost of service is reviewed. The test year for the rate study is the projected revenue requirement for 2022 as published within the Division's 2022 Rate Proposal.

This process included assigning each accounting cost center and/or line item account in the test year to the solid waste functions. In some cases, the expenses within an accounting cost center solely support one function of service — the Scalehouse cost center is aligned with the Scalehouse function of service. In this case, all expenses within the Scalehouse cost center are "directly assigned" to the Scalehouse function of service. In other cases, the expenses within an accounting cost center support multiple functions of service — the Shop Operations cost center includes Division expenses to maintain and repair assets across the organization (e.g., Scalehouse, Transfer, Transport, Disposal). Expenses within the Shop Operations cost center are allocated to multiple functions of service based on a series of operations, staffing, asset, and cost allocation factors.

V.C.1.a Functional Cost Allocation Factors

The functional cost allocation factors used to proportionally distribute expenses not directly assigned to a solid waste function of service were developed in coordination with the County project team. These factors are detailed below:

- **Operations FTEs**– 2021 Operations full-time equivalents (FTEs) assigned to the County's scalehouses, transfer stations, transportation, and Cedar Hills Regional Landfill disposal activities.
- **Transportation FTEs**– 2021 Transportation full-time equivalents (FTEs) assigned to haul solid waste, yard waste, and other material such as rock or bark.
- **Recycling and Environmental Services (RES) FTEs**– 2021 full-time equivalents (FTEs) assigned to support recycling activities at the transfer stations as well as other waste recovery and reduction activities.
- **RES Contractual Professional Services** – Division staff estimated that approximately 40 percent of professional services within RES support recycling processing expenses and the remaining 60 percent support yard waste processing expenses. These estimates were used to allocate the contractual professional services to the Recycling and Yard Waste functions of service.
- **Facilities, Engineering, and Science Unit (FESU) FTEs**– 2021 full-time equivalents (FTEs) assigned to support post-closure, environmental compliance, transfer stations, asset management, real estate, SCADA technology, supervision, and administration.
- **Fixed and Rolling Assets**– Original cost of fixed and rolling assets as of 2020. FCS GROUP and the County project team reviewed over 1,100 asset records and assigned the asset records to the corresponding functions of service. In some cases, assets were not assigned to a function of service due to limited descriptions in the asset registry. These assets accounted for approximately 6 percent of the Division's asset original costs and were allocated proportionally to the functions of service based on the assignments of the other fixed assets.

V.C.1.b Functionalization of Test Year Revenue Requirement

Following the development of the functional cost allocation factors, test year (2022) revenue requirements for each accounting cost center were assigned to the functions of service as described below:

- **Construction and Demolition Recycling** – All expenses assigned to Recycling.
- **Shop Operations** – All expenses allocated based on the original cost of Division's fixed and rolling assets (1 percent to Scalehouse, 70 percent to Transfer, 8 percent to transport, 20 percent to Disposal, and <1 percent to Recycling and Yard Waste).
- **Transfer Station** – All expenses assigned to Transfer.
- **Transportation –** All expenses assigned to Transport.
- **Disposal Operations –** All expenses unrelated to the annual transfer to King County Public Health are assigned to Disposal.
  - The annual transfer to King County Public Health is assigned to All Other.
- **Legal Support –** All expenses assigned to All Other.
- **Operations Management –** All expenses allocated based on 2021 Operations staffing levels.
- **Landfill Gas & Water Control** – All expenses assigned to Regulatory Compliance.
- **Customer Transactions** – All expenses assigned to Scalehouse.
- **Stores** – All expenses allocated based on the original cost of Division's fixed and rolling assets.
- **Directors Office** – All expenses assigned to All Other.

- **Fund Management** – Expenses unrelated to transfers to the landfill reserve fund, post-closure maintenance fund, and landfill environmental liability policy expenses are allocated based on the original cost of Division's fixed and rolling assets.
  - » Transfer to the Landfill Reserve Fund is assigned to Disposal.
  - » Transfers to the post-closure maintenance fund and landfill environmental liability policy expenses are assigned to Regulatory Compliance.
  - » Note: Annual debt service and transfers to the Construction Fund and Capital Equipment Replacement Program Fund are accounted for in the Fund Management cost center. These expenses are allocated based on the original cost of Division's fixed and rolling assets.
- **Recycling and Environmental Services (RES)** – Expenses unrelated to contract processing expenses for recycling and yard waste material are allocated based on the section's 2021 FTEs.
  - » Contract processing expenses are allocated 40 percent to Recycling and 60 percent to Yard Waste.
- **Moderate Risk Waste** – All expenses assigned to Moderate Risk Waste.
- **Facility, Engineering, and Science (FESU)** – All expenses allocated based staffing assignments to Transfer, Disposal, and Regulatory Compliance activities.
- **Environmental Monitoring & Compliance** – All expenses assigned to Regulatory Compliance.
- **Enterprise Services** – All expenses assigned to All Other.
- **Contract Management** – All expenses assigned to All Other.
- **Project Management** – All expenses are allocated based on the original cost of Division's fixed and rolling assets.
- **Human Resources** – All expenses assigned to All Other.
- **Strategy, Communications, and Performance** – All expenses assigned to Regional Planning.
- **Capital Asset Management Program** – All expenses assigned to Transfer.
- **Business and Occupation Taxes** – The Division accounts for business and occupation taxes within several cost centers (e.g., Transfer Station, RES, Director's Office). Tax expenses are assigned to All Other.
- **Non-Rate Revenue** – Non-rate revenues were assigned to related functions of service or allocated based on total expenses. Examples include:
  - » Leased space at the transfer stations is assigned to Transfer.
  - » Sales of landfill gas are assigned to Disposal.
  - » Recycle material proceeds are assigned to Recycling.
- **Net Cash Flow and Taxes from Rate Adjustments** – Net cash flow and additional tax expenses from rate adjustments are allocated based on total expenses.

Exhibit 5.1 details the functional allocation of the revenue requirement to each function of service. The transfer function of service is the largest of all functions ($55.9 million) representing approximately 40 percent of the test year revenue requirement. Disposal ($33.5 million) comprises 24 percent of the revenue requirement followed by Transport ($14.0 million), Zero Waste of Resources ($12.7 million) and Regulatory Compliance ($11.0 million).

Exhibit 5.1
Functional Allocation of Test Year Revenue Requirement

Function of Service	Test Year	As a Percent
Scalehouse	$ 4,841,319	3.46%
Transfer	55,857,709	39.96%
Transport	13,958,352	9.99%
Disposal	33,547,936	24.00%
Recycling	1,236,115	0.88%
Yard/Wood Waste	2,368,072	1.69%
Zero Waste of Resources	12,651,864	9.05%
Regional Planning	3,989,535	2.85%
Moderate Risk Waste	309,073	0.22%
Regulatory Compliance	11,011,203	7.88%
Total	**$ 139,771,179**	**100.00%**

V.C.2. Customer Class Cost of Service

The costs identified in the functional allocation of the revenue requirement are assigned to each customer class based on the demands each class places on the utility. In order to complete this task, forecasted tons and transactions for the customer classes are used as allocation factors. The allocation factors are intended to equitably allocate the functional cost pools to the customer classes and were reviewed by the County project team. The functions of service are allocated to the customer classes of service based on the following factors:

- **Scalehouse** – Scalehouse expenses are divided into two components: payment processing and other activities. Based on the County's Scalehouse Operator Survey Final Report (2017), operators spend approximately 46 percent of their time processing payments from customers. The remaining time is spent managing weigh-ins and other interactions. The reported time supporting these activities was used as a proxy for allocating the Scalehouse cost of service.
  - Payment Processing: Not all customers pay solid waste fees at the scalehouse. Commercial and municipal waste haulers are billed by the County on a monthly basis for waste delivered to the transfer stations and Cedar Hills Regional Landfill. As a result, payment processing expenses are allocated to only those customer classes that make payments at the scalehouse based on the transactions in the test year.
  - Other Activities: Allocated to all customer classes based on transactions in the test year.
- **Transfer** – The allocation of transfer expenses to the classes of service is generally based on annual tons. To account for fixed costs required to operate the transfer stations, FCS GROUP coordinated with the County project team to identify the minimum staffing levels at each transfer station. Of the 76 FTEs assigned to transfer operations, 39 are required to meet minimum staffing levels at the stations to manage municipal solid waste. The remaining 37 FTEs help the Division to manage peaks in waste tonnage and transactions as well as to support other activities at the transfer stations (e.g., household hazardous waste, yard waste). The ratio of minimum staffing to total staffing levels was used to allocate Transfer expenses.
  - Minimum Service Level: Allocated to commercial, self-haul, and special waste customer classes except for Regional Direct based on tons in the test year.
  - Peak Service Level: Allocated to all customer classes except for Regional Direct based on tons in the test year.

- **Transport –** Allocated to all customer classes except for Regional Direct based on tons in the test year.
- **Disposal –** Allocated to all customer classes except for Yard Waste and Appliances based on tons in the test year.
- **Recycling –** Allocated to the Self-Haul (Minimum) and Appliances customer classes based on transactions in the test year.
  - The cost per appliance transaction was weighted based on a 2018 cost analysis conducted by County staff. Based on the analysis, the average cost per CFC appliance transaction is approximately 12 times that of other recycling transactions (e.g., mixed paper, cardboard, glass, etc).
- **Yard/Wood Waste –** Assigned to the Yard Waste customer class.
- **Zero Waste of Resources –** Allocated to all customer classes based on tons in the test year.
- **Regional Planning –** Allocated to all customer classes based on tons in the test year.
- **Moderate Risk Waste –** Allocated to all customer classes except for Yard Waste and Appliances based on tons in the test year.
- **Regulatory Compliance –** Allocated to all customer classes except for Yard Waste and Appliances based on tons in the test year.

Exhibit 5.2 details the allocation of the revenue requirement in the test year by customer class. The table also itemizes the cost of service for each class by function. The cost of service for commercial solid waste haulers accounts for $96.9 million of the $139.8 million in total revenue requirements in the test year. Self-haulers account for $28.9 million followed by self-haul minimum customers ($8.0 million), yard waste customers ($4.0 million), and regional direct customers ($1.2 million).

Exhibit 5.2
Customer Class Allocation of Test Year Revenue Requirement

	Transfer Station (Commercial)	Transfer Station (Self-Haul)	Transfer Station (Self-Haul Minimum)	Regional Direct	Special Waste	Yard Waste	Appliances	Test Year Revenue Requirement
Scalehouse	$ 281,438	$ 2,167,405	$ 1,907,346	$ 2,357	$ 20,574	$ 399,087	$ 63,112	$ 4,841,319
Transfer	41,973,398	11,599,795	1,373,000	-	115,610	769,389	26,517	55,857,709
Transport	10,348,452	2,859,905	726,243	-	23,753	-	-	13,958,352
Disposal	24,357,815	6,731,541	1,709,404	682,085	67,090	-	-	33,547,936
Recycling	-	-	879,825	-	-	-	356,291	1,236,115
Yard/Wood Waste	-	-	-	-	-	2,368,072	-	2,368,072
Zero Waste of Resources	8,925,357	2,466,617	626,372	249,934	20,486	351,000	12,097	12,651,864
Regional Planning	2,814,449	777,803	197,515	78,812	6,460	110,682	3,815	3,989,535
Moderate Risk Waste	224,480	62,037	15,754	6,286	515	-	-	309,073
Regulatory Compliance	7,997,460	2,210,183	561,253	223,950	18,357	-	-	11,011,203
Total	**$ 96,922,849**	**$ 28,875,288**	**$ 7,996,711**	**$ 1,243,424**	**$ 272,846**	**$ 3,998,230**	**$ 461,832**	**$ 139,771,179**

V.D. COST OF SERVICE ANALYSIS RESULTS

The final step of the cost of service analysis is to compare the allocation of the test year revenue requirement to each customer class with the rate revenue generated by each customer class at existing rates. This evaluation identifies general differences between the allocated cost to provide utility services to customer classes and the rate revenue collected. It also identifies proportional differences in the cost that SWD incurs to provide services to different customer classes. The cost of service analysis provides an initial and reasonable basis for potential rate adjustments to align rates with the

cost to provide service. This cost-rate relationship is a primary tool used by public utilities when developing changes to rates. Other rate objectives and tools are described in the following section **Rate Design**.

V.D.1. Test Year Cost of Service Analysis

Exhibit 5.3 provides a comparison of the current rate revenue distribution between customer classes and the distribution of revenues resulting from the cost of service analysis.

Exhibit 5.3
Test Year Cost of Service and Existing Rate Revenue Comparison

Class of Service	Revenue at Existing Rates	Cost of Service	$ Difference	% Difference
Transfer Station (Commercial)	$ 92,027,064	$ 96,922,849	$ 4,895,785	5.32%
Transfer Station (Self-Haul)	24,362,544	28,875,288	4,512,744	18.52%
Transfer Station (Self-Haul Minimum)	6,414,291	7,996,711	1,582,420	24.67%
Regional Direct	2,196,000	1,243,424	(952,576)	-43.38%
Special Waste	253,500	272,846	19,346	7.63%
Yard Waste	1,927,500	3,998,230	2,070,730	107.43%
Appliances	354,300	461,832	107,532	30.35%
Total	**$ 127,535,199**	**$ 139,771,179**	**$ 12,235,980**	**9.59%**

A cost of service analysis is a reasonable allocation of the test year revenue requirement to classes of service based on available financial and operational data, expectations of future demand for service, and the allocation methodologies described in the previous sections. Given the need for assumptions and these other factors, FCS GROUP recommends a reasonable range for class-specific results to be plus or minus 5.0 percent, relative to the system average. Because the average revenue increase in the test year is 9.6 percent, a class with a cost of service difference less than 4.6 percent or above 14.6 percent would be considered outside this threshold.

The cost of service results indicate that existing rate revenues generated from commercial solid waste and special waste customer classes are within the cost to provide service. Existing rate revenues for regional direct and appliance customer classes exceed the cost of service. Existing rate revenues for the self-haul, self-haul minimum and yard waste customer classes are below the cost to provide service. Yard waste class revenue at existing rates is estimated to generate $1.9 million in the test year compared to a cost of service of $4.0 million.

V.D.2. Interpreting Cost of Service Results

A cost of service study is a snapshot in time and because costs fluctuate each year, the needed increase by class can also fluctuate and interclass rate changes are not suggested unless the class's revenue difference is consistently outside of the plus or minus 5.0 percent range of reasonableness. For classes outside the threshold, public utilities can leverage several financial strategies to align rate revenues with cost of service results. These policy decisions oftentimes focus on the timing and level of rate adjustments for a particular class of service. For example, an agency may decide to gradually increase rates for a class of service over several years in order to make progress towards cost of service while also keeping the rate increases relatively affordable. If an agency anticipates major changes to programs and services in the future, it may consider a slower or delayed strategy to rate adjustments until new cost data is available.

FCS GROUP recommends the following guidelines when considering policy options to adjust existing rates based on cost of service results:

- **Prioritize Class-Specific Rate Adjustments. P**rioritize adjustments to those classes that are farthest outside the threshold. Consider monitoring future cost of service results for classes that are relatively close but outside of the threshold.
- **Develop Multi-Year Phase-In Plan.** Developing a multi-year rate strategy can transition classes towards cost of service while also addressing potential affordability concerns.
- **Consider Future Utility Costs.** Future cost of service results can shift in response to major changes in programs, facility operations, and availability of information. Gradually implementing rate adjustments can provide flexibility in responding to current and future costs.
- **Hold Rates at Existing Levels.** For those customer classes whose rates are higher than the cost of service, consider holding rates at existing levels until rates are generally aligned with cost. This strategy can avoid the need to lower rates one year only to increase rates in future years.
- **Monitor Long-Term Trends.** Further evaluation may be appropriate for classes that are outside the range of reasonableness to confirm if results are indicative of an on-going trend or are an anomaly. This can be a particularly effective strategy if a cost of service analysis has not been conducted recently or is being completed for the first time.
- **Monitor Changes in Demand from Rate Adjustments.** Significant decreases or increases to rates can impact the demand for utility services – particularly for usage-based rates and subscription services. An agency should actively monitor the demand impact of major changes to rates and develop a contingency plan as needed.
- **Seek Legal Counsel.** Class-specific rate adjustments may be subject to existing contract agreements between the County and specific customer groups. FCS GROUP recommends that SWD seek legal counsel to determine any legal restrictions or requirements that would affect rate adjustments based on the cost of service analysis.

Section VI. RATE DESIGN

VI.A. OVERVIEW

Rate design is the third and final technical step in utility rate setting and the focus point of the rate restructure. The first two technical steps (identifying the total rate revenue needs and determining the equitable distribution of those revenue needs to the utility's customer classes of service) provide the revenue targets for rate design. The principal objective of rate design is to implement rate structures that collect the appropriate level of revenue and be reasonably aligned with cost of service.

VI.B. RATE DESIGN OBJECTIVES

Public utilities leverage rate structures as tools to advance their financial, operational, customer communication, and policy goals. For example, assessing fixed charges to utility customers can provide a stable and sustainable revenue source to support utility services. Usage (variable) charges can be aligned to the utility's costs that change in response to higher or lower demands by customers. Variable charges can help promote cost equity between customers and be used by public utilities to promote conservation — customers can lower their monthly bill by reducing usage. Because utilities oftentimes use rate design as a pricing signal to their customers, it is critical that rate design also account for the understandability and transparency of rate structures.

Exhibit 6.1 illustrates several rate design objectives used by utilities. In some instances, rate objectives can be complementary to each other; a fixed monthly rate may provide predictable revenues and be easy for customers to understand. In other cases, rate objectives may be less complementary to others. Establishing rates that promote conservation can create challenges to financial sustainability if rates are not calibrated accurately to changes in customer demand. Balancing a utility's various rate objectives is an important consideration in rate design.

Exhibit 6.1 Examples of Utility Rate Design Objectives

Objective	Description
Financial sustainability	Sufficient and predictable revenues Stable and predictable impacts to customers
Conservation and efficiency	Promote conservation and efficiency of use Protect natural resources
Transparency and simplicity	Easy to understand, explain, and administer Minimizing unexpected changes to customer bills Compatible with billing system
Cost of service fairness and equity	Correlate rates with costs Reflect customer usage patterns Reflect other customer service requirements
Legal support	Complying with all applicable laws

VI.C. RATE DESIGN CONSIDERATIONS

No one rate structure will work well for every utility nor will one rate structure work equally well for all customer classes within a single utility. Solid waste utilities recover charges through a variety of rate structures from tipping fees, fixed fees, fees based on container size and container compaction rating, as well as service frequency. Given the range and complexity of potential rate structures, a solid waste utility should carefully plan and evaluate changes to existing rate structure. The following considerations can help a utility understand the degree to which different rate structures will advance the agency's objectives.[4]

- **Availability and Quality of Data –** Any rate structure requires reliable, timely, and accurate billing data to develop and administer charges to customers.
- **Cost of Service –** Rates and rate structures should be reasonably related to the cost to provide service to different classes of customers. [5]
- **Implementation –** Utilities should consider the time and cost requirements of implementing and administering a new rate structure. New billing data may need to be created, existing service contracts may need to be adjusted, and accounting systems may need to be updated.
- **Intraclass Cost Equity –** Rates assessed to customers within the same class of service should be uniformly applied (e.g., a utility cannot arbitrarily charge a higher or lower rate for customers within the same class).
- **Pricing Signals –** If rates are used to communicate the cost of service to customers to promote conservation and efficient use of the utility, the rate structure (e.g., billing frequency, usage charges) should provide customers with the ability to adjust their use on a timely and meaningful basis.
- **Revenue Sufficiency –** Rate structures should be designed to generate a sufficient and appropriate level of revenue to support the utility annual and seasonal cash flow requirements.
- **Risk –** When applicable, utilities should consider the financial risks of price elasticity of demand, weather seasonality, and changes in economic activity when developing rates and rate structures.

VI.D. COMMERCIAL SOLID WASTE RATE DESIGN

This rate restructure update focuses on rate design options for the commercial solid waste customer class. This class generates the majority of rate revenue for the Division and, as such, changes to its rate structure would have the greatest impact on the financial sustainability of the Division. Commercial solid waste haulers are also unique from other customers in that the Division maintains

[4] Principles of Water Rates, Fees, and Charges, Sixth Edition. American Water Works Association.
[5] The Solid Waste Rate Setting and Financing Guide published by the American Public Works Association identifies two general approaches to rate setting. Cost-based rate setting is designed to "accurately reflect the cost to provide a particular service" whereas market-based rate setting "can be designed to encourage customers to recycle, be consistent with rates in nearby jurisdictions, or maintain the structure of existing rates." Solid waste rates are often set using both approaches.

accounts for these customers and invoices them on a monthly basis. This account structure provides a basis for more rate design options than the traditional tipping fee paid at the scalehouse by other customer classes (e.g., self-haulers).

VI.D.1. Existing Rate Structure

The Division collects rate revenue from commercial haulers through a "tipping fee" based on the amount of weight (in tons) that is delivered to the transfer stations or directly to the Cedar Hills Regional Landfill. Because the existing rate structure is based solely on actual tonnage, no fixed fees are currently assessed to commercial solid waste haulers — all disposal fees are assessed on a variable rate structure. The disposal fees assessed to commercial solid waste haulers change in response to three main factors:

- **Tipping Fees –** Changes to the tipping fee ($ per ton) assessed by the Division will increase disposal charges paid by commercial solid waste haulers all else being held constant. The existing tipping fee is $140.82 per ton and is projected to increase to $154.02 per ton in 2022.
- **Changes in Waste Behavior –** Commercial solid waste haulers collect solid waste from single-family, multi-family, business, schools, institutions, and other waste generators. Changes to the economy, solid waste collection programs, and demographics can affect the amount of disposed waste collected by haulers and the disposal fees paid to the Division.
- **Changes to Collection Service Areas –** Cities that partner with commercial solid waste haulers to collect solid waste within their jurisdictions typically enter into long-term contracts with the haulers. When these contracts expire, cities may choose to contract with a different commercial solid waste hauler which would change the amount of solid waste delivered and disposal fees paid by individual commercial solid waste haulers.

Understanding how these three factors affect the disposal charges paid by commercial haulers is important because each of these factors will impact, and be impacted by, a rate restructure.

Exhibit 6.2 details the disposal tons reported by commercial solid waste haulers from 2016 to 2020. The disposal tons are also itemized by the individual jurisdictions served by each hauler. This five-year history provides some helpful examples of how changes in waste behavior and collection service areas can impact disposal tonnage and disposal charges paid to the Division by commercial solid waste haulers.

- Overall disposed tons (from commercial haulers) varied from a low of 640,000 tons in 2016 to a high of 684,000 tons in 2019. The range of annual disposal tons (high minus low) was 44,000 tons. At existing rates, the range in disposal tons over the past five years is equivalent to $6.1 million in disposal fee revenue.
- Individual service areas or jurisdictions experience even wider variability in disposal tons relative to overall disposal patterns. A jurisdiction with a concentrated commercial base (SeaTac) experienced a sharp decline in disposal tonnage in 2020 as a result of stay-at-home orders from the COVID-19 pandemic. Disposal tons in SeaTac decreased almost 40 percent from 2019 to 2020.
- The City of Mercer Island transitioned to a new solid waste collection contract in 2019. As a result, the new service provider (Recology CleanScapes) began paying disposal charges to the Division for waste collected within the City.

Exhibit 6.2
2016-2020 Disposal Tons by Commercial Solid Waste Hauler and Service Area

Jurisdiction	Solid Waste Hauler	2016	2017	2018	2019	2020
Algona	Waste Management	1,793	1,558	1,609	1,981	1,656
Auburn	Republic	4,648	4,588	4,743	4,954	5,396
Auburn	Waste Management	41,309	41,042	44,422	43,630	41,759
Beaux Arts	Republic	73	77	1,485	82	95
Bellevue	Republic	65,877	67,004	65,632	67,067	58,788
Black Diamond	Republic	1,173	1,195	1,299	1,354	1,620
Bothell	Recology	15,129	15,154	15,488	15,329	14,669
Bothell	Waste Management	1,804	2,182	2,020	2,213	2,481
Burien	Recology	19,738	19,715	20,393	21,179	20,643
Carnation	Recology	727	756	896	903	899
Clyde Hill	Republic	909	931	1,253	908	966
Covington	Republic	7,565	8,074	8,378	8,490	8,315
Des Moines	Recology	11,502	11,948	12,140	11,935	12,648
Duvall	Waste Management	2,210	2,615	2,187	2,346	2,221
Enumclaw	Enumclaw	4,392	4,599	4,802	5,093	5,255
Federal Way	Waste Management	42,448	42,446	46,074	46,877	45,859
Hunts Point	Republic	155	152	165	136	156
Issaquah	Recology	17,803	18,426	18,364	18,481	17,713
Issaquah	Republic	102	50	21	28	18
Kenmore	Republic	6,057	6,302	6,521	6,354	6,585
Kent	Republic	75,285	77,609	78,820	79,716	78,888
Kirkland	Waste Management	35,044	34,073	35,471	36,849	35,769
Lake Forest Park	Republic	3,208	3,298	3,377	3,253	3,304
Maple Valley	Recology	7,616	7,806	7,862	8,335	8,841
Maple Valley	Republic	472	458	455	267	-
Medina	Republic	884	935	965	867	950
Mercer Island	Recology				1,685	6,693
Mercer Island	Republic	7,073	7,213	6,928	5,155	10
Newcastle	Waste Management	3,568	2,857	3,704	3,782	3,711
Normandy Park	Republic	2,309	2,211	1,367		-
Normandy Park	Waste Management				2,132	
Normandy Park	Waste Management					2,166
North Bend	Republic	4,050	4,135	4,097	4,337	4,149
Pacific	Waste Management	3,419	3,439	3,534	3,592	3,812
Redmond	Waste Management	30,053	30,591	44,464	36,712	31,588
Renton	Republic	3,723	42,307	45,480	44,296	42,277
Renton	Waste Management	41,091	2,865			
Sammamish	Republic	7,978	12,114	12,034	12,029	12,856
Sammamish	Waste Management	3,932	150	205	163	126
Sammamish Klahanie	Republic	1,415	2,670	2,566	2,573	2,819
SeaTac	Recology	26,343	27,826	30,711	34,431	21,201
Shoreline	Recology	18,532	18,364	18,576	18,555	18,225
Snoqualmie	Waste Management	6,532	7,133	6,851	5,477	4,966
Tukwila	Waste Management	26,141	23,793	29,396	29,177	27,399
Unincorporated - North	Republic	5,722	4,027	3,455	3,688	4,400
Unincorporated - North	Waste Management	16,951	16,995	17,319	17,713	17,421
Unincorporated - South	Republic	26,313	26,171	26,161	26,443	27,176
Unincorporated - South	Waste Management	17,259	16,274	16,411	16,194	16,211
Unincorporated - South	Waste Management	8,029	8,303	8,273	10,506	9,110
Unincorporated - Vashon	Waste Connections	2,460	2,518	3,100	2,722	2,827
Woodinville	Waste Management	9,684	9,296	9,515	14,073	12,826
Yarrow Point	Republic	265	261	263	253	290
Total		**640,763**	**644,507**	**679,252**	**684,314**	**647,754**

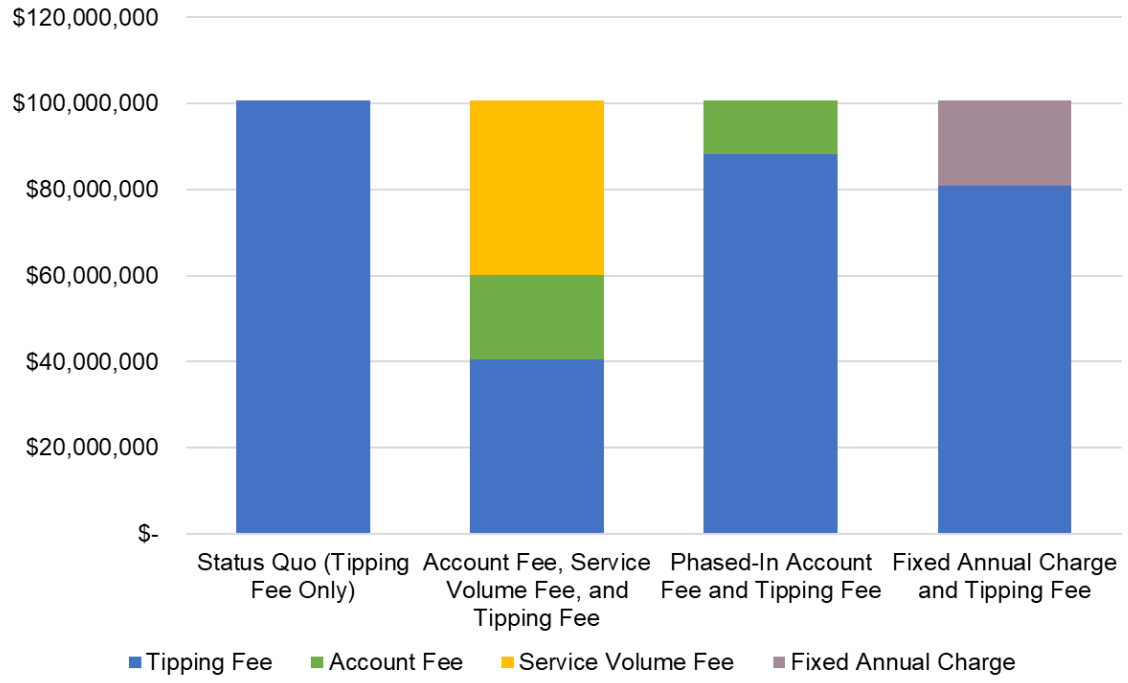
VI.D.2. Rate Restructure Options

FCS GROUP evaluated several rate structure options for commercial solid waste hauler disposal fees. From February 2021 to April 2021 FCS GROUP also coordinated with the Division project team to facilitate three work sessions with the County's Solid Waste Rate Restructure Task Force. During these work sessions, FCS GROUP discussed rate restructure alternatives, gathered feedback, and identified potential opportunities and challenges to the rate restructure options. The Task Force was comprised of representatives from cities within King County, commercial solid waste haulers, and other members of the Metropolitan Solid Waste Management Advisory Committee (MSWAC). FCS GROUP supported the Division project team with subsequent presentations to MSWAC and the Solid Waste Advisory Committee (SWAC) during the summer of 2021.

Through these discussions, three rate restructure options were evaluated. All three options are designed to recover the equivalent level of revenue that would be recovered from the existing tipping fee structure in the 2022 test year period (see **Exhibit 6.3**).

- **Account Fee, Service Volume Fee, and Tipping Fee.** This rate structure would recover the Division's costs unrelated to disposal activities through a fixed monthly account fee assessed to each commercial hauler. The volume fee would be based on each hauler's monthly customer service volume as measured in cubic yards. The volume fee would recover 50 percent of the cost of disposal-related activities. The existing tipping fee structure would recover the remaining 50 percent of the cost of disposal-related activities.
- **Phased-In Account Fee and Tipping Fee.** This rate alternative was developed through discussions with the Rate Restructure Task Force. Similar in design to the first option, this rate restructure includes a fixed monthly account fee assessed to each commercial hauler which would recover Division costs unrelated to disposal activities. However, the account fee would be phased-in over several years to mitigate the immediate potential impacts to haulers and jurisdictions from implementing the whole fixed monthly account fee in the first year. This option does not include a service volume fee – all disposal-related costs would be recovered through a tipping fee.
- **Fixed Annual Charge and Tipping Fee.** This alternative was explored following discussions with the Rate Restructure Task Force to further minimize the impacts of a rate restructure to haulers and jurisdictions. Similar to the previous two options, the fixed annual charge would be designed to recover Division costs unrelated to disposal activities. The fixed annual charge would be assessed based on the projected shares of disposed tons from each hauler (and jurisdiction) for the year. The annual fixed charges would be reconciled through a true-up process the following year to account for the actual share of disposed tons. This option does not include a service volume fee – all disposal-related costs would be recovered through a tipping fee.

Exhibit 6.3
Sources of Disposal Fee Revenue by Rate Structure Option (2022)



VI.D.2.a Alternative #1: Account Fee, Service Volume Fee, and Tipping Fee

Rate Design Objectives

Of the three options, this option is anticipated to provide the highest and most immediate level of fixed revenue to the Division. This option includes three rate structure elements: a fixed monthly account fee, a volume fee based on solid waste collection service volume as measured in cubic yards, and a tipping fee.

Fixed Monthly Account Fee Rate Structure

The fixed monthly account fee would be assessed to commercial solid waste haulers based on the number of "service units" each hauler reports to King County as part of the County's Hazardous Waste Management Program. The account fee would be weighted based on the type of service units within each commercial hauler's service area.[6] **Exhibit 6.4** details the multipliers that would be assessed to each account type based on the size of the container. The multipliers are based on the typical maximum container size used for each account type. FCS GROUP evaluated several other

[6] Some cities like Renton and Kirkland administer their own solid waste billing systems and submit service unit data directly to the King County Hazardous Waste Management Program. In these cases, cities would be assessed the account fee instead of the commercial waste hauler.

weighting methods such as a uniform multiplier for all account types. The different methodologies had modest impacts on the total disposal fees paid for by individual haulers and jurisdictions.

Exhibit 6.4
Account Fee Weights

Account Fee Type (based on King County HWMP Categories)	Account Fee Basis	Account Fee Multiplier
Single-Family Residential	0.48 cubic yards (96 gallons)	1.00X
Commercial Cart <0.48 cubic yards	0.48 cubic yards (96 gallons)	1.00X
Commercial Dumpster >0.48 cubic yards to <10 cubic yards	8 cubic yards	16.67X
Commercial Roll-off >10 cubic yards	40 cubic yards	83.33X

The cost recovery target or the amount of annual revenue to generate from the account fee is based on the share of the cost of non-disposal activities allocated to the commercial solid waste hauler customer class. These costs were determined from the cost of service analysis and include the Zero Waste of Resources, Regional Planning, and Regulatory Compliance functions of service. For more information, refer to **Section V.C.1 Defining Solid Waste Functions** within the report. **Exhibit 6.5** details the cost recovery target for the account fee in the 2022 test year which is estimated at $19.7 million.

Exhibit 6.5
Test Year Non-Disposal Cost of Service for Commercial Solid Waste Haulers

Function of Service	Allocated to Transfer Station (Commercial) Class	% Included in Account Fee Revenue Target	Account Fee Revenue Target
Scalehouse	$ 281,438	0%	$ -
Transfer	41,973,398	0%	-
Transport	10,348,452	0%	-
Disposal	24,357,815	0%	-
Recycling	-	0%	-
Yard/Wood Waste	-	0%	-
Zero Waste of Resources	8,925,357	100%	8,925,357
Regional Planning	2,814,449	100%	2,814,449
MRW	224,480	0%	-
Regulatory Compliance	7,997,460	100%	7,997,460
Total	**$ 96,922,849**		**$ 19,737,266**

The monthly account fee would be determined by dividing the account fee revenue target by the number of accounts within the solid waste system. The revenue target per account would then be adjusted based on the account type multipliers to determine the monthly account fee per single-family residential cart, commercial cart, commercial dumpster, and commercial roll-off container. Based on this rate structure, each commercial solid waste hauler would be assessed a fixed monthly charge of approximately $2.19 per single-family residential cart in the 2022 test year. **Exhibit 6.6** details the estimated monthly account fees in the test year for this rate option. This rate alternative assumes that the account fee is fully implemented in the 2022 test year.

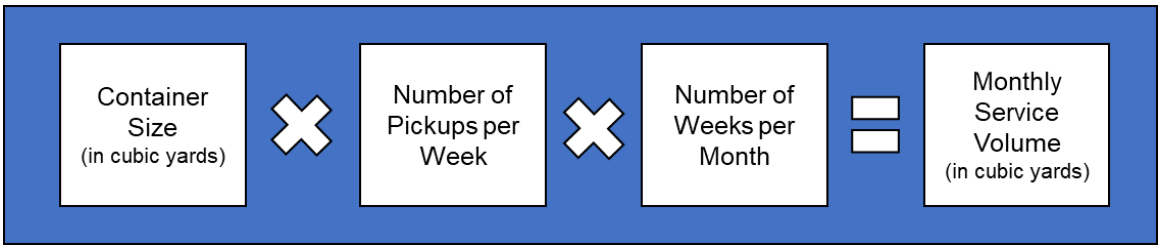
Exhibit 6.6
Rate Alternative #1: Test Year Monthly Account Fees

Test Year Account Fee Revenue Target			**$19,737,266**
Monthly Account Fees		**Multiplier**	**Monthly Fee**
Single-Family Residential		1.0X	$ 2.19
Commercial Cart <0.48 cubic yards		1.0X	2.19
Commercial Dumpster >0.48 to <10 cubic yards		16.67X	36.50
Commercial Roll-off >10 cubic yards		83.33X	182.50
Account Fee Revenue	**Monthly Fee**	**Accounts**	**Revenue**
Single-Family Residential	$ 2.19	350,793	$ 9,218,835
Commercial Cart <0.48 cubic yards	2.19	5,621	147,728
Commercial Dumpster >0.48 to <10 cubic yards	36.50	15,501	6,789,572
Commercial Roll-off >10 cubic yards	182.50	1,644	3,600,912
Total Account Fee Revenue			**$19,757,046**

Note: Difference in account fee revenue target and calculated account fee revenue due to rounding

Service Volume Fee

Similar to the account fee, the service volume fee is another form of a fixed fee for recovering Division expenses. Service volume is a common metric used in the solid waste industry to differentiate collection service levels between customers and customer groups. It is measured as:



While determining service volume for an individual solid waste customer is a relatively straightforward calculation, determining the total service volume for all solid waste customers within the King County solid waste system presents notable challenges for this rate restructure option. The Division does not currently track solid waste service volume data for the region, so this type of rate restructure would require developing a data management system to gather, aggregate, and report solid waste service volume for each commercial solid waste hauler. This requirement is addressed in detail within the next section. Without current service volume data, FCS GROUP relied on service volume data provided by solid waste haulers in 2016, adjusted for growth in solid waste accounts from 2016 to 2020. As such, the calculated service volume fee is a planning level estimate to evaluate this rate restructure option against the other two options.

The cost recovery target or the amount of annual revenue to generate from the service volume fee is based on 50 percent of commercial hauler-related expenditures not recovered by the fixed account fee or approximately $40.4 million in the test year. The monthly service volume fee would be determined by dividing the service fee revenue target by the monthly service volume within the solid waste system. Based on this rate structure, each cubic yard of service volume would be assessed an estimated fixed monthly charge of approximately $3.75 in the test year. **Exhibit 6.7** details the estimated monthly service volume fees in the test year for this rate option.

Exhibit 6.7
Rate Alternative #1: Test Year Monthly Service Volume Fee

Transfer Station (Commercial) Test Year Revenue Target:	$100,653,375
Less: Account Fee Revenue Target	(19,737,266)
Remaining Revenue Target	$ 80,916,109
Multiplied by: Revenue Target as a % for Service Volume Fee	50%
Service Volume Fee Revenue Target	$ 40,458,055
Divided by: Annual Collection Service Volume (in cubic yards)	10,775,024
Monthly Service Volume Fee (per cubic yard)	**$ 3.75**

Tipping Fee

All three rate options would retain the existing tipping fee rate structure. Elements of many of the Division's services and activities are and will continue to be driven by disposed tonnage, so there is a strong rationale for retaining the tipping fee rate structure. All three options deviate from the existing rate structure in that they no longer rely exclusively on the tipping fee rate structure to generate revenue from commercial solid waste haulers.

The cost recovery target or the amount of annual revenue to generate from the tipping fee is based on remaining commercial hauler-related expenditures not recovered by the fixed account fee or the service volume fee. The calculation of the tipping fee would be consistent with current practice – the tipping fee revenue target is divided by annual disposed tons. The estimated tipping fee is $61.91 in the test year. **Exhibit 6.8** details the calculation for the tipping fee in the test year for this rate option.

Exhibit 6.8
Rate Alternative #1: Test Year Tipping Fee

Transfer Station (Commercial) Test Year Revenue Target:	$100,653,375
Less: Account Fee Revenue Target	(19,737,266)
Less: Service Volume Fee Revenue Target	(40,458,055)
Tipping Fee Revenue Target	$ 40,458,055
Divided by: Transfer Station (Commercial) Disposed Tons	653,508
Tipping Fee (per ton)	**$ 61.91**

Considerations

FCS GROUP evaluated this option and the other two options based on the rate design criteria summarized in **Section VI.C Rate Design Considerations**. As part of the evaluation, FCS GROUP coordinated with the County project team and the Rate Restructure Task Force to gather information and feedback related to each of the criteria listed below:

- **Availability and Quality of Data –** A system for reporting account (service unit) data already exists between commercial solid waste haulers and King County through the County's Hazardous Waste Management Program. This data may need to be reviewed and, if needed, reconciled by Division staff each year when setting or adjusting the account fee. However, no such dataset or reporting process exists today for solid waste collection service volume. FCS GROUP, the County project team, and the Rate Restructure Task Force identified the lack of existing data as a key challenge for this option. Feedback from the Task Force members was generally consistent on this issue with most members preferring that additional review be conducted prior to implementing the service volume fee.
- **Cost of Service –** This rate alternative is designed to reflect the cost of service for commercial solid waste haulers. This alternative secures a fixed revenue source (account fee) to offset expenses

unrelated to disposal activities. Additionally, the service volume fee provides a fixed revenue source for the Division to offset the cost of disposal activities that may be more fixed relative to disposal tonnage (e.g., annual debt service, minimum staffing levels at transfer stations).

- **Implementation –** This rate restructure option would likely not be implementable within the short-term (1 to 2 years) due to the lack of administrative processes to gather, aggregate, and report solid waste collection service volume data. Task force members preferred that, if this option were pursued, the account fee and service volume fee structures be implemented gradually over several years.
- **Intraclass Cost Equity –** The rate structure for this alternative is designed to be uniformly assessed to all commercial solid waste haulers.
- **Pricing Signals –** With any change in rate design, there are "winners" and "losers". Within this rate restructure option, some jurisdictions will pay less compared to the existing rate structure, while others will pay more. Evaluating these rate shifts is a critical element in rate design. **Chapter VII** of the report includes detailed comparative analyses of the potential shifts in disposal charges assessed to cities from the existing rate structure to the three rate restructure alternatives.
- **Revenue Sufficiency –** This rate alternative is designed to recover the cost of service for commercial solid waste haulers.
- **Risk –** Of the three alternatives, this alternative is anticipated to provide the highest and most immediate level of fixed revenue to the Division. Account and service volume revenue from this rate restructure option is estimated at $60 million in the test year – comprising 60 percent of commercial solid waste hauler rate revenue and approximately 43 percent of overall Division rate revenue in the test year.

VI.D.2.b Alternative #2: Account Fee and Tipping Fee

Rate Design Objectives

The second rate structure alternative was developed through discussions with the Rate Restructure Task Force. Similar in design to the first option, this rate restructure includes a fixed monthly account fee assessed to each commercial hauler which would recover Division costs unrelated to disposal activities. However, the account fee would be phased-in over several years to limit potential impacts to haulers and jurisdictions. This option does not include a service volume fee – all disposal-related costs would be recovered through a tipping fee.

Fixed Monthly Account Fee Rate Structure

The fixed monthly account fee would be assessed to commercial solid waste haulers based on the number of "service units" each hauler reports to King County as part the County's Hazardous Waste Management Program. Similar to the first alternative, the account fee would be weighted based on the type of service units within each commercial hauler's service area. The multipliers are based on the typical maximum container size used for each account type.

The cost recovery target or the amount of annual revenue to generate from the account fee would be increased over time. Based on discussions with the Task Force and the County project team, the initial revenue target for the test year is set at approximately $12.4 million. As context, the share of the cost of non-disposal activities allocated to the commercial solid waste hauler customer class in the test year is $19.8 million, so the phase-in revenue target would recover approximately 60 percent

of eligible non-disposal expenses in the first year. The account fee revenue target would increase each year to eventually recover the total cost of non-disposal activities.

The monthly account fee would be determined by dividing the account fee revenue target by the number of accounts within the solid waste system. The revenue target per account would then be adjusted based on the account type multipliers to determine the monthly account fee per single-family residential cart, commercial cart, commercial dumpster, and commercial roll-off container. Based on this rate structure, each commercial solid waste hauler would be assessed a fixed monthly charge of approximately $1.37 per residential single-family residential cart in the 2022 test year. **Exhibit 6.9** details the estimated monthly account fees in the test year for this rate option.

Exhibit 6.9
Rate Alternative #2: Test Year Monthly Account Fees

Test Year Account Fee Revenue Target			**$12,358,876**
Monthly Account Fees		**Multiplier**	**Monthly Fee**
Single-Family Residential		1.0X	$ 1.37
Commercial Cart <0.48 cubic yards		1.0X	1.37
Commercial Dumpster >0.48 cubic yards to <10 cubic yards		16.67X	22.83
Commercial Roll-off >10 cubic yards		83.33X	114.17
Account Fee Revenue	**Monthly Fee**	**Accounts**	**Revenue**
Single-Family Residential	$ 1.37	350,793	$ 5,767,034
Commercial Cart <0.48 cubic yards	1.37	5,621	92,414
Commercial Dumpster >0.48 to <10 cubic yards	22.83	15,501	4,246,738
Commercial Roll-off >10 cubic yards	114.17	1,644	2,252,691
Total Account Fee Revenue			**$12,358,876**

Tipping Fee

The cost recovery target or the amount of annual revenue to generate from the tipping fee is based on remaining commercial hauler-related expenditures not recovered by the fixed account fee. The calculation of the tipping fee would be consistent with current practice – the tipping fee revenue target is divided by annual disposed tons. The estimated tipping fee is $135.11 in the test year. **Exhibit 6.10** details the calculation for the tipping fee in the test year for this rate option.

Exhibit 6.10
Rate Alternative #2: Test Year Tipping Fee

Transfer Station (Commercial) Test Year Revenue Target:	$100,653,375
Less: Account Fee Revenue Target	(12,358,876)
Tipping Fee Revenue Target	$ 88,294,499
Divided by: Transfer Station (Commercial) Disposed Tons	653,508
Tipping Fee (per ton)	**$ 135.11**

Considerations

As part of the evaluation, FCS GROUP coordinated with the County project team and the Rate Restructure Task Force to gather information and feedback related to each of the criteria listed below:

- **Availability and Quality of Data –** The data required to implement and administer the account fee rate structure is available through the County's Hazardous Waste Management Program. This data

may need to be reviewed and, if needed, reconciled by Division staff each year when setting or adjusting the account fee.

- **Cost of Service –** This rate alternative is designed to reflect the cost of service for commercial solid waste haulers. It secures a fixed revenue source (account fee) to offset expenses unrelated to disposal activities. The cost of disposal activities that may be more fixed relative to disposal tonnage (e.g., annual debt service, minimum staffing levels at transfer stations) would continue to be recovered through the variable tipping fee. Looking forward, the Division and its partners may decide to expand the basis of the account fee to also cover some or all of the fixed expenses for disposal-related activities.
- **Implementation –** Because the data to administer this rate structure already exists, it can likely be implemented earlier compared to the first alternative.FCS GROUP recommends at least a nine-month lead time between the County decision to create the rate structure and the first payments under the new structure. During this time, the Division would routinely collect and review quarterly reports, coordinate the rate structure change with cities, commercial solid waste haulers, the WUTC, and other stakeholders, and test the revenue that would be generated from the new rate structure.
- **Intraclass Cost Equity –** The rate structure for this alternative is designed to be uniformly assessed to all commercial solid waste haulers.
- **Pricing Signals – Chapter VII** of the report includes detailed comparative analyses of the potential shifts in disposal charges assessed to cities from the existing rate structure to the three rate restructure alternatives.
- **Revenue Sufficiency –** This alternative is designed to reflect the cost of service for commercial solid waste haulers.
- **Risk –** Because the account fee structure would be phased-in over time, the level of fixed revenue would be relatively small in the first years of implementation. This strategy helps to mitigate some of the cost impacts to cities. However, because it generates less fixed revenue in the short-term compared to the first alternative, the Division would continue to rely on tipping fee revenue to fund most of its services. Unforeseen shifts in disposal tonnage in the interim may result in significant increases to the tipping fee and/or cost and service reductions.

VI.D.2.c Alternative #3: Fixed Annual Charge and Tipping Fee

Rate Design Objectives

FCS GROUP evaluated a third rate structure alternative following discussions with the Rate Restructure Task Force to further minimize the impacts of a rate restructure to haulers and jurisdictions. Similar to the previous two alternatives, the fixed annual charge would be designed to recover Division costs unrelated to disposal activities. The fixed annual charge would be assessed based on the projected or planned shares of disposed tons from each hauler (and jurisdiction) for the year. The annual fixed charges would be reconciled through a true-up process the following year to account for the actual share of disposed tons. This option does not include a service volume fee – all disposal-related costs would be recovered through a tipping fee.

Fixed Annual Charge

The cost recovery target or the amount of annual revenue to generate from the fixed annual charge is based on the share of the cost of non-disposal activities allocated to the commercial solid waste

hauler customer class. These costs were determined from the cost of service analysis and include the Zero Waste of Resources, Regional Planning, and Regulatory Compliance functions of service. For more information, refer to **Section V.C.1 Defining Solid Waste Functions** within the report. The revenue target is then allocated to each commercial solid waste hauler and jurisdiction (for those jurisdictions that manage their own billing) based on the projected disposal tons generated within each service area over the year or biennium. In developing the projected disposal tonnage shares, the Division would need to account for known or anticipated changes in cities' collection service contracts and service levels. The allocated fixed charges would then be assessed to each commercial solid waste hauler on a monthly basis.

At the end of each year, the Division would compare the projected and actual disposal tons generated by each jurisdiction. A true-up payment (or credit) would then be issued to cities or their contracted solid waste commercial haulers as part of the following year's fixed annual charge. This true-up process is designed to minimize potential cross-jurisdictional rate impacts from the rate restructure.

Exhibit 6.11 details the fixed annual charge calculation for a sample jurisdiction.

Exhibit 6.11
Rate Alternative #3: Test Year Fixed Annual Charge Example

Test Year Fixed Annual Charge Revenue Target	$ 19,737,266
Multiplied by: Projected Share of Commercial Disposal Tons	12.18%
Annual Fixed Charge	$ 2,403,748
Monthly Fixed Charge	$ 200,312
Annual True-Up Calculation	
Actual Share of Commercial Disposal Tons	11.62%
Annual Fixed Charges Based on Actual Share	$ 2,293,673
Less: Annual Fixed Charges Based on Projected Share	$ (2,403,748)
True-Up Payment (Credit)	$ (110,075)

Tipping Fee

The cost recovery target or the amount of annual revenue to generate from the tipping fee is based on remaining commercial hauler-related expenditures not recovered by the fixed annual charge. The calculation of the tipping fee would be consistent with current practice – the tipping fee revenue target is divided by annual disposed tons. The estimated tipping fee is $123.82 in the test year. **Exhibit 6.12** details the calculation for the tipping fee in the test year for this rate option.

Exhibit 6.12
Rate Alternative #3: Test Year Tipping Fee

Transfer Station (Commercial) Test Year Revenue Target:	$100,653,375
Less: Account Fee Revenue Target	(19,737,266)
Tipping Fee Revenue Target	$ 80,916,109
Divided by: Transfer Station (Commercial) Disposed Tons	653,508
Tipping Fee (per ton)	**$ 123.82**

Considerations

As part of the evaluation, FCS GROUP coordinated with the County project team and the Rate Restructure Task Force to gather information and feedback related to each of the criteria listed below:

- **Availability and Quality of Data –** Disposal tonnage data by jurisdiction is already provided to the Division by cities and commercial solid waste haulers. FCS GROUP reviewed these tonnage data from 2015 to 2020 and identified several tonnage anomalies – particularly in smaller jurisdictions. It is recommended that the Division establish quality control tests for the tonnage data and follow-up with commercial solid waste haulers as needed to ensure that the annual tonnage data is accurate prior to setting the annual fixed charge.
- **Cost of Service –** This alternative is designed to reflect the cost of service for commercial solid waste haulers. This alternative secures a fixed revenue source (annual charge) to offset expenses unrelated to disposal activities. The cost of disposal activities that may be more fixed relative to disposal tonnage (e.g., annual debt service, minimum staffing levels at transfer stations) would continue to be recovered through the variable tipping fee. Looking forward, the Division and its partners may decide to expand the basis of the fixed annual charge to also cover some or all of the fixed expenses for disposal-related activities.
- **Implementation –** Because the data to administer this rate structure already exists, it can likely be implemented earlier compared to the first alternative. FCS GROUP recommends at least a nine-month lead time between the County decision to create the rate structure and the first payments under the new structure. During this time, the Division would routinely collect and review monthly tonnage reports, coordinate the rate structure change with cities, commercial solid waste haulers, the WUTC, and other stakeholders, and test the revenue that would be generated from the new rate structure.
- **Intraclass Cost Equity –** The rate structure for this alternative would be uniformly assessed to all commercial solid waste haulers.
- **Pricing Signals – Chapter VII** of the report includes detailed comparative analyses of the potential shifts in disposal charges assessed to cities from the existing rate structure to the three rate restructure alternatives.
- **Revenue Sufficiency –** This rate structure alternative is designed to reflect the cost of service for commercial solid waste haulers.
- **Risk –** The fixed annual charge is not based on a rate per account or service unit. As such, revenue from the fixed annual charge would not automatically increase in response to future increases to population or garbage collection service levels. FCS GROUP recommends that the Division update the cost of service analysis every three to five years to align the annual fixed charge with the cost of service results. The Division should also consider adjusting the annual fixed charge in between cost of service updates based on a recognized cost inflation index (e.g., consumer price index).

VI.E. ALL OTHER SOLID WASTE FEES

The County project team provided the forecasted tipping and transaction fees for all other customer classes of service which are summarized in **Exhibit 6.13**.

Exhibit 6.13
Test Year Fee Schedule for Solid Waste Services

	Existing 2021	Adopted 2022	Test Year 2022
Tonnage Fees			
Transfer Station Waste			
Transfer Station (Self-Haul)	$ 140.82	154.02	$ 153.37
Cedar Hills - Other	140.82	154.02	153.37
Other Waste	140.82	154.02	153.37
Regional Direct	120.00	131.00	131.00
Special Waste	169.00	185.00	185.00
Yard Waste	75.00	100.00	100.00
Transaction Fees			
Transfer Station Waste			
Transfer Station (Self-Haul Minimum)	$ 22.53	$ 24.64	$ 24.54
Appliances	30.00	30.00	30.00
LIFT Discounts	(12.00)	(14.00)	(14.00)
Unsecured Load	25.00	25.00	25.00
CF Drop Box	22.53	24.64	24.54
Alternative #1: Account Fee, Service Volume Fee, and Commercial Tipping Fee			
Account Fee			
SF	$ -	$ -	$ 2.19
C1	-	-	2.19
C2	-	-	36.50
C3	-	-	182.50
Service Volume Fee	$ -	$ -	$ 3.75
Tipping Fee	$ 140.82	$ 154.02	$ 61.91
Alternative #2: Phased-In Account Fee and Commercial Tipping Fee			
Account Fee			
SF	$ -	$ -	$ 1.37
C1	-	-	1.37
C2	-	-	22.83
C3	-	-	114.17
Service Volume Fee	$ -	$ -	$ -
Tipping Fee	$ 140.82	$ 154.02	$ 135.11
Alternative #3: Fixed Annual Charge and Commercial Tipping Fee			
Fixed Annual Charge			$ 19,737,266
Tipping Fee	$ 140.82	$ 154.02	$ 123.82

Section VII. JURISDICTIONAL IMPACTS

VII.A. OVERVIEW

Restructuring rates will impact the disposal charges that commercial solid waste haulers and jurisdictions in King County pay for Division services. FCS GROUP evaluated and presented potential shifts in disposal charges to the Rate Restructure Task Force to provide additional context for the first two rate restructure options. The third rate restructure option was developed after the meetings based on feedback from the Task Force to minimize the jurisdictional impacts of the rate restructure. Annual disposal charges were projected under the status quo structure (tipping fee) and then compared to the annual disposal charges that jurisdictions would be assessed for the three rate restructure options. The differences between the status quo and restructure options were a critical consideration for the Task Force – members generally preferred a rate restructure that mitigates disposal cost shifts between jurisdictions.

VII.B. TIPPING FEE STRUCTURE (STATUS QUO)

Before discussing the jurisdictional impacts of the three rate restructure options, it is useful to understand the basis and impact of the existing structure on disposal charges. As discussed in Section II, assessing disposal charges based on weight is the most common rate structure used by transfer stations and landfills in the United States – but it is unique among public utility rate structures as the rate structure is completely dependent on a variable rate (e.g., number of tons) to fund both fixed and variable costs. Public utilities generally rely on both fixed and variable rate structures to fund services. The fixed rate structure provides a stable revenue source to the utility and offsets those costs that would likely not change with short-term shifts in demand. The variable rate structure aligns variable revenue with variable costs and provides a pricing signal to customers for efficient use of utility services.

Because the status quo structure is perfectly variable, jurisdictions that generate less disposed waste relative to another jurisdiction pay proportionally less disposal fees to the Division. Every ton of waste that a jurisdiction can divert from the landfill through recycling and organics programs or shifts in garbage collection frequency reduces the disposal fees paid to the Division.

To forecast status quo disposal charges by jurisdiction for the test year, FCS GROUP applied the projected test year tipping fee ($154.02 per ton) to the 2022 tonnage forecast for the commercial solid waste customer class based on a share of actual disposed tonnage received from each jurisdiction in 2019 (see **Exhibit 7.1**).

Exhibit 7.1
Projected Test Year Disposal Fees by Jurisdiction (Status Quo)[7]

Commercial Hauler / Jurisdiction	Test Year Disposed Tons	Test Year Disposal Fees
Auburn	41,566	$ 6,401,931
Enumclaw	4,852	747,286
Kirkland	35,105	5,406,878
Recology Cleanscapes	129,808	19,993,050
Renton	42,200	6,499,664
Republic Services - Auburn	4,720	726,922
Republic Services - Bellevue	63,894	9,840,910
Republic Services - Clyde Hill	865	133,219
Republic Services - Covington	8,088	1,245,782
Republic Services - Kent	75,944	11,696,955
Republic Services - Lake Forest Park	3,099	477,363
Republic Services - North Bend	4,132	636,361
Republic Services - Sammamish	11,460	1,765,090
Republic Services - UTC North	13,319	2,051,388
Republic Services - UTC South	26,482	4,078,784
Vashon-Waste Connections	2,593	399,381
Waste Management - Algona	1,888	290,721
Waste Management - Bothell	2,108	324,749
Waste Management - Duvall	2,235	344,249
Waste Management - Federal Way	44,659	6,878,431
Waste Management - Normandy Park	2,031	312,834
Waste Management - Pacific	3,422	527,005
Waste Management - Redmond	34,975	5,386,908
Waste Management - Sammamish	156	23,976
Waste Management - Snoqualmie	5,218	803,611
Waste Management - Tukwila	27,796	4,281,145
Waste Management - UTC - King County	15,428	2,376,203
Waste Management - UTC - King County Sno-King	16,874	2,599,002
Waste Management - UTC - King County South Sound	10,009	1,541,573
Waste Management - UTC - Newcastle	3,603	554,870
Waste Management - WUTC - Woodinville	13,407	2,064,925
Total	**653,508**	**$ 100,653,375**

[7] Jurisdictions that contract with Recology Cleanscapes are aggregated in the exhibit. While the estimated splits for most jurisdictions are based on 2019 actual data, the test year tonnage splits for Mercer Island and Maple Valley are both assigned to Recology Cleanscapes to reflect changes in contract commercial haulers that occurred in 2019.

VII.C. RATE RESTRUCTURE ALTERNATIVES

Any rate restructure that introduces a fixed rate element will result in disposal fees that are less sensitive to the amount of disposed waste that is generated within a jurisdiction. Transitioning to a rate structure with fixed and variable rate elements is anticipated to increase the disposal fees paid by jurisdictions that generate low amounts of waste relative to the status quo rate structure. Jurisdictions that generate more waste would likely pay less disposal fees relative to the status quo. A key difference in the design of the three rate restructure options is the degree to which the shifts in disposal fees between jurisdictions is mitigated.

Exhibit 7.2 details the projected annual disposal fees by jurisdiction under the status quo rate structure and the three rate restructure alternatives. For illustration purposes, the basis for the fixed annual charge for Alternative #3 is based on the share of actual disposed tons for each jurisdiction in 2020. As discussed in Section VI, this rate structure includes a true-up mechanism where the Division would compare the projected and actual disposal tons generated by each jurisdiction. The true-up payment (or credit) would then be issued to cities or their contracted solid waste commercial haulers as part of the following year's fixed annual charge. The figures for Alternative #3 reflect the fixed annual charge before any true-up to illustrate the differences between each rate restructure option.

Exhibit 7.2
Projected Test Year Disposal Fees by Jurisdiction

Commercial Hauler / Jurisdiction	Status Quo Disposal Fees	Alternative #1 Accout Fee, Service Volume Fee, and Tipping Fee	Alternative #2 Phased-In Accout Fee and Tipping Fee	Alternative #3 Fixed Annual Charge and Tipping Fee
Auburn	$ 6,401,931	$ 6,116,660	$ 6,309,501	$ 6,401,931
Enumclaw	747,286	970,488	785,178	747,286
Kirkland	5,406,878	5,429,824	5,419,254	5,406,878
Recology Cleanscapes	19,993,050	19,746,155	19,891,913	19,993,050
Renton	6,499,664	6,953,532	6,585,510	6,499,664
Republic Services - Auburn	726,922	655,096	723,083	726,922
Republic Services - Bellevue	9,840,910	9,452,615	9,754,756	9,840,910
Republic Services - Clyde Hill	133,219	128,333	134,898	133,219
Republic Services - Covington	1,245,782	1,176,251	1,241,844	1,245,782
Republic Services - Kent	11,696,955	11,284,156	11,567,281	11,696,955
Republic Services - Lake Forest Park	477,363	575,863	507,320	477,363
Republic Services - North Bend	636,361	702,674	645,829	636,361
Republic Services - Sammamish	1,765,090	1,990,311	1,852,388	1,765,090
Republic Services - UTC North	2,051,388	2,164,141	2,087,718	2,051,388
Republic Services - UTC South	4,078,784	4,499,750	4,215,159	4,078,784
Skykomish	242,207	113,359	215,988	242,207
Vashon-Waste Connections	399,381	654,012	446,774	399,381
Waste Management - Algona	290,721	306,467	294,973	290,721
Waste Management - Bothell	324,749	272,633	317,210	324,749
Waste Management - Duvall	344,249	424,554	364,935	344,249
Waste Management - Federal Way	6,878,431	5,997,648	6,703,760	6,878,431
Waste Management - Normandy Park	312,834	305,581	315,227	312,834
Waste Management - Pacific	527,005	548,020	530,306	527,005
Waste Management - Redmond	5,386,908	4,933,151	5,285,902	5,386,908
Waste Management - Sammamish	23,976	11,066	21,394	23,976
Waste Management - Snoqualmie	803,611	833,970	817,659	803,611
Waste Management - Tukwila	4,281,145	3,915,358	4,169,365	4,281,145
Waste Management - UTC - King County	2,376,203	2,580,412	2,422,544	2,376,203
Waste Management - UTC - King County Sno-King	2,599,002	2,876,004	2,697,413	2,599,002
Waste Management - UTC - King County South Sound	1,541,573	1,653,580	1,569,625	1,541,573
Waste Management - UTC - Newcastle	554,870	565,114	563,837	554,870
Waste Management - WUTC - Woodinville	2,064,925	1,793,951	1,996,829	2,064,925
Waste Management Combined	-	978,295	199,035	-
Total	**$ 100,653,375**	**$ 100,609,026**	**$ 100,654,406**	**$ 100,653,375**

Notes
Differences in total revenue due to rounding (account, service volume, and tipping fees rounded to nearest penny)
Estimated fees for Alternative 3 include annual true-up

VII.C.1. Small City Example: Enumclaw

As a small city that generates relatively less waste than other jurisdictions, the City of Enumclaw is projected to pay $747,000 in annual disposal fees in the test year under the status quo rate structure.

- **Alternative #1:** By assessing an account fee, service volume fee, as well as a tipping fee, the City's annual disposal fees are projected to increase to $970,000 – an increase of 30 percent over the status quo rate structure. The level of increase to disposal fees for Enumclaw is characteristic of other small, low-waste generating cities within the King County system. FCS GROUP projected similar double-digit increases for Vashon (64 percent), Duvall (23 percent), and Lake Forest Park (21 percent). These cities generate less waste per account relative to larger cities which translates to proportionally lower disposal fees under the existing rate structure. Of the three alternatives, Alternative #1 shifts the highest share of rate revenue from the existing tipping fee only rate

structure to fixed fees like the account and service volume fees. These higher fixed fees (and lower variable tipping fees) would increase these cities' total disposal fees relative to the status quo rate structure.

- **Alternative #2:** Phasing in the account fee structure with the tipping fee structure would mitigate the disposal fee increase projected in the first alternative. The City's annual disposal fees are projected to increase to $785,000 – an increase of 5 percent over the status quo rate structure in test year. Because the account fee would be phased-in over time, the City's annual disposal fees would continue to increase at a faster rate than other jurisdictions until the implementation of the account fee structure is completed.
- **Alternative #3:** Of the three alternatives, the fixed annual charge and tipping fee structure mitigates the disposal fee cost increases from the status quo. The true-up mechanism for this rate alternative would reconcile differences in disposal fees based on planned and actual tonnage through annual credit/charge adjustments, so the net change in disposal fee increases from the status quo is zero.
  - » For this alternative, the Division must forecast disposal tons by jurisdiction to establish the "cost shares" for the fixed annual charge. If the forecast is significantly different from the actual disposed tons received from a jurisdiction, it will result in a larger true-up payment (or credit) to a jurisdiction.

VII.C.2. Medium City Example: Renton

Renton was selected as the medium city example to illustrate the impact of the rate restructure on a city with bi-weekly garbage collection. City residential accounts generate less waste per account relative to other jurisdictions due, in part, to the City's bi-weekly garbage collection schedule (most cities collect garbage on a weekly basis). The City of Renton is projected to pay $6.5 million in annual disposal fees in the test year under the status quo rate structure.

- **Alternative #1:** By assessing an account fee, service volume fee, as well as a tipping fee, the City's annual disposal fees are projected to increase to $7.0 million – an increase of 7 percent over the status quo rate structure.
- **Alternative #2:** Phasing in the account fee structure with the existing tipping fee structure would mitigate the disposal fee increase projected in the first alternative. The City's annual disposal fees are projected to increase to $6.6 million – an increase of 1 percent over the status quo rate structure in the test year. Because the account fee would be phased-in over time, the City's annual disposal fees would continue to increase at a faster rate relative to other jurisdictions until the implementation of the account fee structure is completed.
- **Alternative #3:** Similar to Enumclaw, the fixed annual charge and tipping fee structure mitigates the disposal fee cost increases from the status quo. The true-up mechanism for this rate alternative would reconcile differences in disposal fees based on planned and actual tonnage through annual credit/charge adjustments, so the net change in disposal fee increases from the status quo is zero.

VII.C.3. Large City Example: Kent

Like the other large cities in the King County system, Kent generates more waste than other jurisdictions due to its population and employment base. The City of Kent is projected to pay $11.7 million in annual disposal fees in the test year under the status quo rate structure. Because the City

generates relatively more waste than other jurisdictions, the current tipping fee only rate structure results in the City paying proportionally more disposal fees. Each rate structure alternative includes a fixed rate element, so the City would likely pay less in disposal fees compared to the status quo rate structure.

- **Alternative #1:** By assessing an account fee, service volume fee, as well as a tipping fee, the City's annual disposal fees are projected to decrease to $11.3 million – a decrease of 3 percent over the status quo rate structure.
- **Alternative #2:** Phasing in the account fee structure with the existing tipping fee structure would mitigate the disposal fee decrease projected in the first alternative. The City's annual disposal fees are projected to decrease to $11.6 million – a decrease of 1 percent over the status quo rate structure in test year. Because the account fee would be phased-in over time, the City's annual disposal fees would increase at a slower rate relative to other cities until the implementation of the account fee structure is completed.
- **Alternative #3:** The true-up mechanism for this rate alternative would reconcile differences in disposal fees based on planned and actual tonnage through annual credit/charge adjustments, so the net change in disposal fee increases from the status quo is zero.

Exhibit 7.3 and **Exhibit 7.4** detail the projected annual change in disposal fees from the status quo for each jurisdiction in dollars and as a percent. Figures for Alternative #3 are based on the share of systemwide disposal tons generated by each city in 2020. The true-up mechanism for Alternative #3 would result in a payment or credit to each city the following year, so the net change in disposal fee increases from the status quo is zero.

Exhibit 7.3
Change in Disposal Fees by Jurisdiction (Test Year)

Commercial Hauler / Jurisdiction	Status Quo Disposal Fees	Alternative #1 Accout Fee, Service Volume Fee, and Tipping Fee	Alternative #2 Phased-In Accout Fee and Tipping Fee	Alternative #3 Fixed Annual Charge and Tipping Fee
Auburn	$ 6,401,931	$ (285,272)	$ (92,430)	$ -
Enumclaw	747,286	223,202	37,892	-
Kirkland	5,406,878	22,945	12,375	-
Recology Cleanscapes	19,993,050	(246,895)	(101,137)	-
Renton	6,499,664	453,868	85,845	-
Republic Services - Auburn	726,922	(71,825)	(3,838)	-
Republic Services - Bellevue	9,840,910	(388,295)	(86,155)	-
Republic Services - Clyde Hill	133,219	(4,886)	1,678	-
Republic Services - Covington	1,245,782	(69,531)	(3,939)	-
Republic Services - Kent	11,696,955	(412,800)	(129,674)	-
Republic Services - Lake Forest Park	477,363	98,500	29,957	-
Republic Services - North Bend	636,361	66,313	9,468	-
Republic Services - Renton	-	-	-	-
Republic Services - Sammamish	1,765,090	225,221	87,299	-
Republic Services - Snoqualmie	-	-	-	-
Republic Services - UTC North	2,051,388	112,753	36,330	-
Republic Services - UTC South	4,078,784	420,966	136,375	-
Skykomish	242,207	(128,848)	(26,219)	-
Vashon-Waste Connections	399,381	254,631	47,393	-
Waste Management - Algona	290,721	15,746	4,252	-
Waste Management - Bothell	324,749	(52,116)	(7,539)	-
Waste Management - Duvall	344,249	80,305	20,686	-
Waste Management - Federal Way	6,878,431	(880,783)	(174,671)	-
Waste Management - Normandy Park	312,834	(7,253)	2,393	-
Waste Management - Pacific	527,005	21,015	3,301	-
Waste Management - Redmond	5,386,908	(453,757)	(101,006)	-
Waste Management - Sammamish	23,976	(12,911)	(2,582)	-
Waste Management - Snoqualmie	803,611	30,360	14,049	-
Waste Management - Tukwila	4,281,145	(365,787)	(111,781)	-
Waste Management - UTC - King County	2,376,203	204,209	46,340	-
Waste Management - UTC - King County Sno-King	2,599,002	277,002	98,411	-
Waste Management - UTC - King County South Sound	1,541,573	112,007	28,051	-
Waste Management - UTC - Newcastle	554,870	10,245	8,967	-
Waste Management - WUTC - Woodinville	2,064,925	(270,973)	(68,095)	-
Waste Management Combined	-	978,295	199,035	-
Total	**$ 100,653,375**	**$ (44,350)**	**$ 1,031**	**$ -**

Notes

Differences in total revenue due to rounding (account, service volume, and tipping fees rounded to nearest penny)

Estimated fees for Alternative 3 include annual true-up

Exhibit 7.4
Percent Change in Disposal Fees by Jurisdiction (Test Year)

Commercial Hauler / Jurisdiction	Status Quo Disposal Fees	Alternative #1 Accout Fee, Service Volume Fee, and Tipping Fee	Alternative #2 Phased-In Accout Fee and Tipping Fee	Alternative #3 Fixed Annual Charge and Tipping Fee
Auburn	$ 6,401,931	-4%	-1%	0%
Enumclaw	747,286	30%	5%	0%
Kirkland	5,406,878	0%	0%	0%
Recology Cleanscapes	19,993,050	-1%	-1%	0%
Renton	6,499,664	7%	1%	0%
Republic Services - Auburn	726,922	-10%	-1%	0%
Republic Services - Bellevue	9,840,910	-4%	-1%	0%
Republic Services - Clyde Hill	133,219	-4%	1%	0%
Republic Services - Covington	1,245,782	-6%	0%	0%
Republic Services - Kent	11,696,955	-4%	-1%	0%
Republic Services - Lake Forest Park	477,363	21%	6%	0%
Republic Services - North Bend	636,361	10%	1%	0%
Republic Services - Renton	-	0%	0%	0%
Republic Services - Sammamish	1,765,090	13%	5%	0%
Republic Services - Snoqualmie	-	0%	0%	0%
Republic Services - UTC North	2,051,388	5%	2%	0%
Republic Services - UTC South	4,078,784	10%	3%	0%
Skykomish	242,207	-53%	-11%	0%
Vashon-Waste Connections	399,381	64%	12%	0%
Waste Management - Algona	290,721	5%	1%	0%
Waste Management - Bothell	324,749	-16%	-2%	0%
Waste Management - Duvall	344,249	23%	6%	0%
Waste Management - Federal Way	6,878,431	-13%	-3%	0%
Waste Management - Normandy Park	312,834	-2%	1%	0%
Waste Management - Pacific	527,005	4%	1%	0%
Waste Management - Redmond	5,386,908	-8%	-2%	0%
Waste Management - Sammamish	23,976	-54%	-11%	0%
Waste Management - Snoqualmie	803,611	4%	2%	0%
Waste Management - Tukwila	4,281,145	-9%	-3%	0%
Waste Management - UTC - King County	2,376,203	9%	2%	0%
Waste Management - UTC - King County Sno-King	2,599,002	11%	4%	0%
Waste Management - UTC - King County South Sound	1,541,573	7%	2%	0%
Waste Management - UTC - Newcastle	554,870	2%	2%	0%
Waste Management - WUTC - Woodinville	2,064,925	-13%	-3%	0%
Waste Management Combined	-	0%	0%	0%
Total	**$ 100,653,375**	**0%**	**0%**	**0%**

Notes
Differences in total revenue due to rounding (account, service volume, and tipping fees rounded to nearest penny)
Estimated fees for Alternative 3 include annual true-up

VII.D. CURBSIDE RATE IMPACTS

The rate restructure alternatives and their respective impacts on jurisdictional disposal fees would be passed along to each city's curbside solid waste collection rates; however, disposal fees incurred by the cities are one of many factors that influence curbside rates. Collection operating costs, collection frequency, container size, local waste diversion goals, and existing contracts with commercial solid waste haulers also influence curbside rates. FCS GROUP analyzed and presented potential curbside rate impacts to the Rate Restructure Task Force with the caveat that the actual impacts to curbside rates would be established by each city and/or commercial solid waste haulers.

Exhibit 7.5 details a set of hypothetical impacts to single-family residential monthly rates using an existing rate structure for one of the jurisdictions (Kirkland). Like the solid waste collection rates for

other cities, Kirkland's solid waste rates include two elements: a disposal portion and a service portion. Any change in the Division's rate structure would most likely only affect the disposal portion of the City's solid waste rates, so this analysis assumes that the service portion would remain constant at existing levels for all rate restructure options.

The hypothetical impacts of the rate restructure on curbside rates are generally similar to anticipated impacts at the jurisdiction level. Curbside rates for smaller garbage container sizes would increase at a faster rate for Alternatives #1 and #2 compared to the rates for larger garbage container sizes. The monthly rate for a 10-gallon micro can would increase from $9.11 (status quo) to $10.49 for Alternative #1 and $10.28 for Alternative #2. The monthly rate for a 96-gallon cart would decrease from $77.37 (status quo) to $75.30 for Alternative #1 and increase to $77.49 for Alternative #2. The true-up mechanism for Alternative #3 would hypothetically have a net zero impact on status quo curbside rates.

Exhibit 7.5
Hypothetical Impacts to Single-Family Residential Monthly Rate

Hypothetical Impact to Single-Family Residential Curbside Monthly Rate (2022)

Service Description	Status Quo Disposal Fees	Alternative #1 Accout Fee, Service Volume Fee, and Tipping Fee	Alternative #2 Phased-In Accout Fee and Tipping Fee	Alternative #3 Fixed Annual Charge and Tipping Fee
10 gallon Micro-Can	$ 9.11	$ 10.49	$ 10.28	$ 9.11
20 gallon Garbage Cart	18.21	18.74	19.16	18.21
32/35 gallon Garbage Cart	28.39	27.79	29.06	28.39
60/64-gallon Garbage Cart	51.58	50.94	52.12	51.58
90/96-gallon Garbage Cart	77.37	75.30	77.49	77.37

Hypothetical Impact to Single-Family Residential Curbside Monthly Rate, as a Percent

Service Description	Status Quo Disposal Fees	Alternative #1 Accout Fee, Service Volume Fee, and Tipping Fee	Alternative #2 Phased-In Accout Fee and Tipping Fee	Alternative #3 Fixed Annual Charge and Tipping Fee
10 gallon Micro-Can		15.18%	12.82%	0.00%
20 gallon Garbage Cart		2.93%	5.24%	0.00%
32/35 gallon Garbage Cart		-2.13%	2.36%	0.00%
60/64-gallon Garbage Cart		-1.24%	1.05%	0.00%
90/96-gallon Garbage Cart		-2.67%	0.16%	0.00%

Section VIII. CONCLUSION AND RECOMMENDATIONS

VIII.A. CONCLUSION

The Division's existing rate structure, while common for transfer stations and landfills in the U.S., presents financial sustainability challenges for the utility. The Division's services that are unrelated to disposed tonnage are exclusively supported by a rate structure dependent on disposal tonnage. Disposal tonnage historically fluctuates from year to year in response to economic conditions and resource recovery programs, which creates a funding challenge for disposal services that are generally fixed relative to changes in disposed tons. The region's zero waste of resources goal, including the interim goal of a 70% recycling rate by 2030, is expected to exacerbate these existing financial sustainability challenges.

To develop rate restructure alternatives, FCS GROUP coordinated with the County project team and the Rate Restructure Task Force to:

- Forecast annual financial obligations to fully fund the Division on a standalone basis, considering operating and maintenance expenditures, capital funding needs, and fiscal policy objectives (Revenue Requirement Analysis)
- Estimate the equitable recovery of annual costs from the Division's customer classes according to unique demands each customer class places on the system (Cost of Service Analysis).
- Explored three cost-based rate restructure alternatives for the Division's largest customer class – the commercial solid waste haulers (Rate Design). The three options are revenue-neutral to the existing tipping fee only rate structure.
- Evaluated the impact to annual disposal fees paid by jurisdictions within the system for the three alternatives relative to the status quo structure.

VIII.B. SUMMARY OF RECOMMENDATIONS

While all three rate restructure alternatives comply with cost-of-service rate setting principles, rate design planning oftentimes includes other considerations including the availability of quality data to implement the rate restructure, intraclass cost equity, utility conservation goals, and implementation feasibility. We offer the following recommendations:

- The basis of the rate restructure selected by the Division should reasonably reflect the cost of service for commercial solid waste haulers. We recommend that the Division update the cost of service analysis results every three to five years or as major shifts in programs or services occur.
- We recommend that the Division consider the shifts in disposal fees paid by jurisdictions from a rate restructure as a critical factor for selecting an option. Of the three alternatives considered, the third alternative (fixed annual charge) was designed to minimize potential shifts in disposal fees paid by jurisdictions. This rate alternative establishes a fixed revenue source to the Division.

The true-up mechanism provides annual credit/charge adjustments for individual jurisdictions, so the net change in disposal fee increases from the status quo is zero.

- While disposal fees estimated in this report are expressed on an annual basis, we recommend that the Division establish a billing system for the account fee, service volume fee, and annual fixed charge on a monthly basis. This billing frequency is consistent with the existing frequency for invoicing tipping fees to commercial solid waste haulers.
- The initial cost basis for the fixed account fee (Alternative #1 and Alternative #2) and the fixed annual charge (Alternative #3) is the estimated cost of non-disposal services provided by the Division today. As such, revenue generated from these fees is not designed to recover the cost of future resource recovery programs or the Division's disposal expenses that are generally fixed relative to disposed tonnage (e.g., debt service). We recommend that the Division and its partners consider future adjustments to these fixed fees as disposed tonnage decreases in response to the region's advancement towards zero waste of resources.
- We recommend at least a nine-month lead time between the County decision to create the rate structure and the first payments under the new structure. During this time, the Division would routinely collect and review required billing data to administer the rate restructure, coordinate the rate structure changes with cities, commercial solid waste haulers, the WUTC, and other stakeholders, and test the revenue that would be generated from the new rate structure.
- If an account fee is implemented, we recommend that the Division phase-in the fee over two to four years to mitigate the shifts in disposal fees between jurisdictions. This recommendation is consistent with the general feedback received from the Rate Restructure Task Force.
- We recommend that the implementation of a rate restructure option which includes a service volume fee component be delayed within the short-term (1 to 2 years) due to the lack of administrative processes to gather, aggregate, and report solid waste collection service volume data.
  - The Division would need to develop and test a data management program to bill commercial solid waste haulers based on service volume prior to implementation.
- A fixed annual charge (Alternative #3) requires that the Division rely on tonnage data for each jurisdiction when setting individual cost shares for each commercial solid waste hauler and jurisdiction. While this data is already transmitted to the Division by solid waste haulers, FCS GROUP identified several anomalies in the tonnage data from 2015 to 2020 – particularly for smaller jurisdictions. We recommend the Division establish quality control tests for the tonnage data and follow-up with commercial solid waste haulers as needed to ensure the annual tonnage data is accurate prior to setting the annual fixed charge.
  - Unlike the first other alternatives, the fixed annual charge for Alternative #3 is not based on a rate per account or service unit. As such, revenue from the fixed annual charge would not automatically increase in response to future increases to population or garbage collection service levels. FCS GROUP recommends that the Division increase the fixed annual charge revenue target by a recognized index of cost inflation in between updates to the cost of service analysis.
  - We recommend that true-up payments or credits resulting from the fixed annual disposal charge in a given year be included in following year's fixed annual disposal charge for each jurisdiction.

- The results of the rate restructure study are based on the Division's revenue requirement in 2022 as published in the 2022 Rate Proposal. We recommend that the County update the analysis as part of the 2023 rate setting process to account for changes in operating and capital expenditures, disposal tonnage, and available financial reserves.

Section IX. TECHNICAL APPENDICES

Note: A test year is a period for which the utility's cost of service was reviewed. The test year for the cost of service and rate restructure analyses is the projected revenue requirement for 2022 as published within the Division's 2022 Rate Proposal.

Annual Financial Summary, 2021 to 2026

Fund Activity Summary	2021	2022	2023	2024	2025	2026
Beginning Fund Balance	$ 47,548,326	$ 48,312,122	$ 48,874,451	$ 45,070,050	$ 42,317,506	$ 35,833,588
Revenues						
Rate Revenues Under Existing Rates	$ 125,065,465	$ 127,535,199	$ 129,384,624	$ 130,111,996	$ 130,801,908	$ 130,907,111
Rate Revenues from Rate Adjustments	(26,240)	12,235,980	25,921,615	40,035,065	55,968,392	72,670,559
Non-Rate Revenues	28,840,556	12,856,013	14,062,939	14,288,110	14,531,966	14,805,598
Total Revenues	**$ 153,879,781**	**$ 152,627,192**	**$ 169,369,179**	**$ 184,435,172**	**$ 201,302,266**	**$ 218,383,268**
Expenses						
SWD Operating Expenditures	$ 121,650,019	$ 117,518,631	$ 126,881,164	$ 132,669,562	$ 146,568,171	$ 151,057,776
Landfill Reserve Fund	12,381,966	12,970,790	13,811,428	13,056,808	12,411,964	11,866,757
Capital Equipment Recovery Program	3,373,524	3,373,524	8,000,000	8,000,000	8,000,000	8,000,000
Construction Fund	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Debt Service	13,710,477	16,201,918	22,480,989	31,461,346	38,806,049	44,933,226
Total Expenditures	**$ 153,115,985**	**$ 152,064,863**	**$ 173,173,580**	**$ 187,187,716**	**$ 207,786,185**	**$ 217,857,760**
Ending Fund Balance	**$ 48,312,122**	**$ 48,874,451**	**$ 45,070,050**	**$ 42,317,506**	**$ 35,833,588**	**$ 36,359,096**
Information: Annual Cash Surplus / (Deficit)	$ 763,796	$ 562,329	$ (3,804,401)	$ (2,752,544)	$ (6,483,919)	$ 525,508

Key Economic and Financial Assumptions

Economic & Financial Factors	2021	2022	2023	2024	2025	2026
General Inflation Forecast (Seattle CPI-U (Aug20))	2.29%	2.74%	2.56%	2.81%	2.76%	2.64%
Transfer Station General Inflation	3.78%	3.79%	3.39%	3.02%	2.97%	2.69%
General Inflation + Transfer Tonnage	5.00%	4.64%	4.06%	3.20%	3.14%	2.72%
General Inflation + Disposed Tonnage	3.57%	5.01%	3.98%	3.17%	3.12%	2.72%
Rate Revenue Before Increases	1.05%	1.97%	1.45%	0.56%	0.53%	0.08%
Capital Project $ Inflation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
[Extra]	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
No Escalation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Tonnage, Transaction, and Account Forecast	2021	2022	2023	2024	2025	2026
Tonnage/Transaction Forecast:						
Transfer Station Tons	**835,226**	**850,700**	**863,099**	**866,339**	**869,579**	**870,265**
Tons as Commercial	76.82%	76.82%	76.82%	76.82%	76.82%	76.82%
Tons as Self-Haul	17.67%	17.79%	17.79%	17.79%	17.79%	17.79%
Tons as Self-Haul Minimum	5.51%	5.39%	5.39%	5.39%	5.39%	5.39%
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Transfer Station Transactions	**787,775**	**784,780**	**796,218**	**799,207**	**802,196**	**802,829**
Transactions as Commercial	13.04%	13.04%	13.04%	13.04%	13.04%	13.04%
Transactions as Self-Haul	50.44%	50.00%	50.44%	50.44%	50.44%	50.44%
Transactions as Self-Haul Minimum	36.52%	36.96%	36.52%	36.52%	36.52%	36.52%
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
		-				

Landfill Reserve Transfer and Capacity	2021	2022	2023	2024	2025	2026
Baseline LRF Transfer Rate ($ per ton)	$ 14.07	$ 14.42	$ 15.15	$ 14.27	$ 13.52	$ 12.91
Landfill Reserve Transfer	$ 12,381,966	$ 12,970,790	$ 13,811,428	$ 13,056,808	$ 12,411,964	$ 11,866,757

Other Transfers and Cedar Hills Rent	2021	2022	2023	2024	2025	2026
Cedar Hills Rent Expense	$ 3,458,000	$ 3,458,000	$ 3,250,000	$ 3,299,000	$ 3,287,583	$ 3,374,414
Transfer to CERP	3,373,524	3,373,524	8,000,000	8,000,000	8,000,000	8,000,000
Transfer to Construction Fund	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000

Other Factors						
Investment Interest	0.75%	0.55%	0.55%	0.58%	0.65%	0.74%
Public Health Transfer Rate ($ per disposed ton)	$ 1.11	$ 1.11	$ 1.14	$ 1.14	$ 1.18	$ 1.18
State Business and Occupation Tax Rate	1.75%	1.75%	1.75%	1.75%	1.75%	1.75%
Budget Realization Factor	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Capital Realization Factor	85.00%	85.00%	85.00%	85.00%	85.00%	85.00%

2021 to 2026 Tonnage Forecast

Tonnage	Class of Service	Disposed Waste?	2021	2022	2023	2024	2025	2026
Transfer Station Waste		Yes						
Transfer Station (Commercial)	Transfer Station (Commercial)	Yes	641,621	653,508	663,033	665,522	668,011	668,538
Transfer Station (Self-Haul)	Transfer Station (Self-Haul)	Yes	147,567	151,329	153,535	154,111	154,687	154,809
Transfer Station (Self-Haul Minimum)	Transfer Station (Self-Haul Minimum)	Yes	46,038	45,863	46,531	46,706	46,880	46,917
Appliances	Appliances	No	848	886	916	946	976	1,006
Cedar Hills - Other	Transfer Station (Self-Haul)	Yes	-	-	-	-	-	-
LIFT Discounts	Transfer Station (Self-Haul Minimum)	Yes	-	-	-	-	-	-
Mattresses	Transfer Station (Self-Haul)	No	-	275	284	294	303	312
Other Waste	Transfer Station (Self-Haul)	Yes	20,000	19,000	19,000	19,000	19,000	19,000
Recycling	Transfer Station (Self-Haul Minimum)	No	-	-	-	-	-	-
Regional Direct	Regional Direct	Yes	18,300	18,300	18,300	18,300	18,300	18,300
Special Waste	Special Waste	Yes	1,500	1,500	1,500	1,500	1,500	1,500
Yard Waste	Yard Waste	No	25,000	25,700	28,000	31,000	34,000	34,000
HHW	Transfer Station (Self-Haul Minimum)	No	-	-	-	-	-	-
Unsecured Load	Transfer Station (Self-Haul)	No	-	-	-	-	-	-
CF Drop Box	Transfer Station (Self-Haul)	Yes	-	-	-	-	-	-
Other Waste Non-Billable	Transfer Station (Self-Haul)	Yes	5,000	10,000	10,000	10,000	10,000	10,000
[Extra]	[Extra]	No	-	-	-	-	-	-
Total			**905,874**	**926,361**	**941,099**	**947,378**	**953,658**	**954,383**
Disposed Tonnage			*880,026*	*899,500*	*911,899*	*915,139*	*918,379*	*919,065*

2021 to 2026 Transaction Forecast

Transactions	Class of Service	2021	2022	2023	2024	2025	2026
Transfer Station Waste							
Transfer Station (Commercial)	Transfer Station (Commercial)	102,693	102,302	103,793	104,183	104,573	104,655
Transfer Station (Self-Haul)	Transfer Station (Self-Haul)	397,348	392,390	401,606	403,114	404,622	404,941
Transfer Station (Self-Haul Minimum)	Transfer Station (Self-Haul Minimum)	287,735	290,088	290,818	291,910	293,002	293,233
Appliances	Appliances	11,310	11,810	12,210	12,610	13,010	13,410
Cedar Hills - Other	Transfer Station (Self-Haul)	-	-	-	-	-	-
LIFT Discounts	Transfer Station (Self-Haul Minimum)	10,000	10,115	10,225	10,331	10,434	10,541
Mattresses	Transfer Station (Self-Haul)	-	10,000	10,339	10,677	11,016	11,355
Other Waste	Transfer Station (Self-Haul)	-	-	-	-	-	-
Recycling	Transfer Station (Self-Haul Minimum)	45,565	46,020	46,481	46,945	47,415	47,889
Regional Direct	Regional Direct	496	441	441	441	441	441
Special Waste	Special Waste	3,810	3,850	3,890	3,930	3,970	4,010
Yard Waste	Yard Waste	73,970	74,680	75,390	76,110	76,840	77,570
HHW	Transfer Station (Self-Haul Minimum)	10,587	10,692	10,799	10,907	11,016	11,127
Unsecured Load	Transfer Station (Self-Haul)	2,500	2,000	1,500	2,500	2,000	1,500
CF Drop Box	Transfer Station (Self-Haul)	1,180	1,190	1,200	1,210	1,220	1,230
Other Waste Non-Billable	Transfer Station (Self-Haul)	-	-	-	-	-	-
[Extra]	[Extra]	-	-	-	-	-	-
Total		**947,192**	**955,579**	**968,693**	**974,869**	**979,558**	**981,901**

2021 to 2026 Operating Expense Forecast Including Cost Adjustments

COST CENTER	COST CENTER DESCRIPTION	ACCOUNT	ACCOUNT DESCRIPTION	FORECAST BASIS	2021	2022	PROJECTION 2023	PROJECTION 2024	PROJECTION 2025	PROJECTION 2026
ALL		53893	B AND O TAX	Calculated	$ 2,188,646	$ 2,231,866	$ 2,264,231	$ 2,276,960	$ 2,289,033	$ 2,290,874
720002	C&D Program			General Inflation Forecast	$ 646,591	$ 654,142	$ 670,920	$ 689,767	$ 708,780	$ 727,501
720100	Shop Operations			General Inflation Forecast	10,383,049	9,222,715	9,459,263	9,724,994	9,993,059	10,256,993
720101	Transfer Station			General Inflation Forecast	12,198,204	12,731,730	13,058,279	13,425,113	13,795,171	14,159,525
720102	Transportation			General Inflation Forecast	9,888,358	10,115,710	10,375,162	10,666,622	10,960,643	11,250,133
720103	Disposal Operations			General Inflation Forecast	6,370,451	6,486,635	6,991,406	7,558,108	8,171,679	8,832,686
720105	Legal Support			General Inflation Forecast	750,000	750,000	769,236	790,846	812,645	834,108
720106	Operations Management			General Inflation Forecast	1,608,011	1,632,997	1,674,881	1,721,932	1,769,396	1,816,129
720107	LF Gas Water Control			General Inflation Forecast	4,208,874	4,257,638	4,366,840	4,489,513	4,613,265	4,735,109
720108	Customer Transactions			General Inflation Forecast	4,203,426	4,313,767	4,424,408	4,548,699	4,674,082	4,797,533
720109	Stores			General Inflation Forecast	6,303,134	6,325,951	6,488,202	6,670,469	6,854,337	7,035,372
720120	SW Directors Office			General Inflation Forecast	1,087,494	1,112,253	1,140,781	1,172,827	1,205,156	1,236,986
720121	Fund Management			General Inflation Forecast	15,516,641	15,723,657	16,126,944	16,579,984	17,037,004	17,486,981
720122	RES			General Inflation Forecast	12,443,004	12,535,404	12,856,917	13,218,095	13,582,446	13,941,182
720123	Moderate Risk Waste			General Inflation Forecast	4,777,726	4,803,539	4,926,742	5,065,145	5,204,763	5,342,230
720124	Facility Engineering & Science			General Inflation Forecast	4,924,525	4,999,878	5,128,117	5,272,177	5,417,502	5,560,588
720125	Envir Monitor Compliance			General Inflation Forecast	200,016	(222,750)	(228,463)	(234,881)	(241,356)	(247,730)
720126	Enterprise Services			General Inflation Forecast	3,564,105	3,637,944	3,731,252	3,836,070	3,941,810	4,045,920
720127	Contract Management			General Inflation Forecast	597,543	611,940	627,635	645,267	663,053	680,566
720128	Project Management			General Inflation Forecast	475,201	381,067	390,841	401,820	412,896	423,802
720129	Human Resources			General Inflation Forecast	1,881,071	1,927,681	1,977,123	2,032,665	2,088,694	2,143,860
720130	Strategy, Communications & Performance			General Inflation Forecast	3,681,964	3,748,356	3,844,495	3,952,495	4,061,444	4,168,714
720131	CAMP			General Inflation Forecast	2,923,521	2,923,521	2,998,505	3,082,739	3,167,713	3,251,378
[Extra]	[Extra]			No Escalation	-	-	-	-	-	-
[Extra]	[Extra]			No Escalation	-	-	-	-	-	-
Object Code Specific Expenses										
720103	Disposal Operations	55280	Public Health Transfer	See Assumptions tab	981,197	1,002,910	1,042,812	1,046,517	1,079,171	1,079,977
720103	Disposal Operations	55710	Cedar Hills Rent	See Assumptions tab	3,458,000	3,458,000	3,250,000	3,299,000	3,287,583	3,374,414
720121	Fund Management	58091	Transfer to Landfill Reserve Fund	See Assumptions tab	12,381,966	12,970,790	13,811,428	13,056,808	12,411,964	11,866,757
720121	Fund Management	58081	Transfer to CERP Fund	See Assumptions tab	3,373,524	3,373,524	8,000,000	8,000,000	8,000,000	8,000,000
720121	Fund Management	58032	Transfer to Construction Fund	See Assumptions tab	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
720121	Fund Management	55252	CHRLF Environmental Liability Policy	General Inflation Forecast	910,238	910,238	933,584	959,811	986,267	1,012,316
720121	Fund Management	58999	Transfer to PCM	General Inflation Forecast	2,043,756	2,043,756	2,096,175	2,155,061	2,214,464	2,272,952
720122	RES	53105	RES Contract Services	General Inflation Forecast	2,944,267	2,944,267	3,019,783	3,104,615	3,190,192	3,274,451
[Extra]	[Extra]	[Extra]	[Extra]	No Escalation	-	-	-	-	-	-
[Extra]	[Extra]	[Extra]	[Extra]	No Escalation	-	-	-	-	-	-
Personnel/Non-Personnel Cost Changes										
	PERSONNEL COST CHANGES			*See "O&M Changes" tab*	$ -	$ -	$ -	$ -	$ -	$ -
	NON-PERSONNEL COST CHANGES			*See "O&M Changes" tab*	184,477	(4,795,479)	983,423	3,606,691	14,073,214	15,018,813
	Budget Realization Adjustment				-	-	-	-	-	-
	TOTAL EXPENSES				**$ 139,098,980**	**$ 134,813,647**	**$ 149,200,920**	**$ 154,815,930**	**$ 168,426,071**	**$ 172,670,121**

2021-2026 Capital Improvement Program Schedule

CIP Number	Description	2021	2022	2023	2024	2025	2026
	Solid Waste Capital Improvement Program						
1033497	SW SOUTH COUNTY RECYCLING & TS	$ 16,767,984	$ 37,099,064	$ 43,034,749	$ 33,513,615	$ 819,968	$ 633,425
1033498	SW NORTHEAST RECYCLING & TS	3,060,605	2,846,634	39,841,730	5,581,378	12,180,532	42,269,012
1033503	SW HARBOR IS SAFETY IMPROVMNTS	-	-	-	-	-	-
1033504	SW FUND 3901 CONTRACT AUDIT	-	-	-	-	-	-
1033505	SW FAC CAPITAL PROJ CNTRL SPRT	175,832	181,107	186,540	192,136	197,900	203,837
1033506	SW BOW LAKE RECYCLING & TS	-	-	-	-	-	-
1033507	SW CONSTR CIP OVERSIGHT	15,210	15,210	6,413	6,413	-	-
1048385	SW FACTORIA RECYCLING and TS	650,000	-	-	-	-	-
1112396	SW TS Scada Master Plan - 3901	-	-	-	-	-	-
1116833	SW CEDAR FALL ENV CNTRL SYS MOD	380,000	334,647	336,730	290,338	292,520	-
1116838	SW ENUMCLAW ENV CNTRL SYS MOD	420,200	317,182	181,976	180,472	184,386	169,955
1116840	SW VASHON ENV CONTROL SYS MOD	2,656,780	2,299,788	2,247,238	1,591,598	1,562,199	1,420,819
1124104	SW HOBART LF COVER & GAS CNTRL	1,212,280	1,205,249	3,496,130	2,616,609	818,091	829,234
1124107	SW ALGONA TS DECONSTRUCTION	-	21,322	280,011	1,713,759	32,460	-
1129849	SW DUVALL ENV CTRLS	1,005,462	1,293,143	1,052,587	1,008,515	793,881	977,139
1129850	SW HARBOR IS DOCK DEMO	2,860,866	3,886,716	1,161,288	-	-	-
1129851	SW PC PUY/KIT CNR ENV CTRL SYS	955,701	1,026,458	1,023,622	987,019	736,963	777,147
1129852	SW PC HOUGHTON ENV CTRL SYS	1,050,656	1,251,356	916,256	943,744	909,505	988,350
1133918	SW FACILITIES RELOCATION	2,987,500	10,458,979	4,887,795	26,308,124	39,179,521	6,716,424
1135055	SW ENUM & VASH TS SOLAR EFFNCY	649,915	-	-	-	-	-
1137091	SWD CLOSED LANDFILL COVER BIOF	224,000	264,298	105,453	74,305	-	-
1138569	SW BOW LAKE SOUTH PROCESSING AREA	375,000	2,291,750	53,045	-	-	-
1138570	SW SHORELINE TRS DUST CONTROL	650,000	1,905,500	-	-	-	-
1138571	SW SOLID WASTE DIVISION CAMERA SYSTEM UPGRAI	299,500	282,735	-	-	-	-
1138573	SW SCADA IMPROVEMENTS 3901	117,500	100,425	-	-	-	-
1138574	SW BOW LAKE HILL STABILIZATION	90,000	318,270	1,061	-	-	-
[Extra]	[Extra]	-	-	-	-	-	-
[Extra]	**Cedar Hills Capital Projects**	-	-	-	-	-	-
1129848	SW CH AREA 5 TOP DECK	-	-	40,771	1,352,239	6,253,415	-
1133921	SW CHRLF LEACHATE LAGOONS	3,586,710	13,914,929	12,066,307	66,429	-	-
1133923	SW CHRLF AREA 9 NAD	3,861,701	7,338,740	22,450,573	27,726,928	23,514,135	5,253,441
1138567	SW CEDAR HILLS MAJOR ASSET REHABILITATION	234,069	788,909	1,742,907	1,404,935	1,431,004	927,419
1138575	SW IMPOUNDMENTS AND CONVEYANCE SYSTEMS COI	300,000	721,000	4,721,005	5,518,271	-	-
[Extra]	[Extra]	-	-	-	-	-	-
[Extra]	[Extra]	-	-	-	-	-	-
[Extra]	[Extra]	-	-	-	-	-	-
	Capital Accomplishment Adjustment	(6,688,121)	(13,524,512)	(20,975,128)	(16,661,524)	(13,335,972)	(9,174,930)
	Dashboard Adjustment to Capital Spending	-	-	-	-	-	-
	Total Capital Projects	**$ 37,899,351**	**$ 76,638,899**	**$118,859,058**	**$ 94,415,301**	**$ 75,570,507**	**$ 51,991,271**

Functional Allocation of Test Year Revenue Requirement

Allocation of Operating & Maintenance Expenses

Test Year =>				2022													
OPERATING & MAINTENANCE EXPENSE					FUNCTIONS OF SOLID WASTE SERVICE												
Cost Center	Cost Center Description	Account	Account Description	TOTAL COSTS	Scalehouse	Transfer	Transport	Disposal	Recycling	Yard/Wood Waste	Zero Waste of Resources	Regional Planning	MRW	Regulatory Compliance	All Other	TOTAL	ALLOCATION BASIS
ALL		53893	B AND O TAX	$ 2,231,866	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,231,866	$ 2,231,866	All Other
																	N/A
720002	C&D Program			$ 654,142	$ -	$ -	$ -	$ -	$ 654,142	$ -	$ -	$ -	$ -	$ -	$ -	$ 654,142	Recycling
720100	Shop Operations			9,222,715	107,563	6,454,400	764,689	1,865,664	29,436	963	-	-	-	-	-	9,222,715	Fixed Assets
720101	Transfer Station			12,731,730	-	12,731,730	-	-	-	-	-	-	-	-	-	12,731,730	Transfer
720102	Transportation			10,115,710	-	-	9,436,297	150,981	-	452,942	-	-	-	75,490	-	10,115,710	Transportation Operators
720103	Disposal Operations			6,486,635	-	-	-	6,486,635	-	-	-	-	-	-	-	6,486,635	Disposal
720105	Legal Support			750,000	-	-	-	-	-	-	-	-	-	-	750,000	750,000	All Other
720106	Operations Management			1,632,997	299,632	569,302	501,884	262,178	-	-	-	-	-	-	-	1,632,997	Operations Staffing
720107	LF Gas Water Control			4,257,638	-	-	-	-	-	-	-	-	-	4,257,638	-	4,257,638	Regulatory Compliance
720108	Customer Transactions			4,313,767	4,313,767	-	-	-	-	-	-	-	-	-	-	4,313,767	Scalehouse
720109	Stores			6,325,951	73,778	4,427,136	524,508	1,279,677	20,190	661	-	-	-	-	-	6,325,951	Fixed Assets
720120	SW Directors Office			1,112,253	-	-	-	-	-	-	-	-	-	-	1,112,253	1,112,253	All Other
720121	Fund Management			15,723,657	183,382	11,004,001	1,303,707	3,180,740	50,185	1,642	-	-	-	-	-	15,723,657	Fixed Assets
720122	RES			12,535,404	-	-	-	-	648,383	-	11,887,021	-	-	-	-	12,535,404	RES FTEs
720123	Moderate Risk Waste			4,803,539	-	-	-	-	-	-	-	-	4,803,539	-	-	4,803,539	MRW
720124	Facility Engineering & Science			4,999,878	-	1,249,970	-	312,492	-	-	-	-	-	3,281,170	156,246	4,999,878	FESU FTEs
720125	Envir Monitor Compliance			(222,750)	-	-	-	-	-	-	-	-	-	(222,750)	-	(222,750)	Regulatory Compliance
720126	Enterprise Services			3,637,944	-	-	-	-	-	-	-	-	-	-	3,637,944	3,637,944	All Other
720127	Contract Management			611,940	-	-	-	-	-	-	-	-	-	-	611,940	611,940	All Other
720128	Project Management			381,067	4,444	266,685	31,596	77,086	1,216	40	-	-	-	-	-	381,067	Fixed Assets
720129	Human Resources			1,927,681	-	-	-	-	-	-	-	-	-	-	1,927,681	1,927,681	All Other
720130	Strategy, Communications & Performance			3,748,356	-	-	-	-	-	-	-	3,748,356	-	-	-	3,748,356	Regional Planning
720131	CAMP			2,923,521	-	2,923,521	-	-	-	-	-	-	-	-	-	2,923,521	Transfer
[Extra]	[Extra]			-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
[Extra]	[Extra]			-												-	N/A
																	N/A
Object Code Specific E																	N/A
720103	Disposal Operations	55280	Public Health Transfer	$ 1,002,910	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,002,910	$ 1,002,910	All Other
720103	Disposal Operations	55710	Cedar Hills Rent	3,458,000	-	-	-	3,458,000	-	-	-	-	-	-	-	3,458,000	Disposal
720121	Fund Management	58091	Transfer to Landfill Reserve Fund	12,970,790	-	-	-	12,970,790	-	-	-	-	-	-	-	12,970,790	Disposal
720121	Fund Management	58081	Transfer to CERP Fund	3,373,524	39,345	2,360,918	279,711	682,431	10,767	352	-	-	-	-	-	3,373,524	Fixed Assets
720121	Fund Management	58032	Transfer to Construction Fund	2,000,000	23,326	1,399,675	165,827	404,580	6,383	209	-	-	-	-	-	2,000,000	Fixed Assets
720121	Fund Management	55252	CHRLF Environmental Liability Policy	910,238	-	-	-	-	-	-	-	-	-	910,238	-	910,238	Regulatory Compliance
720121	Fund Management	58999	Transfer to PCM	2,043,756	-	-	-	-	-	-	-	-	-	2,043,756	-	2,043,756	Regulatory Compliance
720122	RES	53105	RES Contract Services	2,944,267	-	-	-	-	1,177,707	1,766,560	-	-	-	-	-	2,944,267	RES Contractual Professional Services
[Extra]	[Extra]	[Extra]	[Extra]	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
[Extra]	[Extra]	[Extra]	[Extra]	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
																	N/A
Personnel/Non-Personn																	N/A
	PERSONNEL COST CHANGES			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	Personnel Cost Changes
	NON-PERSONNEL COST CHANGES			(4,795,479)	(678,958)	(1,819,643)	(1,190,186)	(754,511)	(2,666)	(87)	-	-	-	-	(349,428)	(4,795,479)	Non-Personnel Cost Changes
																	N/A
	Budget Realization Adjustment			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	N/A
																	N/A
Total Operating and Maintenance Expenses Before Allocation of As All Other				**$ 134,813,647**	**$ 4,366,279**	**$ 41,567,694**	**$ 11,818,034**	**$ 30,376,744**	**$ 2,595,744**	**$ 2,223,282**	**$ 11,887,021**	**$ 3,748,356**	**$ 4,803,539**	**$ 10,345,542**	**$ 11,081,412**	##########	
As a Percent					3.24%	30.83%	8.77%	22.53%	1.93%	1.65%	8.82%	2.78%	3.56%	7.67%	8.22%	100.00%	
Allocation of "As All Other"					$ 391,042	$ 3,722,787	$ 1,058,419	$ 2,720,530	$ 232,474	$ 199,116	$ 1,064,597	$ 335,701	$ 430,203	$ 926,543	$(11,081,412)	$ -	
Total Operating & Maintenance Expenses				**$ 134,813,647**	**$ 4,757,322**	**$ 45,290,481**	**$ 12,876,452**	**$ 33,097,274**	**$ 2,828,218**	**$ 2,422,398**	**$ 12,951,618**	**$ 4,084,057**	**$ 5,233,742**	**$ 11,272,085**	**$ -**	##########	
As a Percent					3.53%	33.59%	9.55%	24.55%	2.10%	1.80%	9.61%	3.03%	3.88%	8.36%	0.00%	100.00%	

Functional Allocation of Test Year Revenue Requirement (continued)

Allocation of Revenue Requirement

REVENUE REQUIREMENT				2022 TOTAL COSTS	FUNCTIONS OF SOLID WASTE SERVICE: Scalehouse	Transfer	Transport	Disposal	Recycling	Yard/Wood Waste	Zero Waste of Resources	Regional Planning	MRW	Regulatory Compliance	All Other	TOTAL	ALLOCATION BASIS
OPERATING AND CAPITAL EXPENSES																	
Cash Operating Expenses				$ 134,813,647	$ 4,757,322	$ 45,290,481	$ 12,876,452	$ 33,097,274	$ 2,828,218	$ 2,422,398	$ 12,951,618	$ 4,084,057	$ 5,233,742	$ 11,272,085	-	##########	Operating & Maintenance Expenses
Existing Debt Service				13,351,296	155,714	9,343,735	1,107,005	2,700,835	42,613	1,394	-	-	-	-	-	13,351,296	Fixed Assets
New Debt Service				3,685,790	42,987	2,579,454	305,603	745,599	11,764	385	-	-	-	-	-	3,685,790	Fixed Assets
Total Expenses				**$ 151,850,733**	**$ 4,956,022**	**$ 57,213,669**	**$ 14,289,060**	**$ 36,543,708**	**$ 2,882,594**	**$ 2,424,177**	**$ 12,951,618**	**$ 4,084,057**	**$ 5,233,742**	**$ 11,272,085**	**$ -**	##########	
As a Percent					3.26%	37.68%	9.41%	24.07%	1.90%	1.60%	8.53%	2.69%	3.45%	7.42%	0.00%	100.00%	
OTHER REVENUES AND ADJUSTMENTS																	
Less:																	
720002	RECYCLINGANDENVIRONMENT SVC	34376	C&D Tipping Fees (RES)	$ (641,309)	$ -	$ -	$ -	$ -	$ (641,309)	$ -	$ -	$ -	$ -	$ -	$ -	$ (641,309)	Recycling
720101	SW TRANSFER STATION	36250	Transfer Station Properties	(31,800)	-	(31,800)	-	-	-	-	-	-	-	-	-	(31,800)	Transfer
720120	SW DIRECTORS OFFICE	36111	Interest Earnings	(278,772)	(9,098)	(105,035)	(26,232)	(67,088)	(5,292)	(4,450)	(23,777)	(7,498)	(9,608)	(20,694)	-	(278,772)	Total Expenses
720121	SW FUND MANAGEMENT	39512	Sale of Real Property	-	-	-	-	-	-	-	-	-	-	-	-	-	Total Expenses
720122	SW RECYC AND ENVIRON SVC	33430	RES DOE Grants	(259,945)	-	-	-	-	(259,945)	-	-	-	-	-	-	(259,945)	Recycling
720122	SW RECYC AND ENVIRON SVC	34378	Residential Recycling Account	(160,000)	-	-	-	-	(160,000)	-	-	-	-	-	-	(160,000)	Recycling
720122	SW RECYC AND ENVIRON SVC	45145	Recycle Material Proceeds	(518,510)	-	-	-	-	(518,510)	-	-	-	-	-	-	(518,510)	Recycling
720123	SW MOD RISK WASTE	34374	Moderate Risk Waste Reimbursement	(4,803,539)	-	-	-	-	-	-	-	-	(4,803,539)	-	-	(4,803,539)	MRW
720124	SW FACILITY ENGINEERING AND SC	34330	Landfill Gas	(2,150,000)	-	-	-	(2,150,000)	-	-	-	-	-	-	-	(2,150,000)	Disposal
720124	SW FACILITY ENGINEERING AND SC	36240	Facility Rental Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
720124	SW FACILITY ENGINEERING AND SC	36250	Facility Rental Revenue	(3,139,919)	(102,479)	(1,183,045)	(295,464)	(755,639)	(59,605)	(50,126)	(267,809)	(84,449)	(108,222)	(233,080)	-	(3,139,919)	Total Expenses
720124	SW FACILITY ENGINEERING AND SC	36999	Other Misc Operating Revenue	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
720126	SW ENTERPRISE SERVICES	36999	Other Misc Operating Revenue	(779,219)	(25,432)	(293,591)	(73,324)	(187,523)	(14,792)	(12,440)	(66,461)	(20,957)	(26,857)	(57,842)	-	(779,219)	Total Expenses
720130	SW STRATEGY COMMUNICATION A	33430	SCP DOE Grants	(93,000)	(3,035)	(35,040)	(8,751)	(22,381)	(1,765)	(1,485)	(7,932)	(2,501)	(3,205)	(6,904)	-	(93,000)	Total Expenses
[Extra]	[Extra]	[Extra]	[Extra]	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
[Extra]	[Extra]	[Extra]	[Extra]	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A
Plus:																	
Additional Taxes Due to Revenue Increases				214,130	6,989	80,679	20,149	51,531	4,065	3,418	18,263	5,759	7,380	15,895	-	214,130	Total Expenses
Net Cash Flow After Revenue Increase				562,329	18,353	211,872	52,915	135,328	10,675	8,977	47,962	15,124	19,381	41,742	-	562,329	Total Expenses
Adjustment for Partial Year Increase				-	-	-	-	-	-	-	-	-	-	-	-	-	Total Expenses
Total Revenue Requirement Before Allocation of As All Other				**$ 139,771,179**	**$ 4,841,319**	**$ 55,857,709**	**$ 13,958,352**	**$ 33,547,936**	**$ 1,236,115**	**$ 2,368,072**	**$ 12,651,864**	**$ 3,989,535**	**$ 309,073**	**$ 11,011,203**	**$ -**	##########	
As a Percent					3.46%	39.96%	9.99%	24.00%	0.88%	1.69%	9.05%	2.85%	0.22%	7.88%	0.00%	100.00%	
Allocation of "As All Other"					$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ -**	
Total Revenue Requirement				**$ 139,771,179**	**$ 4,841,319**	**$ 55,857,709**	**$ 13,958,352**	**$ 33,547,936**	**$ 1,236,115**	**$ 2,368,072**	**$ 12,651,864**	**$ 3,989,535**	**$ 309,073**	**$ 11,011,203**	**$ -**	##########	
As a Percent					3.46%	39.96%	9.99%	24.00%	0.88%	1.69%	9.05%	2.85%	0.22%	7.88%	0.00%	**100.00%**	

Allocation of Test Year Revenue Requirement to Customer Classes of Service

Customer Class	Scalehouse	Transfer	Transport	Disposal	Recycling	Yard/Wood Waste	Zero Waste of Resources	Regional Planning	MRW	Regulatory Compliance	Total
Transfer Station (Commercial)	$ 281,438	$ 41,973,398	$ 10,348,452	$ 24,357,815	$ -	$ -	$ 8,925,357	$ 2,814,449	$ 224,480	$ 7,997,460	**$ 96,922,849**
Transfer Station (Self-Haul)	2,167,405	11,599,795	2,859,905	6,731,541	-	-	2,466,617	777,803	62,037	2,210,183	**28,875,288**
Transfer Station (Self-Haul Minimum)	1,907,346	1,373,000	726,243	1,709,404	879,825	-	626,372	197,515	15,754	561,253	**7,996,711**
Regional Direct	2,357	-	-	682,085	-	-	249,934	78,812	6,286	223,950	**1,243,424**
Special Waste	20,574	115,610	23,753	67,090	-	-	20,486	6,460	515	18,357	**272,846**
Yard Waste	399,087	769,389	-	-	-	2,368,072	351,000	110,682	-	-	**3,998,230**
Appliances	63,112	26,517	-	-	356,291	-	12,097	3,815	-	-	**461,832**
[Extra]	-	-	-	-	-	-	-	-	-	-	**-**
Total	**4,841,319**	**55,857,709**	**13,958,352**	**33,547,936**	**1,236,115**	**2,368,072**	**12,651,864**	**3,989,535**	**309,073**	**11,011,203**	**139,771,179**

Appendix E: Advisory Committee Members

Metropolitan Solid Waste Advisory Committee (MSWAC)	
Name	**City/Organization**
Aaron Moldver	Redmond
Jenna McInnis	Kirkland
John MacGillivray	Kirkland
Linda Knight	Renton
Rob Van Orsow	Federal Way
Penny Sweet	Kirkland
Toby Nixon	Kirkland
Tony Donati	Kent
Cameron Reed	Shoreline
Mason Giem	SeaTac
Joan Nelson	Auburn
Jon Gire	Bellevue
Emily Warnock	Bothell
Robin Tischmak	Burien
Steve Friedman	Clyde Hill
Chris Searcy	Enumclaw
Micah Bonkowski	Redmond
Amy Shaw	Maple Valley
Jeff Brauns	Newcastle
Cameron Reed	Shoreline
Diana Hart	Woodinville
Jason Rogers	Snoqualmie
Audrie Starsy	Sammamish
Phillippa Kassover	Lake Forest Park
Earnest Thompson	Normandy Park
Jason Kitner	Mercer Island
David Baker	Kenmore
Julie Wartes	Issaquah
Laura Techico	Des Moines
Don Vondran	Covington
David Hill	Algona
Seth Boettcher	Black Diamond

Solid Waste Advisory Committee (SWAC)	
Name	**City/Organization**
April Atwood	Seattle University
Karen Dawson	Cedar Grove
Heather Trim	Zero Waste Washington
Kenneth Marshall	Teamsters 174
Penny Sweet	City of Kirkland
Phillippa Kassover	City of Lake Forest Park
Gib Dammann	Zero Waste Vashon
Taylor Atkinson	Interested Resident
Leah Tischler	SBM Management Services
James Borsum	Teamsters 117
William Louie	Interested Resident
Robin Freedman	Waste Management
Wendy Weiker	Republic Services
Lee Momon	Interested Resident