COUNCIL STAFF REPORT

CITY COUNCIL *of* SALT LAKE CITY

Item Schedule:
Briefing: 10/02/18
Public Hearing: n/a
Potential Action: n/a

TO: City Council Members

FROM: Sam Owen, Constituent Liaison / Policy Analyst

DATE: September 27, 2018

RE: Informational: Department of Public Utilities

2018 Comprehensive Water and Sewer Rate Study

GOAL OF THE BRIEFING

Provide information about the process and recommendations of the Comprehensive Water and Sewer Rate Study, especially with regard to changes that will impact customers. **A subsequent transmittal is expected to amend the City's Consolidated Fee Schedule (CFS) to include Rate Study recommendations and new rate structures.**

ISSUE AT-A-GLANCE

During the spring of 2017, the Department of Public Utilities indicated it would begin a public engagement process known as the Rate Advisory Committee (RAC) to solicit deliberate feedback on a number of proposed alternatives to the existing rate structure for water and sewer service. The Rate Study also involved an analysis of stormwater rates; no changes are currently recommended for this Utility. Public Utilities has a practice of conducting a rate study every five to six years.

The RAC met over the course of six meetings and forwarded recommendations to the Public Utilities Advisory Committee (PUAC), which forwarded its selections to the Administration. The Administration worked with financial consultants Raftelis to formalize these selections into a final report, which is the subject of this briefing. The RAC examined a number of alternatives and the present Rate Study models its recommendations from the alternatives that were selected by members of the RAC.

The final Raftelis report makes recommendations for changes to the rate structure for the City's water and sewer service. The final report also includes a number of recommendations for adjustments to existing miscellaneous

Public Utilities fees, as well as new miscellaneous fees, to be included as part of a subsequent proposal to amend the CFS.

Recommendations to the water and sewer rate structures would be revenue neutral, meaning the proposed changes would redistribute existing costs amongst the utilities' customer classes without generating additional funds compared to fiscal year 2019 adopted rates. Rate Study recommendations to miscellaneous fees would reflect actual costs of performing services related to the fees.

Changes to the rate structure in the Water Utility would result in slightly decreased bills for most residential customers, and increases in bills for commercial and industrial users, as well as institutional users. These changes would primarily impact water users connected through larger meter sizes and those consuming larger volumes of water. The changes in this rate structure are in part meant to reflect the essential use affordability priority identified by the RAC (Attachment 1, page 2). Because fixed charges for smaller meters would be reduced, along with reductions in charges for lower volumes of water use, essential water use would be anticipated to become more affordable with adoption of the recommended changes. Some institutional users will also be able to access and continue accessing secondary water for irrigation use which could result in savings; addition of the corresponding secondary water fee to the CFS would also increase transparency.

Changes to the rate structure in the Sewer Utility would result in similar impacts, with residential users experiencing some savings and more intensive users such as commercial and industrial customers experiencing bill increases. These adjustments in part reflect the costs of providing service to more intensive users of this utility. See ADDITIONAL & BACKGROUND INFORMATION for discussion.

No rate structure changes were recommended in the Stormwater Utility, the Street Lighting Utility was not included as part of the present study.

The water service rate differential for City and County customers is also addressed extensively by the Rate Study (See Attachment 1, PDF pages 33, 34 and 114; See also Attachment 2, County Water Rate Differential).

ATTACHMENTS

1. Administrative Transmittal: Comprehensive Water, Sewer and Stormwater Rate Study
2. Memorandum: County Water Rate Differential
3. RAC Stakeholder list

POLICY QUESTIONS

1. Based on the Raftelis Rate Study recommendations, rates would decrease slightly for some groups of users such as single residences, increase slightly for other groups, and increase significantly for still others.

    a. The Department performed extensive outreach over a period of several months to collect stakeholder feedback on various alternatives for new rate structures. Based on information gathered by the Department during this process, the Council may wish to ask, for which groups would the overall impacts of implementing the Rate Study recommendations be anticipated as the most noticeable or significant? Possible users experiencing significant impacts might include:

        i. Housing developers and residents, especially multi-family
        (as costs incurred through increased connection and service fees would likely be reflected in costs passed on to consumers)

        ii. Commercial developers and businesses utilizing new commercial space

iii. Industrial users, especially those with more treatment-intensive discharge, who would pay significantly more for both water service and sewer service

iv. Institutional users such as schools and churches, although impacts for these two customer classes would likely be primarily for water service rather than sewer as well.

b. Based on possible impacts to new construction such as multi-family housing and commercial properties, has the Department conducted outreach or otherwise looked into effects on the production of new supplies in these markets—i.e., if the rate structure and fees were implemented as recommended in the subject Rate Study, has the Department or have others explored likely impacts to the pace of new construction or housing values in Salt Lake City?

i. The Council may wish to explore this question in the context of new development—primarily commercial/industrial—slated for the City's Northwest Quadrant in coming years.

2. A recent proposal from the Administration seeks fee relief for developers of new multi-family housing when affordability requirements are met. How would that program affect the proposed changes, in terms of considering city-fees for developers as a package?

3. Miscellaneous fee recommendations: The Raftelis study includes recommended changes to the rate structures for sewer and water customers, as well as recommended changes to miscellaneous fees. New miscellaneous fees were studied and information provided based on the maximum cost of various services for which the miscellaneous fees are assessed, such as new connections, plan review and repeat inspections. The full cost of performing these services (enumerated in section 6 of the Raftelis report, Attachment 1 page 54) is not currently being offset by fee-for-service revenue, but is covered by other revenue sources (water sales and sewer charges).

   Adoption of the recommended changes to miscellaneous fees would not be revenue neutral, i.e. adopting the fee adjustments as outlined in the Raftelis report would result in new revenue and consideration of adjustments to the fiscal year 2019 adopted budget for Public Utilities. By contrast, the rate structure recommendations are revenue neutral for fiscal year 2019. Therefore, considering the miscellaneous fee recommendations at this time would have both budget and policy impacts.

   a. The Council may wish to discuss whether recommended changes to miscellaneous fees and the resulting budget impacts, might be incorporated in a future budget discussion, such as with the fiscal year 2020 budget proposal for Public Utilities, when a holistic proposal could be prepared.

   b. Furthermore, the Council may wish to allow more time to review and discuss the proposed fee increases separate from the rate structure proposal. This would allow time to understand the overall budget options, and to identify specific values with regard to the proposed increases and possible ramifications of adjustments.

      i. The Council may wish to request that Public Utilities returns with a proposal of a preferred fee increase scenario based on the Raftelis findings.
      ii. One purpose might also be to highlight how adopting new, increased fees could offset future rate increases for customers of the Utilities.

      iii. The Council may wish to request that Public Utilities recommend miscellaneous fee increases that the Department would like to be considered in the shorter-term, as part of a possible CFS amendment to adopt the proposed rate structure changes. See KEY CHANGES—Miscellaneous Fees for discussion.

KEY CHANGES—Water Utility

Table 1.3: Water – FY19 Utility Presented and FY19 Proposed Raftelis Fixed Charges[1]

Meter Size	FY19 Utility Presented	FY19 Proposed Raftelis	Change - $	Change - %
3/4"	$9.89	$8.84	($1.05)	(11%)
1"	9.89	11.56	1.67	17%
1 ½"	11.68	18.37	6.69	57%
2"	12.68	26.55	13.87	109%
3"	21.28	48.34	27.06	127%
4"	22.78	72.86	50.08	220%
6"	32.88	140.98	108.10	329%
8"	59.11	222.71	163.60	277%
10"	109.63	576.91	467.28	426%
(1) County fixed charges are 1.35 times City fixed charges.				

Table 1.3 above shows monthly fixed charges assessed to customers based on the size of the water meter installed to provide water service. The Raftelis proposed changes to the fixed charges are shown in the highlighted column.

Fixed charges for water service help recover costs related to the Utility's basic capacity to provide service (e.g. costs of existing infrastructure such as reservoirs, pipes, pump stations and so on).

Most residential customers fall in the ¾ - inch and 1-inch meter sizes.

CONVERSION TABLE

Acre foot (AF)	Key definition Hundreds of cubic feet (ccf)	Gallons (g)
0.0022956841	1	748
1	435.6	325,828.8

Table 1.4: Water – FY19 Utility Presented and FY19 Proposed Raftelis Residential Volume Rates[1] City Customers

Block	FY19 Utility Presented $ per ccf	FY19 Proposed Raftelis $ per ccf	Change - $	Change - %
RESIDENTIAL[2]				
Winter (November – April)				
All Usage	$1.35	$1.30	($0.05)	(3.7%)
Summer (April – October)				
1	$1.35	$1.30	($0.05)	(3.7%)
2	1.85	1.78	(0.07)	(3.8%)
3	2.57	2.47	(0.10)	(3.9%)
4	2.74	2.63	(0.11)	(4.0%)
COMMERCIAL				
Winter (November – April)				
All Usage	$1.35	$1.42	$0.07	5.2%
Summer (April – October)				
1	$1.35	$1.42	$0.07	5.2%
2	1.85	1.94	0.09	4.9%
3	2.57	2.70	0.13	5.1%
4	2.74	2.87	0.13	4.7%
IRRIGATION				
Winter (November – April)				
All Usage	1.85	1.71	($0.14)	(7.6%)
Summer (April – October)				
1	$1.85	1.71	(0.14)	(7.6%)
2	2.57	2.38	(0.19)	(7.4%)
3	2.74	2.53	(0.21)	(7.7%)

(1) County rates are 1.35 times City rates

(2) Includes single residence, duplex, and triplex. See Table 1.1 for the block thresholds for each class.

Table 1.4 above shows volume rates in the form of cost per "ccf," or cost per one hundred cubic feet. One ccf equals approximately 748 gallons. The Raftelis proposed changes would result in lower rates for residential users. The amount decrease in residential water rates is close to the amount the rates were increased in the fiscal year 2019 adopted City budget. Rates for irrigation users would also decrease, and rates for commercial users would increase. See ADDITIONAL AND BACKGROUND INFORMATION for discussion on the redistribution of costs that could be said to have differential impacts on user groups.

Table 3.9: Water – FY19 Utility Presented and Proposed Rate Structures

	Residential		CII		Irrigation[1]
Block	**FY19 Utility Presented**	**FY19 Proposed Raftelis**	**FY19 Utility Presented**	**FY19 Proposed Raftelis**	**FY19 Utility Presented**
Winter Period (Nov-Mar)	Block 1 Rate for All Usage		Block 1 Rate for All Usage		Block 1 Rate for All Usage
Summer Rate Structure (April through November)					
Block 1[2]	0-10 ccf	0-10 ccf	0-AWC[3]	0-AWC	0 – Target Budget
Block 2	11-30 ccf	11-30 ccf	AWC-300%	AWC-300%	Target Budget – 300% of Budget
Block 3	31-70 ccf	31-60 ccf	300%-700%	300%-600%	>300% of Target Budget
Block 4	>70 ccf	>60 ccf	>700%	>600%	

(1) No changes to the irrigation rate structure.

(2) Single residence block 1: 0 to 10 ccf

Duplex block 1: 0 to 13 ccf

Triplex Block 1: 0 to 16 ccf

(3) AWC = Average Winter Consumption. "AWC – 300%" means usage greater than a customer's AWC and less than or equal to 300% of the customer's AWC.

Table 3.9 above outlines Raftelis proposed changes to water volume structures. The only recommended change to this aspect of the water rate structure is lowering the threshold at which Block 4 "kicks in." This change would mean that each respective user's highest rate would become active at a lower level of use. Such an adjustment in how rates are assessed can promote conservation.

Table 3.12: Water – FY19 Typical Monthly Summer Bills - Single Residence City Customers

Usage ccf	FY19 Utility Presented	FY19 Proposed Raftelis	Change ($)	Change (%)	% of Summer Bills
0	$9.89	$8.84	($1.05)	(10.6%)	4.8%
5	16.64	15.34	(1.30)	(7.8%)	23.1%
10	23.39	21.84	(1.55)	(6.6%)	18.5%
20	41.89	39.64	(2.25)	(5.4%)	19.5%
30	60.39	57.44	(2.95)	(4.9%)	12.2%
40	86.09	82.14	(3.95)	(4.6%)	7.7%
50	111.79	106.84	(4.95)	(4.4%)	4.8%
60	137.49	131.54	(5.95)	(4.3%)	3.0%
70	163.19	157.84	(5.35)	(3.3%)	1.9%

Table 3.12 above outlines how Raftelis proposed changes to the rate structure would impact non-commercial residential water bills.

- 65.9% of these bills would be estimated to come in between about 5% and 10% percent lower with the proposed changes.
- 27.9% of these bills would be estimated to receive a reduction approximately equal to the last two years of water rate increases.

Table 3.13: Water - Secondary Irrigation Water Rate Calculation

Annual Costs	Units	Unit Cost $ per AF	Unit Cost $ per ccf
Annual return water resource costs	$5,194,331		
Reliable Water Supply, Acre-Feet (AF)	115,713		
Water resource unit cost, $ per AF		$44.89	$0.10335
Water delivery cost	$1,641,658		
Projected volume, AF	14,009		
Water delivery cost, $ per AF		$117.19	
Total, $ per AF		**$162.08**	**$0.37315**
Rate Structure, $ per AF			
Block 2		$162.08	37.3 cents
Block 3		307.95	71.4 cents
Block 4		623.01	$1.434

1 acre-foot (AF) equals 435.6 hundreds of cubic feet (ccf) and 325,828.8 gallons

Table 3.13 above outlines a new secondary irrigation water rate. Irrigation rates are assessed on the basis of a "target budget" for irrigation water use that is formulated using factors like the customer's permeable area,

historical evapotranspiration and standard watering practices. Water use that exceeds the budget is charged in higher blocks, just like water use for non-irrigation customers.

KEY CHANGES—Sewer Utility

Table 4.11: Sewer - Typical Monthly Bill Comparison

AWC	FY19 Utility Presented	FY19 Proposed Raftelis	Change ($)	Change (%)
0	$11.93	$6.82	($5.11)	(42.8%)
1	11.93	6.82	(5.11)	(42.8%)
2	11.93	6.82	(5.11)	(42.8%)
3	11.93	9.33	(2.60)	(21.8%)
4	12.20	12.44	0.24	2.0%
5	15.25	15.55	0.30	2.0%
6	18.30	18.66	0.36	2.0%
7	21.35	21.77	0.42	2.0%
8	24.40	24.88	0.48	2.0%
9	27.45	27.99	0.54	2.0%
10	30.50	31.10	0.60	2.0%

Table 4.9: Sewer - FY19 Utility Presented Rates[1]

Class	BOD Strength mg/l	TSS Strength mg/l	Flow $ per ccf	BOD $ per ccf	TSS $ per ccf	Total $ per ccf
1	0 – 300	0 – 300	$1.87	$0.78	$0.40	$3.05
2	300 – 600	300 – 600	1.87	1.28	0.82	3.97
3	600 – 900	600 – 900	1.87	2.11	1.39	5.37
4	900 – 1,200	900 – 1,200	1.87	3.02	1.90	6.79
5	1,200 – 1,500	1,200 – 1,500	1.87	3.80	2.46	8.13
6	1,500 – 1,800	1,500 – 1,800	1.87	4.68	2.98	9.53
7	>1,800	>1,800	*Special Rate by Customer*			
Extra Strength Rates, $ per lb						
Chemical oxygen demand (COD)			$0.221			
Biochemical oxygen demand (BOD)			0.442			
Total suspended solids (TSS)			0.264			

(1) Customers billed based on the average water usage for the months November through March (AWC) or a minimum charge is $11.93, whichever is greater.

Table 4.10: Sewer – FY19 Proposed Raftelis Rates[1]

Class	BOD Strength mg/l	TSS Strength mg/l	Flow $ per ccf	BOD $ per ccf	TSS $ per ccf	Total $ per ccf
1	0 – 300	0 – 300	$1.94	$0.68	$0.49	$3.11
2	300 – 600	300 – 600	1.94	1.11	1.00	4.05
3	600 – 900	600 – 900	1.94	1.83	1.70	5.47
4	900 – 1,200	900 – 1,200	1.94	2.62	2.32	6.88
5	1,200 – 1,500	1,200 – 1,500	1.94	3.29	3.01	8.24
6	1,500 – 1,800	1,500 – 1,800	1.94	4.05	3.65	9.64
7	>1,800	>1,800	*Special Rate by Customer*			
Extra Strength Rates, $ per lb						
Chemical oxygen demand (COD)			$0.280	$0.356		
Biochemical oxygen demand (BOD)			0.561	0.713		
Total suspended solids (TSS)			0.619	0.451		

(1) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the rates for flow, BOD, and TSS or a minimum charge of $6.82 whichever is greater. AWC is the average of water usage for the months November through March.

Tables 4.11, 4.9 and 4.10 above show the difference between fiscal year 2019 adopted rates for sewer service and Raftelis proposed rates for sewer service.

- Table 4.11 is an example of the proposed decrease in the minimum fixed charge for sewer service, from $11.93/month to $6.82/month. This table shows typical monthly bills for discharge that is consistent with all single residential customers and many types of business such as offices. The bills escalate as the customer's average winter consumption (AWC) escalates. For customers with AWC costs lower than the fixed minimum charge, only this minimum charge is assessed. For customers with AWC costs higher than the fixed minimum charge, the minimum charge is not assessed in addition to costs based on the AWC—in other words, these customers are charged on the basis of AWC, without that AWC cost being layered on top of the minimum charge.

- Tables 4.9 and 4.10 show, respectively, fiscal year 2019 sewer rates based on strength of discharge and the Raftelis proposal for adjusting these rates.

    - Sewer rates are assessed on the basis of both flow volume and flow strength (flow strength is measured by the factors biological oxygen demand (BOD) and total dissolved solids (TSS)). These factors are ranked and then multiplied based on that ranking to determine costs for customers.

    - Cost per hundred cubic feet of flow increases with the Raftelis proposal, along with cost per hundred cubic feet of flow based on measurements of each BOD and TSS. The Raftelis proposal also includes cost increases for "Extra Strength Rates," and creates an additional set of factors by which these extra strength rates are assessed as well.

- Although some monthly bills would decrease based on the proposed decrease in the fixed minimum charge for sewer service, many monthly bills would increase based on the proposed adjustments that increase charges for flow, BOD and TSS. These increases in charges reflect cost of service and are revenue neutral based on the fiscal year 2019 adopted revenue figures.

KEY CHANGES—Miscellaneous Fees

The Raftelis findings involve recommendations for miscellaneous fee increases, intended to recoup the full cost of performing various services such as, and not limited to, those related to new connections, plan review and inspections. Costs for performing these services are currently not entirely offset by existing fees but are covered by other existing revenue sources.

If the recommended increases for miscellaneous fees were adopted en bloc as proposed in the Raftelis study, the result would not be revenue neutral. The Council may also wish for more detailed discussion with regard to the fee increases. As such, the Council may wish to request that Public Utilities include the recommendations for miscellaneous fees in its fiscal year 2020 budget proposal, perhaps broken down into one or more preferred scenarios. Doing so might also create the opportunity for ramifications of fee increases to be more fully explored, e.g. in terms of possible offsets to projected rate increases in coming years or in terms of impacts to the development and construction markets in coming years. These aspects of the study recommendations are also addressed in POLICY QUESTIONS.

As part of the current discussion and a possible subsequent amendment to the CFS, the Council may wish to consider Public Utilities' input on whether any fee increases would most need to be considered at this time. It has been indicated that one such recommendation is the suggested change to miscellaneous fees related to stormwater, outlined in table 6.8 below.

Some recommended changes might also entail offsets or balancing with regard to the General Fund. For example, changes related to fire hydrants and flat rates for water use would entail additional expenses for both the City Fire Department and the Unified Fire Authority. Other recommended changes might spur or compel other General Fund-related discussions such as those related to planning and permitting fees, and how costs for performing these services are or are not fully offset by corresponding charges.

Table 6.8: Stormwater Miscellaneous Fees

Fee Type	Existing Service Fee	Calculated Service Fee	Change $	Change %
Storm Water Inspection Fee	N/A	$132	132	New
Discharge into City Storm Water System – Includes 3 site visits	125	132	7	5.6%
Discharge into Stormwater System Re-inspection Fee	30	44	14	46.7%
Discharge into City Stormwater Registration Fee	20	44	24	120.0%

ADDITIONAL AND BACKGROUND INFORMATION

Service demand for the Utilities can be broken down into three main categories, also known as cost components: average day, maximum day and maximum hour.

- For every facility with the system used to provide service (sewer, water, stormwater, etc.), there is an underlying average demand, or uniform rate of usage, exerted on this facility based on what it takes to provide average, every day service for customers. This is the average day cost component.

- Certain facilities are operated and designed to meet the demand above the average day demand, i.e. to provide service for maximum day demand, which is extra-capacity or beyond just average. Costs associated with those facilities are allocated to both the average day and maximum day cost components.

- Similarly, other facilities are designed to meet demands in excess of maximum day requirements, known as maximum hour demand, or extra capacity designed to meet the systems' very highest and least frequent peaks of demand. Costs associated with these facilities are allocated to the average day, maximum day, and maximum hour cost components.

These types of service demand—average day, maximum day and maximum hour—constitute three of the five cost components to which attributes of the total system are allocated. The remaining two are meters & services and billing & collections. Costs are allocated differentially among users of the Water Utility based in part on how the facilities necessary to service the types of customers come into play.

For a simple example, heavy water users place demand on the system that necessitates the creation of facilities associated with meeting higher demand, such as storage and pumping infrastructure. Types of customers associated with heavier water use and thus higher demand on the system are also associated with the need for the infrastructure connected with meeting the higher demand they place on the system. In this way, costs are allocated among the classes of users such that costs of constructing, maintaining and operating infrastructure necessary to serve the respective classes are represented in the differential rates and fees to which various customers are subject.

Attachment 1, PDF page 93 provides one example of how these allocations are made on a percentage basis between five cost components for the Water Utility.

Similarly, allocations are also made among cost components of the Sewer Utility. These allocations correspond to costs assessed to sewer customers, again on the basis of connecting respective costs to provide service with charges assessed to respective classes of customers and the differential needs among the classes.

Attachment 1, PDF page 119 provides one example of how thse allocations are made on a percentage basis among the cost components for the Sewer Utility.

Similar connections between cost of service and charges assessed to recoup those costs underly the Raftelis proposed adjustments to the miscellaneous fees, as well.

APPENDIX

Table 4.7: Sewer – FY19 Proposed Raftelis Customer Class Cost of Service

BOD Class	TSS Class	Flow, ccf	BOD	TSS	Bills	Total
1	1	$16,599,021	$5,783,469	$4,169,093	$1,098,589	$27,650,171
1	2	43,678	15,218	22,489	0	81,386
1	3	19,895	6,932	17,364	0	44,191
1	7	562	196	1,051	0	1,808
2	1	651,072	372,264	163,527	1,678	1,188,540
2	2	1,130,381	646,318	582,020	5,975	2,364,693
2	3	0	0	0	0	0
2	4	97,359	55,667	116,153	941	270,121
3	1	187,736	176,947	47,153	246	412,081
3	2	614,217	578,916	316,253	491	1,509,878
3	3	27,650	26,061	24,133	491	78,335
3	4	1,037	977	1,237	41	3,292
4	1	47,383	63,920	11,901	41	123,245
4	2	545,789	736,280	281,020	1,193	1,564,282
4	3	842	1,136	735	0	2,714
4	4	9,872	13,317	11,777	0	34,967
5	1	89,625	152,133	22,511	0	264,268
5	2	2,245	3,811	1,156	82	7,294
5	4	1,620	2,750	1,933	0	6,303
5	5	713	1,210	1,101	0	3,024
6	1	95,414	199,466	23,965	0	318,844
6	2	18,945	39,604	9,754	0	68,303
6	4	1,058	2,213	1,263	0	4,534
7	1	42,512	327,616	10,784	41	380,952
7	2	54,738	486,111	28,466	0	569,315
7	3	50,614	542,061	44,635	41	637,351
7	4	6,675	60,952	8,043	0	75,670
7	5	778	10,111	1,213	0	12,102
Total		**$20,341,431**	**$10,305,656**	**$5,920,730**	**$1,109,849**	**$37,677,666**

Table 4.7 exhibits the proportions between cost of service and the number of customers to whom sewer service would be provided. For example, discharge-intensive customers that rank BOD class 7 and TSS class 3 would account for only 41 bills, but $637,351 in total cost of service. By these figures, the average monthly cost of serving these discharge-intensive customers would be $15,545.15 each, compared to an average cost of $25.17 serving BOD class 1 and TSS class 1 customers (largely residential). The significantly higher average monthly cost of service for serving discharge-intensive customers would reflect the cost of volume and treatment capacity that must be in place to serve these customers.

JACQUELINE M. BISKUPSKI
Mayor

DEPARTMENT OF PUBLIC UTILITIES

CITY COUNCIL TRANSMITTAL

Patrick Leary, Chief of Staff

Date Received: August 2, 2018
Date Sent to Council: August 6, 2018

TO:	Salt Lake City Council Erin Mendenhall, Chair
FROM:	Laura Briefer, Director of Public Utilities
DATE:	July 31, 2018
SUBJECT:	Comprehensive Water, Sewer, and Stormwater Rate Study
STAFF CONTACT:	Kurt Spjute, Public Utilities Finance Administrator kurt.spjute@slcgov.com Laura Briefer, Director laura.briefer@slcgov.com
DOCUMENT TYPE:	Information Item
RECOMMENDATION:	Discuss with and receive input from the City Council regarding proposed new water and sewer rate structures, and updated Public Utility fees. It is anticipated that Public Utilities will seek a change to the consolidated fee schedule to reflect rate structure and fee changes as a budget amendment this year.
BUDGET IMPACT:	There is no budgetary impact to Public Utilities as the rate structure alternatives are revenue neutral and based on a cost of service analysis.

BACKGROUND/DISCUSSION

The Salt Lake City Department of Public Utilities (Department) is pleased to present its 2018 Comprehensive Water, Sewer, and Stormwater Rate Study (Rate Study), attached to this transmittal. The Department retained the firm Raftelis to update the Department's revenue, cost of

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service and rate design analysis to ensure water, sewer, and stormwater rates more accurately reflect cost of service and are in alignment with community values.

Objectives of the Department are to retain defensible rate structures and fees, while meeting other important rate objectives, such as sufficient revenue, rate stability, conservation, and equity. For this Rate Study, Raftelis used industry-standard utility cost of service methodology as reflected in the American Water Works Association *Manual of Water Supply Practices M1, Principles of Water Rates, Fees, and Charges* and in the *Water Environment Federation Manual of Practice No. 27, Financing and Charges for Wastewater Systems.*

A major component of the Rate Study was public engagement through the formation of a Rate Advisory Committee (RAC). The RAC's two overarching purposes were to represent and communicate community values and provide input, including recommendations to the Public Utilities Advisory Committee (PUAC), Salt Lake City Mayor, and Council. Over six meetings during fall and winter 2017, the RAC developed rate structure alternatives based on the following ranked pricing objectives:

1) Conservation
2) Essential Use Affordability
3) Demand Management
4) Rate Stability
5) Interclass Equity

To meet these objectives, the RAC recommended modifications to the water and sewer rate structures. The RAC provided their recommendations to the PUAC at the January 8, 2018 meeting. During the January 25, 2018 PUAC meeting, committee members finalized their recommendation to the administration.

Water Utility Rate Structure Recommendations

The RAC and PUAC recommended three substantive changes to the existing water rate structure to address key objectives of conservation, affordability, rate stability, demand management, and interclass equity.

- Change the system-wide cost of service rate structure (where volume rates by block are the same for all customers) to a customer class cost of service volume rate structure. This results in different volume rates for residential, commercial, and industrial classes that reflect the specific cost to provide service to each class. The RAC and PUAC felt this rate structure meets goals related to equity. It also addressed essential use affordability for the residential class.

- Reduce the block four threshold from 70 ccf (hundred cubic feet) to 60 ccf for residential, duplex and triplex customer classes. Reduce the commercial, institutional, and industrial customer class block four threshold from 700% of annual winter consumption (AWC) to 600% of AWC. This addresses both conservation and demand management priorities through stronger pricing signals.

- Retain the fixed charge by meter size, but modify the price ratio between the meter sizes to reflect the capacity potential of each meter size relative to a ¾" meter.

The following two tables compare the fixed charges and volumetric water rates relative to the revenue requirements as proposed in Public Utilities' fiscal year 2018-2019 budget.

WATER FY19 Existing and Proposed Fixed Charges[1]				
Meter Size	Existing	Raftelis Proposed	Change - $	Change - %
3/4"	$ 9.89	$ 8.84	$ (1.05)	-11%
1"	9.89	11.56	1.67	17%
1 ½"	11.68	18.37	6.69	57%
2"	12.68	26.55	13.87	109%
3"	21.28	48.34	27.06	127%
4"	22.78	72.86	50.08	220%
6"	32.88	140.98	108.10	329%
8"	59.11	222.71	163.60	277%
10"	109.63	576.91	467.28	426%
(1) County fixed charges are 1.35 times City fixed charges.				

Comparison of FY19 Existing and Proposed Water Rates						
Block / Tiers	Threshold	Existing $ per ccf	Threshold	Raftelis Proposed $ per ccf	Change - $	Change - %
RESIDENTIAL[2]						
Winter						
All Usage		**$1.35**		**$1.30**	($0.05)	-3.7%
Summer						
1	10 Units	**$1.35**	10 units	**$1.30**	(0.05)	-3.7%
2	30	**1.85**	30	**1.78**	(0.07)	-3.8%
3	70	**2.57**	60	**2.47**	(0.10)	-3.9%
4	>70	**2.74**	>60	**2.63**	(0.11)	-4.0%
COMMERCIAL						
Winter						
All Usage		**$1.35**		**$1.42**	$0.07	5.2%
Summer						
1	AWC	**$1.35**	AWC	**$1.42**	0.07	5.2%
2	300%	**1.85**	300%	**1.94**	0.09	4.9%
3	700%	**2.57**	600%	**2.7**	0.13	5.1%
4	>700%	**2.74**	>600%	**2.87**	0.13	4.7%
IRRIGATION						
Winter (November – April)						
All Usage		**$1.85**		**$1.71**	($0.14)	-7.6%
Summer (April – October)						
1	0-Budget	**$1.85**	0-Budget	**$1.71**	(0.14)	-7.6%
2	300% of Budget	**2.57**	300% of Budget	**2.38**	(0.19)	-7.4%
3	>300% Budget	**2.74**	>300% Budget	**2.53**	(0.21)	-7.7%
(1) County rates are 1.35 times City rates (AWC = Average Winter Consumption)						
(2) Residential includes single residence, duplex, and triplex.						

Recommendation for Rate Differential for Water Service Outside Salt Lake City

Raftelis and the Department analyzed whether the rate differential between customers residing inside Salt Lake City and customers residing outside Salt Lake City is fair and equitable. The utility basis of rate setting was used to determine the cost to provide service to customers outside Salt Lake City boundaries and a return on investment to City customers for undertaking the risk to provide that service. Based on this analysis, the 1.35 rate differential is recommended to maintain an equitable rate relationship between customers residing within and outside Salt Lake City boundaries. Section 3.10 of the Rate Study describes the process used, and the detailed calculation can be found in Appendix A of the report. A July 31st memorandum further expands on the rate differential philosophy and utility basis rate setting methodology, and is also attached.

Secondary Irrigation Water Rate Recommendation

A secondary irrigation water system provides untreated water suitable for irrigation purposes. Certain City golf courses have constructed site specific secondary water systems. The water resources used for these systems are managed by the Department. Therefore, a water rate has been established for these select systems.

The secondary irrigation water rate follows the same inclining block volume rate structure as the culinary irrigation-only meter rate to incentivize efficient irrigation practices. Each customer is provided a monthly budget based on the following factors: permeable area, historical evapotranspiration, and standard watering practices. Below is the proposed secondary rate expressed in acre-feet and ccf units, showing the inclining block rate structure for secondary water.

ANNUAL COSTS	UNITS	ACRE FOOT UNIT COST	BILLING UNIT CONVERSION
Annual return water resource costs	$ 5,194,331		
Reliable Water Supply, Acre-Feet (AF)	115,713		
W□□□r r□□□□r□□ □□□□□□□□□ □□r A□ □□d CC□		$ 44.89	$ 0.10335
Water delivery cost	$ 1,641,658		
Projected volume , AF		$ 117.19	
T□□□□□□ □□r A□ □□d C□□□□r□□□□ □□ CC□		$ 162.08	$ 0.37315
R□□□ □r□□□□r□□□ □□r A□			
Block 2		$ 162.08	37.3 CENTS
Block 3		307.95	71.4 CENTS
Block 4		623.01	$ 1.434

Sewer Utility Rate Structure Recommendation

The RAC and PUAC recommended reducing the minimum sewer charge from $11.93 (four units) to $6.82 (two units). The reduction in the minimum charge has an essential use affordability benefit, and also incentivizes indoor water use efficiency.

The RAC and PUAC recommended retaining the existing customer class volumetric rate structure by volume and strength of wastewater flow. Rates for each class increase due to the updated cost of service analysis, and the reduction of the minimum sewer charge.

The table below shows the existing and proposed strength-based volumetric rates.

Comparison of FY19 Existing and Proposed Sewer Rates						
Class	BOD Strength mg/l	TSS Strength mg/l	Existing[1]	Raftelis Proposed[2]	Change - $	Change - %
1	0 – 300	0 – 300	$3.04	$3.11	$0.07	2.3%
2	300 – 600	300 – 600	3.96	4.05	0.09	2.3%
3	600 – 900	600 – 900	5.35	5.47	0.12	2.2%
4	900 – 1,200	900 – 1,200	6.77	6.88	0.11	1.6%
5	1,200 – 1,500	1,200 – 1,500	8.12	8.24	0.12	1.5%
6	1,500 – 1,800	1,500 – 1,800	9.51	9.64	0.13	1.4%
7	>1,800	>1,800	*Special Rate by Customer*			
Extra Strength Rates, $ per lb (Class 7 Rates)						
Chemical oxygen demand (COD)			$0.22	$0.28	$0.06	26.90%
Biochemical oxygen demand (BOD)			0.44	0.56	0.12	26.90%
Total suspended solids (TSS)			0.26	0.62	0.36	134.40%

(1) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the flow, BOD, and TSS rates or a minimum charge of $10.36 whichever is greater. AWC is the average of water usage for the months November through March.
(2) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the flow, BOD, and TSS rates or a minimum charge of $6.82 whichever is greater. AWC is the average of water usage for the months November through March.

Stormwater Utility Rate Structure Recommendation

No change to the stormwater utility rate structure is recommended by the RAC, PUAC, and Department.

Miscellaneous Fees

The Department assesses various fees for water, sewer, and stormwater services which directly benefit from the service. These goods and services directly benefit the customer requesting the service and are a cost to the utility. As such, these costs are passed directly to the customer as a direct charge. The Study includes an evaluation of over 60 existing fees and developed potential new fees. These fees are based on a cost of analysis considering, time, labor, material, and overhead. Fines on the other hand, are set at levels to deter customers from engaging in actions that impact the utility.

Many of these fees have not been updated for a number of years and therefore, based on cost of service, are projected to increase significantly in some cases. The calculated fees shown in the Rate Study represent the maximum cost-based fee. The City may choose to adopt a fee up to that amount and still maintain the cost basis. Please refer to the attached Rate Study for the calculated service fee changes.

Public Utilities staff (Laura Briefer and Kurt Spjute) and Raftelis staff will present summaries of the rate study process, recommended changes to the rate structures and fees, and be available for questions.

Attachments:
Salt Lake City Department of Public Utilities Comprehensive Water, Sewer, and Stormwater Rate Study, Draft-Final Report, July 17, 2018

Memorandum regarding rate differential philosophy and methodology, July 31, 2018

SALT LAKE CITY DEPARTMENT OF PUBLIC UTILITIES

Comprehensive Water, Sewer, and Stormwater Rate Study

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RAFTELIS

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July 16, 2018

Ms. Laura Briefer
Director of Public Utilities
Salt Lake City Department of Public Utilities
1530 South West Temple
Salt Lake City, UT 84115

Subject: Comprehensive Water, Sewer, and Stormwater Rate Study

Dear Ms. Briefer,

Raftelis is pleased to provide this 2018 Water, Sewer and Stormwater Rate Study to the Salt Lake City Department of Public Utilities.

The Report details the revenue requirement, cost of service, and rate design analysis used to develop proposed fiscal year 2019 water, sewer, and stormwater rates. This study also includes a review and update to the City's miscellaneous water, sewer, and stormwater fees. As part of this study, the City convened a Rate Advisory Committee (RAC). The RAC was charged with reviewing and providing recommendations to Staff and the Public Utilities Advisory Board (PUAC) on water and sewer rate structure alternatives. The RAC's final recommendations are discussed in this report along with the PUAC recommendation to City Council.

We would like to thank you, Mr. Brad Stewart, Mr. Kurt Spjute and the members of the RAC for their assistance and support during this study. Questions regarding this report and the Study should be direct to Mr. Cristiano or me at the contact information below.

Sincerely,
RAFTELIS, INC.

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1. EXECUTIVE SUMMARY

1.1 Introduction

The Salt Lake City Department of Public Utilities (Department) retained Raftelis to conduct a water, sewer, stormwater rate and miscellaneous fees study. This study included the following:

- Engaging a Rate Advisory Committee (RAC) to provide input and feedback on water and sewer rate structure alternatives to the PUAC.
- Development of revenue requirements for the water, sewer and stormwater utilities for fiscal year (FY)19[1][2].
- Analysis of customer class cost of service for each utility.
- Design of cost-of-service rates and rate alternatives as recommended by the Rate Advisory Committee for FY19.
- Review and update the Department's miscellaneous fees for the water, sewer and stormwater utilities.

Raftelis applied industry standard methodologies supported by the American Water Works Association (AWWA) *Principles of Water, Rates, Fees, and Charges* M1 manual and the Water Environment Federation *Financing and Charges for Wastewater Systems Manual of Practice, No. 27* in the development and design of utility rates.

1.2 Study Findings and Recommendations

1.2.1 Rate Advisory Committee

Department Staff assembled a Rate Advisory Committee to participate in a review of the Department's water and sewer rate structures. Raftelis along with The Langdon Group and Department Staff, facilitated six meetings with the RAC. These meetings included, among other topics, the identification and ranking of pricing objectives, RAC input on alternative rate structures, and the RAC's recommended rate structure for FY19 implementation designed to meet the identified goals and objectives. The results were presented to the Department's Public Utilities Advisory Committee (PUAC) on January 25, 2018 for their review and recommendation to the Mayor and City Council.

Appendix A contains the *2018 Rate Advisory Committee* report summarizing the water and sewer rate structure recommendations. The RAC developed rate alternatives based on the following ranked pricing objectives:

1. Conservation
2. Essential use affordability
3. Demand management
4. Rate stability

[1] FY19 is the period from July 1, 2018 through June 30, 2019.
[2] The term 'FY19 Utility Presented' shown in this report are the adopted FY18 rates for water, sewer, and stormwater multiplied by the FY19 proposed revenue adjustment for each utility.

5. Interclass equity
6. Intraclass equity

To meet these objectives, the RAC recommended the following modifications to the water and sewer rate structures:

Water Rate Structure Recommended Alternatives

- Retain the fixed charge by meter size. Modify the price ratio between the meter sizes to reflect capacity potential of each meter size to a ¾" meter. This fixed charge modification is recommended regardless of which volumetric rate alternative is selected.
- The RAC recommended two water volumetric rate structure alternatives using a class-based cost-of-service rate for consideration to the PUAC. Table 1.1 compares the existing rate structure and the alternative rate structures. ***Many alternatives were considered by the RAC. For purposes of this report, the original "names" of the alternatives, as considered by the RAC, have been retained.***

    - ***Alternative #2: COS/Existing Structure Adjusted for COS***. Retain the fixed-block rate structure for all residential customers and the average winter consumption (AWC)-based rate structure for commercial, institutional and industrial (CII) customers.
        - Reduce the block 4 threshold from 70 hundred cubic feet (ccf) to 60 ccf for the single residence, duplex, and triplex customer classes.
        - Reduce the CII block 4 threshold from 700% of AWC to 600% of AWC.
    - ***Alternative #3: COS/AWC All*** Modify the existing fixed-block structure for single residence, duplex, and triplex to an AWC-based 4 block rate structure, the same structure as CII.
        - Set the single residence, duplex, and triplex customer class block 4 threshold at 600% of AWC.
        - Reduce the CII customer class block 4 threshold from 700% of AWC to 600% of AWC.

Table 1.1: Water – Current and Proposed Rate Structure Alternatives
City and County

	Residential[1]			CII[2]	
Block	**FY19 Utility Presented**	**Alt. #2 COS/Existing**	**Alt. #3 COS/AWC All**	**FY19 Utility Presented**	**Alt. #2/ Alt. #3**
Winter Period (Nov-Mar)	Block 1 Rate for All Usage			Block 1 Rate for All Usage	
Summer Rate Structure (April through November)					
Block 1	0-10 ccf	0-10 ccf	0-AWC[3]	0-AWC	0-AWC
Block 2	11-30 ccf	11-30 ccf	AWC-300%	AWC-300%	AWC-300%
Block 3	31-70 ccf	31-60 ccf	300%-600%	300%-700%	300%-600%
Block 4	>70 ccf	>60 ccf	>600%	>700%	>600%

(1) Single residence block 1: 0 to 10 ccf
Duplex block 1: 0 to 13 ccf
Triplex block 1: 0 to 16 ccf
(2) Alternative #2 and Alternative #3 CII rate structures are the same.
(3) AWC = Average Winter Consumption. "AWC – 300%" means usage greater than a customer's AWC and less than or equal to 300% of the customer's AWC.

Sewer Rate Structure Recommended Alternatives

- Retain the customer class volumetric rate structure by volume and strength of wastewater flow for each alternative. Strength categories include biochemical oxygen demand (BOD) and total suspended solids (TSS). The two alternatives recommended are:
  - ***Alternative #1: No Minimum Charge.*** Eliminate the minimum charge. Customers are only charged for their AWC monthly flow.
  - ***Alternative #3: Reduced Minimum Charge.*** Reduce the minimum charge allowance from 4 ccf to 2 ccf. This reduces the minimum charge by approximately 43 .

Table 1.2 shows the existing sewer rate structure. The proposed structure remains unchanged from the existing.

Table 1.2: Sewer – FY19 Utility Presented and FY19 Proposed Raftelis Rate Structure

Class[(1)]	BOD Strength mg/l	TSS Strength mg/l	Flow $ per ccf	BOD $ per ccf	TSS $ per ccf
1	0 – 300	0 – 300	Applies to Existing and All Alternatives		
2	300 – 600	300 – 600	Same volume rate for all classes	Volume rate varies by BOD strength	Volume rate varies by TSS strength
3	600 – 900	600 – 900			
4	900 – 1,200	900 – 1,200			
5	1,200 – 1,500	1,200 – 1,500			
6	1,500 – 1,800	1,500 – 1,800			
7	>1,800	>1,800	*Special Rate by Customer*		

(1) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the rates for flow, BOD, and TSS rates or a minimum charge whichever is greater. AWC is the average of water usage for the months November through March.

1.2.2 Public Utilities Advisory Committee

Staff presented the water and sewer alternatives at the PUAC's January 25, 2018 meeting. The PUAC recommended the following:

- Water:
  - Monthly fixed charge: Varies by meter size; capital costs by meter size varies by on meter capacity ratios.
  - Volume rate structure: Alternative #2: COS/Existing Structure Adjusted for COS
- Sewer: Alternative #3: Reduced Minimum Charge

The remainder of this report will show the proposed water and sewer rates under these alternatives. The term "proposed rates" refers to rates based on the recommended rate structure alternatives from the PUAC.

1.2.3 Water Rate Study

FY19 Proposed Raftelis water rates for were developed based on the following:

- A system-wide 4% revenue increase over FY18
- Customer class cost-of-service analysis
- Rate structure recommendations from the RAC and final recommendations from the PUAC

Fixed Charge

The proposed fixed charge varies by meter size. The fixed charge recovers the following costs: meter reading/billing, customer service, and a portion of capital costs. Meter reading, billing and customer service costs do not vary by meter size. Capital costs increase as meter size increases recognizing the additional costs to serve larger capacity customers. The capital cost differential by

meter size is based on the ratio of the maximum allowable flow capacity to a ¾" meter. Table 1.3 shows the FY19 Utility Presented and FY19 Proposed Raftelis fixed charges.

Table 1.3: Water – FY19 Utility Presented and FY19 Proposed Raftelis Fixed Charges[1]

Meter Size	FY19 Utility Presented	FY19 Proposed Raftelis	Change - $	Change - %
3/4"	$9.89	$8.84	($1.05)	(11%)
1"	9.89	11.56	1.67	17%
1 ½"	11.68	18.37	6.69	57%
2"	12.68	26.55	13.87	109%
3"	21.28	48.34	27.06	127%
4''	22.78	72.86	50.08	220%
6"	32.88	140.98	108.10	329%
8"	59.11	222.71	163.60	277%
10"	109.63	576.91	467.28	426%
(1) County fixed charges are 1.35 times City fixed charges.				

Volume Rates

The proposed volume structures for residential and commercial (CII) retains the 4-block inclining structure. The irrigation volume structure retains the 3-block inclining structure. The residential rate structure is a fixed block structure while the commercial or CII class is an individualized structure. Residential rates include single residence, duplex, and triplex classes. CII includes commercial, industrial, and institutional customers. The CII structure's thresholds are based on each customer's average winter consumption (AWC). The irrigation structure retains the individualized target budget-based structure. The volume rates developed in this study are based on each class' cost of service. Table 1.4 shows the FY19 Utility Presented and FY19 Proposed Raftelis rates.

Table 1.4: Water – FY19 Utility Presented and FY19 Proposed Raftelis Residential Volume Rates[1] City Customers

Block	FY19 Utility Presented $ per ccf	FY19 Proposed Raftelis $ per ccf	Change - $	Change - %
RESIDENTIAL[2]				
Winter (November – April)				
All Usage	$1.35	$1.30	($0.05)	(3.7%)
Summer (April – October)				
1	$1.35	$1.30	($0.05)	(3.7%)
2	1.85	1.78	(0.07)	(3.8%)
3	2.57	2.47	(0.10)	(3.9%)
4	2.74	2.63	(0.11)	(4.0%)
COMMERCIAL				
Winter (November – April)				
All Usage	$1.35	$1.42	$0.07	5.2%
Summer (April – October)				
1	$1.35	$1.42	$0.07	5.2%
2	1.85	1.94	0.09	4.9%
3	2.57	2.70	0.13	5.1%
4	2.74	2.87	0.13	4.7%
IRRIGATION				
Winter (November – April)				
All Usage	1.85	1.71	($0.14)	(7.6%)
Summer (April – October)				
1	$1.85	1.71	(0.14)	(7.6%)
2	2.57	2.38	(0.19)	(7.4%)
3	2.74	2.53	(0.21)	(7.7%)

(1) County rates are 1.35 times City rates
(2) Includes single residence, duplex, and triplex. See Table 1.1 for the block thresholds for each class.

1.2.4 Sewer Rate Study

FY19 Proposed Raftelis sewer rates were developed based on the following:

- A system-wide 15% revenue increase
- Customer class cost-of-service analysis
- Rate structure recommendations from the RAC and final recommendations from the PUAC

The FY19 Proposed Raftelis sewer structure and rates retain the customer class by sewer strength classification. The customer classes are assessed unit charges ($ per ccf) for flow, BOD, and TSS. Table 1.5 summarizes the FY19 Utility Presented and FY19 Proposed Raftelis rate structure and rates.

Table 1.5: Sewer - Comparison of FY19 Utility Presented and FY19 Proposed Raftelis Rates

Class	BOD Strength mg/l	TSS Strength mg/l	FY19 Utility Presented[(1)]	FY19 Proposed Raftelis[(2)]	Change - $	Change - %
1	0 – 300	0 – 300	$3.05	$3.11	$0.06	2.0%
2	300 – 600	300 – 600	3.97	4.05	$0.08	2.0%
3	600 – 900	600 – 900	5.37	5.47	$0.10	1.9%
4	900 – 1,200	900 – 1,200	6.79	6.88	$0.09	1.3%
5	1,200 – 1,500	1,200 – 1,500	8.13	8.24	$0.11	1.4%
6	1,500 – 1,800	1,500 – 1,800	9.53	9.64	$0.11	1.2%
7	>1,800	>1,800	*Special Rate by Customer*			
Extra Strength Rates, $ per lb						
Chemical oxygen demand (COD)			$0.221	$0.356	$0.135	61.3%
Biochemical oxygen demand (BOD)			0.442	0.713	$0.271	61.3%
Total suspended solids (TSS)			0.264	0.451	$0.187	70.9%

(1) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the flow rates for flow, BOD, and TSS or a minimum charge of $11.93 whichever is greater. AWC is the average of water usage for the months November through March.
(2) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the flow rates for BOD, and TSS rates or a minimum charge of $6.82 whichever is greater. AWC is the average of water usage for the months November through March.

1.2.5 Stormwater Rate Study

Table 1.6 shows compares the FY19 Utility Presented and FY19 Proposed Raftelis stormwater fees. There is no change to the structure for FY19.

Table 1.6: Stormwater - Comparison of FY19 Utility Presented and FY19 Proposed Raftelis Rates

Customer Class	FY19 Utility Presented	FY19 Proposed Raftelis	Change $	Change %
1 or 2 Units < .25 acres	$4.94	$4.94	$0.00	0.0%
1 or 2 Units > .25	6.91	6.91	0.00	0.0%
3 or 4 Units	9.88	9.88	0.00	0.0%
Impervious Area Based	5.43	5.43	0.00	0.0%

1.2.6 Miscellaneous Fees Study

The Department assesses fees for various goods and services associated with providing water, sewer, and stormwater service. These goods and services directly benefit the customer requesting the service. As such, these costs are passed directly to the customer rather than through all rate payers. Raftelis reviewed selected fees from the water, sewer, and stormwater utilities, proposed updates and also evaluated new fees for the utilities. The existing and proposed fees can be found in Section 7 of this report. The fee categories reviewed include:

- Water connection fees
- Meter inspection and testing
- Fire hydrant maintenance fees
- Flat water charge – City and County Agencies
- Pressure testing
- Disconnection
- Plan review fees
- Sewer inspections/Industrial wastewater discharge permits
- Stormwater inspection fees
- Stormwater discharge permits

2. INTRODUCTION

2.1 Study Background

The Department retained Raftelis to update their water, sewer and stormwater cost-of-service and rate structures. The Department also requested that Raftelis evaluate each utility's miscellaneous fees and make recommendations for updates and/or additions to the fee schedule.

The Department convened a Rate Advisory Committee to review, evaluate and provide recommendations on changes to the rate structures[3]. The RAC committee held six meetings over a six-month period to learn about the water and sewer systems, the rate-setting process and evaluate rate structure alternatives. The RAC's recommended rate structure alternatives were presented to the PUAC for their review and recommendation to City Council. The RAC report is contained in Appendix A of this report.

Raftelis developed the FY19 revenue requirement, conducted a detailed customer class cost-of-service analysis, and designed water and sewer rates based on the RAC's recommended rate structure alternatives. The revenue requirement analysis included calculating the revenue required from rates to meet the water and sewer utilities' projected FY19 expenditures, target reserve requirements, and debt service coverage requirements. The water and sewer cost-of-service analysis included a comprehensive review of customer water usage and billable sewer flow data from FY15 through FY17, calculating water demand and sewer flow and strength requirements, allocating functionalized costs to customer service characteristics and determining the cost to serve each customer class. The customer class cost of service serves as the basis for the water and sewer rates presented in this report. This report contains the following sections:

- **Section 1 - Executive Summary.** Summarizes the study results for the water, sewer stormwater cost of service analysis and rate structure alternatives design.
- **Section 2 – Introduction and Background.** Provides an overview and purpose of study as well as those involved in the study process.
- **Section 3 – Water Rate Study.** Details the water rate study analysis
- **Section 4 – Sewer Rate Study.** Details the sewer rate study analysis.
- **Section 5 – Stormwater Rate Study.** Details the stormwater rate study analysis.
- **Section 6 – Miscellaneous Fees.** Details current and proposed fees along with new fees for the water, sewer, and stormwater utilities.

2.1.1 Cost-of-Service Approach

The industry accepted process for conducting a water utility cost of service study is detailed in the American Water Works Association (AWWA) Manual of Water Supply Practices M1, Principles of

[3] Ultimately, the Department excluded the stormwater rate structure review from the RAC's analysis. Their primary focus was water and sewer rate structure alternatives analysis.

Water Rates, Fees, and Charges (AWWA Manual M1). The industry accepted process for conducting a wastewater utility cost of service study is detailed in the Water Environment Federation (WEF) Manual of Practice No. 27, Financing and Charges for Wastewater Systems published by the WEF. This study followed the industry accepted practices as presented in these publications with appropriate modifications to reflect the unique service characteristics and Department objectives. Such modifications are customary in any cost of service study and allow for the recognition of each utilities' attributes while still conforming to general industry practices.

2.2 Reliance on Department-Provided Data

During this project, the Department (and/or its representatives) provided Raftelis with a variety of technical information, including cost and revenue data. Raftelis did not independently assess or test for the accuracy of such data – historic or projected. Raftelis have relied on this data in the formulation of our findings and subsequent recommendations, as well as in the preparation of this report. Raftelis also relied on cost allocation data provided by Bowen Collins and Associates (BCA) needed to complete the cost-of-service analysis.

There are often differences between actual and projected data. Some of the assumptions used in this report will not be realized, and unanticipated events and circumstances may occur. Therefore, there are likely to be differences between the data or results projected in this report and actual results achieved, and those differences may be material. As a result, Raftelis takes no responsibility for the accuracy of data or projections provided by or prepared on behalf of the Department, nor do we have any responsibility for updating this report for events occurring after the date of this report.

2.3 Acknowledgement

The successful completion of this study depended on the efforts of several staff members of the Utilities Department, Mayor's office, and Council office. In particular, the Raftelis study team would like to thank Ms. Laura Briefer, Mr. Brad Stewart, and Mr. Kurt Spjute for their support and guidance throughout this study process.

3. WATER RATE STUDY

3.1 Introduction

The Department's water utility is a self-supporting enterprise fund with revenues collected from rates, impact fees, and other miscellaneous income[4] to meet the utility's annual operating and capital budget, maintain adequate reserves, and meet bond covenant debt service coverage requirements.

For the purposes of this study, Raftelis used data provided by the Department to develop the cost-of-service and rate alternatives. This data included detailed historical water billing data, daily system water production data, detailed asset records, historical financial data, the projected FY19 operating and capital budget as well as information provided by Department Staff.

3.2 Cost-of-Service Process

The cost-of-service process is a method to assign costs based on each customer class' proportionate share of water demands and number of customers. The cost-of-service analysis consists of the following nine steps:

1. Determine the FY19 rate revenue at FY19 Utility Presented rates
2. Determine test year revenue requirement
3. Functionalize revenue requirement
4. Allocate functionalized costs to cost components
5. Determine system units of service
6. Determine unit cost of service
7. Determine customer class units of service
8. Distribute costs to customer classes
9. Design rates to recover class cost-of-service and total revenue requirement

3.3 Projected FY19 Revenue at FY19 Utility Presented Rates

Raftelis developed FY19 rate revenue at FY19 Utility Presented rates using detailed billing records provided by the Department. The revenue under FY19 Utility Presented rates shown in Table 3.1 serves as the basis for determining the FY19 revenue requirement. This billing data analysis is also used in the units of service analysis discussed in Section 3.6.

[4] Other income include revenue from hydrant water sales, flat rate sales, repair and relocation, grounds and rentals, and transfers from the sewer, stormwater, street light, garbage, and transit funds for billing services.

Table 3.1: Water - FY19 Revenue at FY19 Utility Presented Rates

Customer Class	Accounts	Billed Volume ccf	Rate Revenue
City			
Residential	48,446	8,385,282	$20,563,680
CII	7,809	14,056,634	23,846,532
Irrigation	1,568	2,263,834	4,987,423
Fire projection	551	0	84,391
Total City	**58,374**	**24,705,749**	**$49,482,026**
County			
Residential	22,638	5,235,087	$16,802,108
CII	956	2,474,411	5,692,020
Irrigation	301	452,350	1,299,796
Fire protection	326	0	13,396
Total County	**24,221**	**8,161,849**	**$23,807,320**
Total	**82,595**	**32,867,598**	**$73,289,346**

3.4 Test Year Revenue Requirement

The revenue requirement shown in Table 3.2 includes O&M, debt service and capital expenditures. These requirements are met from rate revenues, reserves and miscellaneous revenue.

Table 3.2: Water – FY19 Revenue Requirement

Item	$
Expenditures	
Operating expense	$62,888,877
Debt service	1,117,000
Capital outlay	40,186,900
Total expenditures	**$104,192,777**
Less: Adjustments	
Miscellaneous revenue	($963,000)
Transfers	(2,449,984)
Non-operating income	(1,755,000)
Change in fund balance	(25,735,447)
Total adjustments	**($30,903,431)**
FY19 revenue requirement	**$73,289,346**

3.5 Revenue Requirement Cost Allocation

The underlying principle in cost allocation is to convert the test year revenue requirement into costs that best reflect the cost associated with customer water demands placed on the system. Those costs are proportionately allocated to customer classes based on their respective customer service characteristics to determine class cost of service. Customer service characteristics include average day, peak day, and peak hour demands, the number of accounts, and the number of equivalent meters.

3.5.1 Functional Cost Components

Water systems are comprised of several facilities (unit processes or functions) that are designed and operated to collect, treat, and distribute water to customers. The separation of costs into functional components provides a means for distributing costs to customer classes based their respective responsibility in the system. Typical functional categories for water systems include source of supply, transmission and distribution, treatment, pumping, storage, and customer-related costs.

3.5.2 Allocation Factors

Water systems are designed and operated to meet the average and peak demands of their customers. Therefore, data on annual consumption and peak demand contributions are needed to allocate costs equitably among customer classes. Since customers do not exert their maximum demand for water at the same time, water facilities are designed to meet the coincidental demands on the system. Using system peak demand to average demand ratios provides a means for distributing costs equitably to customer classes.

For every facility on the system, there is an underlying average demand, or uniform rate of usage, exerted coincidentally by customers for which the average day cost component applies. Certain facilities are operated and designed to meet the demand above the average day demand or maximum day extra-capacity demand. Costs associated with those facilities are allocated to both the average day and maximum day cost components. Similarly, other facilities are designed to meet demands in excess of maximum day requirements or maximum hour extra-capacity. Costs associated with these facilities are allocated to the average day, maximum day, and maximum hour cost components.

The ratio of maximum day and average day demand is used to allocate costs between average day and maximum day cost components. A maximum day to average day ratio of 2.41 is used based on a four-year historical average. This indicates approximately 42% of the capacity of facilities designed and operated for maximum day demand is needed for average day demands use. Accordingly, the remaining 58% is for maximum day extra-capacity requirements.

A ratio of maximum hour to average day water use of 3.25 is based on demands experienced by Department's water's system. This ratio indicates 31% of the capacity of facilities designed and

operated for maximum hour demand is needed for average day demands, 43% is required to meet maximum day extra-capacity demand, and the remaining 26% is for maximum hour extra-capacity demand. These ratios are used to allocate the line item functionalized costs to cost components. Other cost allocations are based on the allocation of all other categories.

Other revenue requirements can be directly assigned to a specific cost component. Billing and administrative costs such as meter reading are allocated directly to the billing cost component. Indirect expenditures not specifically assigned are allocated in proportion to all other operations and maintenance cost components.

3.5.3 Allocation of Functionalized Costs

Once costs have been separated by function, they can be further allocated to cost components using the demand factors identified in Section 3.5.2. Allocating costs to cost components provides a means of assigning functionalized costs based on the design and functional parameters that facility serves in the system. Cost components include the annual water usage (i.e. average day demand, peak rates of demand, meters and services and customer). Below is a definition of the customer service characteristics.

- **Average day** costs vary directly with the quantity of water sold under average day load conditions.
- **Extra-capacity** costs represent those costs incurred to meet water demands that exceed average levels of water usage by customers. These costs are incurred to the water usage variations and peak demands imposed on a water system. Extra capacity costs are incurred to meet the capacity above the maximum day and maximum hour demands.
- **Meter and services** costs vary based on the size of meter and include meter repair and maintenance and a portion of capital costs associated with meeting the demands of the customer.
- **Billing and collection** costs include the cost of billing, customer service, and customer accounting.

Functional O&M costs are generally allocated to the cost components that best reflect the design or functional parameter associated with that facility's expense. For example, water supply canal costs are allocated to the base or average day costs as source of supply facilities are designed to meet average day demands. Booster pumps and irrigation pumps are designed to meet maximum hour demands. These costs are allocated to the average day, maximum day and maximum hour cost components. Similarly, transmission and distribution mains are designed to meet maximum hour demand. These costs are allocated to the average day, maximum day, and maximum hour cost components. Meter repair is associated with repair and replacement of customer meters. These costs are allocated directly to the meters and services cost component.

Water system assets provide a reasonable basis for allocating annual capital costs. The treatment plants are designed to meet the peak demands on the system. These costs are allocated to the average day and maximum day cost component. Pumping facilities are designed to meet maximum hour demands. These costs are allocated to the average day, maximum day, and maximum hour demands. Other costs not specifically allocated are allocated in proportion to all other assets.

3.5.4 Allocated Revenue Requirement

Table 3.3 summarizes the allocated revenue requirement from the analysis discussed in section 3.5.2 and 3.5.3. The allocated revenue requirement is distributed to customer classes based on their proportionate share of total customer service characteristics.

Table 3.3: Water – FY19 Allocated Revenue Requirement

Description	Average Day	Max Day Extra Capacity	Max Hour Extra Capacity	Equivalent Meters	Bills	Total
Operating	$37,880,768	$9,869,924	$3,118,953	$4,318,322	$7,700,910	$62,888,877
Debt service	391,378	447,594	233,767	44,261	0	1,117,000
Capital	14,080,815	16,103,326	8,410,347	1,592,413	0	40,186,900
Less: Adjustments	(10,086,371)	(11,202,573)	(5,849,298)	(1,197,952)	(2,567,237)	(30,903,431)
Revenue requirement	**$42,266,590**	**$15,218,271**	**$5,913,768**	**$4,757,044**	**$5,133,673**	**$73,289,346**

3.6 Customer Class Units of Service

Customers of a water utility are often identified according to customer class. Each customer class has unique water demands and usage characteristics. Because cost-of-service is based on the concept of proportionality, customer service characteristics for each customer class must be analyzed to distribute the functionalized and allocated system revenue requirements based on their respective demand profiles. Table 3.4 details the units of service.

Table 3.4: Water – FY19 Proposed Raftelis Customer Class Units of Service

Customer Class	Average Day *ccf per year*	Max Day Extra Capacity *ccf per day*	Max Hour Extra Capacity *ccf per day*	Eq. Meter ¾" *Equivalent Meters.*	Billing *# of bills*
City					
Residential	8,385,282	36,414	43,759	52,868	581,352
CII	14,056,634	53,945	70,871	20,252	93,708
Irrigation	2,263,834	13,188	12,989	4,599	18,816
Fire protection	0	337	1,685	0	0
Total City units of service	**24,705,749**	**103,884**	**129,304**	**77,720**	**693,876**
County					
Residential	5,235,087	24,704	28,009	26,563	271,656
CII	2,474,411	8,947	12,283	3,635	11,472
Irrigation	452,350	2,808	2,656	738	3,612
Fire protection	0	47	235	0	0
Total County units of service	**8,161,849**	**36,506**	**43,183**	**30,936**	**286,740**
Total units of service	**32,867,598**	**140,390**	**172,487**	**108,656**	**980,616**

3.7 Unit Cost of Service

The unit cost of service is the quotient of the allocated revenue requirement by cost component divided by the units of service for each. Table 3.5 summarizes this calculation.

Table 3.5: Water – FY19 Proposed Raftelis Unit Cost of Service

Line No	Description	Average Day	Max Day Extra Capacity	Max Hour Extra Capacity	Equivalent Meters	Billing
1	**Allocated revenue requirement**	$42,266,590	$15,218,271	$5,913,768	$4,757,044	$5,133,673
	Units of service	*ccf*	*ccf/day*	*ccf/day*	*Eq. Meters*	*Bills*
2	City	24,705,749	103,884	129,304	77,720	693,876
3	County(1)	11,018,496	49,283	58,298	41,763	387,099
4	**Total units of service**	**35,724,245**	**153,167**	**187,602**	**119,483**	**1,080,975**
	Unit cost of service					
5	City (Line 1 / Line 4)	$1.1831	$99.3573	$31.5230	$39.8135	$4.7491
6	County (Line 5 x 1.35)	1.5972	134.1324	42.5561	53.7482	6.4113

(1) County units of service have been adjusted by a multiple of 1.35 times to account for the differential between City and County rates.

3.8 Distribution of Costs to Customer Classes

Table 3.6 shows the distributed cost-of-service to customer classes. The customer class units of service in Table 3.4 are multiplied by the unit cost of service in Table 3.5 based on the service area.

Table 3.6: Water – FY19 Proposed Raftelis
Distribution of Cost of Service to Customer Classes

Customer Class	Average Day	Max Day Extra Capacity	Max Hour Extra Capacity	Equivalent Meter	Billing	Total Cost of Service
City						
Residential	$9,920,917	$3,618,036	$1,379,418	$2,104,874	$2,760,906	$19,784,151
CII	16,630,890	5,359,789	2,234,064	806,317	445,030	25,476,089
Irrigation	2,678,420	1,310,317	409,448	183,116	89,359	4,670,660
Fire protection	0	33,487	53,122	0	0	86,609
Total City COS	**$29,230,226**	**$10,321,628**	**$4,076,052**	**$3,094,306**	**$3,295,296**	**$50,017,509**
County						
Single residence	$8,361,647	$3,313,597	$1,191,954	$1,427,697	$1,741,669	$16,036,564
CII	3,952,208	1,200,051	522,729	195,357	73,550	5,943,895
Irrigation	722,508	376,688	113,029	39,684	23,158	1,275,067
Fire protection	0	6,307	10,004	0	0	16,311
Total County COS	**$13,036,363**	**$4,896,643**	**$1,837,716**	**$1,662,738**	**$1,838,377**	**$23,271,837**
Total COS	**$42,266,590**	**$15,218,271**	**$5,913,768**	**$4,757,044**	**$5,133,673**	**$73,289,346**

3.9 Comparison of FY19 Proposed Raftelis Cost of Service to Revenue at FY19 Utility Presented Rates

The comparison of cost of service to revenue at FY19 Utility Presented rates in Table 3.7 shows the change in cost to provide service to each customer class.

Table 3.7: Water – Comparison of FY19 Proposed Raftelis Cost of Service to Revenue at FY19 Utility Presented Rates

Class	FY19 Utility Presented	FY19 Proposed Raftelis	Change $	Change %
City				
Residential	$20,563,680	$19,784,151	($779,529)	(3.8%)
CII	23,846,532	25,476,089	1,629,558	6.8%
Irrigation	4,987,423	4,670,660	(316,763)	(6.4%)
Fire protection	84,391	86,609	2,218	2.6%
Total City COS	**$49,482,026**	**$50,017,509**	**$535,483**	**1.1%**
County				
Residential	$16,802,108	$16,036,564	($765,544)	(4.6%)
CII	5,692,020	5,943,895	251,876	4.4%
Irrigation	1,299,796	1,275,067	(24,729)	(1.9%)
Fire protection	13,396	16,311	2,914	21.8%
Total County COS	**$23,807,320**	**$23,271,837**	**($535,483)**	**(2.2%)**
Total COS	**$73,289,346**	**$73,289,346**	**0**	**0.0%**

3.10 County Differential

The Department serves customers located both within and outside the City limits–City and County customers, respectively. The risks of owning a water system reside with the City, the water customers/taxpayers living in the City.

Additionally, customers within the City pay property taxes to the Metropolitan Water District of Salt Lake and Sandy (MWDSL&S); County customers do not. The funds received by the MWDSL&S are used to develop and acquire water resources and provide treated water for both the City and County customers served by the Department. City customers approve the issuance of bonds to fund water utility capital improvements which benefit all customers, including County customers. Long before the Department and City operated the utility as a stand-alone, self-sufficient enterprise, property taxes (paid only by City customers) were used to acquire and construct water service assets. To recognize these risks and to quantify the associated costs, the City uses an industry-accepted approach to establish a differential on the County rates.

The current 1.35-times user charge or rate differential provides a means by which City customers are compensated for the risk associated with serving County customers. Raftelis reviewed the current differential by developing a unit cost for County customers using a utility basis revenue requirement. The utility-basis is generally applicable to investor-owned utilities and public systems under the jurisdiction of state utility commissions or other regulatory bodies. It is also an appropriate method for municipal utilities that serve customers outside of their corporate limits. The utility basis revenue requirement includes operating expenses, depreciation and a return on rate base or investment for facilities used to serve County customers. The return on rate base is calculated using a utility's weighted average cost of capital multiplied by the utility's rate base or net assets. Because the City owns the system, Raftelis developed a unit cost on a cash basis. The quotient of the County to City unit costs is the differential.

The primary difference between the cash and utility basis is the concept of ownership and the method of consumer protection. Under the cash-basis, consumer protection is provided by the budgeting oversight of the elected officials. These officials act as a representative of the customers and the utility. These officials are typically elected by the citizens that act as the owners of the utility. Under this approach, ownership and consumer protection are combined into one elected body. Under the utility-basis, consumer protection is often provided by state public utility or service commissions. These regulatory bodies establish financial and rate development rules and regulations and authorize rates of return that provide consumer protection. In addition, consumer protection is often provided by contractual agreements that define the basis of utility rates where municipally-owned utilities provide services to customers located outside their corporate jurisdictions.

Raftelis' analysis of the County's utility basis unit cost compared to the City's cash basis unit cost is consistent with the current differential of 1.35. Raftelis recommends the current differential remain in place. Table 3.8 summarizes the calculation; the detailed calculation can be found in Appendix A.

Table 3.8: Water - Development of County Rate Differential Based on a FY18 Revenue Requirement

Line No	Item	$	Units (ccf)	Differential
1	Cash Basis Revenue Requirement	$73,289,346		
2	Less: County Utility Basis Revenue Requirement	$28,664,403	11,281,090	2.54
3	Net Cash Residual Revenue Requirement	$44,624,943	23,715,492	1.88
4	***County Differential (Line 1 / Line 3)***			***1.35***

3.11 Rate Design

3.11.1 Introduction

In the development of schedules of water rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. The only method of assessing entirely equitable water rates would be the determination of each customer's bill based upon their unique service requirements. Since this is impractical, schedules of rates are normally designed to meet average conditions for groups (classes) of customers having similar service requirements. Rates should be reasonably simple in application and subject to as few misinterpretations as possible.

3.11.2 FY19 Utility Presented and FY19 Proposed Raftelis Structure and Rates

The Department's existing rate structure has been place since FY10. This structure reflects a balance of many objectives identified by the 2008 Water Rate Committee. These included: conservation, revenue stability, and affordability. The FY19 Utility Presented rate structure consists of two components: 1) a fixed charge that varies by meter size and 2) increasing block volume rate structures for residential, CII, and irrigation customers. Table 3.9 shows the FY19 Utility Presented and FY19 Proposed Raftelis structures.

Table 3.9: Water – FY19 Utility Presented and Proposed Rate Structures

	Residential		CII		Irrigation[1]
Block	**FY19 Utility Presented**	**FY19 Proposed Raftelis**	**FY19 Utility Presented**	**FY19 Proposed Raftelis**	**FY19 Utility Presented**
Winter Period (Nov-Mar)	Block 1 Rate for All Usage		Block 1 Rate for All Usage		Block 1 Rate for All Usage
Summer Rate Structure (April through November)					
Block 1[2]	0-10 ccf	0-10 ccf	0-AWC[3]	0-AWC	0 – Target Budget
Block 2	11-30 ccf	11-30 ccf	AWC-300%	AWC-300%	Target Budget – 300% of Budget
Block 3	31-70 ccf	31-60 ccf	300%-700%	300%-600%	>300% of Target Budget
Block 4	>70 ccf	>60 ccf	>700%	>600%	

(1) No changes to the irrigation rate structure.
(2) Single residence block 1: 0 to 10 ccf
Duplex block 1: 0 to 13 ccf
Triplex Block 1: 0 to 16 ccf
(3) AWC = Average Winter Consumption. "AWC – 300%" means usage greater than a customer's AWC and less than or equal to 300% of the customer's AWC.

Fixed Charge

The FY19 Proposed Raftelis fixed charge varies by meter size. The fixed charge recovers the following costs: meter reading/billing, customer service, and a portion of capital costs. Meter reading, billing and customer service costs do not vary by meter size. Capital costs increase as meter size increases recognizing the additional costs to serve larger capacity customers. The capital cost differential by meter size is based on the ratio of the maximum allowable flow capacity to a 3/4" meter. Table 3.10 shows the FY19 Utility Presented and FY19 Proposed Raftelis fixed charges.

Table 3.10: Water – FY19 Utility Presented and FY Proposed Raftelis Fixed Charges

Meter Size	FY19 Utility Presented	FY19 Proposed Raftelis	Change - $	Change - %
3/4"	$9.89	$8.84	($1.05)	(11%)
1”	9.89	11.56	1.67	17%
1 ½”	11.68	18.37	6.69	57%
2"	12.68	26.55	13.87	109%
3"	21.28	48.34	27.06	127%
4''	22.78	72.86	50.08	220%
6"	32.88	140.98	108.10	329%
8"	59.11	222.71	163.60	277%
10”	109.63	576.91	467.28	426%
(1) County fixed charges are 1.35 times City fixed charges.				

Volume Rates

The proposed volume structures for residential and commercial (CII) retains the 4-block inclining structure. The irrigation volume structure retains the 3-block inclining structure. The residential rate structure is a fixed block structure while the commercial or CII class is an individualized structure. Residential rates include single residence, duplex, and triplex classes. CII includes commercial, industrial, and institutional customers. The CII structure’s thresholds are based on each customer’s average winter consumption (AWC). The irrigation structure retains the individualized target budget-based structure. The volume rates developed in this study are based on each class’ cost of service. Table 3.11 shows the FY19 Utility Presented and FY19 Proposed Raftelis rates.

Table 3.11: Water - FY19 Utility Presented and FY19 Proposed Raftelis Single Residence Volume Rates[1,2] City Customers

Block	FY19 Utility Presented $ per ccf	FY19 Proposed Raftelis $ per ccf	Change - $	Change - %
RESIDENTIAL				
Winter (November – April)				
All Usage	$1.35	$1.30	($0.05)	(3.7%)
Summer (April – October)				
1	$1.35	$1.30	($0.05)	(3.7%)
2	1.85	1.78	(0.07)	(3.8%)
3	2.57	2.47	(0.10)	(3.9%)
4	2.74	2.63	(0.11)	(4.0%)
COMMERCIAL				
Winter (November – April)				
All Usage	$1.35	$1.42	$0.07	5.2%
Summer (April – October)				
1	$1.35	$1.42	$0.07	5.2%
2	1.85	1.94	0.09	4.9%
3	2.57	2.70	0.13	5.1%
4	2.74	2.87	0.13	4.7%
IRRIGATION				
Winter (November – April)				
All Usage	$1.85	$1.71	($0.14)	(7.6%)
Summer (April – October)				
1	$1.85	$1.71	(0.14)	(7.6%)
2	2.57	2.38	(0.19)	(7.4%)
3	2.74	2.53	(0.21)	(7.7%)

(1) County rates are 1.35 times City rates
(2) See Table 3-9 for each class' block thresholds.

3.11.3 Typical Monthly City Single Residence Bills – Summer Usage

Table 3.12 compares typical monthly bills under FY19 Utility Presented and the FY19 Proposed Raftelis rates at various levels of consumption.

Table 3.12: Water – FY19 Typical Monthly Summer Bills - Single Residence City Customers

Usage ccf	FY19 Utility Presented	FY19 Proposed Raftelis	Change ($)	Change (%)	% of Summer Bills
0	$9.89	$8.84	($1.05)	(10.6%)	4.8%
5	16.64	15.34	(1.30)	(7.8%)	23.1%
10	23.39	21.84	(1.55)	(6.6%)	18.5%
20	41.89	39.64	(2.25)	(5.4%)	19.5%
30	60.39	57.44	(2.95)	(4.9%)	12.2%
40	86.09	82.14	(3.95)	(4.6%)	7.7%
50	111.79	106.84	(4.95)	(4.4%)	4.8%
60	137.49	131.54	(5.95)	(4.3%)	3.0%
70	163.19	157.84	(5.35)	(3.3%)	1.9%

3.12 Secondary Irrigation Water Rate

The Department requested a review and update of the secondary irrigation water rate for select golf courses and parks. This secondary water service is to the culinary irrigation water demands of select sites. The cost to provide this service includes an annual return on the Department's water resources cost and a water delivery cost.

The secondary irrigation water rate follows the same inclining block volume rate structure as the culinary irrigation-only meter rate. Each customer is provided a monthly budget based on the following factors: permeable area, historical evapotranspiration and standard watering practices. Water use within the budget is charged at a rate comparable to Block 2 of the standard residential rate (a block established to reflect reasonable outdoor use). Water use that exceeds the budget is charged in the higher blocks. It is hoped the structure provides incentive for wise use of water. Table 3.13 on the next page shows the summary calculation. Detailed calculations are contained in the appendix.

Table 3.13: Water - Secondary Irrigation Water Rate Calculation

Annual Costs	Units	Unit Cost $ per AF	Unit Cost $ per ccf
Annual return water resource costs	$5,194,331		
Reliable Water Supply, Acre-Feet (AF)	115,713		
Water resource unit cost, $ per AF		$44.89	$0.10335
Water delivery cost	$1,641,658		
Projected volume, AF	14,009		
Water delivery cost, $ per AF		$117.19	
Total, $ per AF		**$162.08**	**$0.37315**
Rate Structure, $ per AF			
Block 2		$162.08	37.3 cents
Block 3		307.95	71.4 cents
Block 4		623.01	$1.434

4. SEWER RATE STUDY

4.1 Introduction

The Department's sewer utility is a self-supporting enterprise fund with revenues collected from rates, impact fees, and other income to meet the utility's annual operating and capital budget, maintain adequate reserves, and meet bond covenant debt service coverage requirements.

For the purposes of this study, Raftelis used data provided by the Department to develop the cost-of-service and rate alternatives. This data included detailed historical water billing data, daily system water production data, detailed asset records, historical financial data, the projected FY19 operating and capital budget as well as numerous meetings with Department Staff.

4.2 Cost-of-Service Process

The cost-of-service process is a method to assign costs based on each customer class' proportionate share of water demands and number of customers. The cost-of-service analysis consists of the following eight steps:

1. Project FY19 rate revenue at FY19 Utility Presented rates
2. Determine test year revenue requirement
3. Functionalize revenue requirement
4. Allocate functionalized costs to cost components
5. Determine system units of service
6. Determine unit cost of service
7. Determine customer class units of service
8. Distribute costs to customer classes
9. Design rates to recover class cost-of-service and total revenue requirement

4.3 Projected FY19 Revenue at FY19 Utility Presented Rates

Raftelis developed FY19 rate revenue at FY19 Utility Presented rates using detailed billing records provided by the Department. The revenue at FY19 Utility Presented rates in Table 4.1 serves as the basis for determining the FY19 revenue requirement. This billing data analysis is also used in the units of service analysis discussed in Section 4.6.

Table 4.1: Sewer - FY19 Revenue at FY19 Utility Presented Rates

BOD Class	TSS Class	Accounts	Billed Volume (ccf)	Revenue
1	1	49,001	8,447,569	$28,142,688
1	2	7	22,552	78,254
1	3	1	10,272	41,499
1	7	1	290	1,633
2	1	308	336,065	1,196,323
2	2	418	582,202	2,327,806
2	3	0	0	0
2	4	69	50,005	255,173
3	1	51	96,943	425,038
3	2	114	317,110	1,522,916
3	3	22	14,231	77,424
3	4	2	535	3,291
4	1	6	24,464	129,488
4	2	268	281,671	1,611,205
4	3	1	435	2,732
4	4	4	5,097	34,608
5	1	6	46,274	280,884
5	2	3	1,160	7,671
5	4	5	825	6,319
5	5	4	368	2,992
6	1	2	49,263	342,379
6	2	3	9,781	72,088
6	4	1	547	4,618
7	1	7	21,949	253,044
7	2	7	28,262	377,451
7	3	6	26,143	421,346
7	4	2	3,446	50,788
7	5	1	402	8,008
		50,320	**10,377,862**	**$37,677,666**

4.4 Test Year Revenue Requirement

The revenue requirement shown in Table 4.2 includes O&M, debt service and capital expenditures. These requirements are met from rate revenues, reserves and miscellaneous revenue.

Table 4.2: Sewer - FY19 Revenue Requirement

Item	$
Expenditures	
Operating expense	$18,522,059
Debt service	6,058,000
Capital outlay	86,356,500
Total expenditures	$110,936,559
Less: Adjustments	
Miscellaneous Revenue	($1,287,000)
Other Sources	(2,740,000)
Bond Proceeds	(3,985,000)
Less: Change in Fund Balance	(65,246,893)
Total Adjustments	**($73,258,893)**
FY19 Revenue Requirement	**$37,677,666**

4.5 Revenue Requirement Cost Allocation

The underlying principle in cost allocation is to convert the test year revenue requirement into costs that best reflect the cost associated with the water demands place on the system.

4.5.1 Functional Cost Components

Sewer systems are comprised of several facilities (unit processes or functions) that are designed and operated to collect, treat, and dispose of effluent to natural bodies of water. The separation of costs into functional components provides a means for distributing costs to customer classes based their respective responsibility in the system. Typical functional categories for water systems include pre-treatment, treatment, lift stations, trunk lines, etc.

4.5.2 Allocation of Functionalized Costs

Once costs have been separated by function, they can be further allocated to cost components. Allocating to cost components provides a means of assigning costs based on the design and functional parameters that predominately influence the amount of that cost. Cost components include: contributed flow, biochemical oxygen demand (BOD), total suspended solids (TSS), and customer and billing costs[5].

[5] BOD means the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures for five (5) days at twenty degrees centigrade (20°C). Total suspended solids means the total suspended matter that floats on the surface of or is suspended in water, wastewater or other liquids, and which is removable by laboratory filtering. Both BOD and TSS are usually expressed as a concentration in milligrams per liter (mg/l).

Volume costs are those which vary directly with the quantity of contributed sewer volumes to the plant. BOD and TSS costs are associated the processes needed to treat and discharge effluent.

O&M related to the treatment plant are allocated to their respective volume, BOD or TSS cost component. For example, lift station and collection line expenses are allocated directly to the flow cost component. Other treatment related expenses such as operations, maintenance and fleet management are allocated equally to the flow, BOD, and TSS cost components. The lab program is associated with water quality testing. These costs are allocated equally to the BOD and TSS cost components. Other expenses not specifically assigned are allocated in proportion to all other treatment expenses.

The allocation of system assets to functional cost components provides the basis for allocating annual capital costs. Cost of service is generally allocated to cost components that reflect the design and functional parameters of the associated facility. For example, assets such as the trunk mains, collection mains, and interceptor mains reflect assets used to serve customers served by the collection system and are allocated directly to the flow cost component. General plant assets not specifically assigned are allocated in proportion to all other plant assets.

4.5.3 Allocated Revenue Requirement

Table 4.3 summarizes the allocated revenue requirement. The allocated revenue requirement is distributed to customer classes based on their proportionate share of total customer service characteristics.

Table 4.3: Sewer – FY19 Allocated Revenue Requirement

Description	Flow	BOD	TSS	Customer	Total
Operating	$5,337,445	$4,812,846	$3,208,564	$5,163,204	$18,522,059
Capital	53,125,789	24,888,793	14,399,918	0	92,414,500
Less: Adjustments	(41,697,389)	(19,692,776)	(11,390,960)	(477,768)	(73,258,893)
Allocated revenue requirement	**$16,765,845**	**$10,008,863**	**$6,217,522**	**$4,685,436**	**$37,677,666**

4.6 Development of Cost of Service

4.6.1 Units of Service

Customers of a sewer utility are often identified according to customer class. Each customer class has unique flow and strength characteristics. Because cost-of-service is based on the concept of proportionality, customer service characteristics for each customer class must be analyzed to distribute the functionalized and allocated system revenue requirements based on their respective demand profiles. The number of minimum bills is based on a reduction in the minimum charge allowance. Similarly, the billable volume has been adjusted to recognize the increase in the billable flow above the reduced minimum. Table 4.4 details proposed the units of service.

Table 4.4: Sewer – FY19 Proposed Raftelis Units of Service

BOD Class	TSS Class	Billable Volume [1] ccf	BOD lbs	TSS lbs	Minimum Bills
1	1	8,570,253	8,113,588	9,238,821	161,064
1	2	22,552	21,350	49,837	0
1	3	10,272	9,725	38,480	0
1	7	290	275	2,329	0
2	1	336,156	522,246	362,379	246
2	2	583,628	906,715	1,289,771	876
2	3	0	0	0	0
2	4	50,268	78,095	257,398	138
3	1	96,930	248,237	104,492	36
3	2	317,127	812,158	700,826	72
3	3	14,276	36,561	53,479	72
3	4	535	1,371	2,741	6
4	1	24,464	89,674	26,373	6
4	2	281,797	1,032,922	622,748	175
4	3	435	1,594	1,629	0
4	4	5,097	18,683	26,099	0
5	1	46,274	213,426	49,884	0
5	2	1,159	5,347	2,562	12
5	4	836	3,858	4,283	0
5	5	368	1,698	2,440	0
6	1	49,263	279,829	53,106	0
6	2	9,781	55,560	21,616	0
6	4	547	3,104	2,798	0
7	1	21,949	459,610	23,898	6
7	2	28,262	681,961	63,081	0
7	3	26,133	760,453	98,913	6
7	4	3,446	85,509	17,823	0
7	5	402	14,185	2,689	0
Total		**10,502,500**	**14,457,731**	**13,120,496**	**162,715**

(1)Projected volume billed above the minimum allowance.

4.6.2 Unit Cost of Service

The unit cost of service is the quotient of the allocated revenue requirement by cost component divided by the units of service for each. The allocated customer costs are greater than what the minimum charge will recover. As a result, those costs not recovered by the minimum charge are reallocated to the volume component. Table 4.5 summarizes the calculation of the minimum charge as well as revenue collected and Table 4.6 shows the adjusted unit cost of service.

Table 4.5: Sewer - Calculation of Minimum Bill Revenue

Line No	Item	$
1	Total cost of service	$37,677,666
2	Annual billable volume	10,811,644
3	Average rate, $ per ccf (Line 1/Line 2)	$3.48
4	Minimum use allowance, ccf (rounded)	2
5	Number of minimum bills	162,715
6	Total minimum revenue (Line 3*4*5)	**$1,109,849**

Table 4.6: Sewer – FY19 Proposed Raftelis Unit Cost of Service

Line No	Description	Volume	BOD	TSS	Billing/ Admin
1	Allocated revenue requirement	$16,765,845	$10,305,656	$5,920,730	$4,685,435
2	Minimum Charge Adjustment	3,575,586	0	0	(3,575,586)
3	**Reallocated Revenue Requirement**	**$20,341,431**	**$10,305,656**	**$5,920,730**	**$1,109,849**
	Units of service	*Billable Flow, ccf*	*lbs*	*lbs*	*Bills*
4	**Total units of service**	10,502,500	14,457,731	13,120,496	162,715
5	**Unit cost of service**	**$1.94**	**$0.71**	**$0.45**	**$6.82**

4.6.3 Distribution of Costs to Customer Classes

The distribution of costs to customer classes is calculated below in Table 4.7. Only a portion of the billing and administrative costs is recovered in the minimum charge. The net billing/admin costs represents the cost of providing approximately 2 ccf of water for a class one customer. The remainder of costs is allocated proportionately to the flow, BOD, and TSS cost components. The reallocated cost totals $3.6 million. Costs are distributed to the various customer classes based on the units of service in Table 4.6.

Table 4.7: Sewer – FY19 Proposed Raftelis Customer Class Cost of Service

BOD Class	TSS Class	Flow, ccf	BOD	TSS	Bills	Total
1	1	$16,599,021	$5,783,469	$4,169,093	$1,098,589	$27,650,171
1	2	43,678	15,218	22,489	0	81,386
1	3	19,895	6,932	17,364	0	44,191
1	7	562	196	1,051	0	1,808
2	1	651,072	372,264	163,527	1,678	1,188,540
2	2	1,130,381	646,318	582,020	5,975	2,364,693
2	3	0	0	0	0	0
2	4	97,359	55,667	116,153	941	270,121
3	1	187,736	176,947	47,153	246	412,081
3	2	614,217	578,916	316,253	491	1,509,878
3	3	27,650	26,061	24,133	491	78,335
3	4	1,037	977	1,237	41	3,292
4	1	47,383	63,920	11,901	41	123,245
4	2	545,789	736,280	281,020	1,193	1,564,282
4	3	842	1,136	735	0	2,714
4	4	9,872	13,317	11,777	0	34,967
5	1	89,625	152,133	22,511	0	264,268
5	2	2,245	3,811	1,156	82	7,294
5	4	1,620	2,750	1,933	0	6,303
5	5	713	1,210	1,101	0	3,024
6	1	95,414	199,466	23,965	0	318,844
6	2	18,945	39,604	9,754	0	68,303
6	4	1,058	2,213	1,263	0	4,534
7	1	42,512	327,616	10,784	41	380,952
7	2	54,738	486,111	28,466	0	569,315
7	3	50,614	542,061	44,635	41	637,351
7	4	6,675	60,952	8,043	0	75,670
7	5	778	10,111	1,213	0	12,102
Total		**$20,341,431**	**$10,305,656**	**$5,920,730**	**$1,109,849**	**$37,677,666**

4.6.4 Comparison FY19 Proposed Raftelis Cost of Service to Revenue at FY19 Utility Presented Rates

The comparison of cost of service to revenue at FY19 Utility Presented rates shows the change in cost to provide service for each customer class. Table 4.8 shows this comparison.

Table 4.8: Sewer – Comparison of FY19 Proposed Raftelis Cost of Service to Revenue at FY19 Utility Presented Rates

BOD Class	TSS Class	FY19 Utility Presented	FY19 Proposed Raftelis	Change $	Change %
1	1	$28,142,688	$27,650,171	($492,517)	(1.8%)
1	2	78,254	81,386	3,132	4.0%
1	3	41,499	44,191	2,692	6.5%
1	7	1,633	1,808	176	10.8%
2	1	1,196,323	1,188,540	(7,782)	(0.7%)
2	2	2,327,806	2,364,693	36,887	1.6%
2	3	0	0	0	N/A
2	4	255,173	270,121	14,948	5.9%
3	1	425,038	412,081	(12,957)	(3.0%)
3	2	1,522,916	1,509,878	(13,038)	(0.9%)
3	3	77,424	78,335	911	1.2%
3	4	3,291	3,292	1	0.0%
4	1	129,488	123,245	(6,243)	(4.8%)
4	2	1,611,205	1,564,282	(46,924)	(2.9%)
4	3	2,732	2,714	(17)	(0.6%)
4	4	34,608	34,967	358	1.0%
5	1	280,884	264,268	(16,616)	(5.9%)
5	2	7,671	7,294	(377)	(4.9%)
5	4	6,319	6,303	(16)	(0.3%)
5	5	2,992	3,024	32	1.1%
6	1	342,379	318,844	(23,535)	(6.9%)
6	2	72,088	68,303	(3,785)	(5.3%)
6	4	4,618	4,534	(84)	(1.8%)
7	1	253,044	380,952	127,909	50.5%
7	2	377,451	569,315	191,863	50.8%
7	3	421,346	637,351	216,005	51.3%
7	4	50,788	75,670	24,882	49.0%
7	5	8,008	12,102	4,094	51.1%
Total		**$37,677,666**	**$37,677,666**	**($0)**	**0.0%**

4.7 Rate Design

4.7.1 Introduction

In the development of schedules of sewer rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. The only method of assessing entirely equitable sewer rates would be the determination of each customer's bill based upon their unique service requirements. Since this is impractical, schedules of rates are normally designed to meet average conditions for groups (classes) of customers having similar service requirements. Rates should be reasonably simple in application and subject to as few

misinterpretations as possible. Appendix C shows calculation of the FY19 Proposed Raftelis sewer rates.

4.7.2 FY19 Utility Presented and FY19 Proposed Raftelis Structure and Rates

The FY19 Utility Presented rate structure consists of a reduced minimum charge from the existing rate structure. The minimum bill is assessed when a customer's volume rate times average winter consumption is less than $11.93. Otherwise all flow is assessed a volume rate that varies by class based on the flow, BOD and TSS strength characteristics.

Raftelis also calculated extra strength charges for Class 7 customers. Extra strength charges include BOD, COD[6], and TSS. The charges for COD, BOD and TSS will be billed on actual pounds of discharge. Customers in this class are assessed BOD or COD charges but not both. When there is an unexplained difference between the two (2) test results of COD and BOD the higher of the two will be used. Tables 4.9 and 4.10 show the FY19 Utility Presented and FY19 Proposed Raftelis rates, respectively.

Table 4.9: Sewer - FY19 Utility Presented Rates(1)

Class	BOD Strength mg/l	TSS Strength mg/l	Flow $ per ccf	BOD $ per ccf	TSS $ per ccf	Total $ per ccf
1	0 – 300	0 – 300	$1.87	$0.78	$0.40	$3.05
2	300 – 600	300 – 600	1.87	1.28	0.82	3.97
3	600 – 900	600 – 900	1.87	2.11	1.39	5.37
4	900 – 1,200	900 – 1,200	1.87	3.02	1.90	6.79
5	1,200 – 1,500	1,200 – 1,500	1.87	3.80	2.46	8.13
6	1,500 – 1,800	1,500 – 1,800	1.87	4.68	2.98	9.53
7	>1,800	>1,800	*Special Rate by Customer*			
Extra Strength Rates, $ per lb						
Chemical oxygen demand (COD)			$0.221			
Biochemical oxygen demand (BOD)			0.442			
Total suspended solids (TSS)			0.264			

(1) Customers billed based on the average water usage for the months November through March (AWC) or a minimum charge is $11.93, whichever is greater.

[6] COD means a measure of the oxygen required to oxidize all compounds, both organic and inorganic, in water. The exists a relationship between BOD and COD which is stated as ratio of BOD/COD. According to *Wastewater Engineering, Treatment and Reuse* by Metcalf and Eddy, typical ratios found in untreated municipal wastewater ranges from 0.3 to 0.8. The City currently uses a ratio of 0.5 and Raftelis has retained that ratio for the proposed extra strength rates.

Table 4.10: Sewer – FY19 Proposed Raftelis Rates[(1)]

Class	BOD Strength mg/l	TSS Strength mg/l	Flow $ per ccf	BOD $ per ccf	TSS $ per ccf	Total $ per ccf
1	0 – 300	0 – 300	$1.94	$0.68	$0.49	$3.11
2	300 – 600	300 – 600	1.94	1.11	1.00	4.05
3	600 – 900	600 – 900	1.94	1.83	1.70	5.47
4	900 – 1,200	900 – 1,200	1.94	2.62	2.32	6.88
5	1,200 – 1,500	1,200 – 1,500	1.94	3.29	3.01	8.24
6	1,500 – 1,800	1,500 – 1,800	1.94	4.05	3.65	9.64
7	>1,800	>1,800	*Special Rate by Customer*			
Extra Strength Rates, $ per lb						
Chemical oxygen demand (COD)			$0.280	$0.356		
Biochemical oxygen demand (BOD)			0.561	0.713		
Total suspended solids (TSS)			0.619	0.451		

(1) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the rates for flow, BOD, and TSS or a minimum charge of $6.82 whichever is greater. AWC is the average of water usage for the months November through March.

4.7.3 Typical Monthly Bill Comparison

Table 4-11 compares typical monthly bills under FY19 Utility Presented and the FY19 Proposed Raftelis rates at various levels of AWC for a class 1 BOD and TSS customer.

Table 4.11: Sewer - Typical Monthly Bill Comparison

AWC	FY19 Utility Presented	FY19 Proposed Raftelis	Change ($)	Change (%)
0	$11.93	$6.82	($5.11)	(42.8%)
1	11.93	6.82	(5.11)	(42.8%)
2	11.93	6.82	(5.11)	(42.8%)
3	11.93	9.33	(2.60)	(21.8%)
4	12.20	12.44	0.24	2.0%
5	15.25	15.55	0.30	2.0%
6	18.30	18.66	0.36	2.0%
7	21.35	21.77	0.42	2.0%
8	24.40	24.88	0.48	2.0%
9	27.45	27.99	0.54	2.0%
10	30.50	31.10	0.60	2.0%

5. STORMWATER RATES

5.1 Introduction

The Department's stormwater utility is a self-supporting enterprise fund with revenues collected from rates, impact fees, and other income to meet the utility's annual operating and capital budget, maintain adequate reserves, and meet bond covenant debt service coverage requirements.

For the purposes of this study, Raftelis used data provided by the Department to develop this revenue requirement study. This data included detailed historical billing data, impervious data, and the projected FY19 operating and capital budget.

5.2 Projected FY19 Revenue at FY19 Utility Presented Rates

Raftelis developed FY19 rate revenue at FY19 Utility Presented rates using detailed billing records provided by the Department. The revenue under FY19 Utility Presented rates serves as the basis for determining the FY19 revenue requirement. Table 5.1 summarizes the FY19 revenue under FY19 Utility Presented rates.

Table 5.1: Stormwater – FY19 Revenue at FY19 Utility Presented Rates

Customer Class	ERUs	ERU Factor	FY19 Utility Presented Rates	Monthly Revenue	Annual Revenue
1 or 2 Units < .25 acres	36,064	1.00	$4.94	$178,120	$2,137,441
1 or 2 Units > .25	4,290	1.40	6.91	29,635	355,624
3 or 4 Units	901	2.00	9.88	8,900	106,801
All Other Developed Parcels	95,945	1.00	5.43	521,261	6,255,134
Total	**137,200**			**737,917**	**$8,855,000**

5.3 Test Year Revenue Requirement

The revenue requirement shown in Table 5.2 includes O&M, debt service and capital expenditures. These requirements are met from rate revenues, reserves and miscellaneous revenue.

Table 5.2: Stormwater - FY19 Revenue Requirement

Item	$
Expenditures	
Operating expense	$6,913,232
Debt service	1,014,000
Capital outlay	5,649,068
Total expenditures	**$13,576,300**
Less: Adjustments	
Grants/Impact fees	($850,000)
Other Revenues	(34,000)
Short-term financing	(1,345,000)
Change in Fund Balance	(2,492,300)
Total adjustments	**($4,721,300)**
FY19 revenue requirement	**$8,855,000**

5.4 Rate Design

5.4.1 Introduction

In the development of schedules of stormwater rates, a basic consideration is to establish equitable charges to customers commensurate with the cost of providing service. The only method of assessing entirely equitable stormwater rates would be the determination of each customer's bill based upon their unique service requirements. Since this is impractical, schedules of rates are normally designed to meet average conditions for groups (classes) of customers having similar service requirements. Rates should be reasonably simple in application and subject to as few misinterpretations as possible.

5.4.2 FY19 Utility Presented and FY19 Proposed Raftelis Rates

The Department's FY19 Utility Presented rates has been place since FY17 and are show in Table 5.3. The FY19 Utility Presented rate structure includes a monthly charge per equivalent residential unit (ERU). The FY19 Proposed Raftelis rates retain the existing structure but have been updated to recover the cost to provide services in FY19.

Table 5.3: Stormwater – FY19 Comparison of FY19 Utility Presented and FY19 Proposed Raftelis Rates

Customer Class	FY19 Utility Presented	FY19	Change $	Change %
1 or 2 Units < .25 acres	$4.94	$4.94	$0.00	0.0%
1 or 2 Units > .25	6.91	6.91	0.00	0.0%
3 or 4 Units	9.88	9.88	0.00	0.0%
Impervious Area Based	5.43	5.43	0.00	0.0%

6. MISCELLANEOUS FEES

6.1 Introduction

The Department assesses fees for various goods and services associated with providing water, sewer, and stormwater service. These goods and services directly benefit the customer requesting the service. As such, these costs are passed directly to the customer as a direct charge. The miscellaneous fees study evaluated over 60 existing fees and developed a number of new fees. These fees are based on a cost of analysis considering, time, labor, material, and overhead. Fines on the other hand, are set at levels to deter customers from engaging in actions that impact the utility.

Many of these fees have not been updated for a number of years and therefore will show a significant potential increase. The calculated fees shown in this report represent the maximum cost-based fee. The Department may choose to adopt a fee up to that amount and still maintain the cost basis. It has been the intent of the City and the City Council to have all fees based on a cost of service basis and listed in the City's Consolidated Fee Schedule (CFS).

During the review, Raftelis recommended some fees on the Salt Lake City CFS be removed and that some existing fees. This was to simplify steps in the permitting and inspection process. Most fees have been rounded to end in five or even dollars to simplify the collection process at the Department's request. Raftelis evaluated the following fees[7]:

- Water connection fees
- Meter inspection and testing
- Fire hydrant maintenance fees
- Flat water charge – City and County Agencies
- Pressure testing
- Disconnection
- Plan review fees
- Sewer inspections
- Industrial wastewater discharge permits
- Stormwater inspection fees/discharge permits

6.2 Process

Raftelis reviewed over 60 different fees listed in the current City Consolidated Fee Schedule and reviewed 16 additional new fees requested by the Department. Raftelis used the City's current work order system to pull actual cost information over a two or three-year basis. Work order information was the primary resource for evaluating fees. Raftelis held interviews with individual work groups to list each task involved in each fee process in instances where work order information was

[7] The term 'existing service fee' refers to the adopted FY18 fees shown in the Consolidated Fee Schedule.

unavailable. Through discussions with staff, Raftelis developed cost estimates for each step in the task, level of effort required, and the grade level of each employee included in the process.

6.3 Water Utility Fees

The Water Utility serves both Salt Lake City and a large portion of Salt Lake County's east side. Listed below are the current and proposed water miscellaneous fees.

6.3.1 Connection Fees

Connection fees, shown in Table 6.1, consistently collect the most revenue on an annual basis compared to all the other miscellaneous fees. These fees are charged before the water meter is connected to the system and include the cost of the meter and the installation cost when the City does the installation. These fees are added to the impact fee by meter size on the City's CFS. Table 6.1 shows the water connection fees.

Table 6.1: Water Connection Fees

Meter Size inches	Existing Service Fee	Calculated Service Fee	Change $	Change %
¾"	$602	$500	($102)	-16.9%
1"	616	550	(66)	-10.7%
1.5"	1,008	2,395	1,387	137.6%
2"	2,323	2,745	422	18.2%
3"	3,983	5,985	2,002	50.3%
4"	4,414	8,225	3,811	86.3%
6"	7,239	13,345	6,106	84.3%
8"	10,478	17,280	6,802	64.9%
10"	N/A	22,380	22,380	100.0%
8" Detector Check	2,014	2,715	701	34.8%
10" Detector Check	3,076	4,380	1,304	42.4%
4" FM	5,863	8,870	3,007	51.3%
6" FM	9,309	12,000	2,691	28.9%
8" FM	11,084	13,255	2,171	19.6%
10" FM	24,225	20,155	(4,070)	-16.8%

6.3.2 Other Miscellaneous Fees

Other fees are charged when customers request new fire hydrants, meter testing, relocating meters or requesting to have their water turned back on. These fees recover the costs of sending employees to inspect new fire hydrants and conduct meter testing when customers are questioning the water usage on their meters. The customers are not billed if the meter is found to be reading in error. The turn on fee is to turn the water back on after it has been turned off for non-payment. Table 6.2 shows the water utility metering fees.

Table 6.2: Water Utility Metering Fees

Fee Type	Existing Service Fee	Calculated Service Fee	Change $	Change %
New Fire Hydrant Inspect	$110	$135	$25	22.7%
New Fire Hydrant Inspect - Long	110	240	130	118.2%
Relocating Meter .75" and 1"	110	135	25	22.7%
Meter Testing Fees – 5/8" to 1"	40	145	105	2625%
Meter Testing Fees – 1 ½" to 2"	75	290	215	286.7%
Meter Testing Fees – >2"	Actual Cost	385	385	
Water Turn On Fee	21	30	9	42.9%

6.3.3 Charges to City and County Fire Departments

The City currently charges each Fire Department within their service area for fire hydrant maintenance. The County charges originated from a lawsuit in the 1970's between the County and the City. The courts held that the County Fire Department was responsible for the cost to maintain fire hydrants located within the county service area. Prior to that date, the City had for many years charged the City Fire Department for maintenance and water usage. The fee paid by the Salt Lake City Fire Department for fire hydrant maintenance has not changed for 45 years and is currently $108,000 annually. The amount paid by each County Fire Department has been set by separate contracts which require the amount they pay to the match that paid by the Salt Lake City Fire Department.

In addition, the Salt Lake City Fire Departments pays an estimated fee for water used for fighting fires. The fee is based on an estimated number of fires per year of 13,000 times the estimated number of gallons used per fire of 3,000 gallons. The gallons per fire is based on the average fire lasting 10 minutes with the average water usage of 300 gallons per minute. The current fee has not changed in 45 years and is still based on the 1970 price of per $0.35 ccf. The proposed fee adjusts the charge to the current rate of $1.30 per ccf. Tables 6.3 and 6.4 compare the existing and proposed fire-related fees.

Table 6.3: Fire Hydrant Maintenance Fees

Fee Type	Existing Service Fee	Calculated Service Fee	Change - $	Change - %
Salt Lake City cost per hydrant – 6,353 hydrants	$24.31	$53.65	$28.34	120.7%
Cottonwood Heights – 1102 hydrants	24.31	53.65	28.34	120.7%
Holladay City – 737 hydrants	24.31	53.65	28.34	120.7%
Salt Lake County – 1,319 hydrants	24.31	53.65	28.34	120.7%

Table 6.4: Flat Water Charge to City and County Agencies

Fee Type	Existing Service Fee	Calculated Service Fee	Change - $	Change - %
Salt Lake City Fire Department	$18,399.96	$67,780	$49,380	268.4%
County Fire Departments	0.00	25,000	25,000	New
Salt Lake City Street Cleaning	3,334	10,075	6,741	202.2%

6.3.4 Proposed New Fees

Department staff requested Raftelis review and develop new fees for specific services. The fees listed below recover the costs for killing a service which is no longer needed by a developer or homeowner, review water pressure for new development, inspecting automatic fire sprinklers and costs to review plans before construction of water, sewer and storm water facilities. Table 6.5 on the next page shows the new proposed water utility fees.

Table 6.5: Proposed Water Utility Fees

Fee Type	Existing Service Fee	Calculated Service Fee	Change $	Change %
Water Pressure Test (Flow Test) water mains less than 12"	N/A	$455	$455	New
Water Pressure Test (Flow Test) water mains greater 12"	N/A	800	800	New
Kills – Small meters	N/A	55	55	New
Kills – Large 3" and greater	N/A	160	160	New
Auto sprinklers – less than 2"	N/A	136	136	New
Auto sprinklers – 2" and larger	N/A	369	369	New
Plan Review Fee – less than 1 acre with no new water, sewer or storm water lines	N/A	216	216	New
Plan Review Fee – Tenant Remodel	N/A	39	39	New
Plan Review Fee – Greater than 1 acre but less than 5 acres with new water, sewer or storm water lines Plus all County connection without water lines	N/A	1,060	1,060	New
Plan Review Fee – Greater than 5 acres with new water, sewer or storm water lines	N/A	$2,124	$2,124	New

6.4 Sewer Utility Fees

The sewer utility provides sanitary sewer services to over 45,000 customers within the Salt Lake City. The miscellaneous fees recover costs to inspect and survey new connections to the sewer system. The following fees are based on actual costs to provide these services.

6.4.1 Sewer Miscellaneous Fees

Table 6.6 summarizes the sewer miscellaneous fees.

Table 6.6: Sewer Miscellaneous Fees

Fee Type	Existing Service Fee	Calculated Service Fee	Change $	Change %
Sewer Inspection Fee	$60	$165	$105	175.0%
Sewer Lateral Kills	N/A	80	80	New Fee
Sewer Lateral Repairs	30	135	105	350.0%
Sewer Survey	100	130	30	30.0%
Additional Sewer Survey	35	130	95	271.4%
Installation of Sewer Wyes	Actual Cost	109		
After hours				
Sewer Inspection Fee	60	200	140	233.3%
Sewer Lateral Kills	N/A	110	110	New Fee
Sewer Lateral Repairs	30	175	145	483.3%
Weekend & Callout				
Sewer Inspection Fee	60	465	405	675.0%

6.4.2 Sewer Pretreatment Fees

Sewer pretreatment fees are needed to cover the additional costs of monitoring and inspecting commercial and industrial users that could discharge potentially toxic or hazardous pollutants, high strength chemicals and other substances into the sanitary sewer system. The pretreatment program was established to protect the environment, publicly owned treatment works (POTW) infrastructure and personnel, and the community from adverse effects of commercial and industrial wastewater discharge. The Pretreatment program requires and works to help industrial and commercial users control and treat wastewater discharge to prevent the introduction of pollutants which will interfere with operation of the POTW or pass-though the treatment works into the environment. The following chart shows current fees charged, current costs of each fee and the new proposed fee. During the review process, the Department decided not to propose the full cost of service but rather match the current rates charged by other sewer agencies in the valley with the intent of increasing fees in small increments over time. Table 6.7 shows the sewer utility pre-treatment fees.

Table 6.7: Sewer Pretreatment Fees

Name of Fee	Existing Service Fee	Cost of Service	Calculated Fee	Change $	Change %
Industrial Wastewater Discharge Permit					
Existing Customer Renewal	$50	$1,990	$250	$200	400.0%
New Customer	100	2,750	650	550	550.0%
Wastewater Sample Fee – does not include lab costs (actual laboratory costs will be charged)	50	690	250	200	400.0%
Grease Interceptor Inspection Fee (FOG) - First Trip	0	400	75	75	New
Grease Interceptor Inspection Fee (FOG) – each additional trip	0	400	150	150	New
Notice of Violation Fee – does not include applicable fines	0	100	100	100	New
Significant Noncompliance Fee – does not include applicable fines	0	480	350	350	New

6.5 Stormwater Utility Fees

The stormwater utility provides services to over 44,000 Salt Lake City customers. They are required to maintain the drainage system and monitor water quality discharged into the Jordan River and other irrigation systems. The following fees recover the costs to provide additional services of inspection and review of storm water discharge during construction to protect local streams and rivers. Table 6.8 shows the stormwater utility's miscellaneous fees.

Table 6.8: Stormwater Miscellaneous Fees

Fee Type	Existing Service Fee	Calculated Service Fee	Change $	Change %
Storm Water Inspection Fee	N/A	$132	132	New
Discharge into City Storm Water System – Includes 3 site visits	125	132	7	5.6%
Discharge into Stormwater System Re-inspection Fee	30	44	14	46.7%
Discharge into City Stormwater Registration Fee	20	44	24	120.0%

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RATE AD□I□OR□ COMMITTEE □INAL RE□ORT

Salt Lake City Department of Public Utilities

Rate Advisory Committee

2018 Water and Sewer Rate Study Recommendations

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Appendix A

Water Rate Committee Members

Appendix B

RAC Feedback and Comments on Final Rate Structures

Appendix C
Available online: https://drive.google.com/drive/folders/0B7Q2MSZ3UW08R2g3ME5BOWxrQ1E

Rate Advisory Committee Meeting #1

Rate Advisory Committee Meeting #2

Rate Advisory Committee Meeting #3

Rate Advisory Committee Meeting #4[1]

Rate Advisory Committee Meeting #5

[1] The RAC meeting #4 presentation was divided into two separate meetings – one discussing water rate alternatives and another discussing sewer rate structure alternatives.

1.0 Executive Summary

Salt Lake City Department of Public Utilities (SLCDPU) formed a Rate Advisory Committee (the RAC or Committee) to review, consider alternatives and, as decided by the RAC, recommend changes to the City's water and sewer rate structures. The RAC participated in six meetings[2] over the period from August through December 2017. The RAC process included education on the water and sewer systems, review of existing rate structures, customer class usage characteristics, a pricing objectives exercise, the evaluation of numerous alternatives and recommendation of rate structure changes for consideration by the Salt Lake City Public Utilities Advisory Committee (PUAC). Appendix A contains the listing of the RAC members. Appendix B contains feedback and comments on the proposed rate structures from the RAC.

The pricing objectives exercise provided a means in which RAC members identified and ranked the important objectives or goals that could be achieved through the water and sewer rate structures. The RAC identified the following six objectives (presented in rank order of importance) to evaluate the existing and new rate structure alternatives.

- Conservation
- Essential use affordability
- Demand management
- Rate stability
- Interclass equity
- Intraclass equity

To meet these objectives, the Committee recommended two water and two sewer volumetric rate structure alternatives for consideration by the PUAC; these structures include the following:

Water Rate Structure

- Retain the fixed charge by meter size. Modify the price ratio between the meter sizes to reflect capacity potential of each meter size to a ¾" meter. This fixed charge modification is recommended regardless of which volumetric rate alternative is selected.
- Retain the uniform volume rate structure for the winter months (November through March) and an increasing block structure for summer months (April through October). RAC members discussed the merits of modifying the winter uniform rate but ultimately decided that adjusting the summer structure would best meet the pricing goals and objectives.

[2] The RAC meeting #4 presentation was divided into two separate meetings – one discussing water rate alternatives and another discussing sewer rate structure alternatives.

- Move from volume rates by block that are the same for all classes (system-wide cost-of-service rate) to cost-of-service (COS) based rates that vary by customer class – applicable to both volumetric rate alternatives.
- Reduce the block 4 threshold from 70 ccf to 60 ccf for single residence, duplex, and triplex customer classes. Reduce the commercial, institutional, industrial(CII) customer class block 4 threshold from 700% of AWC to 600% of AWC. This shift is to further encourage demand management and the wise or efficient use of water.
- For the irrigation customer class, the current volumetric rate structure, an individualized target or budget-based approach, should be retained.
- The RAC recommended two water volumetric rate structure alternatives using a class-based cost-of-service rate for consideration to the PUAC. Table 1 compares the existing rate structure and the alternative rate structures. Many alternatives were considered by the RAC. For purposes of this report, the original "names" of the alternatives have been retained.
    - ***Alternative #2: COS/Existing Structure Adjusted for COS***. Retain the fixed-block rate structure for all residential customers and the average winter consumption (AWC)-based rate structure for CII customers.
        - Reduce the block 4 threshold from 70 ccf to 60 ccf for the single residence, duplex, and triplex customer classes.
        - Reduce the CII block 4 threshold from 700% of AWC to 600% of AWC.
    - ***Alternative #3: COS/AWC All*** Modify the existing fixed-tier structure for single residence, duplex, and triplex to an AWC-based 4 block rate structure, the same structure as CII.
        - Set the single residence, duplex, and triplex customer class block 4 threshold at 600% of AWC.
        - Reduce the CII customer class block 4 threshold from 700% of AWC to 600% of AWC.

Table 1
Water
Current and Proposed Residential and CII Rate Structures
City and County Customers

	Residential			CII	
Description	**Current**	**Alternative 2 COS/Existing**	**Alternative 3 COS/AWC ALL**	**Current**	**Alternative 2 and Alternative 3[c]**
Winter Period (Nov-Mar)	Block 1 Usage for All			Block 1 Usage for All	
Summer Period (Apr-Oct)					
Block 1 (a)	0-10 ccf	0-10 ccf	0-AWC	0-AWC	0-AWC
Block 2	11-30 ccf	11-30 ccf	AWC-300%	AWC-300%	AWC-300%
Block 3	31-70 ccf	31-60 ccf	300%-600%	300%-700%	300%-600%
Block 4	>70 ccf	>60 ccf	>600%	>700%	>600%

(a) Single residence existing Block 1: 0 to 10 ccf
Duplex existing block 1: 0 to 13 ccf
Triplex Block 1: 0 to 16 ccf

(b) AWC = Average Winter Consumption. "AWC – 300%" means usage greater than a customer's AWC and less than or equal to 300% of the customers AWC.
(c) Alternative 2 and Alternative 3 CII rate structures are the same.

Sewer Rate Structure

- Retain the customer class volumetric rate structure by volume and strength of wastewater flow for each alternative. Strength categories include biochemical oxygen demand (BOD) and total suspended solids (TSS). The two alternatives recommended are:
    - ***Alternative #1: No Minimum Charge.*** Eliminate the minimum charge. Customers are only charged for their AWC monthly flow.
    - ***Alternative #3: Reduced Minimum Charge.*** Reduce the minimum charge allowance from 4 hundred cubic feet (ccf) to 2 ccf. This reduces the minimum charge by approximately 50%.

2.0 Introduction

The SLCDPU conducts a comprehensive water rate study every five to seven years. The City retained Raftelis Financial Consultants, Inc. (Raftelis) as the consultant of record for the 2018 Water and Sewer Rate Study. The rate study included a review of water and sewer revenue requirements, the development of a cost of service analysis, and rate design for the fiscal year (FY) 2019 (the 12 months ending June 30, 2019; referred to as FY19). ***The rates shown in this report and appendices are not the adopted FY18 or proposed/recommended FY19 rates. Rather, these rates were developed using the current fiscal year budget and can only be used as a means of comparison of different rate structure alternatives. Adopted rates under the alternative structures proposed; ultimately adopted by the City Council, may yield different results.***

The rate study process included formation of a Rate Advisory Committee (RAC). This committee was comprised of stakeholders representing several diverse community groups and the public at-large. Additionally, several committee members that represented each City Council district were selected by the City Council. All of the RAC members are listed in Appendix A. The RAC participated in a series of meetings, providing input and suggestions for adjustments to the existing rate structure that best represented the needs, goals and objectives of the community. This RAC members participated in robust discussions during each meeting where they voiced concerns, agreement, and shared new ideas. Raftelis led the detailed analysis for the study. The meetings were co-facilitated by Raftelis and The Langdon Group.

3.0 Rate Advisory Committee Mission and Purpose

The RAC's Mission and Purpose is stated below.

Committee Mission. The mission of the RAC is to assemble a diversity of perspectives that represent our community to evaluate and advise on the water, sewer, and stormwater rate structures[3].

Committee Purpose. Salt Lake City periodically updates water, sewer and stormwater utility rates to ensure they are current and reflect community values. Salt Lake City believes strongly that our community should have a voice in decisions that affect them. The Salt Lake City Department of Public Utilities Rate Advisory Committee has the unique opportunity to help develop this rate study, leading to improvements that will have a positive impact on the community for decades to come. The RAC has two overarching purposes:

1. To provide input including recommendations to the Public Utilities Advisory Committee, Salt Lake City Mayor and Council
2. To represent and communicate the views of the community

[3] Ultimately, water and sewer rate structures became the RAC's primary focus. Stormwater rate structure were removed from the discussion.

4.0 Rate Advisory Committee Meetings

Raftelis and SLCDPU Staff facilitated six RAC meetings. The agenda and goals from each meeting are listed below. Additional information from each meeting is available on the City's web site.

4.1 Meeting #1

- Role of RAC in rate study process
- Water and sewer system review
- Review of current water and sewer rates and structure
- Overview of the rate-setting process
- Pricing objectives definition

4.2 Meeting #2

- 2018 pricing objectives review and supporting analytics
- Ranking 2018 pricing objectives

4.3 Meeting #3

- Review ranked pricing objectives and measurement criteria for evaluation
- Water conservation program presentation
- Customer class usage and demographic characteristics
- Potential rate structure ideas and concepts

4.4 Meeting #4[4]

- Water rate structure alternatives definitions
- Sewer rate structure alternatives definitions
- Ranking top two rate structure alternatives for water and sewer

4.5 Meeting #5

- Top two water and sewer rate alternatives presented
- Customer bill impacts for each alternative
- Selection of alternatives to be presented to PUAC

[4] The RAC meeting #4 presentation was divided into two separate meetings – one discussing water rate alternatives and another discussing sewer rate structure alternatives.

5.0 Pricing Objectives

The role of the RAC for the 2018 water and sewer rate study was to review the effectiveness of the existing rate structure and provide recommendations for adjustments to the structure. The Committee identified and ranked 11 pricing objectives to assist in aligning the water and sewer rate structures with community values. The pricing objectives, ranked by 'most important', 'more important' and 'not as important', are listed in Table 1:

Table 1
Ranked Pricing Objectives

Most Important • Conservation • Essential use affordability • Demand management
More Important • Rate stability • Interclass equity • Intraclass equity
Not as Important • Revenue stability • Impact on customers • Customer understanding • Ease of implementation • Intergenerational equity
1. Definitions can be found in RAC Meeting #2 presentation.

The six highest ranked pricing objectives is discussed below.

1. ***Conservation/Demand management.*** These two related objectives focus on annual water use reduction and reduction in peak day summer use, respectively. Annual water use relates to availability, management and cost of water resources based upon precipitation, reservoir and snowpack storage. Peak water use drives capacity, size and cost of treatment plants, pumps stations and pipe to convey the maximum flow to customers during peak hour and peak day consumption of the year.

   Water conservation and peak usage reduction objectives were combined for the purpose of assessing impacts of changes to the rate structure on water use. To be effective with regards to these objectives, the rate structure should be designed to promote the efficient use of resources on a year-round basis as well as during periods of peak use. The rate structure should assign the cost of providing peaking facilities to those customers having significant peak to average water use patterns, and discourage the use of water during peak demand periods.
2. ***Essential use affordability.*** This objective was to allow the opportunity for low income or fixed income customers to afford water for essential purposes at the lowest possible cost.
3. ***Demand management.*** See item #1.

4. ***Rate stability.*** The rate structure should maintain continuity over time while meeting the goals and objectives of the utility. This is coupled with a financial plan that maintains smooth and predictable revenue adjustments.
5. ***Interclass equity.*** Equity between customer classes. Through a cost-of-service analysis, costs are recovered proportionately from each customer class' rate structure based on their unique demand characteristics.
6. ***Intraclass equity.*** Equity between customers within a class. Intraclass equity is maximized when the rate structure results in individual customers paying, to the maximum extent possible, an amount that approximates their unique contribution to their customer class revenue requirement

The RAC sought to evaluate rate structure refinements and adjustments in terms of how effective these adjustments were in achieving the objectives. The RAC was presented with customer characteristic and water use data, information on water system demands, sewer system flows, affordability metrics, and other customer billing data to consider in assessing the rate structure options.

5.1 Pricing Objective Measurement Criteria

SCLDPU staff developed and shared with the RAC criteria used to evaluate the effectiveness each alternative's ability to meet the criteria. The measurement criteria are presented below.

1. ***Conservation***
   a. Continue to achieve or exceed existing goals and evaluate more stringent goals
   b. To what degree does the rate structure reduce water demand, i.e., price elasticity.
2. ***Essential use affordability***
   a. After considering existing program/options, how can rates be used to make essential water use affordable?
3. ***Demand management***
   a. Manage peak demands to improve system efficiencies and economies of scale
   b. To what degree does the rate structure reduce water demand, i.e., price elasticity.
4. ***Rate stability***
   a. Rate structure alternatives that are flexible and can be adjusted to achieve the financial objectives of the utility as well as the pricing objectives of the community.
5. ***Interclass equity***
   a. Through the cost-of-service analysis, compare the class cost-of-service for 2018 to the revenue under existing rates.
6. ***Intraclass equity***
   a. Use the cost-of-service analysis to compare the relationship between the customer bill and their demand for service.

6.0 Rate Structure Alternatives

Three water rate structure alternatives were developed along with comparison against the existing water rate structure. Two alternatives were created along with comparison against the existing sewer utility. The RAC added a third sewer alternative at the final meeting. These alternatives are described below.

6.1 Water Rate Structure Alternatives

- ***Status Quo: Existing Structure Adjusted for Cost of Service.*** Calculate rates under current system-wide cost-of-service (COS) methodology and rate structures.
- ***Alternative #1: AWC All.*** Calculate rates based on one rate structure for all classes, i.e., a system-wide COS and one set of rates/one rate structure for all classes.
- ***Alternative #2: COS/Existing Structure Adjusted for Cost of Service.*** Calculate each customer class' COS rates with existing rate structures (i.e., rates and structure vary by class).
- ***Alternative #3: COS/AWC All.*** Calculate each customer class' COS rates using an AWC rate structure that is the same for all classes (i.e., rates vary by class/structure same for all classes).

6.2 Sewer Rate Structure Alternatives

- ***Status Quo: Existing Structure Adjusted for Cost of Service.*** Calculate rates under current COS methodology and rate structures.
- ***Alternative #1: No Minimum Charge.*** Only a volume rate applied to average winter consumption for all customers. No AWC = no bill.
- ***Alternative #2: Fixed Charge.*** Calculate rates based on a service charge by water meter size and a volume rate based on each customers' AWC.
- ***Alternative #3: Status Quo with a reduced minimum charge.*** Calculate rates under current COS methodology and rate structures however, reduce the minimum charge by approximately 50%.

7.0 Selected Rate Structure Alternatives

Raftelis presented the water and sewer rate structure alternatives' concepts at RAC Meeting #4. During RAC Meeting #5, Raftelis presented conceptual rates, bill impacts, and other information for the RAC's consideration and recommendation to the the PUAC. Using a 'strawman poll', the attending RAC members selected the following alternatives for water and sewer:

7.1 Selected Water Rate Structure Alternatives

Water Minimum Charge

The RAC retained the existing minimum charge by meter size with one adjustment; the cost ratio between the meter sizes should be based on the American Water Works Association (AWWA) meter capacity ratios. This ensures that a portion of recurring capital costs is equitably distributed to meter sizes based on their meter size capacity potential. In other words, the larger the meter size, the greater the portion of capital costs that should be allocated to reflect the greater demands that can be placed on the system. This change recovers the same percentage of total rate revenue as the existing minimum charge structure: approximately 15%. This indicates that the change in the minimum charge structure will not adversely affect revenue stability.

Water Volume Rate Structure

The RAC members selected the following two volume rate structure alternatives.

- ***Alternative #2: COS/Existing Structure Adjusted for Cost of Service.*** Calculate each customer class' COS rates with existing rate structures (i.e., rates and structure vary by class)
- ***Alternative #3: COS/AWC All.*** Calculate each customer class' COS rates using an AWC rate structure that is the same for all classes (i.e., rates vary by class/structure same for all classes)

Volume Rate Structure Alternatives Evaluation

Conservation and Demand Management. Both Alternative #2 and Alternative #3 promote the continued conservation/demand management efforts of the City. For Alternative #2, the block 4 threshold has been reduced from 70 to 60 ccf for single residence, duplex, and triplex classes. This change broadens the price signal to include more customers who have usage in block 4. Alternative #3 reduces the block 4 threshold from 700% to 600% of AWC. This to moves more customers into block 4 and sends a price signal to reduce usage during peak periods for both residential and CII classes.

Interclass and Intraclass Equity. Through a class-based cost-of-service analysis, the rates for residential and CII classes reflects their specific cost to provide service. This cost-of-service approach ensures that there is interclass equity – that is, no subsidy of costs between the customer classes.

The increasing block structure for both alternatives also addresses intraclass equity. With an increasing block structure, customers pay their proportionate share based on their specific usage pattern and contribution to their class revenue requirement. In other words,

customers with lower, more steady demands cost less to serve than customers with seasonal peak demands that have usage in the higher or more expensive tiers. Whereas both structures achieve intraclass equity, there are slight differences between the two.

The Alternative #2 block thresholds distinguish between indoor and outdoor use for residential classes. Block 1 captures average indoor use. The second block recovers the cost associated with outdoor usage for an average size lot. Blocks 3 and 4 is for usage above the average outdoor use. With Alternative #2, the outdoor use typical occurs during peak periods of demand. As a result, the cost to provide the outdoor demands is greater as well.

The Alternative #3 block thresholds are based on the non-peak and peak demands for each customer. Block 1, usage up to the customer's AWC, captures the non-peak demand for each customer. This volume is priced at the lowest rate or unit cost as these volumes represent minimum demands placed on the system. The second block threshold represents the cost to provide service during peak periods for each customer. Blocks 3 and 4 also recover the cost to provide water service during peak demand periods.

Essential Use Affordability. Essential use affordability was a highly ranked pricing objective. The RAC recognized that the rate structure should provide essential water service at the lowest possible rate. The RAC also recognizes that assistance programs can play a significant role in ensuring full access to essential water use; perhaps an even greater role than the rate structure.

Under Alternative #2 and Alternative #3, the block 1 rate is set at the lowest rate. For Alternative #2, the lowest rate applies up to 10 ccf for single residence customers. Under Alternative #3, the block 1 threshold is set to each customer's average winter consumption. This ensures that everyone pays for essential water use at the same rate.

The primary difference between Alternative #2 and Alternative #3 is that under Alternative #2, essential use above the 10 ccf threshold would be charged at the block 2 rate rather than the block 1 rate in Alternative #3.

An affordability measurement was discussed at Meeting #2. The measure showed an analysis of how many hours each month, a typical residential household would have to work at minimum wage to pay an essential use water and sewer bill. Table 2 contains the results of this analysis and comparison to other communities. Under the current City water and sewer rates, it would take approximately 4.6 hours at minimum wage to pay for an essential services bill.

Table 2 Hours Required at Minimum Wage to Pay Monthly Water and Sewer Minimum Services Bill		
City/Utility	**Essential Services Water and Sewer Bill[(1)]**	**Hours Worked at Minimum Wage**
Phoenix	$41.56	4.2
Provo*	30.52	4.2
SLCDPU: City - New Structures[(2)]	**31.53**	**4.3**
SLCDPU: City Existing	**33.21**	**4.6**
Las Vegas	38.04	4.6
Albuquerque	35.30	4.7
Sandy*	35.80	4.9
Sacramento	56.37	5.4
West Valley*	39.57	5.5
SLCDPU: County - New Structure[(2)]	**39.83**	**5.5**
SLCDPU: County Existing	**40.42**	**5.6**
Local Utah Average	40.46	5.6
Denver	53.49	5.8
Aurora	56.48	6.1
Portland	67.03	6.5
Ogden	47.44	6.5
National Average	59.46	6.5
Boise	52.19	7.2
West Jordan*	56.27	7.8
Santa Fe	70.06	9.3
Seattle*	124.05	11.3

*Local Utah utilities
1. Essential water use is 6 ccf and contributed sewer volume is 6 ccf
2. The monthly bill shown is an average of each alternatives' monthly bill.

The City's existing rates and structure as well as the proposed alternatives for water and sewer are among the lowest locally and regionally in terms of the hours worked at minimum wage to pay for an essential use water and sewer services bill.

Rate Stability. Both alternatives provide for rate stability. Like rate adjustments in the past, these rates allow the City to, in the future, make overall rate adjustments to the entire structure (i.e., increasing the minimum charge and volume rate at the same percentage) or the City may choose to adjust a specific component of the structure such as increasing the minimum charge only to recover the additional revenue needed. Conversely, the City may increase one or all of the volume rates to achieve specific goals – revenue stability, additional conservation, or adjusting prices to reflect changes in providing indoor/outdoor or non-peak/peak demands.

7.2 Selected Sewer Rate Structure Alternatives

The RAC selected the following sewer rate structure alternatives for consideration by the PUAC.

- **Alternative #1: No Minimum Charge.** Only a volume rate applied to average winter consumption for all customers. No AWC = no bill.
- **Alternative #3: Status Quo with a Reduced Minimum Charge**. Calculate rates under current cost of service methodology and rate structures however, reduce the minimum charge by approximately 50%.

Sewer Structure Alternatives Evaluation

Both sewer rate structure alternatives retain the volume rate that varies by the contributed flow and strength. The existing and adopted volume rate consists of three components – the contributed sewer flow rate, the BOD rate, and the TSS rate. The contributed sewer flow rate is the same for all seven strength classes. The BOD volume rate and the TSS volume rate vary based on the customer's strength classification.

Interclass equity is achieved by recovering the cost to provide service for each strength class based on their specific strength volume rate. Both Alternative #1 and Alternative #3 improve intraclass equity through a change in the minimum charge. Currently, the minimum charge is billed based on the average water usage for the months November through March (AWC) times the class volume rate or a minimum charge is $10.36, whichever is greater. By eliminating the minimum charge in Alternative #2, customers would pay based solely on the contributed flow. The lowered minimum charge in Alternative #3 recognizes that regardless of contributed flow, there should be a minimum charge to recognize the readiness to provide service to customers.

8.0 Comparison of Existing Structure and Rates to Alternatives

The recommended rate structures produced the following *conceptual* rates. Actual rates adopted by the SLCDPU in future rate studies will be based on different budget year data, customer and utility system data. The rates comparison in Tables 3 through 5 illustrate how water rates would change, comparatively, under the different alternatives. Table 6 shows existing and proposes sewer rate alternatives.

Table 3
Water
Comparison of Existing and Alternative Minimum Charge(1)
$ per monthly bill

Meter Size	Existing	Alternative	$ Change	% Change
3/4"	$9.51	$7.02	($2.49)	-26%
1”	9.51	8.85	(0.66)	-7%
1 ½”	11.23	13.43	2.20	20%
2"	12.19	18.92	6.73	55%
3"	20.46	33.57	13.11	64%
4''	21.90	50.05	28.15	129%
6"	31.62	95.82	64.20	203%
8"	56.84	150.74	93.90	165%
10”	105.41	388.75	283.34	269%

(1) County minimum charges are 1.35 times City minimum charges

Table 4
Water
Comparison of City Existing and Alternative Volume Rates(1)
Single Residence
($ per ccf)

Description	Existing(1)	Alternative #2 COS/Existing	Alternative #3 COS/AWC All
Winter Period (Nov-Mar)	1.30	1.29	1.27
Summer Period (Apr-Oct)			
Block 1	$1.30	$1.29	$1.27
Block 2	1.78	1.77	1.73
Block 3	2.47	2.45	2.41
Block 4	2.63	2.61	2.56

(1) County volume rates are 1.35 times the City volume rates.

Table 5 Water Comparison of City Existing and Alternative Volume Rates[1] CII ($ per ccf)			
Description	**Existing**	**Alternative #2 COS/Existing**	**Alternative #3 COS/AWC All**
Winter Period (Nov-Mar)	1.30	1.40	1.40
Summer Period (Apr-Oct)			
Block 1	$1.30	$1.40	$1.40
Block 2	1.78	1.92	1.92
Block 3	2.47	2.66	2.66
Block 4	2.63	2.84	2.84
(1) County rates are 1.35 times the City volume rates.			

Table 6 Sewer Rate Structure Alternatives ($ per ccf)					
Class	**BOD Strength (mg/l)**	**TSS Strength (mg/l)**	**Existing $ per ccf[1]**	**Alt. 1 $ per ccf[2]**	**Alt. 3 $ per ccf[3]**
1	<300	<300	$2.65	$2.82	$2.79
2	300–600	300–600	3.44	3.74	3.66
3	601–900	601–900	4.66	4.66	4.55
4	901–1,200	901–1,200	5.89	5.59	5.44
5	1,200–1,500	1,200–1,500	7.06	6.50	6.33
6	1,501–1,800	1,501–1,800	8.27	7.43	7.22
7	>1,800	>1,800	*Separately Monitored Class*		
1. Customers billed based on the average water usage for the months November through March (AWC) or a minimum charge is $12.53, whichever is greater *2. No minimum charge.* *3. Customers billed based on the average water usage for the months November through March (AWC) or a minimum charge is $6.27, whichever is greater*					

9.0 Customer Bill Impacts

This section presents typical summer monthly water and sewer bills and bill impacts for City Single Residence and CII customers.

9.1 City Water Single Residence Typical Monthly Bills and Bill Impacts

Table 7 shows the typical monthly bill for various levels of consumption under existing, Alternative #2 and Alternative #3 rates and structures.

Table 7
Water
Typical Monthly Summer Bills Under Existing and Proposed Rate Structure Alternatives
City Single Residence Customers

Summer Usage	Existing	Alt. #2: COS/Existing			Alt .#3: COS/AWC All AWC = 6		
ccf	Monthly Bill	Monthly Bill	$ Change	% Change	Monthly Bill	$ Change	% Change
0	$9.51	$7.02	($2.49)	-26.2%	$7.02	($2.49)	-26.2%
5	16.01	13.47	(2.54)	-15.9%	13.37	(2.64)	-16.5%
10	22.51	19.92	(2.59)	-11.5%	21.56	(0.95)	-4.2%
20	40.31	37.62	(2.69)	-6.7%	40.22	(0.09)	-0.2%
30	58.11	55.32	(2.79)	-4.8%	64.32	6.21	10.7%
40	82.81	79.82	(2.99)	-3.6%	89.02	6.21	7.5%
50	107.51	104.32	(3.19)	-3.0%	114.62	7.11	6.6%
60	132.21	128.82	(3.39)	-2.6%	140.22	8.01	6.1%
70	156.91	154.92	(1.99)	-1.3%	165.82	8.91	5.7%

The 10.7% increase at 30 ccf for Alternative 3 is due to the difference in the block 3 thresholds to the existing rate structure thresholds. Under the existing rate structure, usage is billed in blocks 1 and 2. Under Alternative #3, usage is billed in block 1, 2, and 3. Stated differently, with an AWC of 6, usage above 18 ccf is billed at the block 3 rate for alternative 3 rate ($2.41 per ccf) while the usage above 18 ccf in the existing structure is billed at the block 2 rate ($1.78 per ccf).

Tables 8 shows the customer bill impact for City Single Residence customers under Alternative 2 to the existing rates. Under alternative 2, virtually all monthly bills will decrease between $0 and -$5 from bills under existing rates. Similarly, 36.7% of bills will decrease 0 to 5%. This due in part to the reduction in the ¾" meter fixed charge and rates based on class cost-of-service. Class cost of service volume rates are lower than existing volume rates.

Table 8 Water Single Residence Customer Summer Bill Impact Comparison of Alt. #2: COS/Existing to Existing Rates			
$ Change in Monthly Bill	**Percent of Bills**	**% Change in Monthly Bill**	**Percent of Bills**
<-$10	0.0%	< -10%	43.6%
-$5 to -$10	0.1%	-10% to -5%	19.7%
-$5 to $0	99.9%	-5% to 0%	36.7%
$0 to $5	0.0%	0% to 5%	0.0%
$5 to $10	0.0%	5% to 10%	0.0%
$10 to $15	0.0%	10% to 15%	0.0%
$15 to $20	0.0%	15% to 20%	0.0%
>$20	0.0%	>20%	0.0%

Table 9 shows the Single Residence customer bill impacts of Alternative #3 to existing rates. Approximately 71% of monthly bills will decrease between $0 to $5 under Alternative #3. The high percentage of bills with a decrease is due in part to the reduced ¾" meter fixed charge and class cost-of-service rates[5]. Class cost-of-service volume rates are lower than existing volume rates. Bills with an increase can be attributed to the usage distribution based on each customers' individualized block thresholds.

[5] Approximate 88% of single residence meters are ¾".

Table 9 Water Single Residence Customer Summer Bill Impact Comparison of Alt. #3: COS/AWC All to Existing Rates			
$ Change in Monthly Bill	**Percent of Bills**	**% Change in Monthly Bill**	**Percent of Bills**
<-$10	4.1%	< -10%	44.6%
-$5 to -$10	3.6%	-10% to -5%	11.9%
-$5 to $0	71.0%	-5% to 0%	22.2%
$0 to $5	12.5%	0% to 5%	9.6%
$5 to $10	8.8%	5% to 10%	10.8%
$10 to $15	0.0%	10% to 15%	0.9%
$15 to $20	0.0%	15% to 20%	0.0%
>$20	0.0%	>20%	0.0%

9.2 City Water CII Typical Monthly Bills and Bill Impacts

Table 10 shows the typical monthly bill for various levels of consumption under existing, Alternative #2 and Alternative #3 rates and structures.

Table 10
Water
Typical Monthly Summer Bills Under Existing and Proposed Rate Structure Alternatives[(1)]

City CII Customers[(2)]

Summer Usage ccf		Alt. #2: COS/Existing			Alt. #3: COS/AWC All		
	Existing Rates	Alternative #2	$ Change	% Change	Alternative #3	$ Change	% Change
0	$12.19	$18.92	$6.73	55.2%	$18.92	$6.73	55.2%
25	44.69	53.92	9.23	20.7%	53.92	9.23	20.7%
50	77.19	88.92	11.73	15.2%	88.92	11.73	15.2%
75	109.69	123.92	14.23	13.0%	123.92	14.23	13.0%
100	142.19	158.92	16.73	11.8%	158.92	16.73	11.8%
150	231.19	254.92	23.73	10.3%	254.92	23.73	10.3%
200	320.19	350.92	30.73	9.6%	350.92	30.73	9.6%
250	409.19	446.92	37.73	9.2%	446.92	37.73	9.2%

(1) Rates and structure for CII Alt. #2 and Alt. #3 are the same.
(2) 2" CII customer with an AWC of 100 ccf.
Proposed structure:
Block 1: 0 – 100 ccf
Block 2: 100 – 300 ccf
Block 3: 300 – 600 ccf
Block 4: >600 ccf

The 55.2% or $18.92 change in monthly bill for zero usage due to the change in the monthly fixed charge.

Tables 11 shows the customer bill impact for City CII customers of water Alternative #2and #3 to the existing rates. The rate structure and rates under Alternatives #2 and #3 are the same. Under the alternatives, about 24% of bills will increase between $0 and $5. Drivers for the increases are due to increases in larger meter size fixed charges and class-based cost-of-service rates which are higher than the existing rates.

Table 11
Water
CII Customer Summer Bill Impact
Comparison of Alternatives #2 and #3 to Existing Rates(1)

$ Change in Monthly Bill	Percent of Bills	% Change in Monthly Bill	Percent of Bills
<-$10	0.5%	< -10%	14.4%
-$5 to -$10	0.1%	-10% to -5%	8.2%
-$5 to $0	31.2%	-5% to 0%	9.2%
$0 to $5	24.4%	0% to 5%	17.5%
$5 to $10	12.7%	5% to 10%	38.0%
$10 to $15	6.2%	10% to 15%	6.5%
$15 to $20	4.1%	15% to 20%	2.3%
>$20	20.9%	>20%	3.9%

(1) Rates and structure for CII Alt. #2 and Alt. #3 are the same.

9.3 City Sewer Typical Monthly Bills and Bill Impacts

Table 12 shows City single residence typical monthly sewer bills under the existing rates and structure to Alternative #1 and Alternative #3 rates and structures.

Table 12
Sewer
Typical Monthly Sewer Bill Comparison
Class 1 BOD, 1 TSS Customer

Sewer Flow ccf	Existing Structure	Alt. #1: No Minimum Charge			Alt. 3: Reduced Minimum Charge		
	Monthly Bill	Monthly Bill	$ Change	% Change	Monthly Bill	$ Change	% Change
0	$10.36	$0.00	($10.36)	-100.0%	$6.27	($4.09)	-39.5%
1	10.36	2.82	(7.54)	-72.8%	$6.27	(4.09)	-39.5%
2	10.36	5.64	(4.72)	-45.6%	$6.27	(4.09)	-39.5%
3	10.36	8.46	(1.90)	-18.3%	$8.37	(1.99)	-19.2%
4	10.60	11.28	0.68	6.4%	$11.16	0.56	5.3%
5	13.25	14.10	0.85	6.4%	$13.95	0.70	5.3%
6	15.90	16.92	1.02	6.4%	$16.74	0.84	5.3%
7	18.55	19.74	1.19	6.4%	$19.53	0.98	5.3%
8	21.20	22.56	1.36	6.4%	$22.32	1.12	5.3%
9	23.85	25.38	1.53	6.4%	$25.11	1.26	5.3%
10	26.50	28.20	1.70	6.4%	$27.90	1.40	5.3%

Table 13 shows CII typical monthly sewer bills under the existing and proposed rate alternatives for a Class 4 CII customer.

Table 13 Sewer City CII Typical Monthly Bill Comparison Class 4 BOD, 4 TSS							
Sewer Flow ccf	Existing Structure	Alt. #1: No Minimum Charge			Alt. #3: Reduced Minimum Charge		
	Monthly Bill	Monthly Bill	$ Change	% Change	Monthly Bill	$ Change	% Change
0	$10.36	$0.00	($10.36)	-100.0%	$6.27	($4.09)	-39.5%
5	$29.45	$27.95	(1.50)	-5.1%	$27.20	(2.25)	-7.6%
10	$58.90	$55.90	(3.00)	-5.1%	$54.40	(4.50)	-7.6%
20	$117.80	$111.80	(6.00)	-5.1%	$108.80	(9.00)	-7.6%
30	$176.70	$167.70	(9.00)	-5.1%	$163.20	(13.50)	-7.6%
45	$265.05	$251.55	(13.50)	-5.1%	$244.80	(20.25)	-7.6%
55	$323.95	$307.45	(16.50)	-5.1%	$299.20	(24.75)	-7.6%
60	$353.40	$335.40	(18.00)	-5.1%	$326.40	(27.00)	-7.6%
70	$412.30	$391.30	(21.00)	-5.1%	$380.80	(31.50)	-7.6%
80	$471.20	$447.20	(24.00)	-5.1%	$435.20	(36.00)	-7.6%

Table 14 shows the bill impact for all sewer customers' bills under Alternative 1 compared to existing rates. Under alternative 1, approximately 49% of bills will increase between $0 and $2.50. This is due primarily the higher volume rates in Alternative 1. The class 1 rate is $2.82 per ccf for all volume compared to $2.65 under the existing rates.

Table 14 Sewer City Customer Bill Impact Alt. #1: No Minimum to Existing Rates All City Sewer Customers			
$ Change in Monthly Bill	Percent of Bills	% Change in Monthly Bill	Percent of Bills
< -$10	11.8%	< -10%	26.7%
-$10 to -$5	6.2%	-10% to -5%	11.6%
-$5 to $0	20.5%	-5% to -0%	0.3%
$0 to $2.50	49.4%	0% to 5%	0.6%
$2.50 to $5	6.6%	5% to 10%	50.0%
$5 to $10	2.7%	10% to 15%	0.0%
$10 to $15	0.8%	15% to 20%	0.0%
> $15	2.0%	>20%	10.9%

Table 15 shows the bill impacts of Alternative #3 for all sewer customers. The 38% of bills with a decrease between $0 and $5 is due to the large number of bills with sewer volumes of 3 ccf or less. Under the existing structure, the class 1 bill for 3 ccf and less is $10.63 while under Alternative #3, the bill is $8.37[6]. Bills with volume between 3 and 4 ccf will be

[6] Class 1 customer bills represent approximately 44.5% of total sewer bills.

assessed Alternative #3 volume rate rather than the existing minimum charge. Bills with volume greater than 4 ccf will be assessed the Alternative #3 volume rate of $2.79 per ccf, an increase of $0.14 per ccf over the existing rate.

Table 15
Sewer
City Customer Bill Impacts
Alt. #3: Reduced Minimum Charge
All City Sewer Customers

$ Change in Monthly Bill	Percent of Bills	% Change in Monthly Bill	Percent of Bills
< -$10	0.6%	< -10%	27.1%
-$10 to -$5	0.1%	-10% to -5%	11.1%
-$5 to $0	37.8%	-5% to -0%	0.3%
$0 to $2.50	51.3%	0% to 5%	0.6%
$2.50 to $5	5.6%	5% to 10%	50.0%
$5 to $10	2.2%	10% to 15%	0.0%
$10 to $15	0.6%	15% to 20%	0.0%
> $15	1.7%	>20%	10.8%

APPENDIX A
Rate Advisory Committee Roster

2018 Salt Lake City Water, Sewer, and Stormwater Rate Study
Rate Advisory Committee Roster

Committee Member	Organization	Email
City and County		
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APPENDIX B
RAC Member's Feedback

RE: RAC Comments - Reminder

Jen Colby <jen.colby@utah.edu>

Fri 12/15/2017 4:15 PM

To:Locke, Siobhan <Siobhan.Locke@slcgov.com>;

Hi Siobhan,

Thank you for the reminder. I had hoped to send a few comments earlier in the week but with two big projects due for finals and some other commitments, that obviously didn't happen. Also, I spoke up regularly so many of my thoughts or concerns are probably already recorded.

Here are the few suggestions I would like to make or reiterate:

- A conservation price signal is important and yet only one component as we have learned; some sort of conservation fee that would pay for programming should be considered in the rate structure.
- A must more robust consumer assistance program should be created and funded with a fee, not a voluntary contribution.
- In the next rate review, a fee structure that ties summer use to landscape parcel area (from water mapping data that will be forthcoming) should be evaluated for all customers. Outdoor use is only somewhat related to indoor use and much more heavily tied to landscape area. A "thrifty" water rate tied to landscape area should be set as base, with then increasing costs for more water.
- Winter water usage matters, and reducing base helps reduce peak, especially for larger users. Consider setting the block breaks at lower levels, say 1-8 rather than 1-10 etc.
- CII is too broad of a category and should be subdivided once business types are better documented. Different rates should then be considered for these categories (water, sewer, maybe stormwater). The City should use business licensing forms to record this data and share with Public Utilities.
- We didn't really talk stormwater rates but there is enormous need to reduce runoff and these rates should be examined more closely in the future (structure and actual rates).

I appreciate all of your team's work along with that of staff and RAC members. I look forward to seeing the final outcomes of this process.

Sincerely,

Jen Colby, District 4 Representative

Siobhan Locke

From: Carole Straughn <carolefs222@gmail.com>
Sent: Wednesday, December 13, 2017 6:49 PM
To: Siobhan Locke
Cc: Ann O'Connell; Kathy Biele
Subject: RAC Input from LWVSL

Hello Siobhan,

I was pleased to take part in the 2017 Rate Advisory Committee, representing the League of Women Voters - Salt Lake. I thought the broad representation of many stakeholders, the organized process and the presentation of difficult material was well done. Kudos to Laura Briefer, her staff and the consultants.

While time was short, I believe the process could be improved in at least two ways: more presentations by staff and by more dialogue among stakeholders on the committee. The information given by Water Conservation Manager, Stephanie Duer, illustrates the kind of deep knowledge and unique perspectives staff can bring to the process that we lay people cannot possibly do. Also, I would like to have had a stronger sense of the various interests brought to the table by committee members, and a chance to forge common solutions, perhaps in small group discussions.

Based on water studies and consensus taken by LWVSL, I can confidently state that we support the major priorities selected by the committee: conservation,
essential use affordability, and demand management. We also agree with the secondary priorities of rate stability and interclass and intraclass equity.

We will support the fixed tier structure and oppose AWC multiples for the residential class until we have the data on how much water is needed to maintain the City's urban forest. We feel that normal, prudent irrigation of land surrounding homes should fall into Tier Two and that allowing only three times the average winter usage of six ccf would put residential trees at risk, if they needed more like 22-24 ccf. Or we might find that people increased their winter usage to enable themselves to affordably water their trees in summer.

We support the use of cost of service for each class in determining rates, which inproves interclass equity, and we support the lowering of rates for the smaller meter sizes, which should help make essential use more affordable.

Obviously, not all problems can be solved by water rate structure alone, but also by changes in the city revenue, budget, legal remedies, public information and public participation. Thus we would like to see resources shifted to conservation efforts such as pubic education and citations for wanton waste. We would like a system whereby no one would become homeless, because they could not pay their water bill. And we would like to see broader citizen participation on the boards of various water managing entities.

Again, thank you for inviting the Salt Lake League to participate on this year's RAC Committee.

Respectfully,

Carole Stone Straughn
League of Women Voters - Salt Lake
801-664-5897

APPENDIX C
RAC Presentations

Available Online:
https://drive.google.com/drive/folders/0B7Q2MSZ3UW08R2g3ME5BOWxrQ1E

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[illegible]			[illegible]			Customer Costs	
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	Adjustments - Deductions						
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[illegible]

2[illegible]

[illegible]

[illegible]			[illegible]				
			[illegible]	M[illegible]	M[illegible]	Customer Costs	
[illegible]			[illegible]	[illegible]	[illegible]	M[illegible]	[illegible]
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	Land						
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	Treatment Plants						
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	Land								
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	Treatment Plants								
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2[illegible]

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	5101 Water Supply						
1	00100[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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	5103 Water Power & Pumping						
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	5105 Water Purification						
8	00600[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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10	00800[illegible]	[illegible]	[illegible]	[illegible]	0	0	0
11	00[illegible]	[illegible]	[illegible]	[illegible]	0	0	0
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16	01800[illegible]	[illegible]	[illegible]	[illegible]	0	0	0
1[illegible]	0[illegible]	[illegible]	[illegible]	[illegible]	0	0	0
18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	5107 Transmission & Distribution						
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	5109 Shops & Maintenance						
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[illegible]	0[illegible]	68[illegible]	0	0	0	68[illegible]	0
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	5111 Water Customer Service						
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11	0[illegible]	[illegible]	0	0	0	0	[illegible]
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	5113 Water Administration						
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	Other Operating Expenses						
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2[illegible] [illegible]

[illegible]

[illegible]			[illegible]				
			[illegible]	M[illegible]	M[illegible]	Customer Costs	
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[illegible]	Less Adjustments - Deductions						
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[illegible]	Capital Costs						
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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2[illegible]

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	[illegible]		M[illegible] [illegible]		M[illegible] [illegible]		[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	M[illegible]	[illegible]
City And Exchange								
[illegible]	8[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]			[illegible]	[illegible]				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
County								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]			[illegible]	[illegible]				
[illegible]	8[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

M[illegible] [illegible]	[illegible]	[illegible]
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M[illegible] [illegible]	1[illegible]	[illegible]
M[illegible] [illegible]	[illegible]	100[illegible]

M[illegible] [illegible]	[illegible]	[illegible]
[illegible]	1[illegible]	[illegible]
M[illegible]	1[illegible]	[illegible]
M[illegible]	[illegible]	[illegible]
M[illegible] [illegible]	[illegible]	100[illegible]

[illegible]

[illegible]

2[illegible]

[illegible]

[illegible]	[illegible]	M[illegible]	M[illegible]	M[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
City					
[illegible]	8[illegible]8[illegible]8[illegible]	[illegible]6[illegible]1[illegible]	[illegible]	[illegible]868	[illegible]81[illegible]
[illegible]	1[illegible]0[illegible]6[illegible]6[illegible]	[illegible]	[illegible]0[illegible]8[illegible]1	[illegible]0[illegible]	[illegible]08
[illegible]	[illegible]6[illegible]8[illegible]	1[illegible]188	1[illegible]8[illegible]	[illegible]	18[illegible]816
[illegible]	0	[illegible]	1[illegible]68[illegible]	0	0
[illegible]	**2[illegible]**	**1[illegible]**	**12[illegible]**	**[illegible]2[illegible]**	**[illegible]**
County					
[illegible]	[illegible]08[illegible]	[illegible]0[illegible]	[illegible]8[illegible]00[illegible]	[illegible]6[illegible]6[illegible]	[illegible]1[illegible]6[illegible]6
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[illegible]	0	[illegible]	[illegible]	0	0
[illegible]	**[illegible]1[illegible]1[illegible]**	**[illegible]**	**[illegible]1[illegible]**	**[illegible]**	**2[illegible]**
[illegible]	**[illegible]2[illegible]**	**1[illegible]**	**1[illegible]2[illegible]**	**1[illegible]**	**[illegible]1[illegible]**

(1) Residential includes single residence, duplex, and triplex.

[illegible]

[illegible]

2[illegible]

[illegible]

[illegible]	[illegible]	**M[illegible]** [illegible]	**M[illegible]** [illegible]	[illegible] **M[illegible]**	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
City					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
County					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**	**[illegible]**

(1) Residential includes single residence, duplex, and triplex.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
City					
[illegible]	1.00	1.00	1.00	1.00	1.00
[illegible]	1.00	1.00	1.00	1.00	1.00
[illegible]	1.00	1.00	1.00	1.00	1.00
[illegible]	0.00	1.00	1.00	0.00	0.00
County					
[illegible]	1.00	1.00	1.00	1.00	1.00
[illegible]	1.00	1.00	1.00	1.00	1.00
[illegible]	1.00	1.00	1.00	1.00	1.00
[illegible]	0.00	1.00	1.00	0.00	0.00

(1) Residential includes single residence, duplex, and triplex.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
City					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
County					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(1) Residential includes single residence, duplex, and triplex.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
City					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	0	[illegible]	[illegible]	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
County					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	0	[illegible]	[illegible]	0	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(1) Units of service adjusted for County 1.35 differential. Units of service will increase for County and decrease for City.

(2) Residential includes single residence, duplex, and triplex.

[illegible]12

[illegible]

2[illegible] [illegible]

[illegible]

[illegible]	[illegible]	M[illegible]	M[illegible]	[illegible]	[illegible]	[illegible]
City						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
County						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(1) Residential includes single residence, duplex, and triplex.

[illegible]

[illegible]

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[illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
City				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
County				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(1) Residential includes single residence, duplex, and triplex.

01/18	8/6
	1/0/
	1/2

M/r/	0/06	1/66/8	/0/
M/r/	/0	/0/6	
$ Per Equivalent Meter	3.32	4.48	1.35
/8/6	/1/8/8/	/1/6/	
6/8/6	/86/0		
Unit Cost, $ per Bill	4.75	6.41	1.35
/1/6/	/8/	/1/10/68/	
Unit Cost, $ Equivalent Meter	0.77	1.04	
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Table 21

2010 Census Population and Housing Unit Counts

	2010 Census Population Counts		2010 Census Housing Unit Counts		
State	Population	Rank	Housing units	Occupied	Rank
United States	308,745,538		131,704,730	116,716,292	
Alabama	4,779,736	24	2,171,853	1,827,659	23
Alaska	710,231	47	326,949	259,461	47
Arizona	6,392,017	16	2,844,526	2,384,752	16
Arkansas	2,915,918	32	1,336,661	1,148,618	31
California	37,253,956	1	13,680,081	12,577,498	1
Colorado	5,029,196	22	2,379,299	1,972,869	21
Connecticut	3,574,097	29	1,508,031	1,346,824	29
Delaware	897,934	45	417,078	343,072	45
District of Columbia	601,723	49	296,240	265,253	48
Florida	18,801,310	4	8,989,971	7,420,460	4
Georgia	9,687,653	8	4,327,528	3,585,584	8
Hawaii	1,360,301	42	616,350	527,077	42
Idaho	1,567,582	39	707,328	567,402	39
Illinois	12,830,632	5	5,567,034	4,885,615	5
Indiana	6,483,802	15	2,912,808	2,570,212	15
Iowa	3,046,355	30	1,426,518	1,276,923	30
Kansas	2,853,118	33	1,322,017	1,188,476	32
Kentucky	4,339,367	26	1,964,709	1,750,927	25
Louisiana	4,533,372	25	2,021,441	1,752,704	24
Maine	1,328,361	41	721,915	553,124	40
Maryland	5,773,552	19	2,583,577	2,343,001	19
Massachusetts	6,547,629	14	2,808,254	2,547,075	14
Michigan	9,883,640	10	4,532,233	3,872,180	9
Minnesota	5,303,925	21	2,390,746	2,084,085	20
Mississippi	2,967,297	31	1,303,815	1,108,526	31
Missouri	5,988,927	18	2,756,184	2,442,017	18
Montana	989,415	44	489,527	399,130	44
Nebraska	1,826,341	38	829,922	722,668	38
Nevada	2,700,551	35	1,375,765	1,201,833	34
New Hampshire	1,316,470	42	614,891	523,386	41
New Jersey	8,791,894	11	3,553,562	3,214,360	11
New Mexico	2,059,179	36	964,201	780,579	36
New York	19,378,102	3	8,108,103	7,317,795	3
North Carolina	9,535,483	9	4,327,528	3,745,155	10
North Dakota	672,591	48	317,780	255,849	48
Ohio	11,536,504	7	5,128,719	4,462,689	7
Oklahoma	3,751,351	28	1,661,813	1,450,375	28
Oregon	3,831,074	27	1,675,562	1,489,409	27
Pennsylvania	12,702,379	6	5,567,034	5,028,274	6
Rhode Island	1,052,567	43	478,349	413,918	43
South Carolina	4,625,364	23	2,145,076	1,827,659	26
South Dakota	814,180	46	378,339	316,274	46
Tennessee	6,346,105	17	2,820,589	2,439,443	17
Texas	25,145,561	2	10,865,033	9,460,921	2
Utah	2,763,885	34	1,131,430	1,023,911	35
Vermont	625,741	50	321,404	294,382	50
Virginia	8,001,024	12	3,457,823	3,059,032	12
Washington	6,724,540	13	2,812,896	2,620,118	13
West Virginia	1,852,994	40	866,831	721,085	40
Wisconsin	5,686,986	20	2,624,358	2,321,144	22
Wyoming	563,626	45	278,240	216,239	45

Table 22

2010 Census Population and Housing Unit Counts

Mountain division	2010 Census Population Counts				2010 Census Housing Unit Counts	
State	Population	Rank	Change	Percent change	Housing units	Occupied
Arizona	6,392,017	16	1,295,178	25.4	2,844,526	2,384,752
Colorado	5,029,196	22	754,177	17.6	2,379,299	1,972,869
Idaho	1,567,582	39	204,214	14.9	707,328	567,402
Montana	989,415	44	85,531	9.5	489,527	399,130
Nevada	2,700,551	35	415,449	18.2	1,375,765	1,201,833
New Mexico	2,059,179	36	213,755	11.6	964,201	780,579
Utah	2,763,885	34	507,845	23.8	1,131,430	1,023,911
Wyoming	563,626	45	50,412	9.8	278,240	216,239

Table B-22
Salt Lake Department of Public Utilities
2018 Water Rate Study
Development of County Differential

	Cash Basis				
Description	**Operating**	**Capital**	**Total**	**City**	**County**
				67.8%	32.2%
Operation and Maintenance Expense					
Metropolitan Water Assessment	7,021,892		7,021,892	4,758,397	2,263,495
Metropolitan Water Purchases	16,150,108		16,150,108	10,944,148	5,205,960
Other Operating	36,810,911		36,810,911	24,944,975	11,865,936
Debt Service		1,805,572	1,805,572	1,223,549	582,023
Capital					
Capital Outlay		1,915,000	1,915,000	1,297,703	617,297
Watershed Purchases		1,500,000	1,500,000	1,016,477	483,523
Other Capital Improvements		10,006,500	10,006,500	6,780,921	3,225,579
Total Revenue Requirement	**59,982,911**	**15,227,072**	**75,209,983**	**50,966,170**	**24,243,813**
Less: Revenue Req. Adjustments					
Bond Proceeds			0	0	0
Impact Fees		(500,000)	(500,000)	(338,826)	(161,174)
Other Contributions		(1,255,000)	(1,255,000)	(850,453)	(404,547)
Change in Reserve		3,039,453	3,039,453	2,059,690	979,763
Other Income	(2,858,710)		(2,858,710)	(1,937,210)	(921,500)
Interest Income	(346,380)		(346,380)	(234,725)	(111,655)
Total Revenue Requirement Adjustments	**(3,205,090)**	**1,284,453**	**(1,920,637)**	**(1,301,523)**	**(619,114)**
Net Revenue Requirement	**56,777,821**	**16,511,525**	**73,289,346**	**49,664,647**	**23,624,699**
FY2017 Consumption				23,715,492	11,281,090
Unit Cost, $ per ccf				***2.09***	***2.09***

	Utility Basis				
Description	**Operating**	**Capital**	**Total**	**City**	**County**
					32.2%
Operation and Maintenance Expense					
Metropolitan Water Assessment			7,021,892		2,263,495
Metropolitan Water Purchases			16,150,108		5,205,960
Other Operating			36,810,911		11,865,936
Depreciation Expense			8,342,288		2,689,123
Metropolitan Return on Rate Base					3,835,954
Return on Rate Base			12,105,650		3,837,090
Total Revenue Requirement			**80,430,849**		**29,697,559**
Less: Revenue Req. Adjustments					
Bond Proceeds					0
Impact Fees					0
Other Contributions					0
Change in Reserve					0
Other Income			(2,858,710)		(921,500)
Interest Income			(346,380)		(111,655)
Total Revenue Requirement Adjustments			**(3,205,090)**		**(1,033,155)**
Net Revenue Requirement			**77,225,759**		**28,664,403**
FY2018 Consumption					11,281,090
Utility Basis Unit Cost, $ per ccf					***2.54***

	Total	**County**	**City**
Total Cash Basis Revenue Requirement	$73,289,346		
Less: County Utility Basis Revenue Requirement		28,664,403	
Net City Revenue Requirement			44,624,943
Consumption, 2019 projections		11,281,090	23,715,492
Net City Unit Cost, $ per ccf		2.54	1.88
Multiplier			*1.35*

Weighted Average Cost of Capital	**Weight**	**%**	**%**	**WACC**
Equity1	301,242,524	96.9%	6.3%	6.1%
Debt	9,760,261	3.1%	3.2%	0.1%
Total	**311,002,785**	**0.0%**	**0.0%**	**6.2%**

Weighted Average Cost of Capital	**Weight**	**%**	**%**	**WACC**
Equity2	1	50.0%	6.3%	3.2%
Debt	1	50.0%	3.2%	1.6%
Total	**2**	**0.0%**	**0.0%**	**4.7%**

Rate of Return Average **5.5%**

1. Cost of equity estimated using build-up method from 2016 Duff and Phelps Valuation Handbook, Guide to Cost of Capial
2. Assumes a 50/50 cost of equity and cost of debt which is the typical industry weighting.

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1. Minimum bill revenue is equal to the system rate ($ per ccf) x 2 ccf x number of projected minimum bills
   Minimum bills recover more the billing/admin costs. Revenue in excess of the billing and admin costs
   is reallocated as a credit to the flow cost component.

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	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)=(j)/(a)	(p)=(k)/(a)	(q)=(l)/(b)	(r)=(m)/(e)
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	1000 ccf	1000 ccf	1000 lbs	1000 lbs	1000 bills	1000 ccf	1000 lbs	1000 lbs		$1,000	$1,000	$1,000	$1,000		$ per ccf	$ per ccf	$ per ccf	$ per bill
1	8[illegible]60	[illegible]1[illegible]	8[illegible]1[illegible]	[illegible]	161	81[illegible]	[illegible]6[illegible]	[illegible]1[illegible]	[illegible]0[illegible]	16[illegible]66[illegible]	[illegible]806	[illegible]	1[illegible]	[illegible]80016	1[illegible]	0[illegible]68	0[illegible]	6[illegible]
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Table 12

Regression Analysis: Predictors of Student Performance

Model Summary and Coefficients

	Unstandardized Coefficients	Standardized Coefficients		
Model	B	Beta	t	Sig.
(Constant)	11.482		6.38	.000
Hours Studied	11.482	6.38	.000	.000
Prior GPA	11.482	6.38	.000	.000
Attendance	11.482	.000	.000	1.000
Age	1.000	1.000	.000	.000
Gender	1.000	1.000	.000	.000
Socioeconomic Status	18.000	18.66	.000	.000
Tutoring	.000	.000	.000	.000
Extracurricular Activities	.000	.000	.000	.000
Sleep Hours	.000	.000	.000	.000
Dependent Variable: Final Exam Score				

Source: Author's calculations based on synthetic dataset (n = 1,000).

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AWC BILLING TECHNICAL MEMORANDM

RAFTELIS

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TECHNICAL MEMORANDUM

To: Kurt Spjute
Chief Financial Officer
Salt Lake City Department of Public Utilities
From: Todd Cristiano, Manager
Raftelis
Date: May 3, 2018
Re: Average winter consumption for water and sewer billing

Introduction

Salt Lake City Department of Public Utilities (Department) requested a review and comparison of average winter consumption (AWC)-based rate structures for water and sewer utilities. Raftelis identified five utilities for comparison.

The Department's current water AWC structure applies to commercial, industrial, institutional (CII) customers. The sewer AWC structure applies to all customers. The Department's current AWC policies are summarized below.

- AWC is the average of the water use for the months November through March.
- The AWC structure applies to CII water customers
- Water customers with no previous AWC or without a full five months of water usage for the winter period are assigned the CII AWC based on meter size. The AWC is adjusted after five months of winter billing data is available.
- Sewer customers with no AWC are charged for all billable volume until their 5-month winter period can be established.
- A customer's water AWC is calculated using a 3-year rolling average of the winter period.
- A customer's sewer AWC is recalculated each year.

Analysis

Rate structures are more successful when they are supported by specific goals and objectives that incorporate utility and the rate-payer community values. Overarching goals such as defensibility and revenue sufficiency ensure that other pricing objectives can supported. Other goals such as a rate structure that is easy to understand and can be easily administered are also critical.

During the 2018 rate study process, the Rate Advisory Committee (RAC) identified pricing objectives that best aligned with meeting community goals. The ranked objectives included: conservation, essential use affordability, demand management, rate stability, interclass equity, and intraclass equity. The committee used those objectives to provide recommendations on water and sewer rate structure alternatives to Department staff and the Public Utilities Advisory Committee (PUAC). Although administrative ease and rate structure understandability were not specifically identified, the RAC retained the basic components of the water and sewer structures to avoid customer confusion.

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Utility	Bill Both Water and Sewer	AWC Calculation Same for Water Sewer	AWC for New Customer
Salt Lake City Department of Public Utilities	Yes	**Water:** Average winter months Nov – Mar based on 3 year rolling average. **Sewer:** Average winter months Nov -Mar updated annually.	**Water:** Class AWC by meter size. **Sewer:** Actual water usage until winter period established.
City of Thornton, CO	Yes	**Water and Sewer:** Average of winter months Nov – Feb.	**Water:** Class AWC by meter size **Sewer:** Class AWC by meter size
EPWU	Yes	**Water and Sewer:** Average of winter months Dec. – Feb.	**Water:** Class AWC by meter size **Sewer:** Class AWC by meter size.
ABCWUA	Yes	**Water:** Average of winter months Dec – Mar. **Sewer**: 95% of actual usage during the months Dec – Mar. 95% of winter period water use for all other months	**Water:** Class AWC by meter size average **Sewer:** Class AWC by meter size
Water: Water One Sewer: Johnson County	Separate utilities	**Water:** Average for winter months January through April **Sewer**: Four-month average of 6 months November through April(1)	**Water:** Default AWC based on previous 5-years **Sewer:** Average winter water use for all residential customers.
Wichita, KS	Yes	**Water:** Average for winter months Dec. – Mar. **Sewer:** Based on billable volume	**Water:** Established by Director of Public Works.
(1) Accounts for the bimonthly billing cycle.			

Findings, Conclusions and Recommendations

There are only a few utilities that use AWC in their water and sewer rate structures. However, the three utilities we surveyed follow similar policies for water and sewer. Raftelis recommends that the Department consider modifications to their AWC policies. We believe it will mitigate bill impacts, improve equity between existing and new sewer customers, maintain continuity of rate philosophy between the utilities and enhance customer understanding. The following is a summary of our recommendations:

- ***Water and sewer AWC***. Use the same AWC for water and sewer billing.
- ***Default AWC***. Establish a default AWC based on meter size to use with new customers.
- ***Adjust the AWC annually.*** This will ensure the water and sewer rate structures reflect the most current water demand patterns for each customer. Recalculate the default AWC annually.
- ***Calculate the AWC based on the most recent winter period***. This will ensure the water and sewer rate structures reflect the most current water demand patterns for each customer. The calculation is the sum of the winter months divided by the number of total days in the winter-period billing cycle. That value is then multiplied by the average number of days in a month of 30.4 to arrive at the AWC.
- ***AWC for new residential customers***. For residential customers, use the greater of the prior account's AWC or a default residential AWC based on meter size. If a new customer connects within the winter billing period, use the default AWC through March billing. Beginning with April billings, calculate their AWC based on the winter months in which they

had consumption. For example, if they connected February 1, the AWC used beginning with the April bill would be based on the average of February and March consumption.

- ***AWC for new commercial customers***. Assign a default commercial AWC by meter size. If a customer connects within the winter month billing period, recalculate their AWC for April billings based on the average daily water use for the months the account was active during the winter period.
- ***Residential customer input***. Allow customer service representatives to adjust the default AWC based on customer specific circumstances. In most instances, the AWC will be 6 – 8 ccf. If a customer asks for more based on their specific circumstances, allow the CSR's to use discretion in setting the initial AWC. The AWC will be active at most for 12 months before being recalculated.
- ***Commercial customer input***. Commercial customers with the same meter sizes may have significantly different demands. Assigning a default AWC will work in some instances but not all. Allow the commercial customer to work with the Department to set an initial AWC prior to the next AWC recalculation.

Excerpts from AWC Codes and Ordinances

(copied directly from ordinances)

City of Thornton, CO

Water and Wastewater: "Average Winter Consumption" or "AWC" means the average of monthly water meter readings for the billing periods representing November through February (the winter period). The AWC is calculated as winter period consumption divided by the winter period number of days multiplied by 30.42. The process of determining the AWC shall be repeated once each year. In the event that an AWC cannot be established or is not representative of actual use, then the class average for the same meter size shall be used until an AWC can be established.

EPWU

Water and Wastewater: Average Winter Consumption (AWC) is the average amount of water used during the most recent December, January, and February billing periods. The commodity charge for new customers will be calculated using the class average AWC by meter size for their respective class until they establish and AWC base.

ABCWUA

Water: For all customers, the average monthly water use for the months of December, January, February and March for each account. If a customer has a new account and does not have a full four months to calculate a winter mean or if a customer's winter mean is zero, then the mean for that customer will be based off the class and size average mean. For those customers that have a winter mean greater then zero but less then 4 and does not fall in the category of a new account then their winter mean used for the Conservation Surcharge will be 4.

Wastewater: Customers With Water Service. The commodity charge for usage during the months of December, January, February and March (winter months) shall be based upon 95% of the metered or estimated volume of water usage during each of these months for each account. The commodity charge for usage during other months shall be based upon 95% of the metered or estimated volume of water usage during that month or shall be based upon 95% of the prior winter months' average,

whichever is less for each account. The winter months' average is determined by averaging the metered or estimated volume of water used during the winter months.

Water One

Water: Calculated daily average consumption used to establish rate block cut-offs. Actual and estimated meter readings taken January through April will be used to calculate the AWC. Customers will have the benefit of using the higher of their own Individual AWC or a Default AWC in the calculation of their bills. (See definitions for Default AWC, and Individual Customer AWC). AWCs will be calculated annually, and will be in effect for bills issued with ending meter reading dates of May 1 through the following April 30.

Default AWC: Predetermined volume of usage, expressed in gallons per day, used to determine block cut-offs. The Default AWC is updated annually. The Default AWC for Single Family Residential (R1) accounts is calculated by the average of the preceding five years' Individual Customer AWC for all R1 Accounts rounded up. The Default AWC for all other Retail Customers (M1, C1, C2, C3) is calculated separately for each meter size and type of Retail Customer Account. The Default AWC is calculated by the average of the preceding five years' Individual Customer AWC for all accounts.

Individual AWC: Total gallons consumed for bills issued with ending meter reading dates during the AWC period divided by the total number of days service on those bills for the individual customer. Customers that transfer within the District will carry the Individual AWC from their old address to their new address for bill calculation through the end of the current AWC period (the coming April 30). Customers that transfer during the AWC calculation period (January 1, through April 30), will get the higher of their Individual AWC established at their old address or new address in the calculation of bills through the coming April 30.

Johnson County Wastewater, KS

Average Winter Water Use (AWWU): This is your average water usage during winter months based on meter readings. This is the best measure of the volume of drinkable water used at the property during the winter months that reasonably estimates the volume of wastewater discharged to the wastewater treatment facilities of Johnson County Wastewater. By using winter water usage, Johnson County Wastewater can accurately estimate the volume of wastewater discharged into the treatment facilities by each property. Winter water usage is used to avoid charging for heavier summer uses that do not impact the wastewater treatment system like watering your lawn and garden, washing your car, or filling your swimming pool.

The customer's average winter water use will be based on four of the six months between November and April, depending on the customer's billing cycle.

New customers moving from outside Johnson County Wastewater's service area will be assigned a default value user charge that is equal to the average winter water use for all residential customers. If new customers provide Johnson County Wastewater with their previous account information, Johnson County Wastewater will calculate an appropriate average winter water use using the information provided. Johnson County Wastewater customers who move within the sanitary sewer district may request to transfer the average winter water use from their previous address.

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RAFTELIS

To: Laura Briefer, Director of Public Utilities
Salt Lake City Department of Public Utilities
From: Rick Giardina, Executive Vice President
Todd Cristiano, Manager
Date: July 31, 2018
Re: County Water Rate Differential

Rate Differential Philosophy

Local government water and wastewater utility service providers often apply a differential or multiplier on user rates to customers served outside their jurisdictional boundaries (outside city rates). This is a customary practice in the rate-setting process and is supported by leading industry organizations such as the American Water Works Association and the Water Environment Federation. For many states, including Utah, state statutes give utilities the legislative authority to set rates including rates for customers outside the jurisdictional boundaries. In addition, states such as Wyoming, Wisconsin, and Florida have statutes defining the criteria for establishing outside city rate differentials.

The primary difference between customers within a utility's jurisdictional boundary (inside city) and outside city is a matter of ownership. Inside city customers are considered owners and outside city customers are non-owners. Non-owners are not responsible for operating the system to regulatory standards, the repayment of debt, or payment of property taxes benefiting the utility. The capital investment and operation and maintenance expenses to serve outside city customers is often greater than the cost to serve city customers, e.g., similar investment but fewer customers per line mile. Finally, non-owners do not have legal standing in the governance of the utility. When a utility agrees to serve outside city customers, they assume several risks. In exchange for those risks, non-owners are required to pay a return on investment on the assets funded by owners to serve non-owners. The return applied to non-owners' rates is typically stated as a differential. Thus, the outside city rates are the product of the inside city rates multiplied by the differential.

For the Salt Lake City Department of Public Utilities (Department), the risk of serving outside city (County) customers includes the legal responsibility for all debt repayments, all insurance risk, and the payment of property taxes by City customers for facilities that benefit all customers. City customers pay property tax to the Metropolitan Water District of Salt Lake and Sandy (MWDSLS). The MWDSLS was formed in 1935 with the goal of firming water supply and building infrastructure for the benefit of its member cities.

Although the City takes on risk to serve County customers, there are mutual benefits for both the City and County. These benefits include:

- Economies of scale of operating one integrated system over two smaller systems. Operating larger facilities typically results in lower costs.
- Avoiding or eliminating redundant facilities to provide the same service as one larger facility. This results in operational and capital savings over time.

- Consolidated approach to water resource management to ensure efficient use of supply reservoirs, aqueducts, and other facilities to benefit both the City and County customers.

The Department has assessed a differential since the late 1970's to compensate City customers for these risks and investments. This County differential started at 1.5 times (x) City rates and has been as high as 1.63x. The 2018 water rate study affirmed the current County differential of 1.35x City rates.

Utility Basis Rate Setting Methodology

The Department uses the "utility basis" of rate setting to determine the County rate differential. The American Water Works Association, *M1 Manual - Principles of Rates, Fees, and Charges, 7th edition* states:

"…when that utility serves outside of its legal boundaries to nonowner customers, it is often appropriate to develop (or restate) the revenue requirements for the outside retail or wholesale customers on a utility basis, which provides for an appropriate (fair) return to the owners based on the value of the assets devoted to serving the nonowner customer groups. When properly established, the rate of return under the utility-basis approach is considered fair to both the owner (inside) customers and the nonowner (outside) customers. It compensates the owners for the risks incurred in providing services outside its jurisdictional boundaries, while at the same time protecting outside customers from excessive rates and fees."

The utility basis revenue requirement determines the cost to provide service to County customers and includes a return on investment to City customers for undertaking the risk to serve County customers. The formula used to determine utility basis is as follows:

Revenue Requirement = O + Depr + *rRB where:**

O = Operating expenses
Depr = Depreciation expense
r = Rate of return on investment
RB = Rate Base where (V-D-C+WC):
- V = Gross value of plant in service to serve County customers
- D = Accumulated depreciation of plant in service
- C = Contributions in aid of construction
- WC = Working capital

Operating expenses recover the recurring costs to operate and maintain the system on a continuous basis. Depreciation expense represents the loss in value of an asset to due to age and/or obsolescence. This is a proxy for the cost to reinvest in system facilities. In a similar fashion, the return on investment on plant in service is used to reinvest in system facilities. However, a portion of the return is used to compensate City customers for the risk of serving County customers.

2018 Salt Lake City Water, Sewer, and Stormwater Rate Study
Rate Advisory Committee Roster

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- □Study objectives
- □Rate Advisory Committee
- □Recommended rate structures
- □Comparison of existing and proposed rates
- □Survey of local utilities

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- Development of rates and rate structures which maintain the financial health of Salt Lake City Public Utilities
  - Determining the cost of providing service to the water, sewer, and stormwater customer classes
  - Development of rate structure alternatives and rates that recover the cost of providing service for fiscal year 2019 (FY19)
  - Engaging a Rate Advisory Committee to review and recommend rate structure alternatives for primarily the water and sewer utilities

Rate Advisory Committee Mission and Charge

The mission of the Rate Advisory Committee (RAC) is to assemble a diversity of perspectives that represent our community to evaluate and advise on the water and sewer rate structures

The RAC was charged with two overarching purposes:

1. To review, analyze and guide the consultant to improve rate structures through recommendations to the Public Utilities Advisory Committee, Salt Lake City Mayor and Council
2. To represent and communicate the views of the community

Community Rate Workshop

- Over 30 community leaders representing a variety of community interests
- Participated in six meetings over the course of five months
- Identified key pricing objectives used to develop rate structure alternatives
- Reviewed several rate structures and provided recommendations to the Public Utilities Advisory Committee

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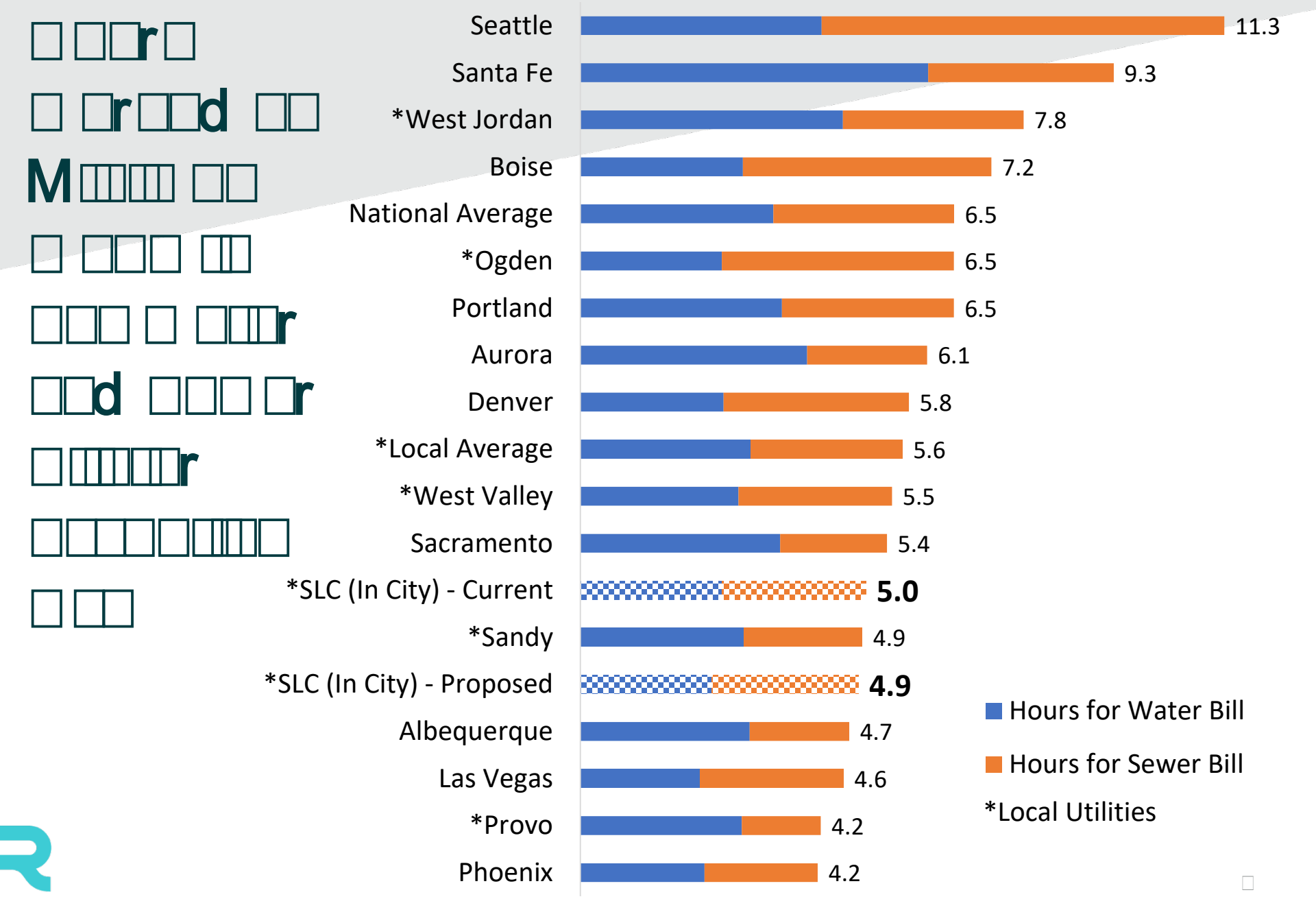
1. Conservation
   - The rate structure should contain a pricing signal that encourages the wise use and stewardship of our water resources
2. Essential use affordability
   - A rate structure should provide essential water use at the lowest possible cost all while allowing the utility to generate revenue sufficient to maintain their financial health
3. Demand management
   - The rate structure should contain a pricing signal to further encourage water conservation during peak demand times for water

Rate Structure Conservation and Demand Management

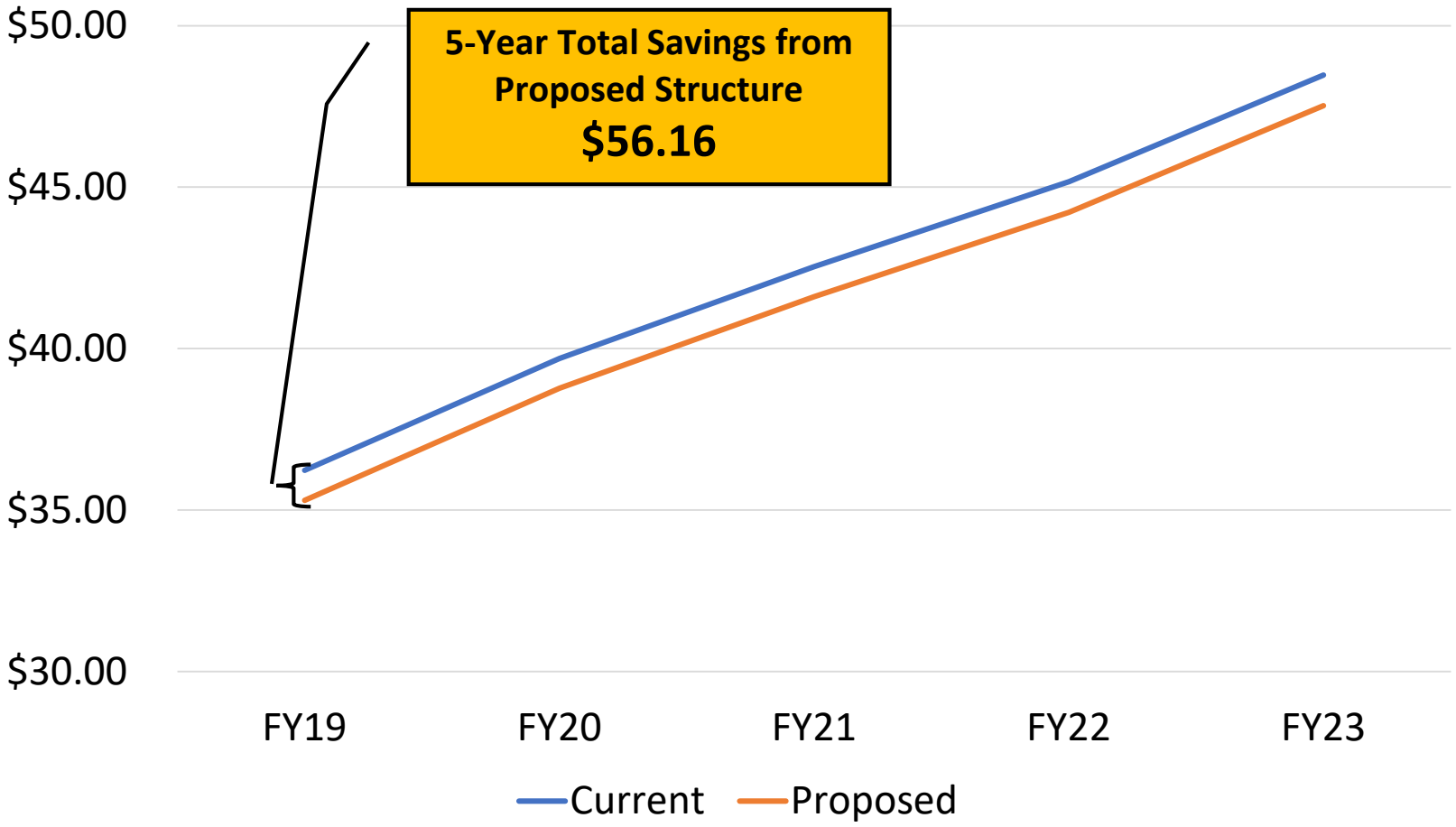
- Conservation and demand management
  - RAC desired to retain the 4-tiered inclining block structure for residential and commercial customers – inclining block is an accepted industry conservation formula for the more you use, the more you pay
  - RAC desired to reduce the 4th tier threshold to continue a pricing message to encourage wise use of precious water to further reduce usage during peak demand periods

Rate Structure Proposed Modifications

- Affordability
  - Reduce the fixed charge for ¾” meter from $9.89 to $8.84. Over 80% of residential customers use a ¾” meter
  - Essential water use charged at tier 1 rate – the lowest rate
  - Reduce sewer minimum charge from $12.16 to $6.82


Seattle 11.3
Santa Fe 9.3
*West Jordan 7.8
Boise 7.2
National Average 6.5
*Ogden 6.5
Portland 6.5
Aurora 6.1
Denver 5.8
*Local Average 5.6
*West Valley 5.5
Sacramento 5.4
*SLC (In City) - Current 5.0
*Sandy 4.9
*SLC (In City) - Proposed 4.9
Albequerque 4.7
Las Vegas 4.6
*Provo 4.2
Phoenix 4.2
Hours for Water Bill
Hours for Sewer Bill
*Local Utilities

Projected Essential Use Monthly Bills Water and Sewer
Current and Proposed (FY19 – FY23)



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[illegible]

[illegible]

Meter Size inches	Current(1)	Proposed (1)	Change - $	Change - %
3/4"	$9.89	$8.84	(1.05)	(11%)
1”	9.89	11.56	1.67	17%
1 ½”	11.68	18.37	6.69	57%
2"	12.68	26.55	13.87	109%
3"	21.28	48.34	27.06	127%
4''	22.78	72.86	50.08	220%
6"	32.89	140.98	108.10	329%
8"	59.11	222.71	163.60	277%
10”	109.63	576.91	467.28	426%

(1) County fixed charges are 1.35 times City fixed charges.

[illegible]

[illegible] Current and Proposed Rate Structure

	Residential[1]		CII[2,3]	
Block	**Current**	**Proposed**	**Current**	**Proposed**
Winter Period (Nov-Mar)	Block 1 Rate for All Usage		Block 1 Rate for All Usage	
Summer Rate Structure (April through November)				
Block 1	0-10 ccf	0-10 ccf	0-AWC	0-AWC
Block 2	11-30 ccf	11-30 ccf	AWC-300%	AWC-300%
Block 3	31-70 ccf	31-60 ccf	300%-700%	300%-600%
Block 4	>70 ccf	>60 ccf	>700%	>600%

(1) Single residence existing block 1: 0 to 10 ccf
Duplex existing block 1: 0 to 13 ccf
Triplex block 1: 0 to 16 ccf
(2) CII refers to Commercial, Industrial, and Institutional
(3) AWC = Average Winter Consumption. "AWC-300%" means usage greater than a customer's AWC and less than or equal to 300% of the customer's AWC.

[illegible]

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

Block(1,2)	Threshold ccf	Current $ per ccf	Threshold ccf	Proposed $ per ccf	Change - $	Change - %
Winter (November – April)						
All Usage		$1.35		$1.30	(0.05)	(3.7%)
Summer (April – October)						
1	10	$1.35	10	$1.30	(0.05)	(3.7%)
2	30	1.85	30	1.78	(0.07)	(3.8%)
3	70	2.57	60	2.47	(0.10)	(3.9%)
4	>70	2.74	>60	2.63	(0.11)	(4.0%)

(1) County rates are 1.35 times City rates.

(2) Residential includes single residence, duplex, and triplex. Block 1 thresholds for single residence, duplex, and triplex vary.

[illegible]

[illegible]

Block[1]	Threshold	Current $ per ccf	Threshold ccf	Proposed $ per ccf	Change - $	Change - %
Winter (November – April)						
All Usage		$1.35		$1.42	$0.07	5.2%
Summer (April – October)						
1	AWC[2]	$1.35	AWC	$1.42	0.07	5.2%
2	300%	1.85	300%	1.94	0.09	4.9%
3	700%	2.57	600%	2.70	0.13	5.1%
4	>700%	2.74	>600%	2.87	0.13	4.7%

(1) County rates are 1.35 times City rates.
(2) AWC: Average Winter Consumption.

[illegible]

[illegible] [illegible] [illegible] [

[illegible]

[illegible]

Class	BOD Strength mg/l	TSS Strength mg/l	Current $ per ccf(1)	Proposed $ per ccf(2)	Change $	Change %
1	0 – 300	0 – 300	$3.04	$3.11	$0.07	2.3%
2	300 – 600	300 – 600	3.96	4.05	0.09	2.3%
3	600 – 900	600 – 900	5.35	5.47	0.12	2.2%
4	900 – 1,200	900 – 1,200	6.77	6.88	0.11	1.6%
5	1,200 – 1,500	1,200 – 1,500	8.12	8.24	0.12	1.5%
6	1,500 – 1,800	1,500 – 1,800	9.51	9.64	0.13	1.4%
7	>1,800	>1,800	*Special Rate by Customer*			

(1) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the flow rates for flow, BOD, and TSS or a minimum charge of $12.16 whichever is greater. AWC is the average of water usage for the months November through March.

(2) Customers in classes 1 through 6 are billed monthly based on their average winter consumption (AWC) times the sum of the flow rates for flow, BOD, and TSS or a minimum charge of $6.82 whichever is greater.

[illegible]

[illegible] Current and Proposed Monthly Rates for [illegible]

Residential [illegible] Rates

Customer Class[1]	Current	Proposed	Change - $	Change - %
Single Family 1 or 2 Units < 0.25 Acres	$4.94	$4.94	$0.00	0.0%
Single Family 1 or 2 Units > 0.25 Acres	6.91	6.91	0.00	0.0%
Triplex and Fourplex	9.88	9.88	0.00	0.0%
All Other Developed Parcels	4.94	4.94	0.00	0.0%
(1) One ERU is 0.25 acres. All other developed parcels are per ERU per month.				

[illegible]

Usage ccf	Current	Proposed	Change - $	Change - %	% of Residential Summer Bills
0	$9.89	$8.84	($1.05)	(10.6%)	4.8%
5	16.64	15.34	(1.30)	(7.8%)	23.1%
10	23.39	21.84	(1.55)	(6.6%)	18.5%
20	41.89	39.64	(2.25)	(5.4%)	19.5%
30	60.39	57.44	(2.95)	(4.9%)	12.2%
40	86.09	82.14	(3.95)	(4.6%)	7.7%
50	111.79	106.84	(4.95)	(4.4%)	4.8%
60	137.49	131.54	(5.95)	(4.3%)	3.0%
70	163.19	157.84	(5.35)	(3.3%)	6.4%(1)

(1) Of the 6.4%, 4.5% of bills are for usage greater than 70 ccf.

[illegible] Monthly Charge for Sewer Service
[illegible] Road [illegible]
[illegible] Current and Proposed Rates

Sewer AWC Flow ccf	Current	Proposed	Change - $	Change -%
0	$12.16	$6.82	($5.34)	(43.9%)
1	12.16	6.82	(5.34)	(43.9%)
2	12.16	6.82	(5.34)	(43.9%)
3	12.16	9.33	(2.83)	(23.3%)
4	12.16	12.44	0.28	2.3%
5	15.20	15.55	0.35	2.3%
6	18.24	18.66	0.42	2.3%
7	21.28	21.77	0.49	2.3%
8	24.32	24.88	0.56	2.3%
9	27.36	27.99	0.63	2.3%
10	30.40	31.10	0.70	2.3%

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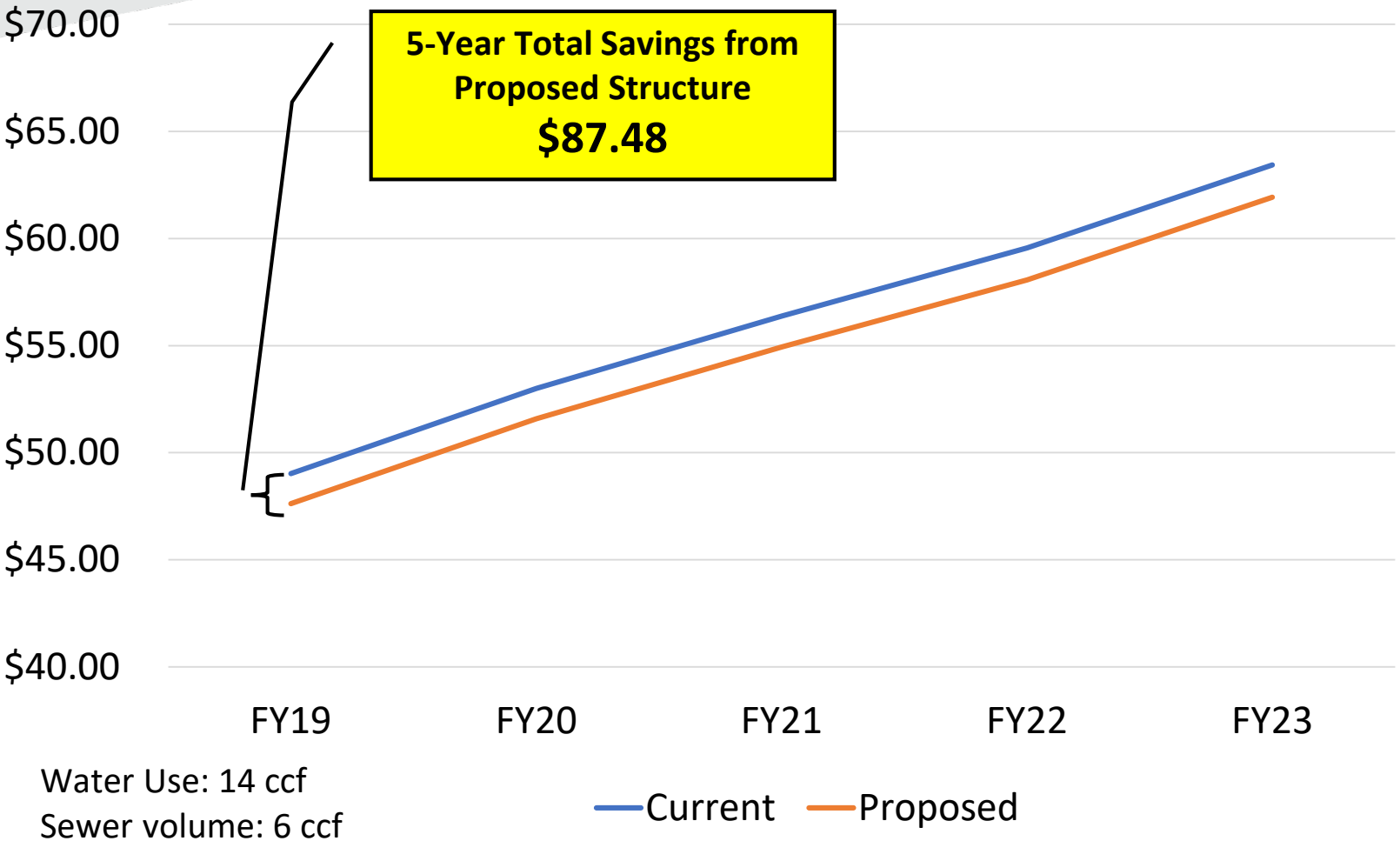
Usage ccf	Current	Proposed	Change - $	Change -%
0	$28.13	$27.50	($0.63)	(2.2%)
5	34.88	34.00	(0.88)	(2.5%)
10	41.63	40.50	(1.13)	(2.7%)
20	60.13	58.30	(1.83)	(3.0%)
30	78.63	76.10	(2.53)	(3.2%)
40	104.33	100.80	(3.53)	(3.4%)
50	130.03	125.50	(4.53)	(3.5%)
60	155.73	150.20	(5.53)	(3.6%)
70	181.43	176.50	(4.93)	(2.7%)

(1) Assumes a sewer AWC of 6 ccf for each water usage level.

Projected Typical Monthly Bills Water and Sewer
Current and Proposed (FY19 – FY23)



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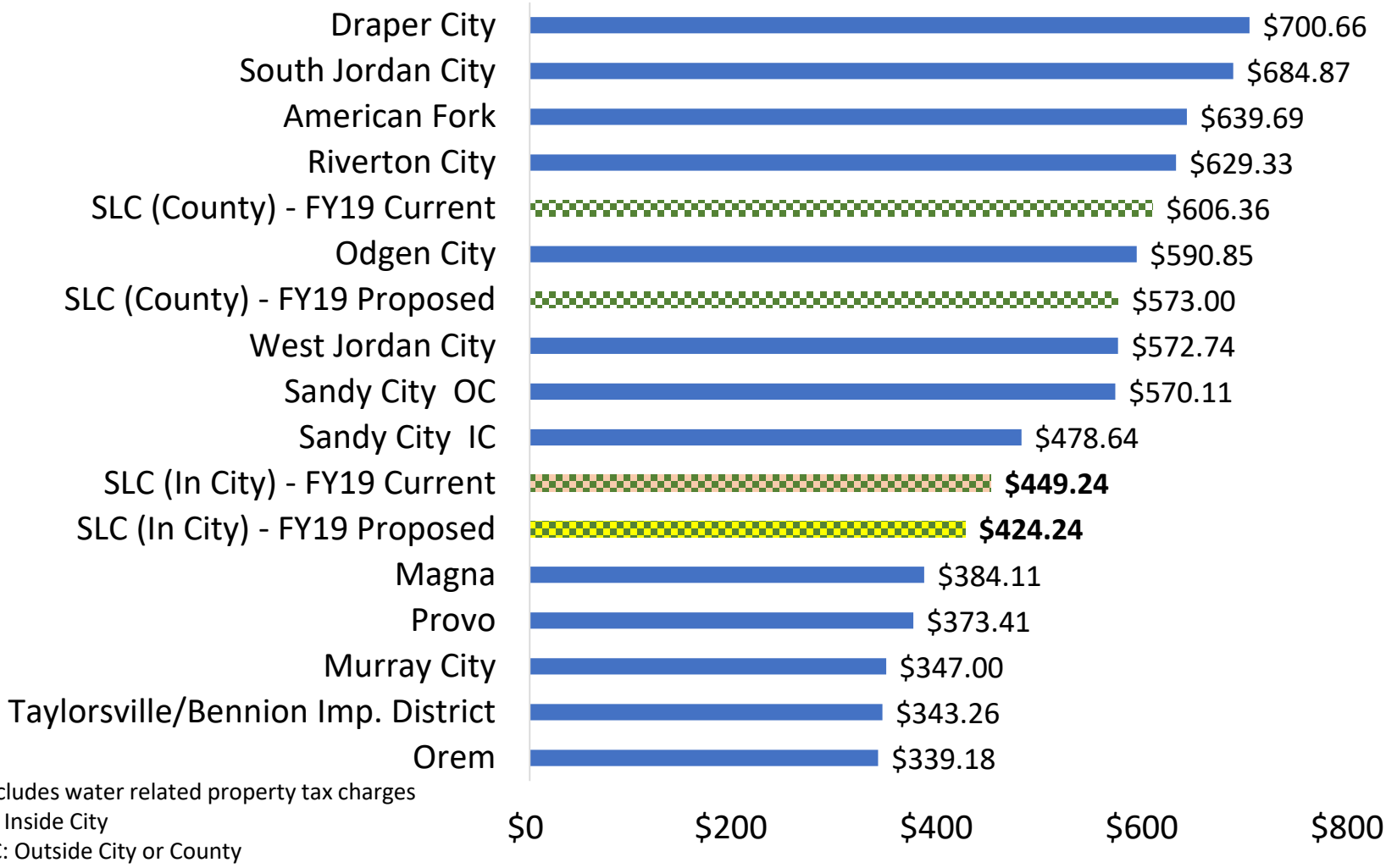
Road Construction Charges per ERU

Comparison Road Construction Maintenance

for Residential Roadway Purposes in Unincorporated Salt Lake County

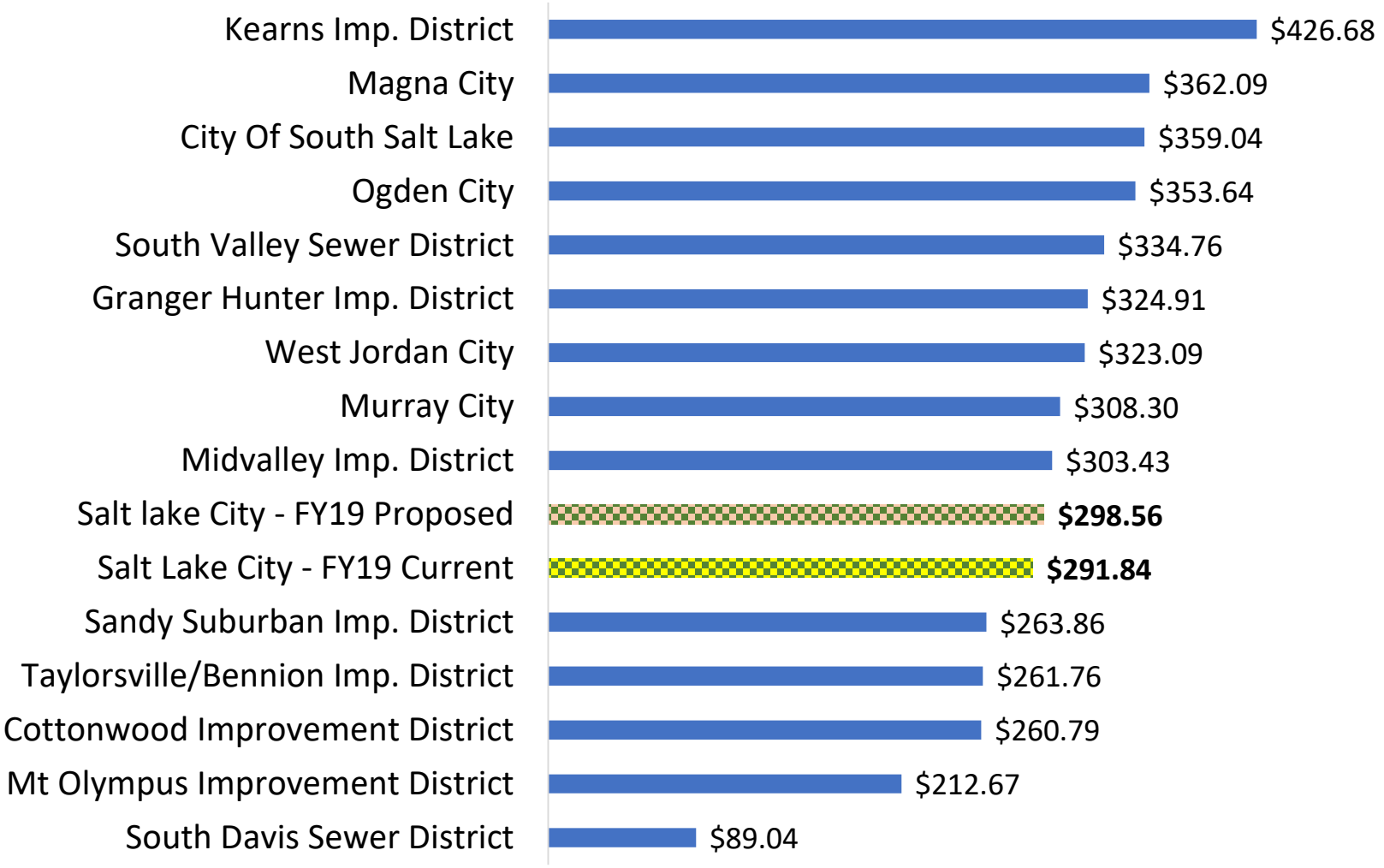


Excludes water related property tax charges
IC: Inside City
OC: Outside City or County

Residential Stormwater Fee

Comparison to Other Cities

Residential Stormwater Fee Comparison to Other Cities



Thank you!

Contact: Rick Gia rd ina
Executive Vice P res d ent
Raftelis
303 305 1136 / r gia rd ina@ r aftelis.com

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MUNICIPAL
ADVISOR

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