



Memorandum

Date: June 16, 2021

To: Utilities Commission

From: Stan Gryczko, Public Works Utilities and Operations Director
John Alexander, Wastewater Division Manager
Adrienne Heinig, Public Works Assistant to the Director
Abigail Seaman & Doug Dove, Bartle Wells Associates

Subject: Item 6A – Wastewater Cost of Service Study: Rate Setting and Scenarios – Responses to Commission Questions

Recommendation

Information/Action Item.

1. Continued from the meeting on May 19, discussion of the wastewater rate setting and rate scenario phase of the Wastewater Utility cost of service study, with informational report on the City's Wastewater Utility with responses to questions from Commissioners; and
2. Receive presentation from Bartle Wells Associates on rate setting and key areas for discussion; and
3. Consider recommendations on wastewater utility rates for City Council.

Background

Utility Rate Study Recommendation Procedure


Step	Description	Status
1	Conduct a Special Meeting to review the background and relevant details of the Utility	<i>Completed on November 20, 2019 and November 2020 refresher</i>
2	Review the draft Rate Study Request for Proposal (RFP) for content and requirements, recommend adjustments/changes. a. Recommend one commission member to participate in consultant selection process.	<i>Completed January 15, 2020</i>
3	Review Scope of Work from selected consultant, recommend scope changes, and recommend approval of Scope of Work to Council.	<i>Completed April 15, 2020</i>

4	Review cost of providing services (financial plan) outlining funding requirements of utility. Ask questions/ provide feedback. No formal recommendation on needs of utility.	<i>Started January 20, 2021, Completed April 21, 2021</i>
5	Review rate scenarios (developed per approved Scope of Work) developed after completion of financial plan. Recommend changes/ modifications to scenarios. No formal recommendation	<i>Started May 19, 2021, continued June 16, 2021</i>
6	Review final draft cost of service report, including final rate scenarios. Formal action taken includes recommended adoption or other action for Council consideration	<i>TBD – Targeted for July 2021</i>

Wastewater rate adjustments occur annually in May. Should the Commission determine recommendations for Wastewater rates and rate structures by July 2021, it would be anticipated that changes to Wastewater rates would be implemented in May 2022.

Wastewater Rate Structures

How Wastewater Rates are Calculated for Customers (Customer Classes)

First Step	Second Step	
<p>Customer Classes are Determined by Strength Factors</p> <p>This includes:</p> <ul style="list-style-type: none"> • Water flow (ccf) <i>Estimated flow going to the Wastewater Treatment Plant from each customer class (calculated by winter water use average).</i> • Biochemical Oxygen Demand (BOD) <i>Determines the impact of decaying matter on species in a specific ecosystem.</i> • Total Suspended Solids (TSS) <i>Particles larger than 2 microns found in water, including anything floating or drifting in the water.</i> • Ammonia (N) <- New for this study <i>Consideration of ammonia levels as a portion of the charge for ratepayers is related to the impacts that larger concentrations of ammonia can have on the ability of the bacteria to divide and process organic material.</i> 		<p>Grouped into Classes based on shared Strength Factors</p> <p>Current classes include:</p> <ul style="list-style-type: none"> • Residential Single Family • Residential Multi-family • Commercial (7 classes) Includes: <i>Low strength – laundry, office/retail</i> <i>Medium strength – hotel/motel without dining</i> <i>High strength – restaurants</i> • Industrial (some by individual agreement)

Breakdown of Charges – Residential Customers

Residential sewer rates are currently billed monthly based on average winter water usage (per ccf), a monthly customer-related base rate, and a monthly fixed charge per dwelling unit. Non-single-family customers have fixed monthly charges based upon housing type (all are less than the single-family charge). A monthly cap applies to volumetric charges; for example, single family residential customers will not be charged for more than 24 units of average monthly water use.

Breakdown of Charges - Commercial Customers

Non-residential sewer rates for commercial and industrial customers are billed monthly based on average winter water usage (per ccf) and a monthly customer-related base rate. No fixed monthly charges apply to commercial and industrial customers; however, their volumetric rates are higher to offset the absence of this charge, and their volumetric rates vary based upon type of use. There is no cap on commercial or industrial customers. Rather, should customers be concerned about irrigation use being part of the current winter water use calculation, commercial/industrial customers can install separate irrigation meters to ensure the removal of irrigation charges.

The Ratio of Fixed to Volumetric Rate Structure within the Wastewater Residential Rate Classes

Wastewater customers all currently have two components to their wastewater rate – a fixed per-account rate, and the volumetric rate calculated by the winter water use average (average of water use in November, December, January and February). Residential customers, however, also have a per-dwelling rate, which can increase the fixed to volumetric ratio. All residential customers are charged the same per CCF rate for winter water use (\$3.13).

The breakdown of the fixed to volumetric calculations within the rates, and how they vary substantially by the residential customer class type (and within customer classes), is detailed below:

Residential Percentage (Fixed vs. Volumetric) – With three charges associated with single-family residential properties, and two of those charges being “fixed” (i.e. do not vary by month based on any factor), the base rate and per-unit (or dwelling unit) rate, the fixed to volumetric ratio percentage is greatly impacted by the winter water use of the property. For example, with a smaller property with low water use:

Small Single-Family Residential Property/Low Water Use

Volume Charge	\$6	21%
Base Charge	\$3.94	14%
Per Unit Charge	\$18.26	65%
Total	\$28.20	100%

The fixed charges account for 79% of the rate, with the remaining 21% based on the winter water use average.

However, for a larger property with an accessory dwelling unit (ADU), and higher water use:

Large Single-Family Residential Property/Higher Water Use

Volume Charge	\$47	59%
Base Charge	\$3.94	5%
Per Unit Charge	\$28.44	36%
Total	\$79.38	100%

The fixed charges represent 41% of the rate, with the remaining 59% based on the winter water use average.

Lastly, average winter water use is 7 CCF. Using that average, the breakdown is 50/50:

Average Single-Family Residential Property/Average Water Use

Volume Charge	\$21.91	50%
Base Charge	\$3.94	9%
Per Unit Charge	\$18.26	41%
Total	\$44.11	100%

Multi-family Percentage (Fixed vs. Volumetric) – Multi-family properties also have the three charges; however, the per-unit fee has a greater impact on the fixed/volumetric percentage (as multi-family properties have a larger number of units). The percentage of fixed/volumetric charges is often much closer to 50/50. For example, an apartment complex with 80 units:

Smaller Multifamily Property

Volume Charge	\$1500	50.6%
Base Charge	\$3.94	0.13%
Per Unit Charge	\$1460	49.3%
Total	\$2963.94	100%

Would see almost 50/50 in the percentage of fixed versus volumetric. However, a larger property (for example, 120 units), with the same amount of water use, would see:

<u>Larger Multifamily Property</u>		
Volume Charge	\$1500	40.6%
Base Charge	\$3.94	0.11%
Per Unit Charge	\$2191	59.3%
Total	\$3694.94	100%

A higher fixed amount (59%) versus the volumetric percentage (40%), however the ratio is still closer than the single-family residential customer class.

Commercial Customers

With the per-unit charge associated with residential rate structures, the commercial rate is nearly all volumetric. The cost of the per CCF rate associated with winter water use is, unlike residential charges, also subject to the commercial customer class, with lower-strength commercial properties charged a lower per CCF rate than higher strength customers (such as restaurants).

A business that does not produce food would see a charge similar to this example:

<u>Commercial - No Food Produced</u>		
Volume Charge	\$31.71	88.9%
Base Charge	\$3.94	11.05%
Per Unit	N/A	
Total	\$35.65	100%

Although still highly volumetric, a portion of the rate over 10% is fixed. However, when looking a business that produces a higher strength, and would have a higher per CCF rate:

<u>Commercial - Restaurant</u>		
Volume Charge	\$3500	99.9%
Base Charge	\$3.94	0.11%
Per Unit	N/A	
Total	\$3503.94	100%

The volumetric portion is nearly the full rate for such a business.

For Consideration by the Commission

Fixed to Volumetric Ratio of Charges for Residential Customer Classes

Though the fixed and variable percentage of individual customer bills may vary, the overall percentage of fixed and variable revenues that the City collects is a set amount that is set by the City to serve as the basis of the rates. While there is no single correct approach for cost attribution and rate-setting, costs should be allocated within a reasonable range that reflects both

a) the underlying cost causation, to the extent such causation can reasonably be determined or estimated, and b) policy preferences of the City with regard to customer bill impact and revenue stability.

Fixed expenses include costs that do not vary with sewer demand, including personnel costs and annual debt service payments. Fixed rates are charged monthly regardless of water use - as the base rate per account and the residential fixed cost per dwelling unit. A greater portion of fixed rate revenue collection would allow for greater revenue stability for the City and may align more closely with expenditures, but reduces the ability for customers to control their bill, and may raise bills for low water users.

Variable expenses include costs that vary with sewer demand, including costs associated with electricity and chemicals. Variable rates are charged each month based on the average monthly winter water use for the last year. Higher variable rate revenues allow for customers to control their bill and encourage reductions in consumption, but may leave the City vulnerable to deficit during a drought.

Currently, the City collects 43% of rate revenues from fixed charges and 57% of revenues from variable charges. The latest draft of the cost of service study determines that sewer expenditures are 73% fixed and 27% volumetric. Adopting a higher fixed portion of the bill would allow for greater revenue stability.

The following fixed/variable rate revenue alternatives are provided for the Commission’s consideration:

	% Fixed Revenue	% Volumetric Revenue
Current:	43%	57%
Alternative 1:	50%	50%
Alternative 2:	60%	40%
Alternative 3:	74%	27%

An example calculation of the single family bill impact of the proposed alternatives is provided based on the average winter water use of 7 ccf.

	<u>\$ Fixed</u> <u>Charges</u>	<u>\$ Volumetric</u> <u>Charges</u>	<u>\$ Total Bill</u>
Current:	\$22.20	\$21.91	\$44.11
Alternative 1:	\$22.06	\$22.06	\$44.11
Alternative 2:	\$26.47	\$17.64	\$44.11
Alternative 3:	\$22.20	\$21.91	\$44.11

Additional Customer Class Consideration – By the Bed Multi-Family Residential

The City has several developments considered to be “dormitory-style” multi-family housing, with as many as 8 beds in one apartment, resulting in a higher occupancy per unit than typical multi-family units. To capture the increased demand from these users, the City is considering a fixed charge per bed added to the schedule of fixed residential charges per dwelling unit. One option for arriving at this charge is as follows:

Typical Indoor Household Water Use (gpcd)¹

Toilet	18.5 gallons per person, per day
Washing Machine	15 gallons per person, per day
Shower	11.6 gallons per person, per day
Faucet	10.9 gallons per person, per day
Dishwasher	1 gallon per person, per day
Total	57 gallons per person per day

Dormitory Style Multi-Family Demand Factor

57	gallons per capita per day, indoor
7	ccf average single-family residential winter water use
748	gallons per ccf
3.06	average number of people (beds) per SFR
1/3	rounded factor for per-bed fixed charge

For example, the proposed 1/3 factor applied to the current single family rate of \$18.26 would result in a charge of \$6.09 per bed per month for dormitory-style multi family units.

These customers would continue to pay the same variable charge as all residential units, since the relative wastewater strength of these customers is assumed to be the same for all residential customers.

Calculation of Winter Water Use Average

Currently the winter water use average is calculated using customer water use from November, December, January and February (from the December through March water bills). The Commission has been asked to reconsider the inclusion of November in that calculation, as November in recent years has been warm and dry. As part of this discussion, staff was asked to supply precipitation data from the last 10 years for the months of November, December, January and February. Staff is also including March, for reference.

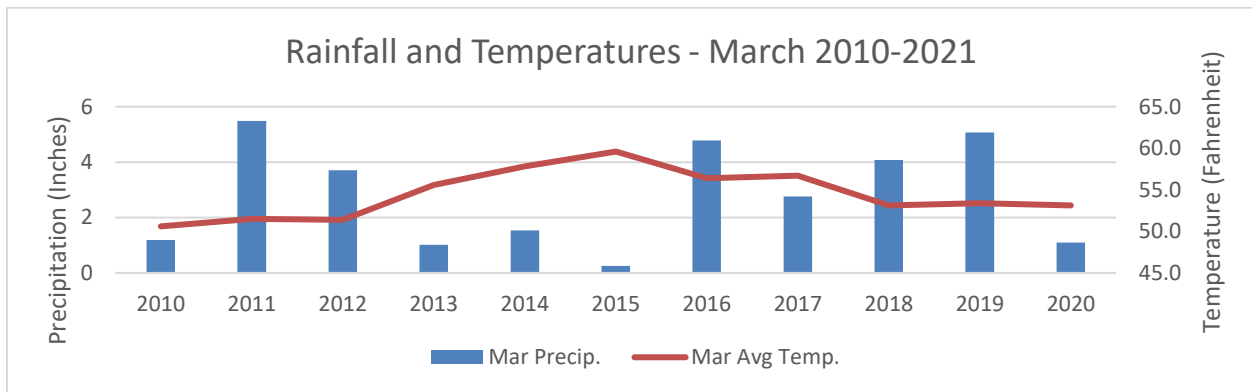
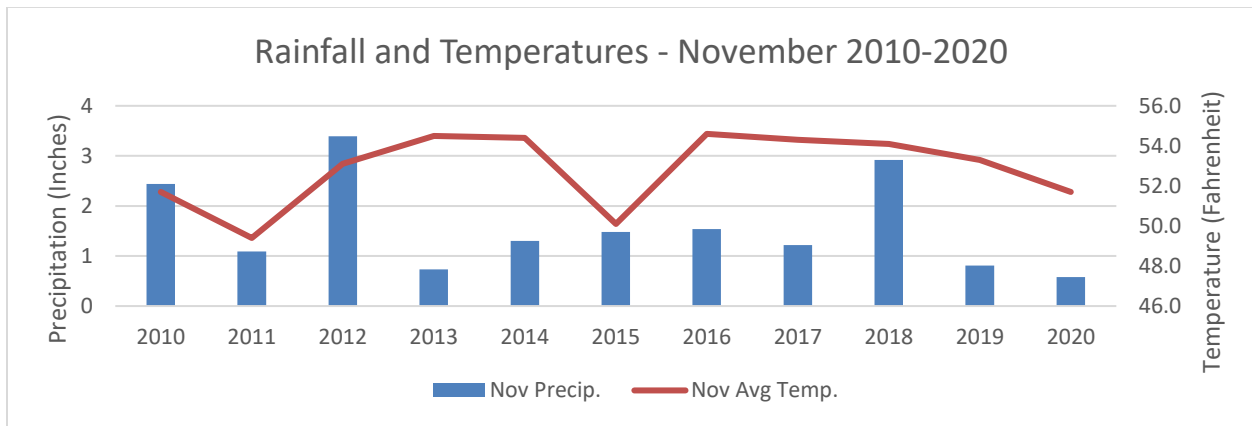
¹ Source: <https://www.epa.gov/sites/production/files/2017-02/documents/ws-specification-home-suppstatement-v1.0.pdf>

Table 1: Precipitation (Inches)

	Year												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
Nov	2.44	1.09	3.39	0.73	1.3	1.48	1.54	1.22	2.92	0.81	0.58		1.59
Dec	0.73	0.33	5.01	0.38	8.32	1.45	2.6	0.03	1.98	5.78	1.69		2.57
Jan	6.31	1.71	2.6	0.78	0.09	0.06	5.12	10.95	3.83	6.98	1.17	0.97	3.38
Feb	2.76	3.04	0.5	0.16	4.04	2.67	0.72	7.65	0.17	8.63	0.02	0.73	2.59
Mar	1.19	5.48	3.7	1.02	1.53	0.25	4.78	2.76	4.07	5.07	1.09	1.14	2.67

Table 2: Average Temperature (Fahrenheit)

	Year												
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Avg
Nov	51.7	49.4	53.1	54.5	54.4	50.1	54.6	54.3	54.1	53.3	51.7		52.8
Dec	48.3	44.4	46.2	44.4	52.0	46.7	45.0	46.5	48.7	49.2	48.2		47.2
Jan	46.3	41.9	45.8	42.6	50.1	48.2	49.5	46.3	49.6	49.7	48.0	49.1	47.3
Feb	48.9	45.8	49.9	48.1	53.3	54.5	53.7	52.1	50.9	47.2	53.6	53.1	50.9
Mar	50.6	51.5	51.4	55.6	57.8	59.6	56.4	56.7	53.1	53.4	53.1	53.3	54.4



Commercial Wastewater Rates – Monthly Charge vs. Winter Water Use Average

Unlike residential customer water use, commercial customer water use does not have a characteristic peak in the summer months. In fact, larger commercial developments will often

have a separate irrigation meter to ensure that water charges associated with irrigation use are not included in the domestic water use billings (this is required for all *new* developments that exceed a defined size). In addition, smaller businesses will also often not have irrigation systems, as they have no outdoor landscaping. Some older businesses, however, will still have irrigation systems connected to their domestic water meters.

The use of businesses, which would impact domestic water use within the building, also is unlikely to decline considerably in the summer months, meaning that the current method of using the winter water use average is likely not an accurate reflection of the wastewater impact of the operating business year-round.

The Commission has been asked to review the current billing for commercial customers to determine if billing for wastewater on a monthly basis would be more appropriate. The Commission could consider that for businesses that do have a separate irrigation meter, billing should be monthly (as the water use would reflect only the water use in the building and thus sent via the wastewater system), with winter water use being the calculation for businesses that do not have a separate irrigation meter.

Highest Rates vs. Lowest Rates

There was interest with the Commission to review a sampling of the highest bills associated with wastewater rates, as well as the lowest, to review how the proposed adjustments would affect customers. While this is an important piece of the rate review process, it is likely that we will not know the rate impacts prior to the study being completed, as adjusting the apportionment of the rate will be part of this process (adding ammonia as a factor, for example) and will likely affect the fiscal needs associated with customer classes. Once we have a direction on the construction of the rate and a completed review of the customer classes, we will be able to provide the information on potential rate impacts.