EXHIBIT A

Seattle Public Utilities

2020-2022

Solid Waste Rate Study

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PREFACE - STRATEGIC BUSINESS PLAN COMPARISON

Seattle City Council Resolution 31760, passed November 13, 2017, adopted a six-year Strategic Business Plan (SBP) for Seattle Public Utilities (SPU) which guides utility investments, service levels, and rate paths through 2023. While not a formal rate package, the SBP does give guidance and create accountability for the rate setting process. Table 0-1 compares the overall solid waste increases for 2020-2022 proposed as part of this legislation with those in the SBP.

Table 0-1 Comparison of Overall Solid Waste Weighted Average Rate Increases, 2020-2022

	2020	2021	2022
Strategic Business Plan	*4.0%*	*3.0%*	*3.8%*
Proposed	**3.2%**	**2.9%**	**2.9%**

Several major changes have occurred since the SBP was passed. Table 0-2 provides a high level, year-by-year aggregate overview of the impacts of those changes (discussed in more detail below) on proposed rates. The Revenue Requirement (Rev Req) is the minimum amount of revenue needed to provide solid waste services while satisfying all financial policies.

Table 0-2: Rate Impacts of Changes since SBP on Proposed Rate Increases ($ millions)

	2020 Change from SBP	% Change in Rev Req	2021 Change from SBP	% Change in Rev Req	2022 Change from SBP	% Change in Rev Req
Expenditures						
Contracts	$(3.4)	-1.6%	$(1.0)	-0.5%	$0.0	0.0%
Branch O&M	$(2.8)	-1.3%	$(2.0)	-0.9%	$(1.4)	-0.6%
Taxes	$0.4	0.2%	$0.5	0.2%	$0.4	0.2%
Capital Finance & Financial Policies	$(14.9)	-7.1%	$8.8	4.1%	$(3.9)	-1.7%
Total Expenditure Requirement	**$(20.7)**	**-9.8%**	**$6.3**	**2.9%**	**$(4.8)**	**-2.1%**
Other Funding Sources	$27.9	13.2%	$1.8	0.9%	$12.5	5.6%
Change in Retail Revenue Requirement	**$7.1**	**3.4%**	**$8.1**	**3.7%**	**$7.7**	**3.4%**
Strategic Business Plan Rate Increases		4.0%		3.0%		3.8%
Change in Retail Rate Requirement		3.4%		3.7%		3.4%
Impact of UDP Update		-1.1%		-1.2%		-1.3%
Impact of Demand		-3.0%		-2.6%		-3.1%
Proposed Rate Increases		3.2%		2.9%		2.9%

Some totals may not add due to rounding

Contracts

The largest change since the SBP has been from the new collections contract that took effect April 1, 2019, which results in approximately $5 million of annual savings over the old contract. Offsetting the savings are increases to transfer and processing contract expenses driven by increased demand over the rate study period.

Branch O&M

Branch Operations and Maintenance (O&M) has decreased $2.8 million from the SBP assumption in 2020, $2 million in 2021, and $1.4 million in 2022 (See Table 0-3).

O&M changes include savings on solid waste container costs, as those expenses are now borne by collection contractors as per new collections contract effective in 2019, and increases in costs to labor assumptions, fleet, inventory, and maintenance. This is a net reduction over the three year SBP target.

Table 0-3: SBP and Proposed Branch O&M ($ millions)

	2020 Proposed	2021 Proposed	2022 Proposed
Branch O&M			
Strategic Business Plan	52.1	54.3	56.6
Proposed	49.3	52.3	55.2
Change since SBP	**(2.8)**	**(2.0)**	**(1.4)**

Taxes

The City is paid a transfer tax on solid waste transported to the landfill. Stronger demand in commercial and self-haul sectors leads to an increase in transfer tax payments compared to the Strategic Business Plan.

Capital Finance & Financial Policies

The capital financing expense shown in Table 0-4 is the sum of debt service payments on borrowed funds (e.g. past and future revenue bond issues) plus operating cash contributions to CIP. Capital financing expense under proposed rates is $10 million lower than SBP assumptions across the three year rate period, or $14.9 million in lower in 2020, $8.8 million higher in 2021, and $3.9 million lower in 2022. Annual debt service payments are similar between the two scenarios, and slightly lower under the proposed. The variance is related to differences in the use of operating cash to finance the CIP.

Table 0-4: Capital Financing Expense and Financial Policies ($ millions)

	2020		2021		2022		Total		
	SBP	Proposed	SBP	Proposed	SBP	Proposed	SBP	Proposed	Change
Debt Service	15.6	15.4	15.6	15.4	15.6	15.4	46.7	46.3	-0.3
Cash Financed CIP	24.1	19.0	7.5	26.7	3.9	14.5	35.5	60.1	24.6
Subtotal	39.6	34.4	23.1	42.1	19.5	29.9	82.2	106.4	24.3
Change since SBP		(5.2)		19.0		10.4			
Financial Policies	9.7	0.0	10.2	0.0	14.3	0.0	34.3	0.0	-34.3
Total	**49.4**	**34.4**	**33.3**	**42.1**	**33.8**	**29.9**	**116.4**	**106.4**	**-10.0**
Change since SBP		(14.9)		8.8		(3.9)			

Some totals may not add due to rounding

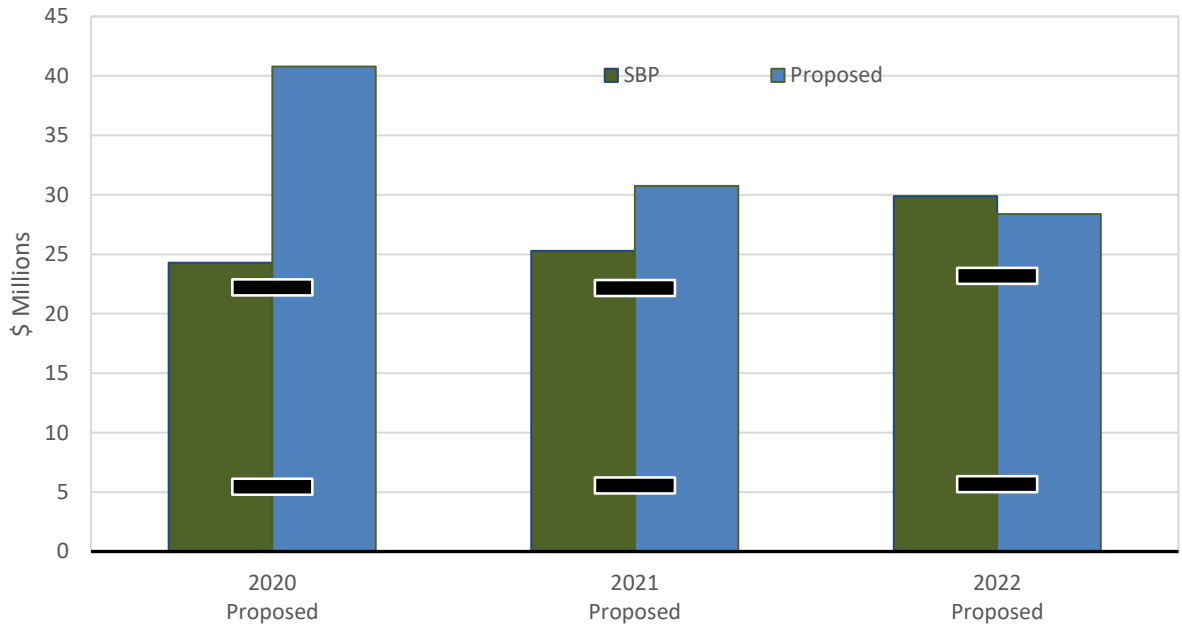
Cash financing under proposed 2020-2022 rates is higher than SPB assumptions due to three factors:

- **Higher proposed CIP:** CIP is $24.3 million higher than SBP assumptions. Expected spending on projects in prior years has been delayed, resulting in a shift of costs into the current rate study period.
- **Difference in timing of debt issues:** There are no new debt issues during the rate period under proposed rates. The SBP included a 2019 issue.
- **Higher operating cash reserves:** Due to strong demand and lower spending, the 2020 operating cash balance is projected to be $50.5 million, compared to $23.5 million in the SBP.

Strong demand in 2017-2018, combined with lower spending resulted in higher cash reserves entering the new rate period than were anticipated at the time the SBP was adopted.

Due to the higher cash reserves, the Solid Waste Fund (SWF) is able to pay for the higher anticipated CIP expense exclusively with operating cash once 2016 bond proceeds are spent down in 2020. As shown in Figure 0-1 below, higher cash balances are drawn down across the rate period to fund CIP under proposed rates. Under SBP assumptions, cash balances are gradually built up, because less cash is required to finance the CIP, and the impact of other financial policies (see Financial Policies below). The minimum cash financial policies are shown in black hashes, with the 20-day contract expense being the lower hash and the 45-days operating expense as the higher hash.

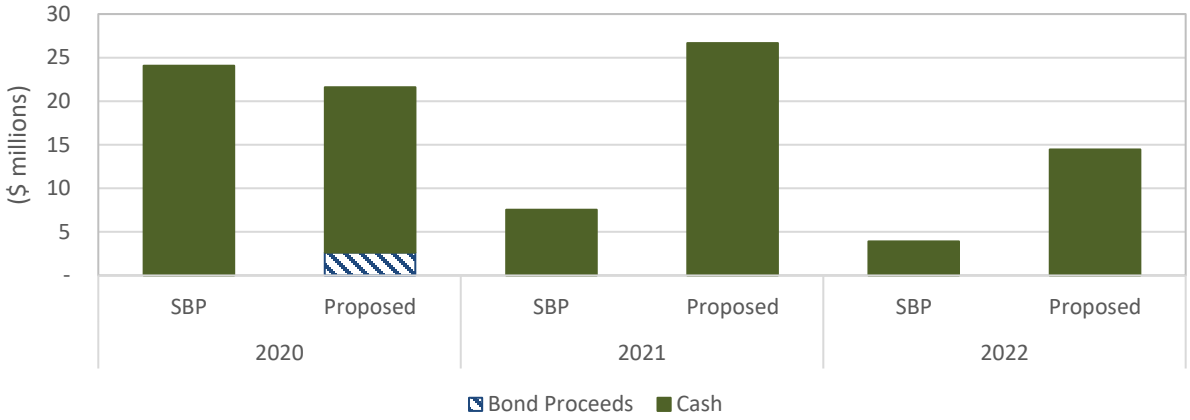
Figure 0-1: Year-End Cash Balances



Total CIP cash financing is higher under proposed rates than SBP assumptions because there are no projected bond issuances during the rate period and projected CIP spending levels are higher ($24.6 million higher over 3 years). The higher cash reserves discussed above allow for these levels of CIP to be financed under the current rate proposal.

Figure 0-2 below presents an annual snapshot of CIP funding sources under proposed rates and SBP scenarios.

Figure 0-2: Capital Financing



Revenues must be sufficient to both pay cash expense and meet all financial policy targets (See Section 2.1 for more details on the ratemaking process). SBP financial assumptions resulted in debt service coverage being the financial policy requiring the most revenue. Under the current proposal, rates are smoothed for the rate study period, with the financial policy target requiring the most revenue being operating cash in 2023. This means that while financial policies are being exceeded during the rate study period, any excess cash is left in the operating fund, increasing cash balances. These cash balances are being drawn down each year of the rate study period in order to fund construction in progress. The solid waste fund will be generating the amount of revenue required to meet all financial policy targets throughout the SBP period.

Other Funding Sources

The Other Funding Sources category includes prior year operating cash contributions, miscellaneous non-rates revenues, and revenues from the sale of commodities from the recycling waste stream. These funding sources reduce the amount of revenue that needs to be recovered from standard retail rates in the current year.

In 2020, Other Funding Sources is $27.9 million lower than assumed in the SBP. Of this amount, $16.3 million was a planned Rate Stabilization Fund (RSF) withdrawal (i.e. a cash influx to SPU) during the SBP that is no longer needed. This withdrawal was originally planned to help maintain operating cash financial targets, as cash was being drawn down to pay for CIP. A stronger cash position in 2018 makes this drawdown no longer necessary, allowing SPU to meet both financial targets and CIP drawdown. The remaining portion of Other Funding Sources decline is primarily due to a decrease in recycling processing revenues. Revenues from the sale of commodities are down $5.9 million from SBP projections because of a fall in commodity prices due to the China Blue Sky recycling ban.

In 2021 and 2022, Other Funding Sources are $1.8 million and $12.5 million lower under proposed rates, with $9.3 million due to the reduced recycling revenues and the rest being attributed to lower contributions as cash reserves are being drawn down to fund CIP.

Update of the Utility Discount Program (UDP)

The assumptions for UDP have been updated under the proposed rates to be consistent with the policy guidelines set by Mayor and City Council, and the shift in the overall accounting of UDP customers from single family to multifamily customers. Multifamily customers are less costly for SPU to serve compared to single-family homes, and the resulting efficiencies in serving more multi-family customers will increase revenues by $7.8 million above SBP assumptions in 2020-2022. While changes to UDP do not affect the total amount of revenue required, they do reduce the amount of revenue recovered because as more customers shift to paying a reduced rate, higher overall rates will be required to make the shift revenue neutral. These proposed rates will allow for some expanded UDP enrollment as the program continually develops.

Impact of Demand

Demand for solid waste services, led by strong multi-family and commercial demand, has improved since the SBP, thus allowing a lower rate to recover the same amount of revenue.

1. EXECUTIVE SUMMARY

Seattle Public Utilities (SPU) provides solid waste services to residences and businesses in the City of Seattle ("City") through the Solid Waste Fund (SWF). It is supported almost entirely by utility fee revenue. Solid waste customers are either billed by SPU (residential customers) or by collection contractors (commercial customers). Contractors pick up garbage, recyclables, and organics from residences and business and deliver garbage and organics to SPU's transfer stations and recyclables to a contractor recycling facility in SODO. SPU transfers garbage from the transfer stations to a railhead for transport to a contracted disposal site in Oregon. Organics are either picked up by processing contractors or delivered by SPU to contractor-owned sites. In addition, SPU, through the SWF, oversees the City's Clean City program, provides conservation programs and outreach, oversees hazardous waste disposal programs in conjunction with King County, and maintains and rehabilitates historic landfill sites.

Rates were last increased by 7.2 percent on April 1, 2017, 1.0 percent on April 1, 2018, and 4.0 percent on April 1, 2019 as part of the 2017-2019 Solid Waste Rate Study.

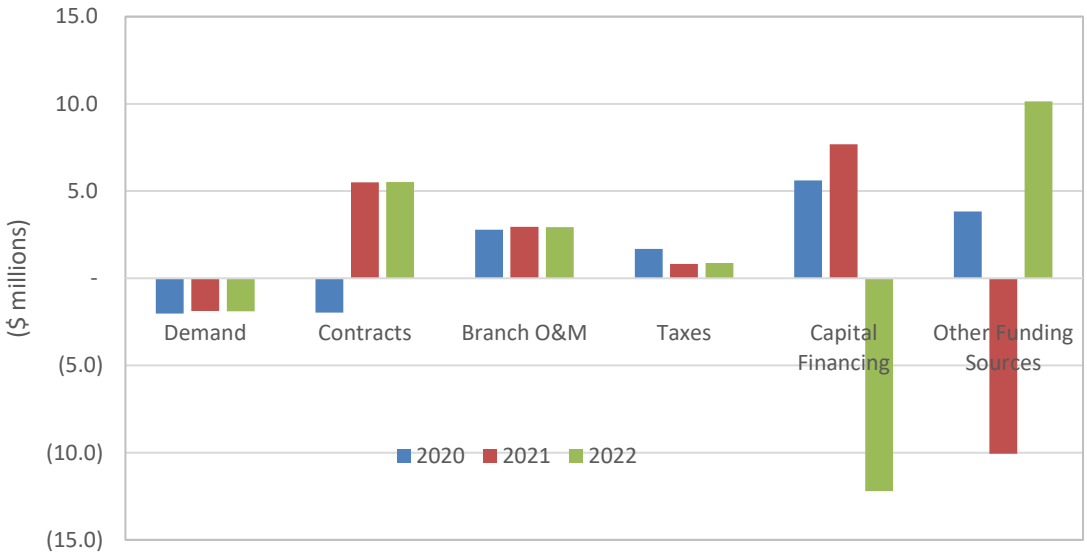
Key elements of the current rate proposal include:

1. **New Solid Waste Collections Contract:** The new contract, which took effect on April 1, 2019, decreases contract and container expense for the rate study period, resulting in annual savings of $5 million to the Solid Waste Fund.
2. **Update to the Utility Discount Program:** Updated enrollment projections to account for the growing percentage of multi-family household program enrollees. This update provides $7.8 million in savings over the three-year rate study period.
3. **Completion of Major Capital Facilities:** During this rate period, SPU will commence, build, and enter into service the South Recycling Center. The impact on rates of higher capital spending is substantially offset by the availability of high cash reserves entering the rate period.
4. **Continued Focus on Protecting Bond Ratings:** Rates continue to be set to the more stringent debt service coverage (DSC) policy adopted in 2015, as well as to meet an unofficial policy of maintaining a year-end operating cash balance equal to 45 days of operating expense. These policies help to protect solid waste bond ratings during a period of significant capital expansion, liquidity contraction, and bond funding. Setting rates to meet these policies in the 2017-2019 Rate Study also contributed to increasing cash reserves.
5. **Improved Demand**: Solid waste demand has improved, resulting in a $6 million positive impact to rates in the proposed rate period. Additionally, the improved demand has helped build up cash reserves in 2017-2019 which are available for use in this rate study period. Increased demand has also contributed to increased contract expense.

1.1. Rate Drivers

Figure 1-1 breaks down the drivers of the rate increase by year followed by an overview of individual drivers. Positive numbers indicate drivers which increase rates, negative numbers indicate drivers which reduce rates. Chapter 3 provides a more detailed description of revenue requirement components.

Figure 1-1: Annual Components of Rate Drivers



Changes in Demand Forecast

Customer counts and subscription levels affect revenues, costs and the required change in rates. The change in the demand forecast for this rate study is a significant driver and reduces the impact on customer bills by $6 million.

Contracts, Operations and Maintenance, and Taxes

Strong demand is accompanied by higher contract expense. However, savings from the 2019 solid waste collections contract offsets the higher contract expense in 2020. Following the first year, contract costs are expected to increase with demand, keeping in line with the City's growth. 2020 O&M is expected to be $49.3 million, with a $2.5 million decrease from 2019 adopted rates due to savings in container costs from the collections contracts. These savings lower the total revenue requirement and drive down the solid waste rate path. Total taxes are expected to rise slightly as the result of an anticipated increase to revenues.

Capital Financing

Annual capital financing expense fluctuates considerably, with higher financing expense relative to the prior year in 2020 ($5.6 million higher), a $7.7 million increase in 2021, and a significant decrease in 2022 ($12.2 million lower). These fluctuations are primarily related to changes in CIP spending levels and exclusive use of operating cash to fund expenses from late 2019 through the remainder of the rate period. The increased use of cash to finance the CIP is due to the fact that proceeds from the 2016 SWF bond issue are exhausted in early 2020 and sufficient cash reserves are available to substantially fund the remainder of spending throughout the period (see Other Funding Sources below).

Other Funding Sources

Other funding sources include asset sales, recycling commodity revenue, miscellaneous revenues, Rate Stabilization Fund (RSF) withdrawals, and cash contributions. Cash reserves built up in 2017 and 2018, combined with excess revenues generated by meeting the debt services coverage ratio (DSC) binding constraint will be used to fund capital expense once bond proceeds are exhausted in early 2020. There

are no RSF transactions anticipated during the 2020-2022 period. Recycling commodity revenue has decreased significantly in 2017 and 2018 due to the Chinese Blue Sky recycling ban, and depressed commodity rates are expected to continue throughout the proposed rate study period as a result.

1.2. Rate, Bill, and Financial Performance Impacts

Table 1-1 presents the change in the revenue requirement and the monthly impact of rate increases on typical residential can customers, a selection of dumpster customers, and self-haul customers.

With the exception of limited special charges, effective April 1, rate increases will apply to all base commercial, residential, and self-haul rates, with rates increasing by 3.0 percent in 2029, 2.9 percent in 2021, and 2.9 percent in 2022. Because the rate increase is only in effect for nine months of the year, an increase weighted for the April effective date and for rates which are not increasing is used. See Table 1-1.

Table 1-1: Proposed Solid Waste Revenue Requirements and Bill Impacts

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Rate Revenue Requirement ***($ millions)***	$206.8	$217.6	$224.5	$231.8
Sample Bills				
Single-Family	$50.95	$52.45	$53.95	$55.55
32 gallon garbage, 96 gallon yardwaste, 96 gallon recycling				
Multi-Family	$580	$598	$615	$633
3 cubic yard detach, 96 gallon foodwaste, 3 cubic yard recycling, typical of a 30 unit building				
Commercial	$519	$534	$550	$565
3 cubic yard detach, option recycling, typical of a busy coffee shop or medium size restaurant				
Self-Haul, per ton	$145	$149	$153	$157
Rate Increases				
Weighted, System-Wide		3.2%	2.9%	2.9%
April 1, Most Rates		3.0%	2.9%	2.9%

Financial performance of the Solid Waste Fund (SWF) was strong in 2018 and is projected to continue to be strong in 2019. The proposed rate increases will continue to maintain this financial strength, while also providing the lowest rates possible. Table 1-2 displays the current and projected financial performance for the SWF.

Table 1-2: SWF Financial Policy Performance 2018-2023 ($ millions)

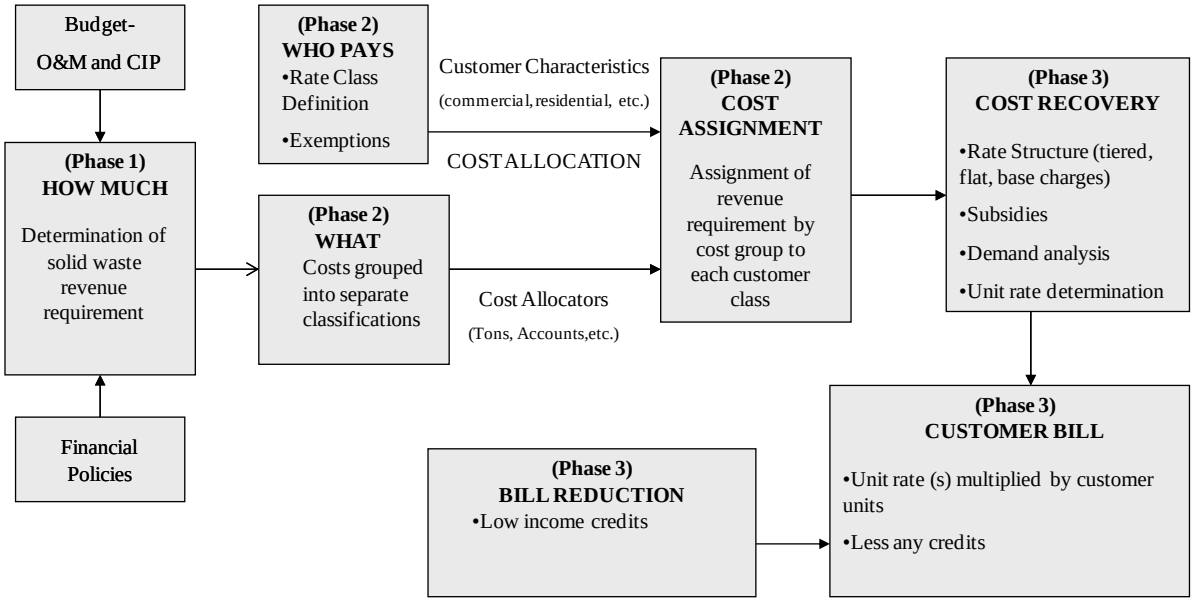
Policy	Target	2018 Actual	2019 Projected	2020 Proposed	2021 Proposed	2022 Proposed	2023 Estimated
Net Income	Generally Positive	**$5.0**	**$4.8**	**$6.1**	**$5.0**	**$3.3**	**$3.4**
Debt Service	1.7x (w Credit for Taxes)	**3.50**	**3.21**	**3.41**	**3.38**	**3.36**	**3.41**
	1.5x (w/o Credit for Taxes)	**1.88**	**1.61**	**1.70**	**1.62**	**1.55**	**1.56**
Cash Balance Year	Year-End Balance:	**$60.1**	**$50.8**	**$45.8**	**$31.8**	**$28.9**	**$27.5**
	20 days contract expense	*$5.9*	*$6.2*	*$6.4*	*$6.7*	*$7.0*	*$7.3*
	45 days operating expense	*$22.2*	*$23.2*	*$24.1*	*$25.2*	*$26.4*	*$27.4*
Cash Financing of	10% or $2.5M ($2003)	**$3.5**	**$3.6**	**$19.0**	**$26.7**	**$14.5**	**$13.1**
	Minimum	*$3.4*	*$3.5*	*$3.6*	*$3.7*	*$3.8*	*$3.9*

2. INTRODUCTION

SPU finances the acquisition, operation, and maintenance of Seattle's solid waste system through the Solid Waste Fund. As an enterprise fund, the SWF functions like a self-supporting business that must generate operating revenues, predominately through user charges (rates), which must be sufficient to cover all operating costs and meet financial policy targets. This document provides a summary of the 2020-2022 Solid Waste Rate Study. It examines the financial and policy issues of the SWF that affect rates. The Solid Waste Comprehensive Plan provides more information about the solid waste system in general.

2.1. Ratemaking Process Overview

The following diagram displays the phases involved in the development of solid waste rates:



Chapter 3 of this document discusses Phase 1 (Revenue Requirement). Chapter 4 addresses Phase 2 (Cost Allocation), while Chapters 5 and 6 discuss Demand and Rate Design, which are included in Phase 3.

2.2. Rate Setting Objectives

To set rates, SPU considers a number of factors to help evaluate policy and rate design decisions under consideration.

- **Revenue Requirement:** Solid waste rates should be sufficient to meet the SWF's revenue requirement.
- **Equity:** Rates should reflect a fair apportionment of the different costs of providing service among groups of customers.
- **Customer Payment of Cost of Service:** Each customer class should generate sufficient revenue to cover both direct and indirect costs of service to the customer class over time.
- **Conservation:** The rate structures should encourage waste reduction and recycling activities.
- **Rate Stability:** Rate levels and structures should be changed in an orderly manner over time.

- **Customer Understanding:** The rate structures should be clear and understandable to the customer.
- **Financial Stability:** Revenue recovery from rates and other revenue sources should ensure financial stability, consistent with financial policies of the City.
- **System and Administrative Costs:** The rate structures should minimize long and short-term administrative costs, including customer service, billing, and contract administration.
- **Rate Impact Mitigation:** Mitigation of the impacts of solid waste rate increases to certain customers based on social or economic factors may be considered and implemented.

2.3. Financial Policy Overview

Financial policies provide a guiding framework for the finances of the solid waste utility. They represent a balance between the competing goals of fiscal conservatism through higher rates today and minimizing these same rates by spreading costs over time to future ratepayers. The direct effect of the policies is to determine the level at which solid waste rates shall be set, given estimated costs and demand, and to define the general manner in which the capital improvement program is to be financed.

The indirect effects of the policies are to:

- Shape the financial profile that the SWF presents to lenders and other members of the financial community;
- Establish the SWF's exposure to financial risk; and
- Allocate the SWF's costs between current and future ratepayers.

The current SWF financial policies were adopted by City Council in 2004 by Resolution 30695, except for the debt service coverage without credit for taxes policy which was adopted by Council in 2014 by Resolution 31516. The policies and associated targets are as follows:

Financial Policy Rate Impacts

In any future year, the minimum revenue requirement is the lowest amount of revenue necessary to simultaneously satisfy all financial policies in that year. Typically, rates are set to just meet all financial policies in each year, with the financial target requiring the most revenue defined as the binding constraint. For the current rate study however, rates are set to smooth rate increases over the three-year path. As a result, additional revenue is generated in 2020-2022 which is then used to increase cash financing of the capital program. Operating Cash of 45 days is projected to become the binding constraint in 2023.

Net Income

SPU targets generally positive net income. Positive net income is a contingency against projection variances and uncertainties regarding revenues. It is also a signal to bond rating agencies that the City is committed to establishing fees that cover costs.

Debt Service Coverage Ratio

A higher debt service coverage ratio (DSC) means that more revenue is available after debt payments are made. This reduces financial risk and provides more flexibility to respond to revenue shortfalls.

The SWF has two coverage targets associated with two calculation methodologies:

- 1.7 times debt service cost in each year, with credit for City taxes

- 1.5 times debt service cost in each year, without credit for City taxes

The second policy was approved in 2014 to preserve the SWF's bond rating as the fund proceeded through its cyclical capital investment cycle. Under this policy, revenue used to pay taxes to the City is not considered available for making debt service payments. Under the bond covenant however, City taxes are subservient to debt payments.

Operating Cash Balance

The base policy is to maintain an operating cash balance of at least 20 days contract expense. The purpose of the cash balance target is to have sufficient cash on hand to pay operating expenses, taking into account the lag between cash disbursements and cash receipts, and to provide a reserve against projection variances. For 2018, the last year with actuals, contract costs for collection, transfer, and processing of solid waste amounted to $108 million, resulting in a 20 days cash target of $5.9 million. In 2020 the cash target is projected to be $6.4 million.

Since 2015 SPU has sought to maintain higher year-end SWF cash balances on a planning basis, equivalent to 45 days of operating expense. The expectation is that this higher cash balance, combined with the more stringent debt service coverage ratio described above, will enable the SWF to better maintain its bond rating and will provide flexibility in the case of financial hardship or major policy changes. Under this unofficial policy, the cash target for 2018 was $22.2 million. The projected cash target for 2020 is $24.1 million.

Cash Contribution to the Capital Improvement Program (CIP)

The cash contribution to the CIP policy is the greater of 10 percent of total CIP expenses or $2.5 million in 2003 dollars (as adopted by Resolution 30695 in 2004). This policy helps to prevent a rapid increase in debt levels and maintains a minimum investment into the system. The target in 2018, the last year with available actual expenditures, was $3.5 million, the equivalent of $2.5 million in 2003 dollars. The 2020 target remains at $2.5 million in 2003 dollars, or $3.6 million on $24 million in CIP spending. SPU proposes, however, to increase cash contributions to CIP in order to keep debt levels and revenue required to meet debt service coverage obligations low.

Proposed 2020-2022 rates assume cash contributions to CIP in excess of targeted levels as proceeds from the 2016 revenue bonds will be exhausted in 2019 and SPU does not plan to issue additional debt during the rate period. Sufficient cash reserves exist to finance higher levels of CIP with operating cash, enabling the SWF to keep debt levels and revenue required to meet debt service coverage obligations lower.

3. REVENUE REQUIREMENT

The Rates Revenue Requirement is the total amount of revenues which must be recovered in a given year from direct service, or "rates" revenues. Rates revenues, together with other funding sources such as cash reserves and non-rates revenues, are used to pay the cash expenses associated with operating the Solid Waste system and to meet the Solid Waste Fund's financial policy requirements (see Section 2.3).

Table 3-1 summarizes changes in the different components that make up the SWF rates revenue requirement from 2019 to 2022. The change in the 2020 revenue requirement throughout this section is relative to the planned 2019 revenue requirement from the 2017-2019 rate study, and change for 2021 and 2022 reflect changes against the previous year shown in the table.

Table 3-1: Components of the Change in the Solid Waste Revenue Requirement ($ millions)

	2019	2020		2021		2022	
	Adopted	Proposed	Change	Proposed	Change	Proposed	Change
Expenditures ($M)							
Operations & Maintenance (O&M)							
Contracts O&M	118.7	116.8	(2.0)	122.3	5.5	127.8	5.5
Other O&M	46.5	49.3	2.8	52.3	3.0	55.2	2.9
Clean City Expense	8.2	0.0	(8.2)	0.0	0.0	0.0	0.0
Total O&M	**173.5**	**166.1**	**(7.4)**	**174.5**	**8.5**	**183.0**	**8.5**
Taxes	**28.2**	**29.9**	**1.7**	**30.7**	**0.8**	**31.6**	**0.9**
Capital Financing							
Cash Financing (Policy Min.)	3.5	3.6	0.1	3.7	0.1	3.8	0.1
Cash Financing (Additional)	9.1	15.4	6.3	23.0	7.6	10.7	(12.3)
Debt Service	16.2	15.4	(0.8)	15.4	(0.0)	15.4	(0.0)
Total Capital Financing	**28.8**	**34.4**	**5.6**	**42.1**	**7.7**	**29.9**	**(12.2)**
Other Financial Policies	**(7.2)**	**(0.0)**	**7.2**	**0.0**	**0.0**	**0.0**	**0.0**
Total SWF Funding Requirement	**223.3**	**230.4**	**7.0**	**247.3**	**17.0**	**244.4**	**(2.9)**
Other Funding Sources							
Clean City Reimbursement	(8.2)	0.0	8.2	0.0	0.0	0.0	0.0
Prior Year Operating Cash	0.8	(5.0)	(5.8)	(14.0)	(8.9)	(2.9)	11.0
RSF Deposit (Withdrawal)	(4.5)	0.0	4.5	0.0	0.0	0.0	0.0
Non-Rates Revenue	(12.9)	(7.7)	5.2	(8.8)	(1.1)	(9.7)	(0.9)
Total Other Funding Sources	**(16.6)**	**(12.7)**	**3.8**	**(22.8)**	**(10.1)**	**(12.6)**	**10.1**

Net Rates Revenue Requirement	**206.8**	**217.6**	**10.8**	**224.5**	**6.9**	**231.8**	**7.2**

2019 may not match documents included with the 2017-2019 Rate Study or SBP. Categories have been adjusted to be comparable to Proposed rates.

The **Expenditure** section of Table 3-1 presents the operating fund cash spending components that make up the SWF Funding Requirement. Sometimes the SWF must generate MORE revenue than needed to fund cash expense in order to meet all financial policy targets. The **Other Financial Policies** section of the table presents any additional revenues required to meet policy targets in excess of cash expense. The **Other Funding Source**s section presents non-rates sources of funding which reduce what must be recovered through direct service rates.

Under the current proposal, the SWF rates net revenue requirement rises from $206.8 million in 2019 to $231.8 million in 2022, with annual increases of $10.8 million in 2020, $6.9 million in 2021, and $7.2 million in 2022. Expenditure increases are driven primarily by increased contract expense and to a lesser degree, increased tax expense. 2020 branch O&M, or SPU's expenses for equipment, salaries, etc., is up $2.8 million from 2019 adopted rates, with additional largely inflationary increases in 2021 and 2022.

There is a slightly negative net impact of changes in capital financing across the rate period, although year-on-year fluctuations are significant after 2016 bond proceeds are exhausted in 2019. Cash reserves generated in prior years are used to fund capital projects in lieu of issuing new debt, effectively neutralizing the negative impact that increased capital cash financing would have on the rates revenue requirement.

The following sections include more detailed descriptions of the components of change in the rates revenue requirement. While not direct drivers of the revenue requirement, demand, rate discounts, and the timing of rate increases do impact the level of rates. Further discussion of these impacts follows the discussion of revenue requirement components.

3.1. Operations and Maintenance (O&M)

Adopted 2019 rates assumed $118.7 million in contract O&M. 2020 contract O&M is projected to decrease slightly to $116.8 million, mostly due to the new collections contracts negotiated in 2019.

The Other O&M expenditure requirement includes a portion of administrative expense (i.e. finance, customer service, etc.) that the SWF shares with the other SPU funds and other City departments, as well as direct solid waste operating expense. Other O&M does not include debt service or taxes, which are discussed below.

The $2.8 million increase between 2019 adopted rates and 2020 proposed rates is primarily due to increases in labor and overhead, as well as additional fleet, inventory and maintenance required as a result of increased activity at the transfer stations. Inflationary increases add to the O&M increases in 2021 and 2022.

3.2. Taxes

Table 3-2 presents the projected change in SWF tax expense between 2019 and 2022. SWF tax expenses include state and city taxes on revenues and City tonnage taxes (transfer tax).

Table 3-2: Taxes ($ millions)

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Solid Waste Utility Tax				
Solid Waste Utility Tax	20.9	21.8	22.5	23.2
Tonnage Tax	4.5	4.6	4.7	4.7
Total City Taxes	**25.4**	**26.4**	**27.1**	**28.0**
State B&O Tax	**3.2**	**3.4**	**3.5**	**3.6**
Total Taxes	**28.6**	**29.8**	**30.6**	**31.6**
State Refuse Tax	*5.4*	*5.6*	*5.8*	*6.0*

City and state revenue taxes increase with increased revenue. The City's solid waste utility tax rate for the current proposal is planned at 14.2 percent, unchanged since April 1, 2017.

The **tonnage tax** is a City-levied per-ton tax on non-recycling solid waste transferred for disposal in Seattle. SPU pays the tax as both a collector of solid waste and an operator of a transfer station in the City. The tax is also paid by other entities for the non-contract tons they transfer within the City limits. The tax is paid to the City's General Fund. Solid waste rates are set to recover the cost of paying the tonnage taxes to the City.

Since 2005, the SWF has classified **state refuse tax expense** as a payable rather than an expense. As such, these taxes (both the expense and the revenue associated with them) are not included on the SWF income statement included in *Appendix A Statement of Operating Results*. This procedure has no effect on the net income of SWF, as both revenue and expense are reduced equally. However, these taxes are included in Table 3-2 for informational purposes.

3.3. Capital Financing Expense

SWF capital projects are funded through a combination of current cash (from direct service and non-rates revenue) and debt financing (revenue bonds). Under the proposed rates, once bond proceeds are exhausted in early 2020, the remainder of CIP for the rate period will be cash financed. CIP through 2022 includes completion of the South Recycling Center, the South Park remediation projection, and the SWF's shared portion of City-wide IT upgrades. Total planned capital spending for the rate period is $60 million.

Annual capital financing expense fluctuates considerably, with lower financing expense relative to the prior year in 2021 ($0.9 million lower) and 2022 ($8.9 million lower) but a significant increase in 2020 ($11.0 million) relative to 2019. These fluctuations are primarily related to changes in CIP spending levels and exclusive use of operating cash to fund expenses from late 2017 through the balance of the rate period.

Table 3-3 presents capital spending (CIP) and financing assumptions during the rate period and how this financing impacts rates.

Table 3-3: Change in Cash Financing of the CIP ($ millions)

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Total CIP	12.6	19.0	26.7	14.5
Cash Financial Policy Minimums				
$2.5 million (2003 nominal $), Or;	3.5	3.6	3.7	3.8
10% of CIP	1.3	1.9	2.7	1.4
Active Financial Policy Minimum	3.6	3.6	3.7	3.8
CIP Financing Breakdown				
Cash Financed	12.6	19.0	26.7	14.5
Debt Financed	-	-	-	-
Cash Financed %	100%	100%	100%	100%
Cash Financing Detail				
Financial Policy Minimum	3.5	3.6	3.7	3.8
Additional Incremental	9.0	15.4	23.0	10.7
Total Cash to CIP	12.6	19.0	26.7	14.5
Debt Service Detail				
Interest	9.0	8.4	8.0	7.7
Principal	7.3	7.0	7.4	7.7
Total Debt Service	16.2	15.4	15.4	15.4
Rate Drivers				
Change in Cash Financing		6.4	7.7	(12.2)
Change in Debt Service		(0.8)	(0.0)	(0.0)
Total Rate Impact		5.6	7.7	(12.2)

Debt Service

The prior rate study planned for a $35 million debt issue, which was completed in 2016.

SPU does not expect to issue additional SWF debt during the proposed rate period. Additional information will be available after the update of the Solid Waste Management Plan is completed in 2020. Therefore, debt service remains nearly flat throughout the rate period. Keeping debt service low by financing as much CIP as possible through cash instead of debt will minimize the amount of revenue the SWF will need to raise in future years to satisfy debt service coverage financial policies.

Cash Financing

As discussed in Chapter 2, the minimum cash contribution to the CIP is the greater of 10 percent of the CIP in a given year or $2.5 million (in 2003 nominal dollars converted to current nominal dollars). During the proposed rate period, the $2.5 million target ($3.6 to $3.8 million per year in rate period nominal dollars) is the larger of the two targeted amounts, equating to a minimum financial target cash contribution of $11.1 million during the proposed rate period.

However, the SWF is projected to fund the majority of its $60 million in capital expenditures with operating cash between 2020 and 2022. SPU has chosen to not issue additional debt when the 2016 bond issue proceeds are exhausted in early 2020 in order to minimize the need for future debt issues and rate increases driven by debt service coverage. SWF cash reserves are sufficient to fund this increased capital financing expense due to a 2015-instituted change in the way that the fund calculates debt service coverage (see 3.4 Financial Policies below), as well as strong operating results in 2017 and 2018 which contributed to higher cash reserves entering the new rate period than were anticipated at the time the 2017-2019 rates were adopted.

3.4. Financial Policies

The impact of financial policies on the revenue requirement varies depending on which target is binding (see Section 2.3 for further discussion of financial policies and binding constraints). Revenues must be sufficient to cover all cash operating expense AND to meet net income, debt service coverage, cash contribution to CIP and operating cash balance targets. Where the binding constraint is meeting cash targets, rates are set so that revenues will just equal cash expense AND retain minimum operating cash balances. Where the binding constraint is net income or debt service coverage, revenues will be greater than cash expense. This “extra cash” may be used to fund operating cash contributions to the CIP in excess of targeted levels or may be used to increase cash reserves, or some combination of the two.

Debt service coverage has been the binding constraint since 2015, with the adoption of the new 1.5x debt service coverage target. However, as discussed in Chapter 2, the Solid Waste fund is using additional cash from the proposed rates to fund cash contributions to the CIP, and driving to the binding constraint of meeting cash targets in 2023**,** the end of the Strategic Business Plan period.

Although cash contributions to the CIP are significantly higher than financial policy targets, this incremental expense is not driven by financial policy requirements. Rather SWF bond proceeds will be depleted in early 2020, and from that point all CIP will be paid for by cash instead of another debt issue in an effort to keep the debt service obligation low. Therefore, the higher levels of cash financing in 2020 and 2021 are actually a spending requirement.

In 2023 cash contributions to CIP will have depleted operating cash below the minimum requirement and an RSF withdrawal will be required.

3.5. Other Funding Sources

A significant portion of the total solid waste system funding requirement is paid with by other funding sources including operating cash balances, Rate Stabilization Fund withdrawals, and other operating and non-operating non-rates revenues. On aggregate, these non-rates funding sources are expected to increase by $3.8 million in 2020, decrease by $10.1 million in 2021, and increase by $10.1 million in 2022.

Following is a discussion of each of the other funding sources.

Prior Year Operating Cash

Revenue generated by rates is used to fund current operating expenses, maintain a cash balance as a safeguard against unexpected expense, and to fund a portion of the current capital program. A rate may be set to increase, hold constant, or decrease the SWF's operating fund cash balances. Decreasing, or drawing down a cash balance in a given year lowers the rates in that year as that cash does not need to be received through rate revenues. However, just like other funding sources, what affects rates is not the level in any one year, but the year to year change in funding from that source.

Table 3-4 presents both how cash is used (drawn down or increased) in each year as well as the year-on-year change in use of cash. Positive changes (generating more cash than the prior year) increase rates. Negative changes (using more cash than in the prior year or generating smaller increases) reduces rates.

Table 3-4: Proposed Changes to Cash Balances ($ millions)

	2019	2020		2021		2022	
	Adopted	Proposed	Change	Proposed	Change	Proposed	Change
Operating Cash							
Net Cash from Operating Activities	0.8	(5.0)	(5.8)	(14.0)	(8.9)	(2.9)	11.0
Additional Cash from Financial Policies	-	-	-	-	-	-	-
Change in Cash Balance	0.8	(5.0)	(5.8)	(14.0)	(8.9)	(2.9)	11.0
Starting Balance	22.8	50.8		45.8		31.8	
Ending Balance	23.6	45.8		31.8		28.9	

Some totals may not add due to rounding

Stronger than anticipated operating performance during 2018 and 2019 (projected) has resulted in projected cash balances at the beginning of the rate period that are above the minimum policy requirements.

Starting in 2020, cash reserves are diverted to financing CIP expense for the proposed rate period, with balances drawn down by $9.7 million that year, $10 million in 2021, and $2.4 million in 2022, significantly reducing the amount of revenue that needs to be recovered through rates.

Rate Stabilization Fund Withdrawals

The 2013-2016 Solid Waste Rate Study established policies around the use of a Rate Stabilization Fund (RSF) for the SWF. The RSF was intended to help provide rate stability during a four-year rate period. RSF balances rose to $36 million (as of December 2018) on strong fund performance and are projected to end 2019 at approximately the same level. Withdrawals from the RSF are authorized in the event that the SWF would miss a financial target.

Rates have been set to fund CIP with cash above the minimum financial policy. Through the 2019-2022 period, diversion of cash to CIP will gradually place pressure on the 45-day operating cash balance policy. By the end of the Strategic Business Plan period in 2023, 45-day operating cash will be the binding constraint at $27.5 million. The Solid Waste Fund does not anticipate requiring a RSF withdrawal during this rate period to meet financially policies.

Table 3-5: Proposed Changes to the Solid Waste RSF ($ millions)

	2019	2020		2021		2022	
	Approved	Proposed	Change	Proposed	Change	Proposed	Change
Rate Stabilization Fund							
Starting Balance	**19.0**	**36.3**	**17.3**	**36.3**	**-**	**36.3**	**-**
Withdrawal to Fund Debt Service Coverage	-	-	-	-	-	-	-
Withdrawal to Fund Operating Cash Balance	(4.5)	-	4.5	-	-	-	-
Ending Balance	**14.5**	**36.3**	**22.8**	**36.3**	**-**	**36.3**	**-**

Non-Rate Revenues

Non-rate revenues are current year revenues including recycling commodity revenue, miscellaneous transfer station revenues, reimbursements from King County, the City's General Fund and Seattle City Light, operating and capital grants, interest income and other miscellaneous revenues. As presented in

Table 3-6 below, non-rates revenues are projected to decrease by $5.2 million in 2019 relative to the assumption for these revenues when 2019 rates were set, and then remain relatively flat during the 2020-2022 rate period, increasing by $1.1 million in 2021 and $0.9 million in 2022.

Table 3-6: Solid Waste Non-Rates Revenues ($ millions)

	2019 Approved	2020 Proposed	2021 Proposed	2022 Proposed
SPU Sources				
Recycling Commodity	7.2	1.9	2.8	3.8
Other Misc.	1.5	1.7	1.7	1.7
Investment and Other	0.4	0.7	0.6	0.5
City and County				
LHWMP	3.0	3.4	3.5	3.7
Seattle City Light	0.8	0.1	0.1	0.1
Total Non-Rates Revenues	**12.9**	**7.7**	**8.8**	**9.7**
Change		(5.2)	1.1	0.9

The largest categories of non-rates revenues are the recycling processing revenues and the Local Hazardous Waste Management Program (LHWMP) reimbursement.

Recycling Processing Revenues

Recycling processing revenues are paid by the City's recycling processing contractor to SPU based on contract indices for different types of commodities in the recycling stream. Recycling processing expense paid by SPU is reported under contract expense. Recycling processing revenues have been significantly affected by China's Blue Sky recycling ban that took effect at the beginning of 2018. As a result, the uncertainty involved with the current recycling market is one of the largest areas of risk during the proposed rate study period. Recycling processing is currently estimated to generate $1.9 million in 2020, $2.8 million in 2021, and $3.8 million in 2022, with commodity prices projected to slowly recover as new recycling markets are developed. This contract will be in effect until 2027 with City opt-outs in 2021 and 2024.

3.6. Other Factors Impacting Rates

While not direct drivers of the revenue requirement, demand, rate discounts, and the timing of rate increases impact the level of rates.

Demand

Customer counts, tons and subscription levels affect revenues and the required change in rates from year to year. Tonnage decreases reduce costs in some cases, but also reduce the number of units to which the costs are allocated. The exact impact on rates depends on the relative changes in cost and revenue. In the first year of a rate study, changes from prior projections are reflected as major rate drivers. Subsequent years see less drastic change as the new baseline is used. For 2020, the change in

the demand forecast from 2017-2019 Rate Study assumptions is the largest deviation, and therefore the most significant rate driver. The 2020 demand components that have varied the most from earlier projections include:

- **Residential**: Reduced container sizes among curbside garbage customers has been more than offset by increased demand for on-site detach service and organics service. Organics service was especially helped by the foodwaste ban (Ordinance 124582) which became effective in 2015.
- **Commercial:** A strong economic recovery pushed commercial demand significantly up, particularly among drop box customers. Revenue was five percent higher than expected in 2018 compared to the 2017-2019 Rate Study. Demand is expected to decrease slightly over the rate study period.
- **Self-Haul**: Self-Haul demand is significantly higher than was planned in the prior rate study. There was a much larger than anticipated increase in demand from 2016 to 2017 as a result of the North Transfer Station opening. Transfer station tonnages recovered more quickly than previously assumed, leading to $5 million more revenue than planned in 2018.

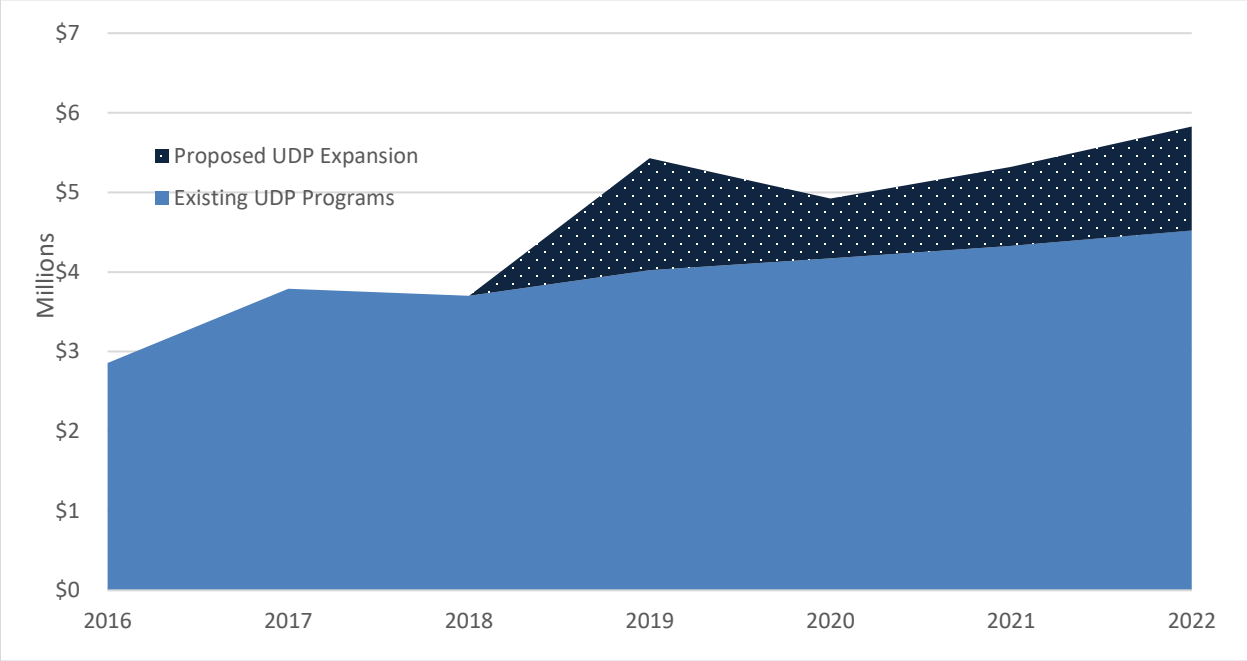
These factors are further explained in detail in Chapter 5, Demand.

Utility Discount Program (UDP)

Like other demand components, changes in customer participation in the Utility Discount Program do not affect the SWF revenue requirement, but do affect the rate increase. Increased participation in the program reduces revenues as more households pay at a discounted rate. The reduction in revenue must be made up through an increase in standard rates.

Due to expanded enrollment UDP reduced solid waste residential revenue by 1.8 percent in 2018, a slightly larger reduction than the 2012-2017 average of 1.4 percent. If the UDP program were not expanded as proposed, revenue reductions of 1.8 percent going forward would be expected. The latest UDP expansion proposal reduces revenue by additional $3 million over the 2020-2022 period due to efficiencies in delivering the UDP program; projected enrollment is still assumed to increase based on policy targets set by Mayor and City Council. See Figure 3-1 for a breakdown and forecast of existing and proposed additional UDP revenue reductions resulting from these efficiencies.

Figure 3-1: Existing and Additional UDP Revenue Reductions



4. SOLID WASTE COST ALLOCATION

After revenue requirements have been calculated, the cost allocation process assigns them to individual customer classes. This process estimates the true cost of serving different types of customers and provides the foundation for rate design, although actual rates may vary from the assigned cost allocations because of other (often times competing) ratemaking and policy considerations.

The cost allocation process can be broken into three basic steps:

- Group Costs into Cost Centers
- Develop Allocation Factors
- Allocate Costs to Customer Classes and Rates

4.1. Cost Centers

Solid waste costs are divided among various cost centers. All budget activities, as well as current and future budget additions, are assigned to a cost center based on primary function. Costs for contracts, taxes, and bond interest are modeled based on the latest projections for tons, subscriptions, revenues and CIP spending, and are then assigned to cost centers. Table 4-1 shows a list of cost centers.

Table 4-1: Solid Waste Cost Centers by Category

SPU Branch O&M	Contract Expense	Taxes	Non-Rates Revenue	Capital Financing and Other
Residential Billing	Single Family Garbage	Utility Tax	General Fund	BIA
Transfer Station Billing	Single Family Compost	Tonnage Tax	Investments and Interest	Cash to CIP
Landfills	Single Family Recycling	State Taxes	Grants	Debt Service
Waste Reduction (All)	Commercial Garbage		Change in Cash	
Waste Reduction (Residential)	Commercial Compost		Change in Rate Stabilization Fund (RSF)	
G&A – General	Commercial Recycling		Recycling Commodity	
G&A - Contract Management	Multi Family Garbage		Other Misc.	
Hauling (All)	Multi Family Compost			
Compost Processing	Multi Family Recycling			
Transfer Station Operations	Long Haul Disposal			
HR	Garbage Processing			
	Recycling Processing			
	Organics Processing			
	Local Hazardous Waste Management Program (LHWMP)			

4.2. Develop and Assign Allocation Factors

Once costs are grouped, each cost center is assigned an allocation factor (See Appendix B for a complete listing of allocation factors for each Cost Center). Allocation factors are multipliers that allocate cost centers into individual customer classes and eventually rates. The basis for allocation differs by cost center, but always seeks to logically assign each rate its fair share of the cost of providing a service based on known data. Costs are allocated using allocation factors which are based on the following:

Tonnage

Many solid waste costs, such as contractor payments for recycling processing or garbage transfer and disposal, are directly related to tons collected or disposed. Costs are allocated based on the tonnage per rate. Tons may also be used to allocate certain other costs even though there is not a direct relationship between the given cost and tons collected or disposed. Specific garbage, organics, or recycling tonnage allocators are used to allocate waste stream specific costs, such as recycling processing.

Volume

Multi-family and commercial contracts incur cost based on the volume of service subscribed to by customers. For example, fees paid to the Local Hazardous Waste Management Program (LHWMP) are based on the total volume of customers' subscriptions. Detach (Dumpster) customers subscribe to a particular size and collection frequency of dumpster, and contractors charge SPU based on a similar formula. When costs are incurred based on volume, it is used to distribute those costs to individual customer classes.

Customer Counts and Trips

This allocation method is used when the cost of service, such as billing expenses, is related to the number of households or accounts rather than tonnage or another measure of how much service a customer receives. Transfer station billing costs are allocated based on trip counts, since each trip incurs the same cost to billing.

Management Estimates

Some allocations are based on management estimates of time spent serving different customer classes. Such estimates help determine the full cost of service for the class. For example, workload estimates are used to allocate inspection costs and in conjunction with tons, allocate transfer station costs.

Direct Assignment

Where solid waste costs benefit only one customer class, direct assignment to that class of such costs is appropriate.

Proportional Assignment (Revenue Requirement Shares)

This method assigns costs in proportion to the sum of other allocated costs. The rate proposal uses this allocation method to assign costs such as general and administrative costs.

Revenue

Costs which are incurred based on how much revenue is earned are allocated by total revenue. State taxes are an example.

Ad Hoc

Often no single method is appropriate for allocating costs so a combination of other allocation factors is formulated to best fit the type of costs.

4.3. Customer Classes

Solid waste ratepayers are divided into 4 sectors which are divided into 10 total classes. Cost allocation is done at the class level and aggregated up to the sector level, and is presented in the results below at the sector level. See Table 4-2 for a breakdown of these classes. Recycling service is available at no additional charge to all customers.

Table 4-2: Solid Waste Customer Classes

Sector	Class
Residential	Curbside (Single-Family, Can/Cart)
	On-Site (Multi-Family, Detach)
	Recycling (Curbside or On-Site)
Commercial	Non-Dropbox (Can/Cart and Detach)
	Dropbox (On-Demand Large Scale Service)
	Recycling (Limited Service)
Organics	Curbside (Yardwaste)
	On-Site (Foodwaste)
Transfer Stations	Garbage
	Organics

Residential Sector

This customer sector consists of garbage and recycling services for all single-family and multi-family households in the City (Organics service is a separate sector discussed below). This sector is further broken down into the following subgroups for rate-setting purposes: Curbside Can/Cart (Single-Family) and On-Site Detach (Multi-Family).

Single-family residences receive weekly curbside garbage collection and bi-weekly recycling collection. Multi-family buildings are generally serviced using dumpsters, and are required to have garbage service of sufficient size and collection frequency to meet the needs of the building.

Commercial Sector

This sector covers all non-residential subscribers to garbage collection services. Businesses may subscribe to can, dumpster, or drop box collection services at SPU's commercial rates. SPU offers limited recycling service to small businesses, but for the most part commercial recycling is not part of the City-provided services.

Organics Sector

SPU offers curbside and on-site organics service. Curbside service is regular, weekly pickup of yardwaste containers from single family residences and is the most common organic service offered. Weekly on-site collection for multi-family buildings is offered to handle foodwaste. Foodwaste is denser and thus more costly to process by volume, so rates for foodwaste service are higher than those for yardwaste. SPU also offers commercial organics service, but the vast majority of this market is served privately.

Recycling and Disposal Station (Self-Haul) Sector

These customers include residences and businesses that bring garbage and recyclable materials (including yard waste and wood waste) to the City's Recycling and Disposal Stations

4.4. Allocation Results

Table 4-3 shows the percentage of the total revenue requirement allocated to each customer sector, by year, using the allocation factors by cost center presented in Table 4-3.

Table 4-3: Cost to Serve Each Customer Sector

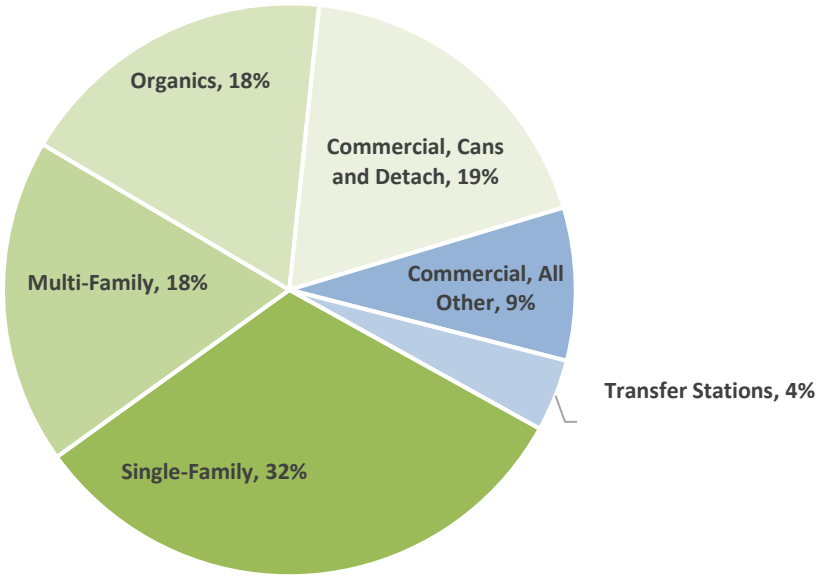
Sector/Class	2019	2020	2021	2022
Residential				
Single-Family Curbside Garbage	*25.3%*	*23.5%*	*23.4%*	*23.3%*
Recycling	*7.5%*	*8.8%*	*8.8%*	*8.7%*
Single-Family Garbage & Recycling	32.8%	32.2%	32.2%	32.0%
Multi-Family On-Site Garbage	*15.1%*	*12.3%*	*12.3%*	*12.3%*
Recycling	*6.1%*	*6.2%*	*6.2%*	*6.1%*
Multi-Family Garbage & Recycling	21.2%	18.5%	18.5%	18.4%
Organics (Single and Multi-Family)	16.5%	17.9%	18.0%	18.2%
Residential Total	70.6%	68.7%	68.7%	68.6%
Commercial				
Cans and Detach	20.2%	18.6%	18.6%	18.7%
Dropbox	4.3%	8.2%	8.2%	8.2%
Commercial Organics	0.5%	0.4%	0.4%	0.4%
Commercial Recycling	<0.1%	<0.1%	<0.1%	<0.1%
Commercial Total	**25.0%**	**27.3%**	**27.3%**	**27.3%**
Transfer Stations	**4.4%**	**4.1%**	**4.1%**	**4.1%**

All sectors have a stable allocation of costs throughout the entire rate period. A decrease in costs allocated to garbage is primarily a result of an update to the allocation methodology regarding tonnage taxes and Clean City program activities. Prior to 2018, Clean City expenses were incurred by SPU to later be reimbursed by the General Fund. Currently, Clean City expenses are a General Fund expenditure and have no impact to the Solid Waste revenue requirement. This update has resulted in the cost of the Clean City program to be removed from the allocation process and reflects a decrease in garbage costs for most sectors. Commercial dropboxes are the exception, as increased demand due to construction activity has resulted in higher costs for the class.

Although a new collections contract took effect in 2019 that affect the current rate study period, its cost structure is very similar to the prior contract and does not significantly alter the cost distribution going forward. Thus, the customer class allocation above is very similar to that calculated for the 2017-19 Rate Study.

See Figure 4-1 for a graphical breakdown of Revenue Requirement shares.

Figure 4-1: Allocation of Solid Waste Revenue Requirement (2022)



5. DEMAND

After the revenue requirement is set and those costs have been allocated to specific customer classes, they can be divided by units to get rates. For solid waste however, units of demand is not a singular number but is instead made up of can subscriptions, account fees, pickup, volume, and tonnage charges, among others. As a result, the demand forecast projects out the demand and resultant revenue for individual rates and rolls them up to the customer class level. Demand also impacts the revenue requirement itself, as demand forecasts form the basis for projected contract expense.

Figure 5-1: Tonnage Forecast

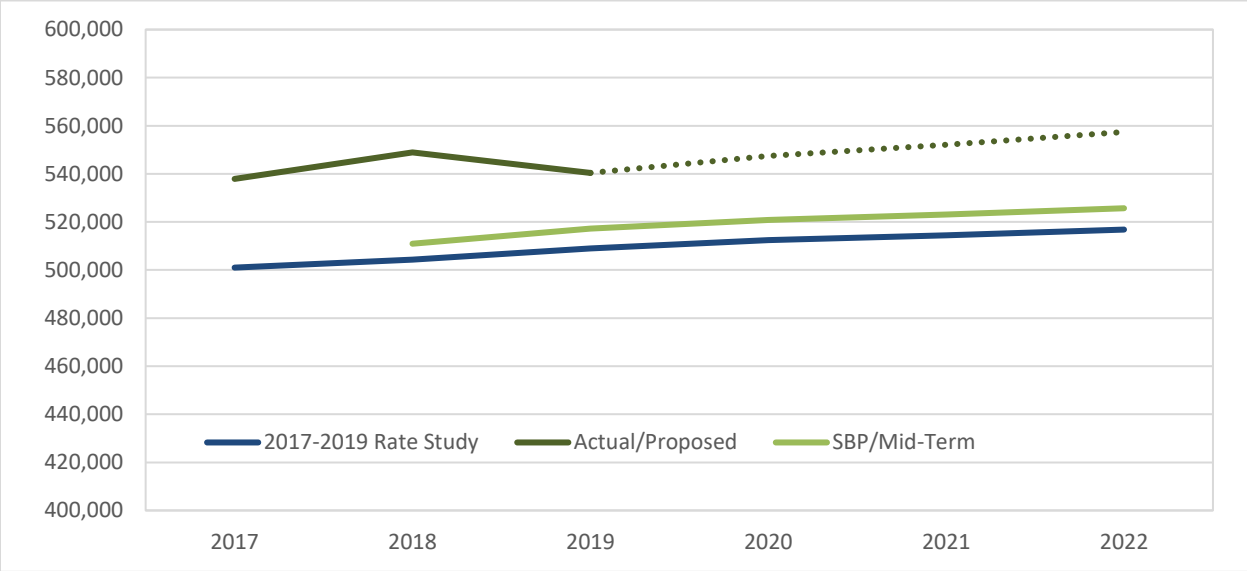
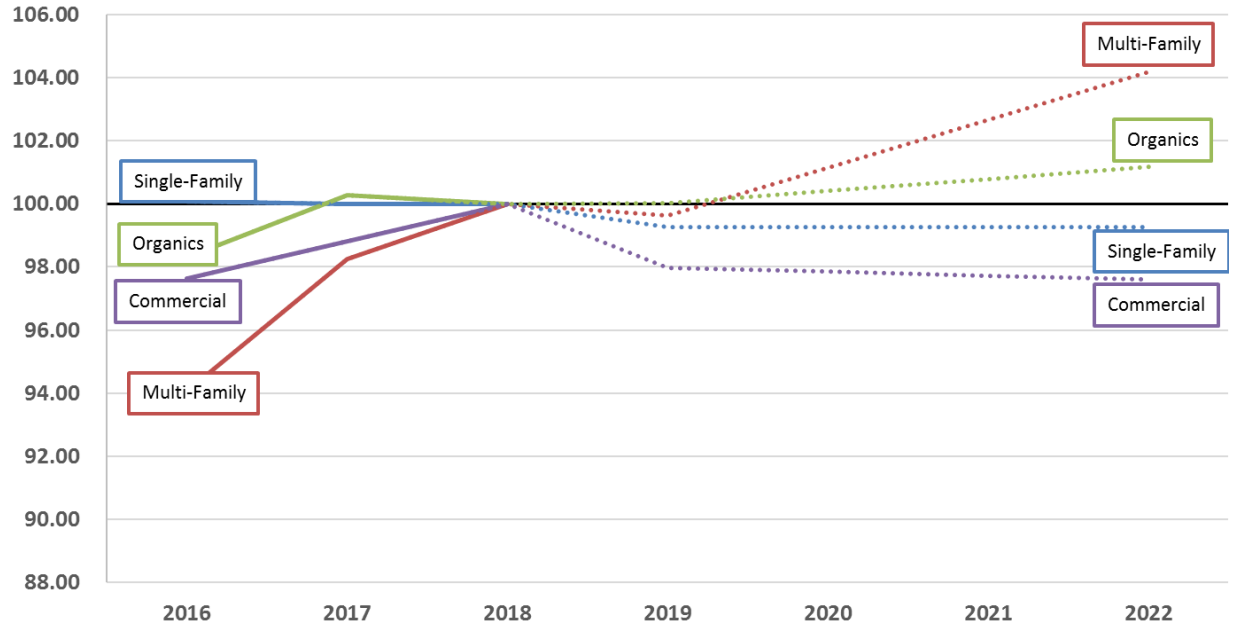


Figure 5-1 shows tonnage (combined garbage, organics, and recycling) as predicted during the last rate study, the SBP, and the latest actuals with the proposed tonnage forecast. While tonnage is not a driver of revenue, since customers subscribe to solid waste service based on volume, it is an adequate proxy for a general overview of demand. Actual tonnage was higher than predicted for 2017 and 2018, due to local economic expansion as well as tonnage increases with the re-opening of the North Transfer Station. Since 2017, the higher than expected tonnages have been a driver behind higher than expected revenues and higher than expected cash balances in the SWF.

Into the future, tonnage is not expected to change significantly. Total tonnage is expected to rise three percent from 2019 to 2022, but garbage tonnage excluding the transfer stations is expected to remain constant at 240,000 tons per year.

Figure 5-2: Normalized Solid Waste Volume Index (2018 = 100) by Customer Sector



While overall tonnage is expected to increase slightly, there are significant differences among the individual components. Single-family garbage is projected to decline due to conservation and waste reduction with a 0.9 percent reduction in average residential can sizes. Commercial volume has experienced an uptick compared with the prior rate study period due to increased economic activity but is projected to decrease and remain flat as construction activity slows. Multi-family volume is expected to increase by four percent and organics by over one percent. While increased organics volumes appear to offset volume declines in the single-family and commercial sectors, it is not an offset in terms of revenue as organics rates per volume are lower than those for garbage by design to encourage diversion. Furthermore, part of the volume decline for these two sectors is diversion to recycling, which is free to the customer. See Table 5-1 for a full breakdown of projected volume and tonnage changes.

Compared to the level of demand assumed in proposed rates, 2019 is projected to see a seven percent increase in tonnage and a 0.4 percent increase in volume.

As noted in the introduction to this Section, solid waste “demand” encompasses multiple factors. Table 5-1 below presents changes in demand for each customer sector for the primary variables of demand.

Table 5-1: Projected Solid Waste Demand Changes 2019-2022

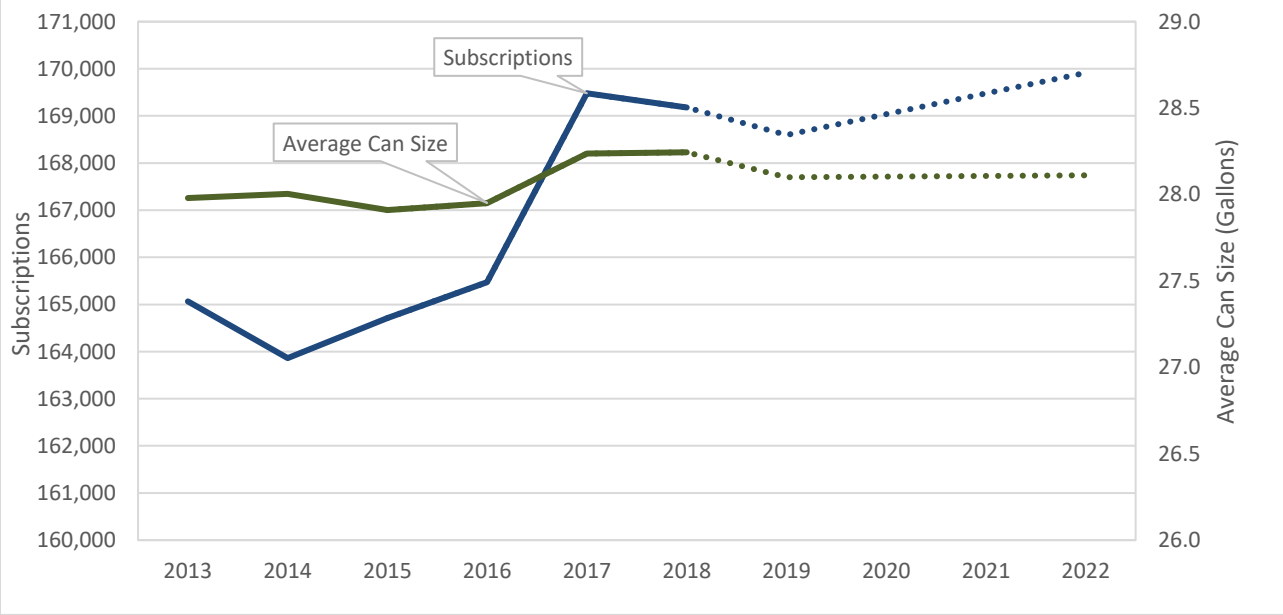
Sector	Customer Count	Volume	Tonnage
Residential Curbside (Single-Family)	0.8%	0.0%	0.0%
Residential On-Site (Multi-Family)	4.6%	0.6%	4.7%
Commercial	1.9%	-0.4%	2.9%
Organics	4.2%	1.1%	5.1%

A more in depth explanation of each of these revenue sectors follows.

5.1. Residential Curbside (Single-Family)

Single-Family and multi-family buildings are served by regular weekly curbside can or cart collection. Starting in 2014, subscription counts increased for single-family, driven mainly by growth in the region. In 2017, SPU transitioned to a new billing system, which modified the way subscriptions were counted for certain premises. This change led to an increase in number of subscriptions. Service counts slightly declined in 2018 and are projected to stay relatively flat during the proposed rate period. Can sizes have been stable since 2013 and are projected to stay the same through 2022. During the 6-year period from 2013 to 2018 there was a 1.5 percent increase in service counts (adjusted for the billing system change) and a 0.9 percent increase in can sizes. These trends have been consistent with the exception of 2014 which saw a decrease in service counts.

Figure 5-3: Historic and Projected Changes to Curbside Residential Demand



The long-term trend is expected stay relatively flat, with the increase in subscription counts from economic growth being offset by infill development, conservation, and diversion. Infill development both reduces the number of subscriptions by replacing single-family homes with multi-family buildings, and apartments and condominiums also produce less waste than single-family homes. Both factors lower the average can size demanded by customers. Conservation and diversion also decrease can sizes by decreasing the amount of waste produced by all customers, single or multi-family, or diverting it to

organics or recycling. Infill development, conservation, and diversion, particularly to organics, are expected to continue to reduce demand for curbside garbage services.

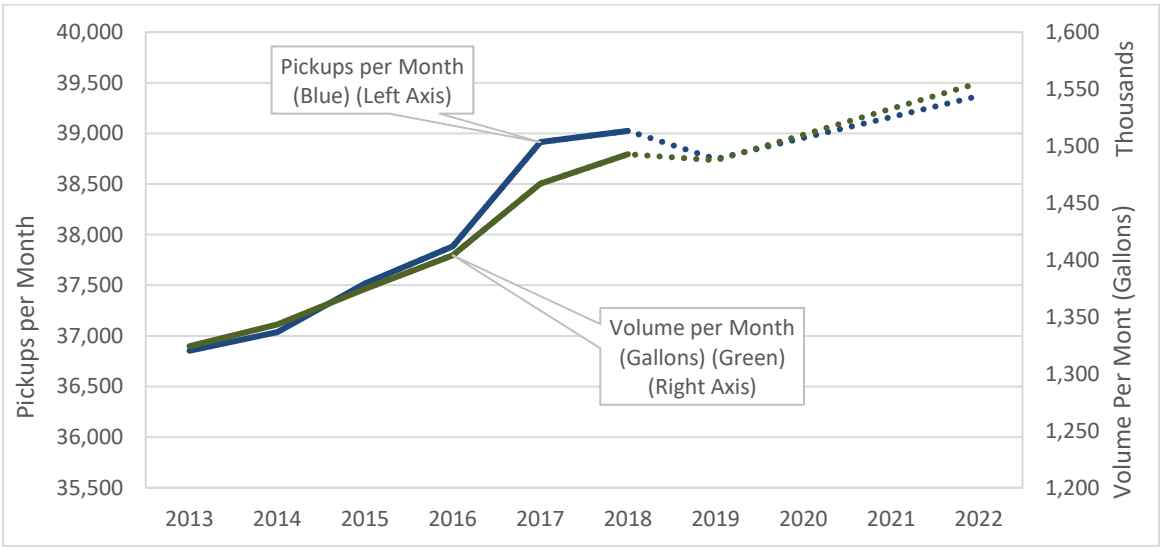
5.2. Residential On-Site (Multi-Family)

Most multi-family buildings in Seattle subscribe to on-site detach (dumpster) service. Detach customers are charged based on the frequency of pickup and the size of the container according to the following formula:

*Monthly Rate = Trip Rate * Pickups per Month + Volume Rate * (Pickups Per Month * Volume of Container)*

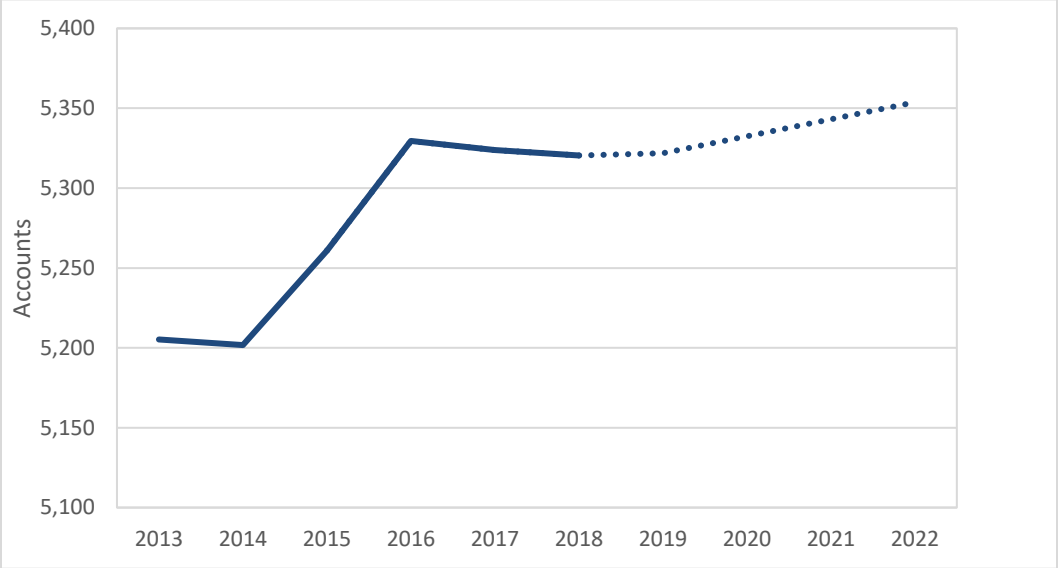
The Trip and Volume Rates are set through this rate study. The demand items to track and forecast are pickups per month and volume demanded. Both of these demand categories saw a sharp post-recession decline which rebounded in 2013. Growth is expected in both pickups and volume as construction of multi-family buildings within the City continues to create demand.

Figure 5-4: Historic and Projected Changes to On-Site Residential Demand



The final component of on-site demand is the number of accounts paying the monthly account fee. The account fee generates roughly six percent of total on-site revenue. Accounts are expected to increase slightly, following the trend from 2016 to 2018.

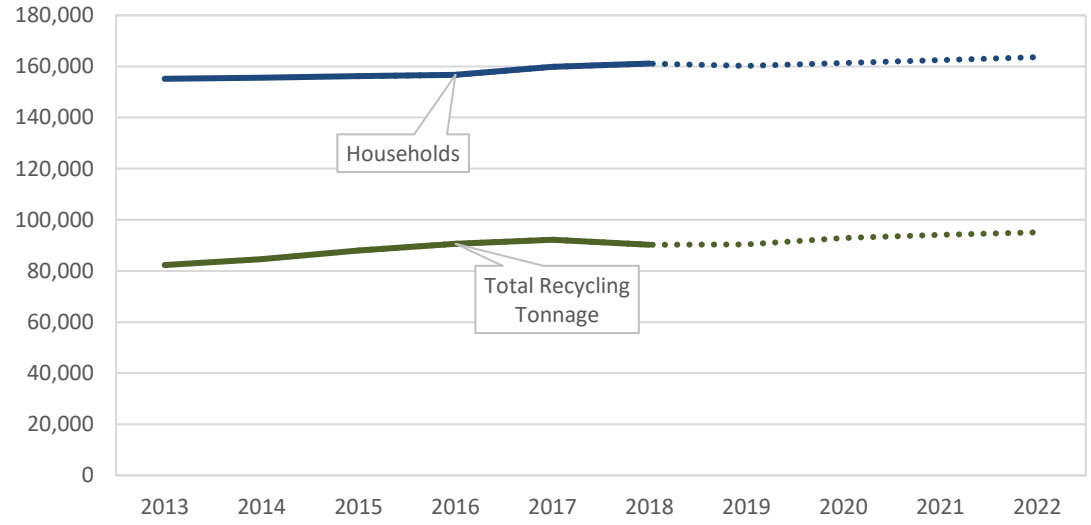
Figure 5-5: Historic and Projected Residential On-Site Accounts



5.3. Recycling

SPU offers bi-weekly curbside recycling pickup for curbside can customers and on-site variable frequency pickup for on-site customers. For the most part, can sizes are set – all curbside customers receive a 96-gallon cart, and all on-site customers receive recycling cart or detach service that has a total volume of 50 percent of their subscribed garbage volume. Larger volume services are also available. Limited recycling service is also available to small businesses, though small business recycling amounts to less than half a percent of total recycling tonnage. All recycling services are included at no cost with accompanying garbage service.

Figure 5-6: Total Recycling Households and Tonnage



Because there is less customer choice regarding container sizes, recycling is a relatively steady cost center. Customer counts are largely unchanged, and tonnage increases coming out of the recession have been slow and steady.

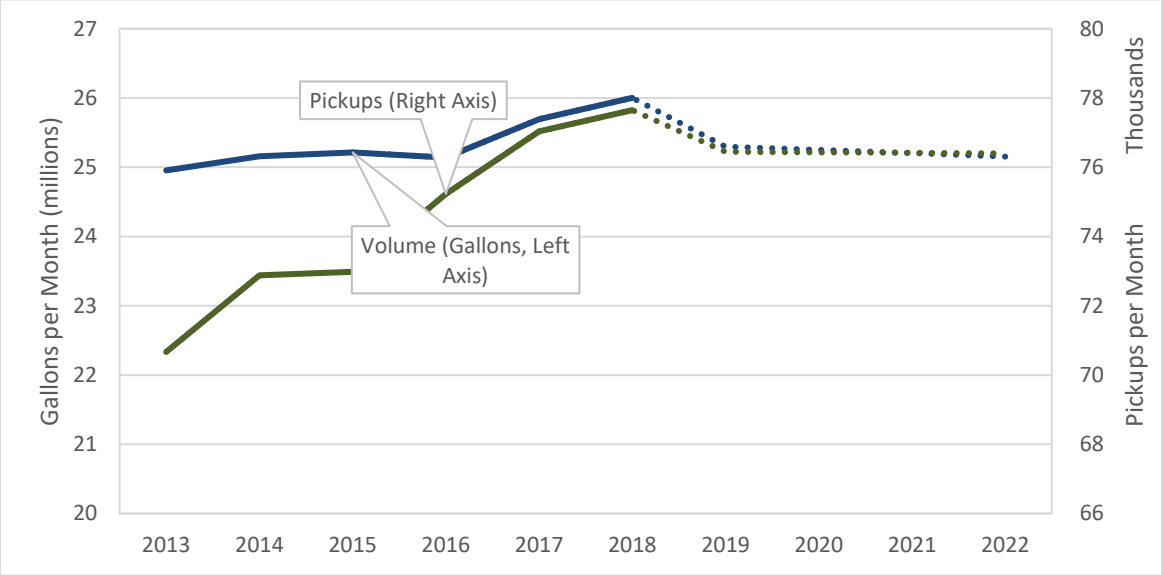
5.4. Commercial

Commercial customers subscribe to one or more options from three types of services: can, detach (dumpsters), or dropbox. Can customers may subscribe to service of any frequency with a charge per pickup based on can size. Detach customers subscribe to service with a charge based on a pickup and volume rate:

*Monthly Rate = (Trip Rate * Pickups per Month) + (Volume Rate * Pickups Per Month * Volume of Container)*

Lastly, dropbox customers pay an on-demand pickup rate and a tonnage rate.

Figure 5-7: Historic and Projected Commercial Volume and Pickups



Commercial demand is highly correlated to regional economic performance, within the larger long-term context of conservation and diversion. Commercial tonnage has gone through at least three cyclical increases and decreases over the last 25 years within a long-term decline trend. Since 2000, tonnage has fallen from 225,000 tons per year to 140,000 tons in 2016. As the economy has recovered, particularly in 2017 and 2018, commercial tonnage has somewhat recovered, and commercial volume and pickup subscriptions have increased as well. However, a long-term trend of conservation and diversion is still projected to be the dominant theme in the commercial sector. Combined volume is expected to decline by 3.3 percent by 2022. Pickups are expected to decline by 1.6 percent by 2022.

Commercial Recycling and Organics

SPU provides limited recycling and organics services to small business. Most recycling and organics services are provided by independent third-party companies. SPU services are offered as a courtesy.

With the implementation of the food waste ban in 2015, commercial organics subscription volumes increased 70% 2014 to 2016. Despite this growth, commercial organics is less than one percent of total organics tonnage and will continue to remain a service offered as a courtesy by SPU, with the intention that this industry remains largely in the realm of the private sector. Commercial organics is included under “On-Site Food Waste” in the organics section below.

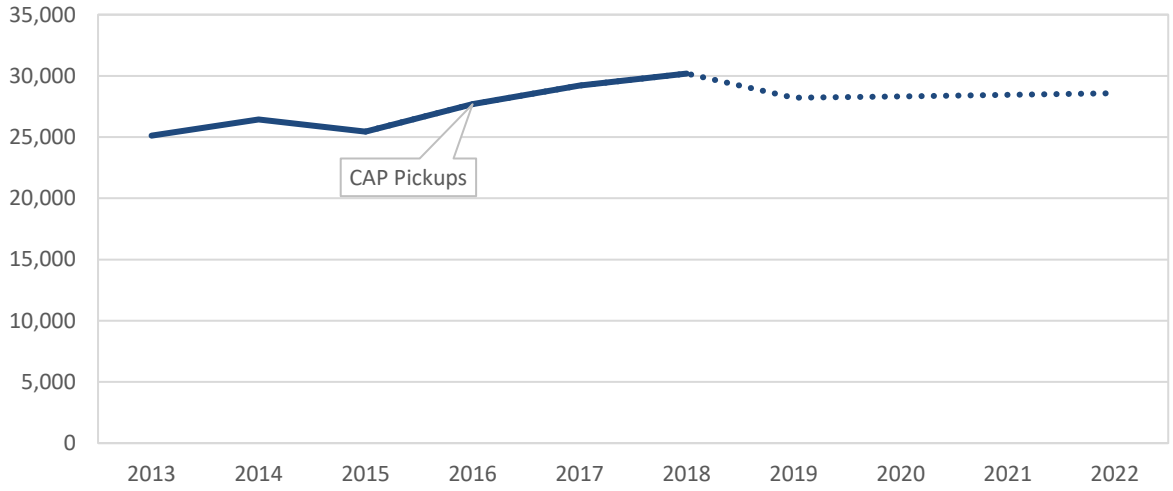
Small businesses in Seattle can also subscribe to limited recycling service, though like organics, this service is largely also private sector. The demand for this service is included under residential recycling. Total commercial recycling tonnage is less than half a percent of total recycling tonnage.

Clear Alleys Program (CAP)

In certain designated areas within the city of Seattle, residents and business are not allowed to keep solid waste containers within the public right-of-way. For customers in these areas who do not have indoor locations for containers, the CAP program offers pre-paid bag service with multiple pickups per day. SPU is not assuming an expansion of CAP-designated areas, only changes in demand for current CAP customers. The CAP program is a small portion of SPU’s services, and provides less than $100,000 in

revenue per year. SPU is projecting a slow decline in CAP demand, mirroring the general commercial trend.

Figure 5-8: CAP Pickups



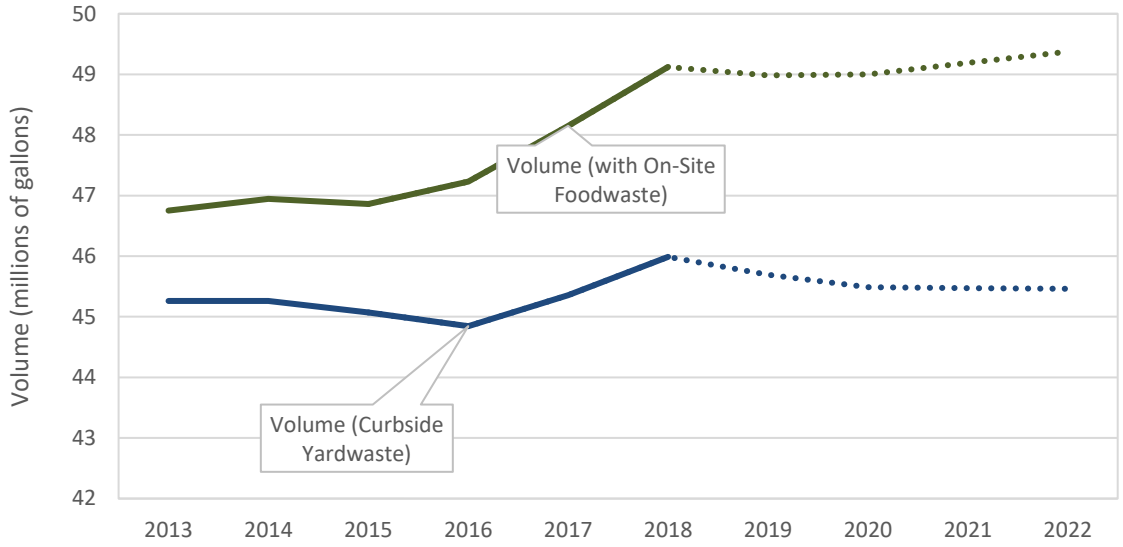
Argo Direct

SPU allows for the delivery of solid waste from third parties directly to the railroad for transport to landfill in Oregon. Usage of this program has declined by more than 60 percent since 2009 and SPU projects 6,000 tons per year (compared to 250,000 total tons) or less delivered to the railhead.

5.5. Organics

Residential curbside and on-site customers subscribe to either curbside or on-site service. Generally, curbside garbage customers subscribe to curbside yard waste service. On-site customers generally subscribe to on-site food waste service. Food waste-specific service is charged at a higher rate because food waste tends to be denser than branches and clippings from yard waste which account for the bulk of curbside customer volumes. Some small commercial customers also subscribe to on-site food waste pickup, and their demand is included in the on-site numbers below, but makes up less than one percent of the total.

Figure 5-9: Monthly Organics Volume in Gallons



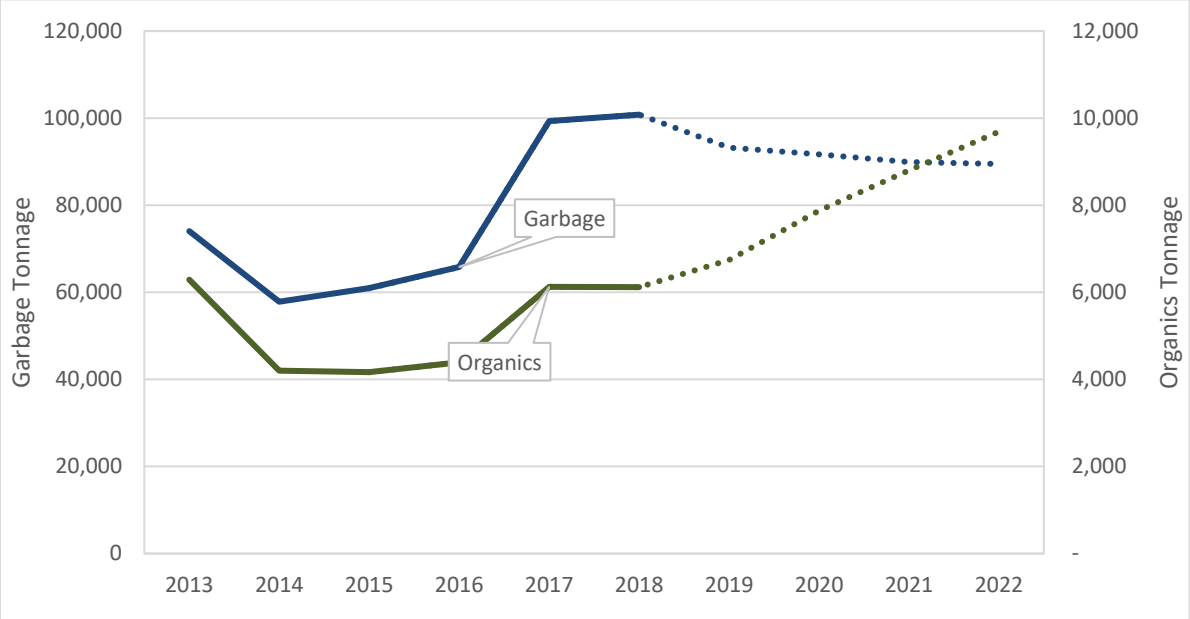
Weekly curbside volume has been declining as customers switch to smaller containers and single-family homes are replaced with multi-family development. These trends are expected to continue, especially as newer homes with smaller yards reduce the need for large yard waste containers. On-site food waste demand has increased with the expansion of multi-family housing and the increased adoption of in-home diversion of food waste away from the garbage. A large increase in organics tonnage was seen following the implementation of the food waste ban in 2015, though there was not an accompanying increase in subscriptions or subscription revenue because food waste tends to be small and dense. Regardless, on-site volume is expected to continue to increase throughout the rate study period. Total organics tonnage is expected to increase 6.3 percent over the rate period.

5.6. Self-Haul

Self-Haul demand is measured in tonnage. Customers at transfer stations currently pay $145 per ton for garbage and $110 for organics. Vehicles are weighed and charged for their tonnage and are subject to the 0.2 ton minimum charge. Self-Haul rates are proposed to increase for this rate study period.

With temporary closure of the North Transfer Station in 2013, self-haul tonnage declined as customers postponed trips, conserved, or visited King County's transfer station in Shoreline instead. During the 2017-2019 rate study, SPU projected a slow return of these customers when the new North Transfer Station opened at the end of 2016. However, due to the increase in construction activity, tonnages increased 50% from 2016 to 2017, comparable to pre-recession levels. See Figure 5-7.

Figure 5-10: Historic and Projected Self-Haul Tonnage



6. RATE DESIGN

Rate design is the last step in the rate-setting process in which the structure and level of the rates for each of the different services and service levels is determined.

Rate design is the point at which non-cost considerations such as rate gradualism, encouraging waste reduction, low-income rate assistance, and other policy issues are factored into the rates. In some cases, these considerations result in deviations from setting rates at their cost of service.

6.1. 2020-2022 Rate Design Strategy

There have been no changes to rate design. This rate study proposes equal increases across all rates of 3.0 percent on April 1, 2020; 2.9 percent on April 1, 2021; and 2.9 percent on April 1, 2022. The following rates would remain unchanged throughout the proposed rate period:

- Zero Can/Vacancy rate: The rate paid for vacant units with no service, and a small number of legacy customers with no garbage service
- Bulky Item Pickups: $30 charge for appliance pickups, $20 charge for electronics, and an $8 additional fee for items with CFCs.
- New Account Charge: $10 fee assessed on new accounts.

6.2. Residential Curbside (Single-Family) Garbage Rates

The monthly rates charged by SPU for residential garbage can service vary with the garbage service levels to which the customer subscribes. Currently, SPU's variable can rates are structured so that customers' bill increases with the amount of garbage service to which they subscribe. Both single-family and multi-family dwellings can subscribe to variable can service though this service is sometimes synonymous with single-family, while on-site service (See Section 5.3) is synonymous with multi-family.

In addition to covering the cost of garbage collection, transfer, and disposal, residential can rates cover recycling collection and processing costs, part of compost collection and processing costs, and low-income rate assistance. Can rates are shown in Table 6-1. Increasing rates for larger cans provide important price signals to encourage customers to recycle, reduce waste and minimize their can size. A typical single-family customer is reported as a 32-gallon garbage can (and a 96-gallon yard waste cart).

Table 6-1: Residential Curbside (Single-Family) Rates

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Extras	$12.00	$12.35	$12.70	$13.05
Garbage Can/Cart Size				
12 Gallon (Micro)	$24.25	$25.00	$25.75	$26.50
20 Gallon (Mini)	$29.70	$30.60	$31.50	$32.40
32 Gallon (Standard)	$38.65	$39.80	$40.95	$42.15
64 Gallon	$77.25	$79.55	$81.85	$84.20
96 Gallon	$115.90	$119.40	$122.85	$126.40

6.3. Residential On-Site (Multi-Family) Garbage Rates

Residential detachable container service is available to apartment buildings with five or more residential units. Detachable rates reflect SPU's contract payments structure and include a flat monthly account fee, a trip rate charged for each container pick-up, and a volume rate (a trip rate that varies with container size):

*Monthly Rate = Pickups per Month * (Trip Rate + Volume Rate * Container Size)*

Dumpster rate components are designed to further encourage dumpster customers to recycle, reduce waste and minimize the number of collections per week and the number of containers. Proposed rates are below:

Table 6-2: Residential On-Site (Multi-Family) Rates

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Monthly Account Fee	$42.50	$43.80	$45.05	$46.35
Detach Rate Components				
Pickup Rate	$31.80	$32.75	$33.70	$34.70
Uncompacted Volume Rate	$24.50	$25.25	$26.00	$26.75
Compacted Volume Rate	$49.75	$51.25	$52.75	$54.30

Compacted rates are higher than un-compacted rates because a compacted container can hold up to five times the garbage of an un-compacted container. Based on SPU data, compacted containers weigh 2.03 times regular containers, on average. Therefore, the volume rate for compacted dumpsters is charged at 2.03 times that of uncompacted container rates.

6.4. Commercial Rates

Commercial rates include container and drop box service for both garbage and organics. Individual rate components may vary from what allocated costs dictate in an effort to further encourage dumpster customers to recycle, reduce waste and minimize the number of collections and containers. Commercial customer rate changes are identical to those for residential customers.

Can

Can service rates are shown in Table 6-3 for weekly pickup, though customers may subscribe to any frequency of pickup which is logistically feasible.

Table 6-3: Commercial Can Rates

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
On-Site Cans (Weekly Pickup)				
20-Gallon	$35.94	$37.02	$38.10	$39.19
32-Gallon	$52.39	$53.91	$55.42	$56.94
64-Gallon	$102.40	$105.44	$108.47	$111.71
96-Gallon	$120.16	$123.84	$127.52	$131.20

Detach (Dumpsters)

Detach services include uncompacted and compacted service. The contents of the container are tipped into the collection vehicle and customers are charged for each tip (pick up), regardless of the amount of waste within the container. The formula for commercial detachable rates is the same as for residential customers:

*Monthly Rate=Trip Rate * Pickups per Month + Volume Rate * (Pickups Per Month * Container Size)*

Table 6-4: Commercial Detach Rates

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Monthly Account Fee	$28.60	$29.45	$30.30	31.20
Detach Rates				
Pickup Rate	$18.65	$19.20	$19.75	$20.30
Uncompacted Volume Rate	$31.50	$32.45	$33.40	$34.35
Compacted Volume Rate	$64.00	$65.90	$67.80	$69.75

Drop Box

Drop box service customers are delivered a roll-off container that is then picked up and transferred for disposal through one of the transfer stations. Customers are charged for the delivery of the container, the pick-up of the container, a rental/account fee, and a per ton (disposal) fee for its content. The disposal fee is intended to cover SPU's cost of transfer and disposal, taxes on the tons disposed, and a portion of SPU's administrative costs. Proposed drop box fees can be found in Table 6-5.

Table 6-5: Dropbox Detach Rates

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Monthly Account Fee	$122.40	$126.05	$129.70	$133.45
Pickup Rate	$236.25	$243.35	$250.40	$257.65

Tonnage Rate	$201.50	$207.55	$213.57	$219.76

6.5. Organics Rates

Organics service is divided into curbside and on-site rates. Curbside rates are generally single-family yard waste customers, while on-site rates are multi-family and commercial food waste customers. On-site food waste rates are based on commercial garbage can rates, but a 32 percent discount is offered for organics. Detach is also available at the same pickup and volume rate as detach commercial garbage, but again with a 32 percent discount.

Table 6-6: Organics Rates

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Curbside Yard waste Weekly (Single-Family)				
20-Gallon (Mini)	$6.40	$6.60	$6.80	$7.00
32-Gallon	$9.60	$9.90	$10.20	$10.50
96-Gallon (Standard)	$12.30	$12.65	$13.00	$13.40
On-Site Food waste Cans (Multi-Family, Commercial)				
32-Gallon	$35.63	$36.66	$37.69	$38.72
64-Gallon	$69.64	$71.70	$73.76	$75.97
96-Gallon	$81.71	$84.21	$86.71	$89.22

6.6. Transfer Station Rates

Transfer station rate increases are included in the rate proposal. Vehicles are weighed and charged for their tonnage and are subject to the 0.2 ton minimum charge.

Table 6-7: Transfer Station Rates

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Garbage				
Minimum	$30	$31	$32	$33
Per Ton	$145	$149	$153	$158
Organics				
Minimum	$20	$21	$21	$22
Per Ton	$110	$113	$116	$119

6.7. Other Rates

Other rates include ancillary charges for cleaning, locking and unlocking, and secured building entry fees, among others. This category also includes rates which only apply to specific customers such as railhead disposal fees or CAP.

The rates in this category will increase by the same percentage as the rates described above. Ancillary charges are roughly 3.2 percent of residential garbage revenue and 1.2 percent of commercial revenue, or about $1.8 million in 2018. A full list of ancillary rates is located in Appendix E Rate Tables.

Railhead Disposal (Argo Direct) Fee

Non-contract commercial waste is brought by private transfer stations to the railhead in south Seattle, where it is placed on a train and taken to the landfill in Arlington, Oregon. Railhead tonnage is not a significant source of revenue and makes up less than one percent of SPU's total tonnage. There is a 25-ton minimum charge.

Table 6-8: Railhead Disposal (Argo Direct) Fee

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Railhead Rate per Ton	$128.80	$132.70	$136.50	$140.50
Minimum	$3,220.00	$3,316.60	$3,412.80	$3,511.80

Clear Alley Program (CAP) Bag Rates

Starting in 2009, residential and commercial customers located within areas designated by SPU, and whose containers were located in the right-of-way, were required to subscribe to a pre-paid bag service in lieu of container service. Rates for the service are designed so that customers pay a bill equivalent to bills paid by detach customers on a volume basis.

Table 6-9: Clear Alley Program (CAP) Bag Rates

	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Garbage Bag Size				
15-Gallon	$5.10	$5.25	$5.40	$5.55
30-Gallon	$7.30	$7.50	$7.70	$7.90
Organics Bag Size				
15-Gallon	$3.45	$3.55	$3.65	$3.75
30-Gallon	$4.95	$5.10	$5.25	$5.40

7. UTILITY DISCOUNT PROGRAM

Qualified low-income customers receive a 50 percent discount on their solid waste bill or a fixed credit on their Seattle City Light bill (if they do not receive an SPU bill directly). For can customers, the fixed credit is equal to 50% of the typical solid waste customer's bill (i.e., 50%of the single can rate plus food and yard waste. For apartment dwellers the fixed credit is equal to 50% of the average dumpster bill per household). This approach is consistent with the other City utilities.

There is no discount on extra garbage or food and yard waste charges for qualified low-income customers. Extra garbage or food and yard waste is billed at full rates. Low income rate credits can be found in Table 7-1.

Table 7-1: Proposed UDP Rates and Credits

Customer Type	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
Seattle Public Utilities Discounts				
SPU Customer Discount	50% Discount	50% Discount	50% Discount	50% Discount
Seattle City Light Credits				
Multi-Family Can Customer	$19.30	$19.90	$20.50	$21.10
Multi-Family Detach Customer	$15.80	$16.25	$16.70	$17.20
Organics	$6.20	$6.40	$6.60	$6.80

Utility Low Income Emergency Assistance Program

The Emergency Assistance Program offers eligible low-income customers facing shut off due to delinquent bills an emergency credit of 50% off their past-due combined bill, up to a maximum credit of $424 (in 2019) for wastewater, water, and solid waste bills combined. They are eligible to receive this credit once per calendar year or twice per calendar year if children under the age of 18 live in the household. In 2012 the eligibility requirements were changed from 120% of the federal poverty level to 70%of state median income leading to increased usage of this service. Annual solid waste charges to this program do not exceed $100,000 and are not a significant expense to the SWF.

APPENDIX A STATEMENT OF OPERATING RESULTS

The Statement of Operating Results shows all components of the debt service coverage calculations. It does not display non-cash expenses.

Statement of Operating Results ($ Millions)

	2018 Actual	2019 Projected	2020 Proposed	2021 Proposed	2022 Proposed	2023 Estimated
Operating Revenue						
Direct Service	131.2	132.5	138.4	143.2	148.1	153.5
Commercial	63.3	63.9	65.8	67.7	69.7	71.8
Other	21.3	16.2	16.6	17.9	19.2	20.8
RSF Withdrawals (Deposits)	(10.2)	(0.3)	-	-	-	-
Total Operating Revenue	205.6	212.3	220.9	228.9	237.1	246.1
Operating Expenses						
Contracts	108.0	112.8	116.9	122.3	127.8	133.7
Branch O&M	43.2	46.6	48.9	51.7	54.5	56.5
Taxes	28.6	28.6	29.8	30.6	31.6	32.4
Depreciation	14.9	13.3	13.2	13.6	14.4	14.9
Total Operating Expenses	194.7	201.4	208.8	218.2	228.4	237.6
Net Operating Income	10.9	10.9	12.1	10.7	8.7	8.5
Other Income (Expenses)						
Investment, Sales, and Other	1.7	0.7	0.6	0.5	0.4	0.4
Interest Expense	(8.0)	(7.2)	(6.8)	(6.4)	(5.9)	(5.6)
Total Other Income (Expenses)	(6.2)	(6.5)	(6.2)	(5.9)	(5.5)	(5.2)
Contributions and Grants	0.3	0.1	0.1	0.1	0.1	0.1
Net Income (Loss)	5.0	4.5	6.0	4.9	3.3	3.4
Revenue Available for Debt Service						
With Credit for Taxes	55.5	50.6	52.7	52.2	51.8	52.7
Without Credit for Taxes	29.8	25.2	26.2	25.0	23.8	24.1
Annual Debt Service	15.9	15.9	15.4	15.4	15.4	15.4
Debt Service Coverage						
With Credit for Taxes (Target = 1.7)	3.50	3.19	3.41	3.38	3.36	3.41
Without Credit for Taxes (Target = 1.5)	1.88	1.59	1.70	1.62	1.54	1.56

APPENDIX B STATEMENT OF CASH FLOW

	2018 Actual	2019 Projected	2020 Proposed	2021 Proposed	2022 Proposed	2023 Estimated
Starting Balance	55.9	60.1	50.8	45.8	31.8	28.9
Additions to Cash						
Operating Revenues	205.6	212.3	220.9	228.9	237.1	246.1
Non-Operating Revenues	1.8	1.0	0.9	0.8	0.7	0.6
Grants	0.3	0.1	0.1	0.1	0.1	0.1
Total Additions to Cash	207.7	213.3	221.9	229.8	237.8	246.8
Deductions from Cash						
Contracts	108.0	112.8	116.8	122.3	127.8	133.7
Branch O&M	40.9	43.6	45.9	48.7	51.5	53.5
Cash Contributions to CIP	3.5	3.6	19.0	26.7	14.5	13.1
Taxes	28.6	28.6	29.9	30.7	31.6	32.3
Debt Service	15.9	15.9	15.4	15.4	15.4	15.4
Adjustments	6.6	18.4	-	-	-	-
Total Deductions from Cash	203.6	222.8	226.9	243.8	240.8	248.2
Ending Cash Balance	60.1	50.8	45.8	31.8	28.9	27.5

APPENDIX C COST ALLOCATION

This appendix contains a list of cost centers, budgeted costs for 2020, and an allocation to general customer classes. Some totals may not add due to rounding; table is in thousands of dollars.

Cost Center	Allocation Method	Residential	Commercial	Transfer Station	Total
SPU Branch O&M		**21%**	**20%**	**30%**	**21%**
Billing	Customer Counts and Trips	5,498	0	0	5,498
Environmental	Garbage Tonnage	631	840	368	1,839
G&A - Contract Management	Management Estimates	2,881	960	0	3,841
Transfer Stations - Hauling (All)	Tonnage	249	174	59	482
Transfer Stations - Operations	Tonnage	5,475	3,825	1,290	10,590
G&A - General	Tonnage	16,016	6,013	897	22,925
HR	Proportional Assignment	587	220	33	840
Contract Expense		**55%**	**51%**	**40%**	**54%**
N000156 Single Family Garbage	Direct Assignment	16,963	-	-	16,963
N000159 Single Family Recycling	Direct Assignment	11,040	-	-	11,040
N000157 Single Family Compost	Direct Assignment	17,895	91	-	17,986
N000156 Multi Family Garbage	Direct Assignment	7,064	-	-	7,064
N000159 Multi Family Recycling	Direct Assignment	6,051	-	-	6,051
N000157 Multi Family Compost	Direct Assignment	462	-	-	462
N000156 Commercial Garbage	Direct Assignment	-	20,554	-	20,554
N000157 Commercial Compost	Direct Assignment	-	966	-	966
N000159 Commercial Recycling	Direct Assignment	-	122	-	122
N050501 Long-Haul Disposal	Tonnage	5,652	7,526	3,296	16,474
N050107 Garbage Transfer/Processing	Tonnage	6	8	4	18
N050107 Recycling	Tonnage	9,005	-	-	9,005
N050107 Compost	Tonnage	4,907	260	236	5,402
N050201 LHWMP	Volume	2,731	1,431	-	4,161
Taxes		**13%**	**16%**	**13%**	**14%**
City Utility Tax	Ad-hoc	15,147	6,621	0	21,768
City Tonnage Tax	Tonnage	1,589	2,116	927	4,631
State B&O Tax	Revenue	2,283	998	197	3,478
CIP, Financial Policies, and Non-Rates Revenues		**11%**	**13%**	**17%**	**12%**
	Ad-hoc	3,889	4,762	750	9,400
Solid Waste Fund Total	Total in Dollars	148,251	60,676	8,8.2	217,759
	Class Share of SWF Total	**68%**	**28%**	**4%**	**100%**

APPENDIX D DEMAND ANALYSIS

The following is an overview of the demand projection for the major demand categories. Actuals may not match those published elsewhere by SPU.

Customer Class	Rate	2018 Actual	2019 Projected	2020 Proposed	2021 Proposed	2022 Proposed	2023 Estimated
Residential Curbside Can Pickups	0 Can	1,170	1,030	813	596	380	163
	12-Gallon	22,419	23,512	24,403	25,292	26,181	27,069
	20-Gallon	49,372	50,508	51,392	52,274	53,155	54,037
	32-Gallon	85,322	82,445	80,898	79,355	77,812	76,269
	64-Gallon	7,949	8,088	8,307	8,525	8,743	8,961
	96-Gallon	2,945	3,015	3,225	3,434	3,644	3,853
	Total	**169,177**	**168,598**	**169,037**	**169,476**	**169,914**	**170,353**
Residential On-Site Detach	Accounts	5,320	5,322	5,332	5,343	5,354	5,364
	Pickups	39,024	38,747	38,954	39,161	39,368	39,575
	Volume (Cubic Yards)	88,693	88,367	89,715	91,060	92,405	93,750
Commercial Garbage	Accounts	8,028	8,000	7,971	7,941	7,911	7,882
	Pickups	77,651	76,449	76,934	77,417	77,901	78,385
	Volume (Cubic Yards)	101,848	99,775	99,654	99,533	99,413	99,292
	Dropbox Tonnage	4,052	3,942	3,891	3,841	3,790	3,739
Organics Yard waste Pickups	13-Gallon	35,956	36,096	36,738	37,378	38,018	38,658
	32-Gallon	24,959	26,808	28,794	30,775	32,756	34,737
	96-Gallon	95,875	94,990	94,311	93,634	92,957	92,280
	Total	**156,790**	**157,894**	**159,843**	**161,788**	**163,732**	**165,676**
Organics Food waste Pickups	Pickups	2,148	2,149	2,144	2,139	2,135	2,130
	Volume (Cubic Yards)	11,032	11,827	12,623	13,416	14,210	15,004
Transfer Station Tonnage	Garbage	100,807	93,241	91,682	89,959	89,506	89,333
	Organics	6,121	6,746	7,873	8,799	9,689	10,478
System-wide Tonnage	Garbage	354,690	345,063	350,868	354,952	360,753	367,126
	Organics	103,962	105,338	109,301	112,272	114,616	116,893
	Recycling	90,260	90,408	92,801	94,089	95,093	96,230

APPENDIX E RATE TABLES

Most solid waste rates are rounded to the nearest nickel.

Customer	Rate	2019 Adopted	2020 Proposed	2021 Proposed	2022 Proposed
April 1 Rate Increase		4.0%	3.0%	2.9%	2.9%
Residential Curbside Can	0 Can	6.85	6.85	6.85	6.85
	12-Gallon	24.25	25.00	25.70	26.45
	20-Gallon	29.70	30.60	31.50	32.40
	32-Gallon	38.65	39.80	40.95	42.15
	64-Gallon	77.25	79.55	81.85	84.20
	96-Gallon	115.90	119.40	122.85	126.40
	Extras	12.00	12.35	12.70	13.05
Residential On-Site Detach	Account Fee	42.50	43.80	45.05	46.35
	Pickup Charge	31.80	32.75	33.70	34.70
	Uncompacted Volume	24.50	25.25	26.00	26.75
	Compacted Volume	49.75	51.25	52.75	54.30
Yard waste	13-Gallon	6.40	6.60	6.80	7.00
	32-Gallon	9.60	9.90	10.20	10.50
	96-Gallon	12.30	12.65	13.00	13.40
	Extras	6.15	6.35	6.55	6.75
Food waste	32-Gallon	35.63	36.70	37.80	38.90
	64-Gallon	69.64	71.75	73.85	76.00
	96-Gallon	81.71	84.15	86.55	89.10
Commercial Cans	20-Gallon	35.94	37.02	38.10	39.19
	32-Gallon	52.39	53.91	55.42	56.94
	64-Gallon	102.40	105.44	108.47	111.71
	96-Gallon	120.16	123.84	127.52	131.20
Commercial Detach	Account Fee	28.60	29.45	30.30	31.20
	Pickup Rate	18.65	19.20	19.75	20.30
	Uncompacted Volume	31.50	32.45	33.40	34.35
	Compacted Volume	64.00	65.90	67.80	69.75
Commercial Dropbox	Account Fee	122.40	126.05	129.70	133.45
	Pickup Rate	236.25	243.35	250.40	257.65
	Tonnage Rate	201.50	207.55	213.55	219.75

Clear Alley Rates	15-Gallon Garbage Bag	5.10	5.25	5.40	5.55
	30-Gallon Garbage Bag	7.30	7.50	7.70	7.90
	15-Gallon Organics Bag	3.45	3.55	3.65	3.75
	30-Gallon Organics Bag	4.95	5.10	5.25	5.40
Ancillary Rates	Can/Cart Delivery	29.65	30.55	31.45	32.35
	Dumpster Delivery	35.65	36.70	37.75	38.85
	Small Roll-off Delivery	47.40	48.80	50.20	51.65
	Large Roll-off Delivery	74.20	76.45	78.65	80.95
	Can/Cart Rollout/Reposition	3.00	3.10	3.20	3.30
	Detach Rollout/Reposition	8.80	9.05	9.30	9.55
	Enter Secure Building	5.90	6.10	6.30	6.50
	Dumpster Cleaning	44.50	45.85	47.20	48.55
	Roll-off Cleaning	59.30	61.10	62.85	64.65
	Can/Cart Cleaning	11.85	12.20	12.55	12.90
	Connect/Disconnect	50.40	51.90	53.40	54.95
	Dry Run	103.80	106.90	110.00	113.20
	Truck, Hourly Special	266.95	274.95	282.90	291.10
	Swamper, Hourly Special	88.85	91.50	94.15	96.90
Misc., Bulky, Etc.	Garbage Curbside Extra	12.00	12.35	12.70	13.05
	Organics Curbside Extra	6.15	6.35	6.55	6.75
	Organics On-Site Extra	8.15	8.40	8.65	8.90
	CFCs Charge	8.00	8.00	8.00	8.00
	Electronics	20.00	20.00	20.00	20.00
	Bulky Item/Appliance	30.00	30.00	30.00	30.00
Transfer Station Rates	Garbage, per Ton	145.00	149.00	153.00	157.00
	Garbage, Minimum Charge	30.00	31.00	32.00	33.00
	Organics, per Ton	110.00	113.00	116.00	119.00
	Organics, Minimum Charge	20.00	21.00	21.00	22.00
	Vehicle Tires	13.00	13.00	13.00	13.00
	Large Appliances	30.00	30.00	30.00	30.00