



Bismarck, ND

Utility Cost of Service & Rate Design Update

March 22, 2023



1. Financial Plan – Water, Sewer, Stormwater
2. Water and Sewer Cost of Service Update
3. Rate Structure Design
 - Customer Charge and Utility Account Processing (Fixed Charge)
 - Water – Adjusted Residential Tiers (3 and 4 Tiers)
 - Sewer – Winter Average
4. Bill Comparisons



Financial Plan Updates

Water

- No Rate Increase in FY23
- Focus on Rate Structure Changes
- Future increases of 4% annually
 - ✓ Potential Grant Funding for WTP Expansion
- Volatility of Water Sales and Impact of Rainfall

Sewer

- No Rate Increase in FY23
- Focus on Implementation of Winter Average for all Classes
- Future increases of 2.25% annually

Storm

- No Rate Increase in FY23
- No future increases
 - ✓ Adequate Investment



Cost of Service Update

1. Water Update

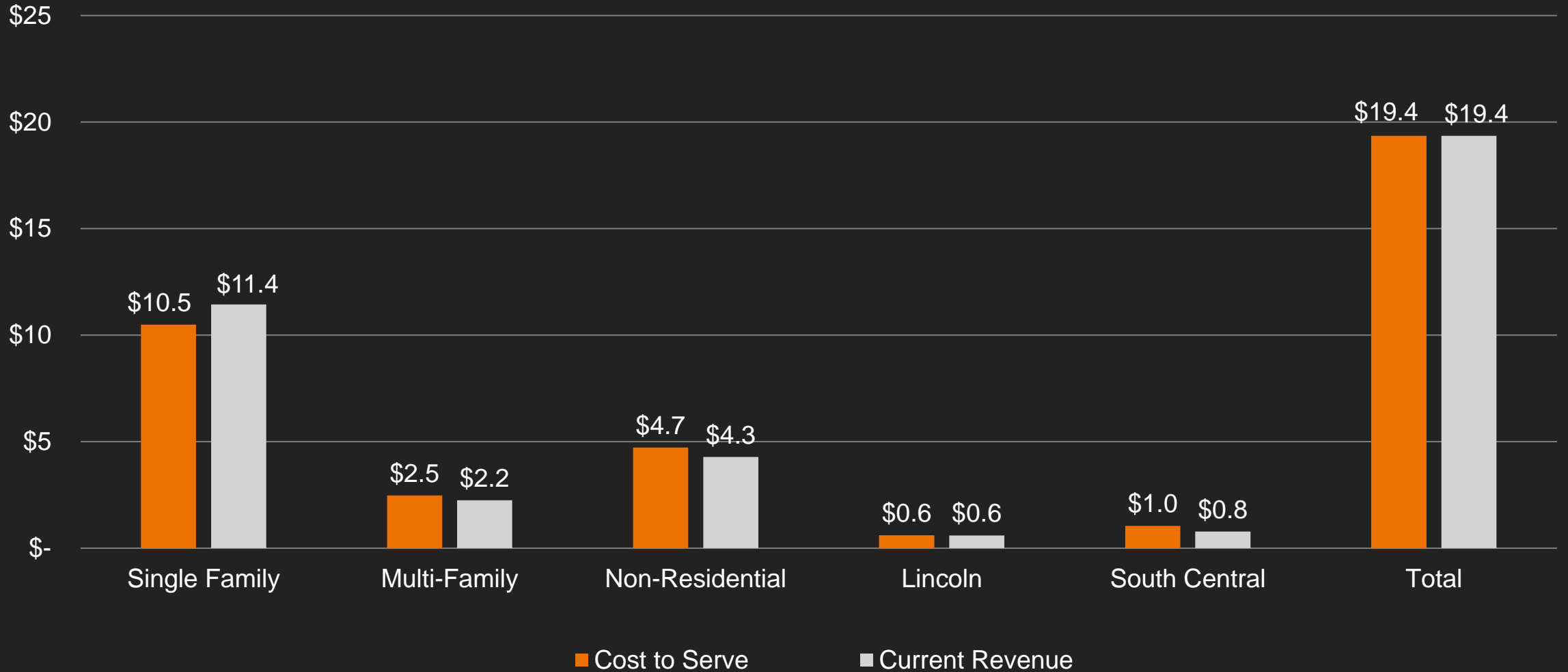
- No Irrigation Class
- Customer Water Use Changes
 - ✓ Reduced Residential Peaking
- South Central has increased water use and peaking

2. Sewer Update

- All customers charged with use of Winter Average
 - ✓ reduces the amount of billable gallons
 - ✓ Changes allocation of costs to customer classes



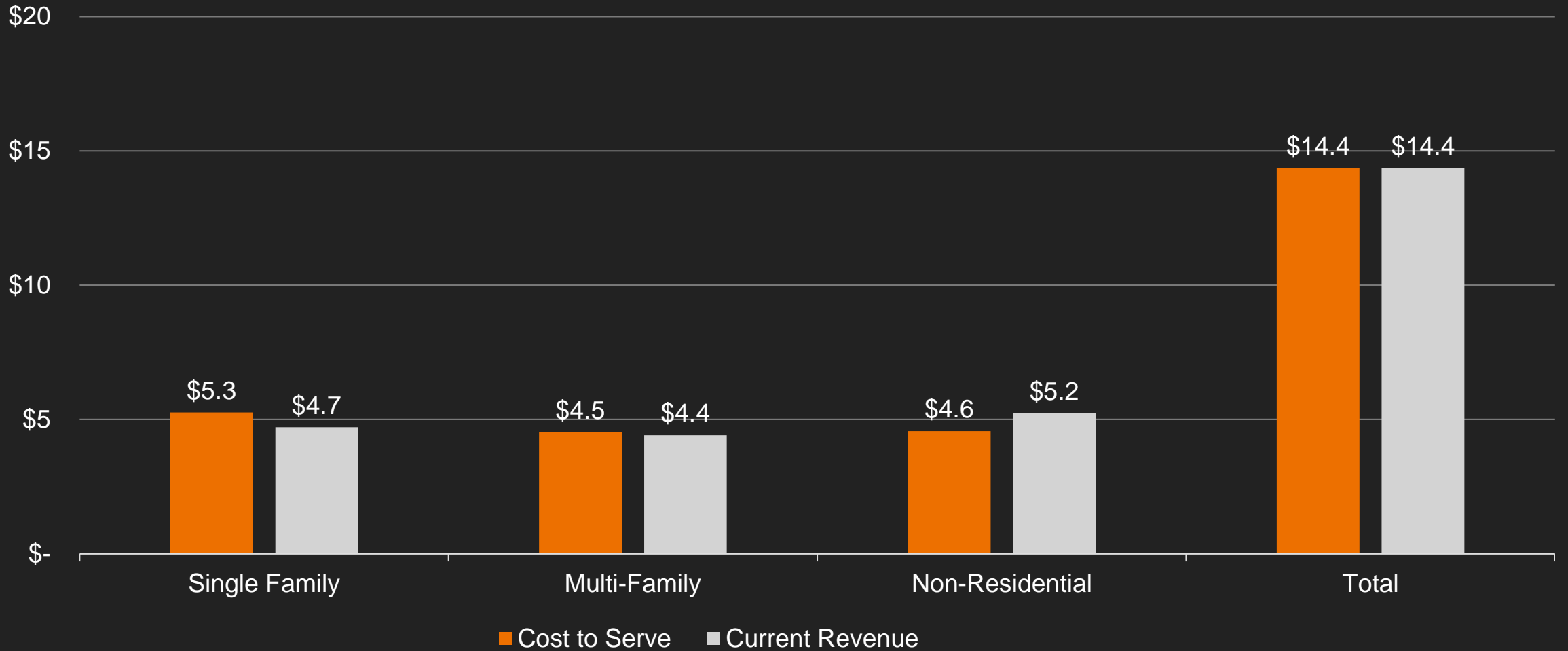
2022 Water Cost to Serve vs. Current Revenue (\$M)





2022 Sewer Cost to Serve vs. Current Revenue (\$M)

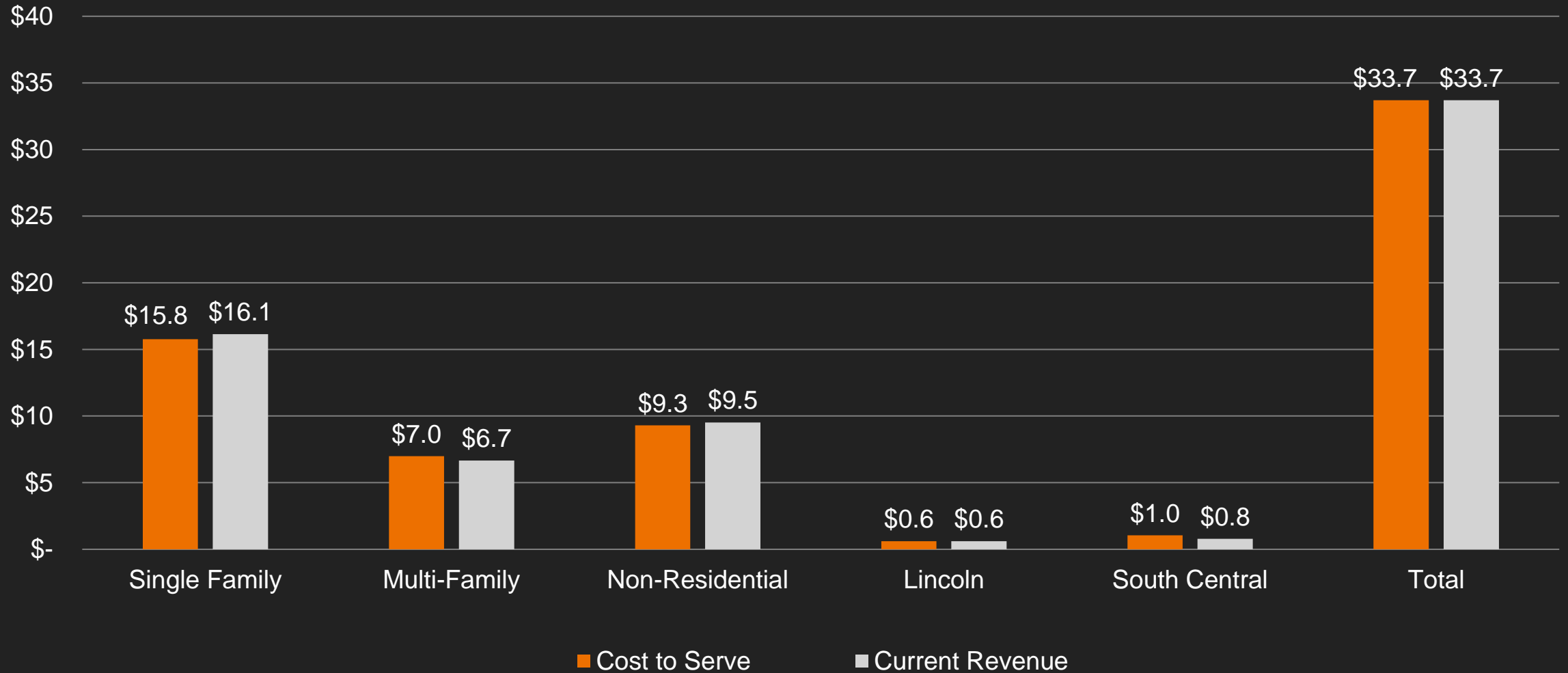
UTILITY COST OF SERVICE & RATE DESIGN UPDATE





2022 Combined Water and Sewer Cost to Serve vs. Current Revenue (\$M)

UTILITY COST OF SERVICE & RATE DESIGN UPDATE





Rate Design



Rate Structure Alternatives

Water Minimum Charge and Utility Account Processing Fee

- **Option A - Update using 2019 Methodology**
 - ✓ WTR Recover Customer Service Costs
 - ✓ 50% Average Day Costs
- Option B
 - ✓ WTR Recover Customer Service Costs
 - ✓ 50% Max Day, 25% Max Hour Costs
- Option C
 - ✓ WTR Recover Customer Service Costs
 - ✓ Recover Debt Service - *Infrastructure Fee*

	Option A	Option B	Option C
Customer Affordability	■	✗	✓
Revenue Stability	■	✓	✗
Administrative Ease	✓	✓	✓
Consistency with Industry Practice	✓	✓	■
Transparency	■	■	✓

Key: ✓ Represents Best Alternative ■ Represents Neutral Alternative ✗ Represents Least Effective Alternative

Sewer Minimum Charge

- **Option A - Update using 2019 Methodology**
 - ✓ SWR Recover Collection Costs
- Option C
 - ✓ Recover Debt Service - *Infrastructure Fee*



Water Minimum Charge & Utility Account Processing

Water Minimum Charge & Utility Account Processing*		
Meter Size	Current	Option A: Updated (Same as 2019 COS)
5/8	\$10.25	\$10.64
3/4	\$13.16	\$13.37
1	\$18.96	\$18.82
1.5	\$33.48	\$32.44
2	\$50.89	\$48.79
3	\$106.03	\$100.57
4	\$178.59	\$168.69
6	\$396.27	\$373.07
8	\$468.84	\$441.19
10	\$1,223.45	\$1,149.69



Sewer Minimum Charge

Single Family Residential		
Meter Size	Current	Updated COS
All Residential Customers	\$10.77	\$10.77

Multi-Family & Non-Residential		
Meter Size	Current	Updated COS
5/8	\$7.18	\$7.18
3/4	\$10.77	\$10.77
1	\$17.94	\$17.94
1.5	\$35.89	\$35.89
2	\$57.41	\$57.41
3	\$125.61	\$125.61
4	\$215.32	\$215.32
6	\$484.47	\$484.47
8	\$574.18	\$574.18
10	\$1,507.23	\$1,507.23



Rate Structure Alternatives

Water Usage Rates

- Alt 1 - Update COS
 - ✓ SFR - 5 Tier Structure
 - ✓ All Other Customer Classes - Unit Rate
- Alt 2 – SFR Tier Adjustments
 - ✓ SFR - 4 Tier Structure
 - ✓ All Other Customer Classes - Unit Rate
- Alt 3 - Uniform Rate for each Customer Class
- Alt 4 - Uniform Rate for all Customers
- Alt 5 – SFR Tier Adjustments
 - ✓ SFR - 3 Tier Structure
 - ✓ All Other Customer Class - Unit Rate

SFR	Alt 1 Current	Alt 2 4-Tier Alternative	Alt 5 3-Tier Alternative
Tier 1	0 – 4 Units	0 – 8 Units	0 – 6 Units
Tier 2	5 – 8 Units	9 – 16 Units	7 – 24 Units
Tier 3	9 – 18 Units	17 – 24 Units	Over 24
Tier 4	19 – 24 Units	Over 24	
Tier 5	Over 24		

Sewer Usage Rates

- Winter Average Billing, all classes



Single Family Water Usage and Statistics

Alt 1

SFR	Current	% of Customer Bills	% of Customer Bills Winter	% of Customer Bills Summer
Tier 1	0 – 4 Units	38%	54%	23%
Tier 2	5 – 8 Units	28%	37%	20%
Tier 3	9 – 18 Units	19%	9%	28%
Tier 4	19 – 24 Units	6%	< 0.1%	11%
Tier 5	Over 24	9%	< 0.1%	18%

Alt 2

SFR	Current	% of Customer Bills	% of Customer Bills Winter	% of Customer Bills Summer
Tier 1	0 – 8 Units	66%	91%	43%
Tier 2	9 -16 Units	17%	8%	24%
Tier 3	17 – 24 Units	8%	1%	15%
Tier 4	Over 24	9%	< 0.1%	18%

Alt 5

SFR	Current	% of Customer Bills	% of Customer Bills Winter	% of Customer Bills Summer
Tier 1	0 – 6 Units	56%	78%	34%
Tier 2	7 - 24 Units	35%	22%	48%
Tier 3	Over 24	9%	<0.1%	18%



Water Usage Rates *(Fixed Charge Option A)*

Single Family Residential	Current	Alt 1 Updated COS	Alt 2 4-Tier	Alt 3 Unit Rate by Class	Alt 4 System-Wide Unit Rate	Alt 5 3-Tier
Tier 1	\$1.51	\$1.21	\$1.75			\$2.75
Tier 2	\$3.05	\$2.65	\$4.79			\$3.25
Tier 3	\$5.62	\$4.88	\$6.16			\$8.10
Tier 4	\$7.09	\$6.24	\$7.86			
Tier 5	\$8.10	\$7.77				
Unit Rate				\$3.59	\$3.21	
Multifamily	Current	Updated COS		Unit Rate by Class	Unit Rate	
	\$1.65	\$2.15		\$2.15	\$3.21	
Non-Residential	Current	Updated COS		Unit Rate by Class	Unit Rate	
	\$1.89	\$2.97		\$2.97	\$3.21	



Units	Current	Alt 1 – Updated COS 5 Tier Structure	Alt 2 - New SFR 4 Tier Structure	Alt 3 – Unit Rate by Class	Alt 4 – System Wide Unit Rate	Alternative 5 - New SFR 3 Tier Structure
	Unit Cost	Unit Cost	Unit Cost	Unit Cost	Unit Cost	Unit Cost
1 Unit	\$1.51	\$1.21	\$1.75	\$3.59	\$3.21	\$2.75
2 Unit	\$1.51	\$1.21	\$1.75	\$3.59	\$3.21	\$2.75
3 Unit	\$1.51	\$1.21	\$1.75	\$3.59	\$3.21	\$2.75
4 Unit	\$1.51	\$1.21	\$1.75	\$3.59	\$3.21	\$2.75
5 Unit	\$3.05	\$2.65	\$1.75	\$3.59	\$3.21	\$2.75
6 Unit	\$3.05	\$2.65	\$1.75	\$3.59	\$3.21	\$2.75
7 Unit	\$3.05	\$2.65	\$1.75	\$3.59	\$3.21	\$3.25
8 Unit	\$3.05	\$2.65	\$1.75	\$3.59	\$3.21	\$3.25
9 Unit	\$5.62	\$4.88	\$4.79	\$3.59	\$3.21	\$3.25
10 Unit	\$5.62	\$4.88	\$4.79	\$3.59	\$3.21	\$3.25
11 Unit	\$5.62	\$4.88	\$4.79	\$3.59	\$3.21	\$3.25
12 Unit	\$5.62	\$4.88	\$4.79	\$3.59	\$3.21	\$3.25
13 Unit	\$5.62	\$4.88	\$4.79	\$3.59	\$3.21	\$3.25
14 Unit	\$5.62	\$4.88	\$4.79	\$3.59	\$3.21	\$3.25
15 Unit	\$5.62	\$4.88	\$4.79	\$3.59	\$3.21	\$3.25
16 Unit	\$5.62	\$4.88	\$4.79	\$3.59	\$3.21	\$3.25
17 Unit	\$5.62	\$4.88	\$6.16	\$3.59	\$3.21	\$3.25
18 Unit	\$5.62	\$4.88	\$6.16	\$3.59	\$3.21	\$3.25
19 Unit	\$7.09	\$6.24	\$6.16	\$3.59	\$3.21	\$3.25
20 Unit	\$7.09	\$6.24	\$6.16	\$3.59	\$3.21	\$3.25
21 Unit	\$7.09	\$6.24	\$6.16	\$3.59	\$3.21	\$3.25
22 Unit	\$7.09	\$6.24	\$6.16	\$3.59	\$3.21	\$3.25
23 Unit	\$7.09	\$6.24	\$6.16	\$3.59	\$3.21	\$3.25
24 Unit	\$7.09	\$6.24	\$6.16	\$3.59	\$3.21	\$3.25
25 Unit	\$7.86	\$7.77	\$7.86	\$3.59	\$3.21	\$8.10

	Legend
	25 th Percentile
	50 th Percentile
	75 th Percentile
	95 th Percentile



Water Usage Rate Evaluation

- **Alternative 1** same current 5 tier structure for single family residential based on updated COS
- **Alternative 2** new single family residential 4 tier structure
- **Alternative 3** uniform rate for each customer class
- **Alternative 4** uniform rate for all classes
- **Alternative 5** new single family residential 3 tier structure

	Alternative 1 Updated COS	Alternative 2 New SFR - 4 Tiers	Alternative 3 Unit Rate by Class	Alternative 4 System Unit Rate	Alternative 5 New SFR – 3 Tier
Customer Affordability	✓	—	✗	✗	—
Proportional Equity	✓	✓	—	✗	✓
Administrative Ease	—	—	✓	✓	—
Consistency with Industry Practice	✓	✓	✓	✓	✓

Key: ✓ Represents Best Alternative — Represents Neutral Alternative ✗ Represents Least Effective Alternative



Sewer Usage Rates

Customer Class	Current	Option A: Updated COS <i>Winter Average Billing for ALL Customer Classes</i>
Single Family Residential	\$2.36	\$2.94
Multifamily	\$3.94	\$4.78
Non-Residential	\$4.17	\$4.77

Current

- SFR billed for sewer using Winter Average (WA) water use.
- MFR and NR billed for sewer using all water use.



Bill Comparisons



Option A - Residential Rate Structure Alternatives

Fixed Charge Recovery

WTR Customer & 50% Average Day

SWR Collection

Water Usage Rates

Alternative 1 - 5 SFR Tiers

Alternative 2 - 4 SFR Tiers

Alternative 3 - Unit Rate by class

Alternative 4 – System-Wide Unit Rate

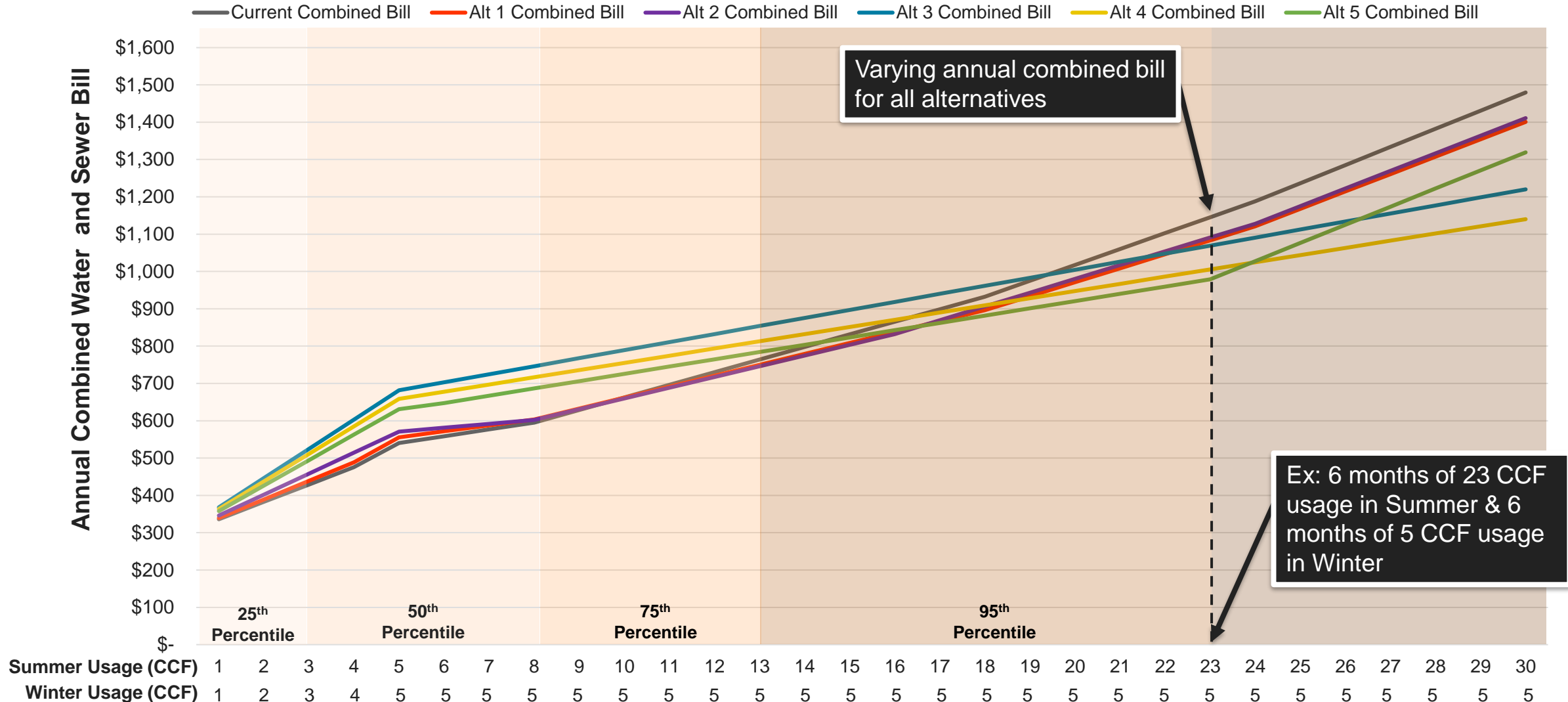
Alternative 5- 3 SFR Tiers

Sewer Usage Rates

Sewer usage rates based on winter average



Annual Combined Water and Sewer Bill Residential Customers with 5 CCF Seasonal Average





Annual Combined Bill Comparison - Residential

Meter Size	Summer Usage (CCF)	Winter Usage (CCF)	Current Combined Bill	Alt 1 Combined Bill	Alt 2 Combined Bill	Alt 3 Combined Bill	Alt 4 Combined Bill	Alt 5 Combined Bill
3/4"	1	1	\$ 333.60	\$ 339.40	\$ 345.87	\$ 368.00	\$ 363.44	\$357.92
3/4"	2	2	\$ 380.04	\$ 389.17	\$ 402.11	\$ 446.36	\$ 437.24	\$426.20
3/4"	3	3	\$ 426.48	\$ 438.94	\$ 458.35	\$ 524.72	\$ 511.04	\$494.48
3/4"	4	4	\$ 472.92	\$ 488.71	\$ 514.58	\$ 603.09	\$ 584.85	\$562.77
3/4"	5	5	\$ 537.84	\$ 555.75	\$ 570.82	\$ 681.45	\$ 658.65	\$631.05
3/4"	6	5	\$ 556.14	\$ 571.62	\$ 581.30	\$ 702.99	\$ 677.91	\$647.55
3/4"	7	5	\$ 574.44	\$ 587.50	\$ 591.77	\$ 724.53	\$ 697.17	\$667.05
3/4"	8	5	\$ 592.74	\$ 603.38	\$ 602.25	\$ 746.07	\$ 716.43	\$686.55
3/4"	9	5	\$ 626.46	\$ 632.65	\$ 631.00	\$ 767.61	\$ 735.69	\$706.05
3/4"	10	5	\$ 660.18	\$ 661.91	\$ 659.74	\$ 789.15	\$ 754.95	\$725.55
3/4"	11	5	\$ 693.90	\$ 691.18	\$ 688.49	\$ 810.69	\$ 774.21	\$745.05
3/4"	12	5	\$ 727.62	\$ 720.44	\$ 717.24	\$ 832.23	\$ 793.47	\$764.55
3/4"	13	5	\$ 761.34	\$ 749.71	\$ 745.98	\$ 853.77	\$ 812.73	\$784.05
3/4"	14	5	\$ 795.06	\$ 778.98	\$ 774.73	\$ 875.31	\$ 831.99	\$803.55
3/4"	15	5	\$ 828.78	\$ 808.24	\$ 803.48	\$ 896.85	\$ 851.25	\$823.05
3/4"	16	5	\$ 862.50	\$ 837.51	\$ 832.22	\$ 918.39	\$ 870.51	\$842.55
3/4"	17	5	\$ 896.22	\$ 866.77	\$ 869.18	\$ 939.93	\$ 889.77	\$862.05
3/4"	18	5	\$ 929.94	\$ 896.04	\$ 906.14	\$ 961.47	\$ 909.03	\$881.55
3/4"	19	5	\$ 972.48	\$ 933.51	\$ 943.10	\$ 983.01	\$ 928.29	\$901.05
3/4"	20	5	\$ 1,015.02	\$ 970.98	\$ 980.06	\$ 1,004.55	\$ 947.55	\$920.55
3/4"	21	5	\$ 1,057.56	\$ 1,008.45	\$ 1,017.02	\$ 1,026.09	\$ 966.81	\$940.05
3/4"	22	5	\$ 1,100.10	\$ 1,045.91	\$ 1,053.97	\$ 1,047.63	\$ 986.07	\$959.55
3/4"	23	5	\$ 1,142.64	\$ 1,083.38	\$ 1,090.93	\$ 1,069.17	\$ 1,005.33	\$979.05
3/4"	24	5	\$ 1,185.18	\$ 1,120.85	\$ 1,127.89	\$ 1,090.71	\$ 1,024.59	\$1,027.65
3/4"	25	5	\$ 1,233.78	\$ 1,167.45	\$ 1,175.05	\$ 1,112.25	\$ 1,043.85	\$1,076.25
3/4"	26	5	\$ 1,282.38	\$ 1,214.05	\$ 1,222.20	\$ 1,133.79	\$ 1,063.11	\$1,124.85
3/4"	27	5	\$ 1,330.98	\$ 1,260.65	\$ 1,269.35	\$ 1,155.33	\$ 1,082.37	\$1,173.45
3/4"	28	5	\$ 1,379.58	\$ 1,307.25	\$ 1,316.50	\$ 1,176.87	\$ 1,101.63	\$1,222.05
3/4"	29	5	\$ 1,428.18	\$ 1,353.86	\$ 1,363.66	\$ 1,198.41	\$ 1,120.89	\$1,270.65
3/4"	30	5	\$ 1,476.78	\$ 1,400.46	\$ 1,410.81	\$ 1,219.95	\$ 1,140.15	\$1,319.25

Example of Annual Bill Calculation:

Water portion based on 6 months of summer water usage & 6 months of winter water usage

Sewer portion based on 12 months of the winter usage.



Residential – Combined Bill Comparison

³/₄" Meter

Monthly Use And Annual Percentile	2022 Current Rates	Alt 1: Updated COS, Same Tiers	Alt 2: New SFR 4 Tiers	Alt 3: Unit Rate by Class	Alt 4: Unit Rate	Alt 5: New SFR 3 Tier
		Option A	Option A	Option A	Option A	Option A
3 CCF (3 CCF WA)	\$35.5	\$36.6	\$38.2	\$43.7	\$42.6	\$41.2
8 CCF (5 CCF WA)	\$54.0	\$54.3	\$52.8	\$67.6	\$64.5	\$61.8
15 CCF (5 CCF WA)	\$93.3	\$88.4	\$86.4	\$92.7	\$87.0	\$84.6
19 CCF (5 CCF WA)	\$117.26	\$109.3	\$109.6	\$107.1	\$99.8	\$97.6
23 CCF (5 CCF WA)	\$145.6	\$134.3	\$134.3	\$121.4	\$112.7	\$110.6

- 48% of Residential customers have ³/₄" meter
- WA = Winter Average



Residential – Combined Bill Comparison

³/₄" Meter

Monthly Use And Annual Percentile	2022 Current Rates	Alt 1: Updated COS, Same Tiers	Alt 2: New SFR 4 Tiers	Alt 5: New SFR 3 Tier
		Option A	Option A	Option A
3 CCF (3 CCF WA)	\$35.5	\$36.6	\$38.2	\$41.2
8 CCF (5 CCF WA)	\$54.0	\$54.3	\$52.8	\$61.8
15 CCF (5 CCF WA)	\$93.3	\$88.4	\$86.4	\$84.6
19 CCF (5 CCF WA)	\$117.26	\$109.3	\$109.6	\$97.6
23 CCF (5 CCF WA)	\$145.6	\$134.3	\$134.3	\$110.6

- 48% of Residential customers have ³/₄" meter
- WA = Winter Average



Residential – Combined Bill Comparison

1" Meter

Monthly Use And Annual Percentile	2022 Current Rates	Alt 1: Updated COS, Same Tiers	Alt 2: New SFR 4 Tiers	Alt 3: Unit Rate by Class	Alt 4: Unit Rate	Alt 5: New SFR 3 Tier
		Option A	Option A	Option A	Option A	Option A
3 CCF (3 CCF WA)	\$41.3	\$42.0	\$43.7	\$49.2	\$48.0	\$46.7
8 CCF (5 CCF WA)	\$59.8	\$59.7	\$58.3	\$73.0	\$70.0	\$67.3
15 CCF (5 CCF WA)	\$99.1	\$93.9	\$91.8	\$98.1	\$92.4	\$90.0
19 CCF (5 CCF WA)	\$123.1	\$114.8	\$115.1	\$112.5	\$105.3	\$103.0
23 CCF (5 CCF WA)	\$151.4	\$139.7	\$139.7	\$126.9	\$118.1	\$116.0

- 48% of Residential customers have 1" meter
- WA = Winter Average



Residential – Combined Bill Comparison

1" Meter

Monthly Use And Annual Percentile	2022 Current Rates	Alt 1: Updated COS, Same Tiers	Alt 2: New SFR 4 Tiers	Alt 5: New SFR 3 Tier
		Option A	Option A	Option A
3 CCF (3 CCF WA)	\$41.3	\$42.0	\$43.7	\$46.7
8 CCF (5 CCF WA)	\$59.8	\$59.7	\$58.3	\$67.3
15 CCF (5 CCF WA)	\$99.1	\$93.9	\$91.8	\$90.0
19 CCF (5 CCF WA)	\$123.1	\$114.8	\$115.1	\$103.0
23 CCF (5 CCF WA)	\$151.4	\$139.7	\$139.7	\$116.0

- 48% of Residential customers have 1" meter
- WA = Winter Average



Option A - Multi-Family Rate Structure Alternatives

Fixed Charge Recovery

WTR Customer & 50% Average Day

SWR Collection

Water Usage Rates

Alternative 1 - Unit Rate by Class

Alternative 2 – System-Wide Unit Rate

Sewer Usage Rates

Sewer usage rates based on winter average



Multi-Family – Combined Bill Comparison

1" Meter

	2022 Current Rates	Alt 1: Updated COS, Unit Rate	Alt 2: Unit Rate
		Option A	Option A
6 CCF (Year-Round)	\$70.44	\$78.36	\$84.72
6 CCF Summer, 2 CCF Winter	\$70.44	\$59.23	\$65.59
41 CCF (Year-Round)	\$266.09	\$321.04	\$364.50
41 CCF Summer, 11 CCF Winter	\$266.09	\$177.53	\$220.99
149 CCF (Year-Round)	\$869.81	\$1069.8	\$1227.8
149 CCF Summer, 51 CCF Winter	\$869.81	\$601.08	\$759.02

- 36% of Multi-Family customers have 1" meter



Option A Non-Residential Rate Structure Alternatives

Fixed Charge Recovery

WTR Customer & 50% Average Day
SWR Collection

Water Usage Rates

Alternative 1 - Unit Rate by Class
Alternative 2 - System-Wide Unit Rate

Sewer Usage Rates

Sewer usage rates based on winter
average



Non-Residential – Combined Bill Comparison

1" Meter

	2022 Current Rates	Alt 1: Updated COS, Unit Rate	Alt 2: Unit Rate
	Option A	Option A	Option A
2 CCF (Year-Round)	\$49.02	\$52.24	\$52.72
2 CCF Summer, 1 CCF Winter	\$49.02	\$47.48	\$47.96
47 CCF (Year-Round)	\$321.72	\$400.43	\$411.71
47 CCF Summer, 24 CCF Winter	\$321.72	\$291.16	\$302.44
191 CCF (Year-Round)	\$1194.4	\$1514.6	\$1560.5
191 CCF Summer, 132 CCF Winter	\$1194.4	\$1235.5	\$1281.3

- 34% of Non-Residential customers have 1" meter



Questions?