

Preface
Comments from Town Manager

The Challenge of Structural Balance in Perspective

The Town annually requires a total of \$3,500,000
to achieve structural balance for both Water and
Sewer Enterprise Accounts

2023 Annual Sewer Debt Payment = \$2,300,000

Water CIP Requirements Annualized for the next 10 years = \$1,200,000

“Even if the Town had zero financial requirements in the Water CIP and Sewer Debt, the Town will still need an annual water/sewer rate increase of 4% in each fund to account for growth in O&M cost increases due to inflation.”

- David Hyder, Stantec

Alternate General Fund Revenue Scenarios in Lieu of Water and Sewer Rates to Finance \$3,500,000 Annually

- A. Property Tax – 24 cents additional per household (totaling 44 cents)
- B. Property Tax (19 cents) + 2% meals tax (\$860,000)
- C. Property Tax (15 cents) + 2% meals tax (\$860,000) + residents pay for trash and recycling services (\$500,000)

It is clear that we cannot approach this challenge of structural balance at the margins as any other source of General Fund monies would create excessive burden on either tax payers and/or adversely diminish the delivery of services.

The following scenario from Stantec represents three rate alternatives to achieve equity over time and structural balance for the next decade.

- *A) one large increase in a single year (FY21),
 - *B) a large increase broken down over two years (FY21 and FY22) followed by a 4% fixed rate for the remainder of the decade,
 - C) a fixed and smooth rate each year for a ten year period.
- * Following the one or two year large rate increase, subsequent years are followed by a 4% increase to keep pace with O&M and inflation.

After considerable deliberation by the entire management team, we are strongly recommending that the Council take a serious look at the one-time large increment in FY21, which represents little more than a \$1 dollar a day for that single year. For the remainder of the decade, only a 4% increase would be necessary which approximates to less than 25 cents a day to maintain structural balance.

Not only does this rate model achieve structural balance immediately, it provides a path towards rate equity, it also preserves the General Fund for many of the challenges that lie ahead, including the construction of a new police headquarters, the commitment to our employees on compensation and classification, as well as, the completion of the Council's strategic initiatives and the recommendations of the Novak Administrative Assessment.



Town of Purcellville, VA

Water and Sewer Rate Study

Rate Study Work Session

November 20, 2019



Study Approach



Financial Plan

Defines how much total revenue is needed each year

Cost of Service

Defines proportional revenue recovery between customer classes

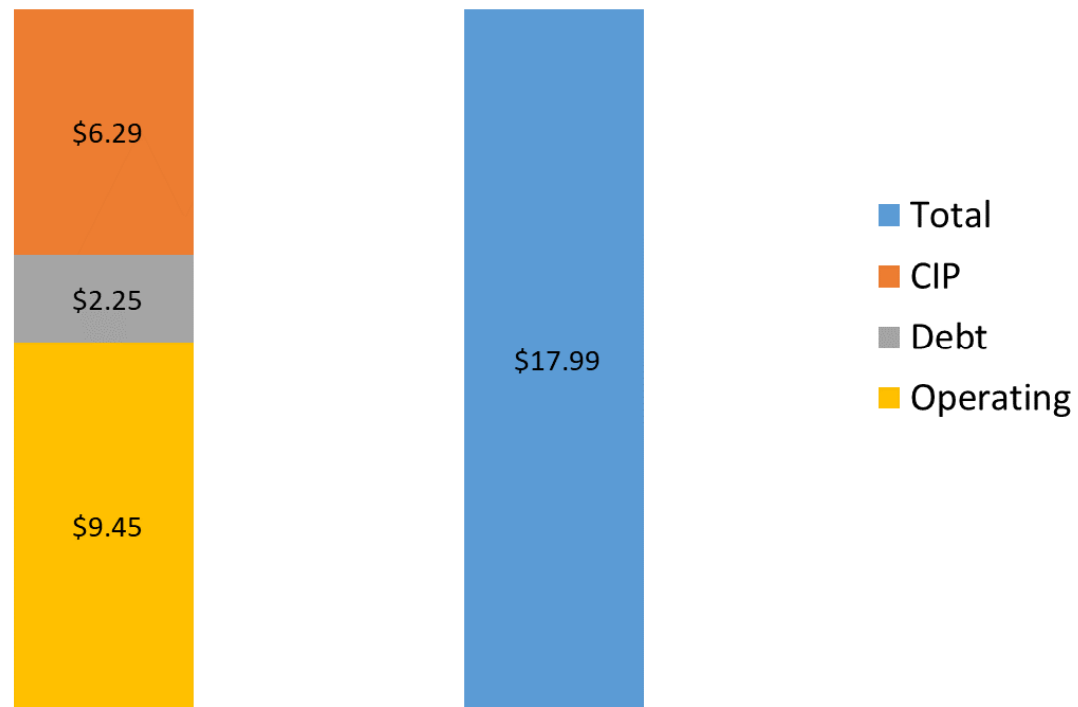
Rate Design

Structure of how revenues are recovered by class

Communication

Explains why

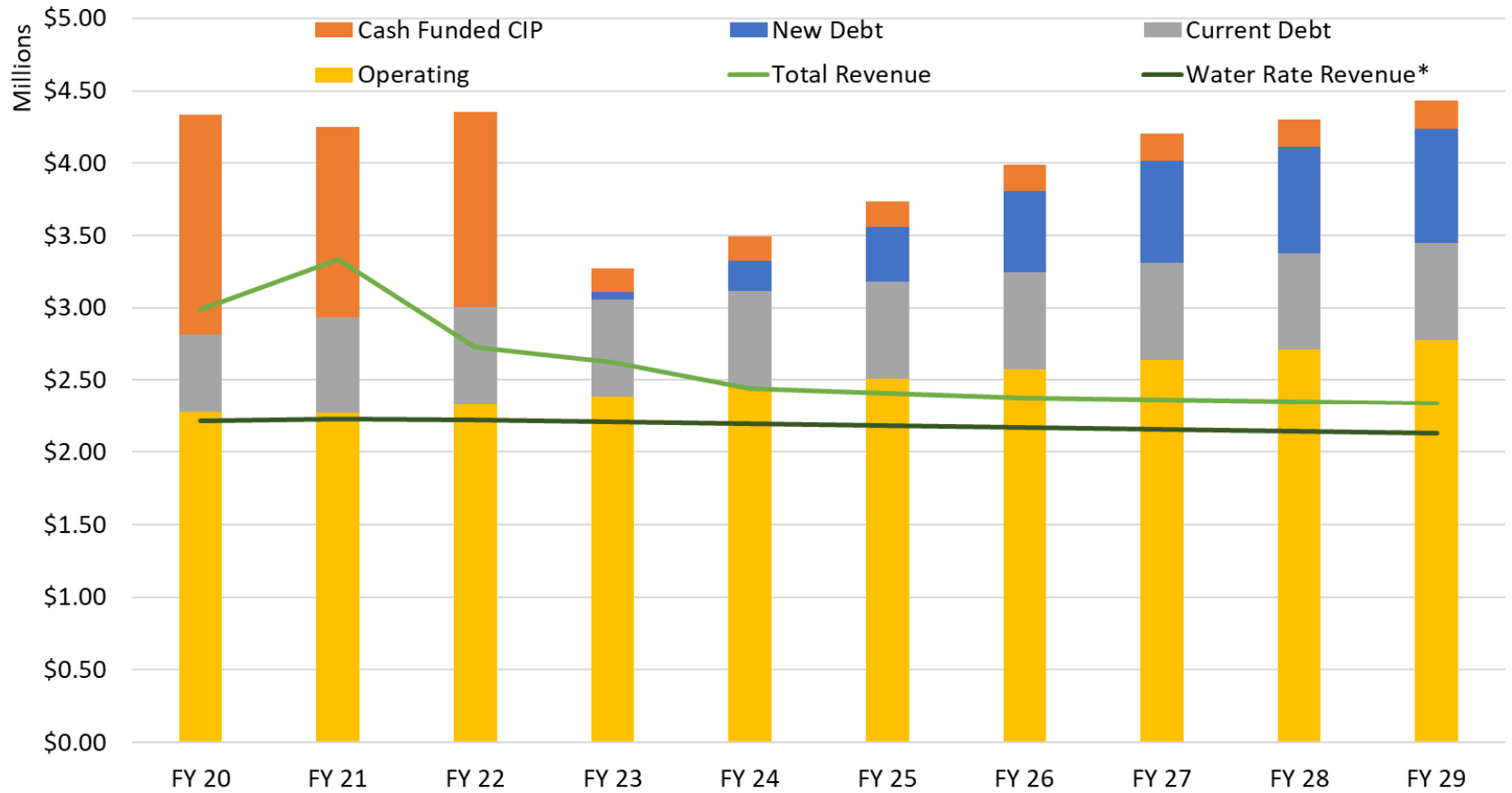
FY 2020 Water Unit Cost Comparison per 1,000 gallons



FY 2020 Sewer Unit Cost Comparison per 1,000 gallons

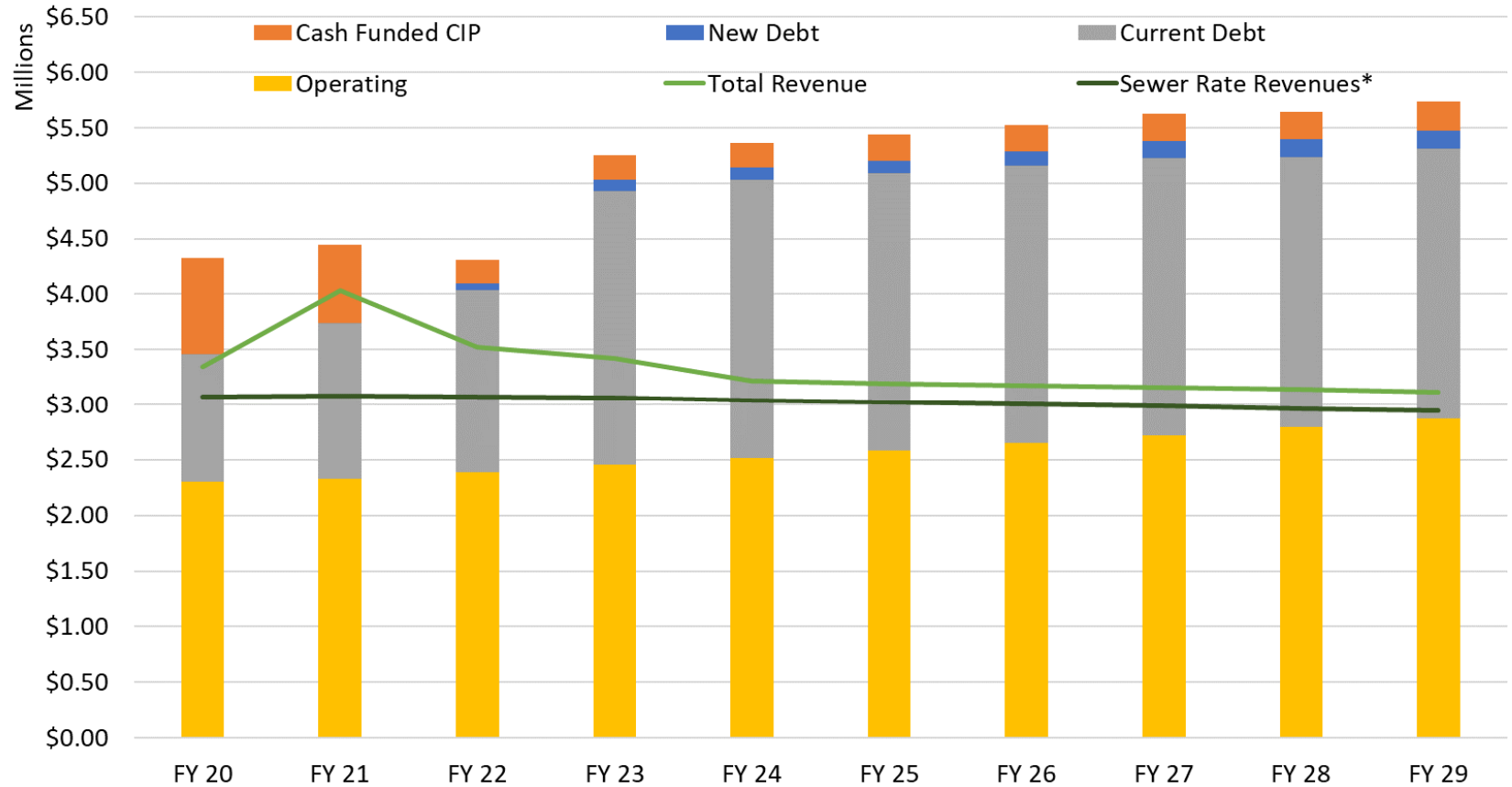


Water Revenue Requirement by Type of Expense



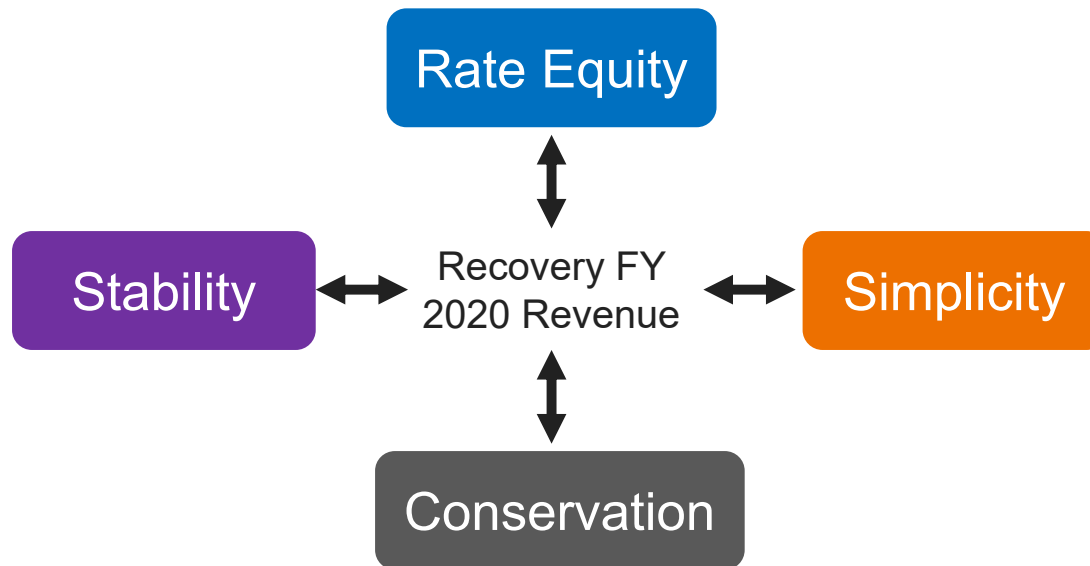
*Water user rate revenues at current rates (recurring revenues)

Sewer Revenue Requirement by Type of Expense



* Sewer user rate revenues at current rates (recurring revenues)

Objectives of Rate Design



Key Objective: **A sustainable rate structure**

Goal: Design rates that fairly recover revenue across and within customer classes, increase fixed cost recovery, and promote conservation.

Current and Alternative Rate Structures

Water Fixed Charge

Current

Scaled based
on meter size

Alternative A, B, & C

Scaled based on
meter size (based
on average use)

Water Volumetric Charge

Current

17 inclining tiers

Alternative A*

4 inclining tiers
(based on data
analysis)

Uniform rate

Alternative B & C**

4 inclining tiers
(based on data
analysis)

4 inclining tiers
(tiered by meter
size)

Sewer Fixed Charge

Current

Scaled based
on meter size

Alternative

Scaled based on
meter size (based
on average use)

Sewer Volumetric Charge

Current

Uniform rate

Alternative

Uniform rate

Single Family
Residential

Non-Single
Family

All Customers

*Full cost of service based rates

**Transition towards cost of service

Fixed Charges

Level of Fixed Revenue		
	Water	Sewer
Bi-Monthly Fixed Fees	13.5%	11.0%
First 1,000 Gallons	5.2%	9.0%
Total	18.7%	20.0%

Recommendation: 20%

Meter Size	Current		Calculated	
	Scaling	Fixed Fee	Average Use*	Scaling
5/8"	1.0	\$15.00	8,000	1.0
3/4"	1.0	\$15.00	25,000	3.2
1"	2.5	\$37.50	32,000	4.0
1.5"	5.0	\$75.00	52,000	6.7
2"	8.0	\$119.99	95,000	12.0
3"	16.0	\$239.48	206,000	26.3
4"	25.0	\$374.97	356,000	43.3

*Average bi-monthly use

Bi-Monthly Fixed Charge Summary

Meter Size	Number of Water Meters*	Meter Equivalencies**	Current Water Fixed Charge	Alternative A&B Water Fixed Charge	Alternative C Water Fixed Charge	Current Sewer Fixed Charge	Proposed Sewer Fixed Charge
5/8"	2,777	1.0	\$15.00	\$13.33	\$14.75	\$15.00	\$15.23
3/4"	20	3.2	15.00	42.66	44.81	15.00	48.73
1"	44	4.0	37.50	53.62	59.80	37.50	61.25
1.5"	28	6.7	75.00	89.75	99.27	75.00	102.52
2"	26	12.0	119.99	160.62	177.66	119.99	183.47
3"	5	26.3	239.48	350.47	387.63	239.48	400.32
4"	2	45.3	374.97	604.26	668.33	374.97	690.20

*Approximately same number of sewer meters by meter size.

**Meter equivalencies calculated based on average billed usage.

Alternative A, B & C Volumetric Rates

Alt. A Water Rates Single Family

Usage Tier (kgal)	Water Rate (per kgal)
0 – 7	\$9.20
8 – 14	\$13.81
15 – 20	\$18.41
Over 20	\$23.01

Alt. A Water Rates Non-Single Family

Usage Tier (kgal)	Water Rate (per kgal)
All Usage	\$9.47

Meter Size	Count	Tier 1 (kgal)	Tier 2 (kgal)	Tier 3 (kgal)	Tier 4 (kgal)
Single Family	2,585	0 – 7	8 – 14	15 – 20	Over 20
Non-Single Family					
5/8"	195	0 – 7	8 – 14	15 – 20	Over 20
3/4"	19	0 – 21	22 – 43	44 – 61	Over 61
1"	41	0 – 28	29 – 57	58 – 81	Over 81
1.5"	28	0 – 47	48 – 94	95 – 135	Over 135
2"	26	0 – 84	85 – 169	170 – 241	Over 241
3"	5	0 – 184	185 – 368	369 – 526	Over 526
4"	2	0 – 317	318 – 635	636 – 906	Over 906
6"	0	0 – 713	714 – 1,429	1,430 – 2,039	Over 2,039
Alternative B Rate (per kgal)		\$8.32	\$12.47	\$16.63	\$20.79
Alternative C Rate (per kgal)		\$7.65	\$13.39	\$17.22	\$21.04

Current and Alternative Volumetric Rates

Current Sewer Rates All Customers

Usage Tier (kgal)	Sewer Rate (per kgal)
All Usage	\$15.95

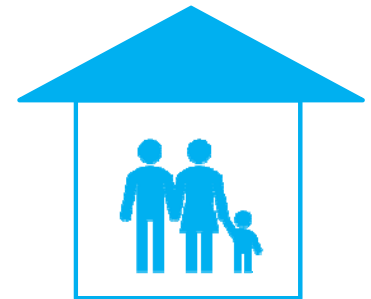
Calculated Sewer Rates All Customers

Usage Tier (kgal)	Sewer Rate (per kgal)
All Usage	\$15.30

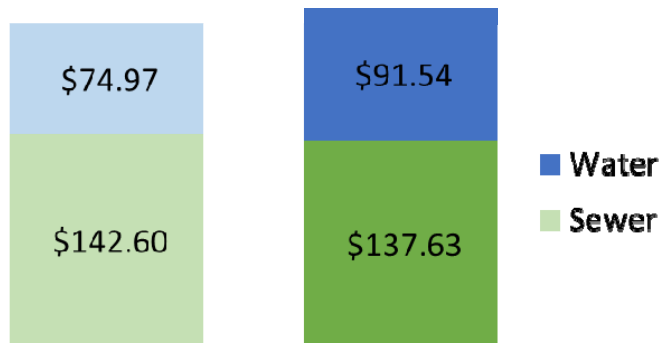
Bill Impacts: Single Family Customers

Customer with water and sewer service

Three-person (**average user**) household with some outdoor use
8,000 gallons bi-monthly (56th percentile)



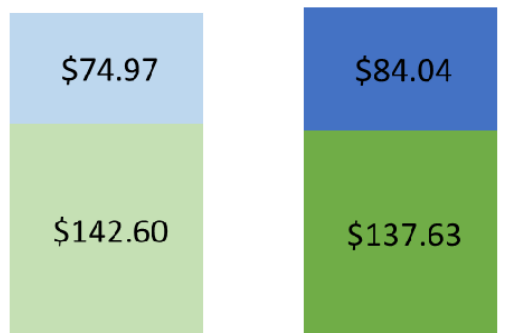
Alternative A



Current Calculated

\$ Change: \$11.60
% Change: 5.33%

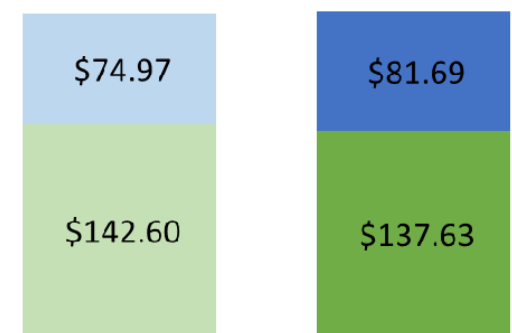
Alternative B



Current Calculated

\$ Change: \$4.10
% Change: 1.88%

Alternative C



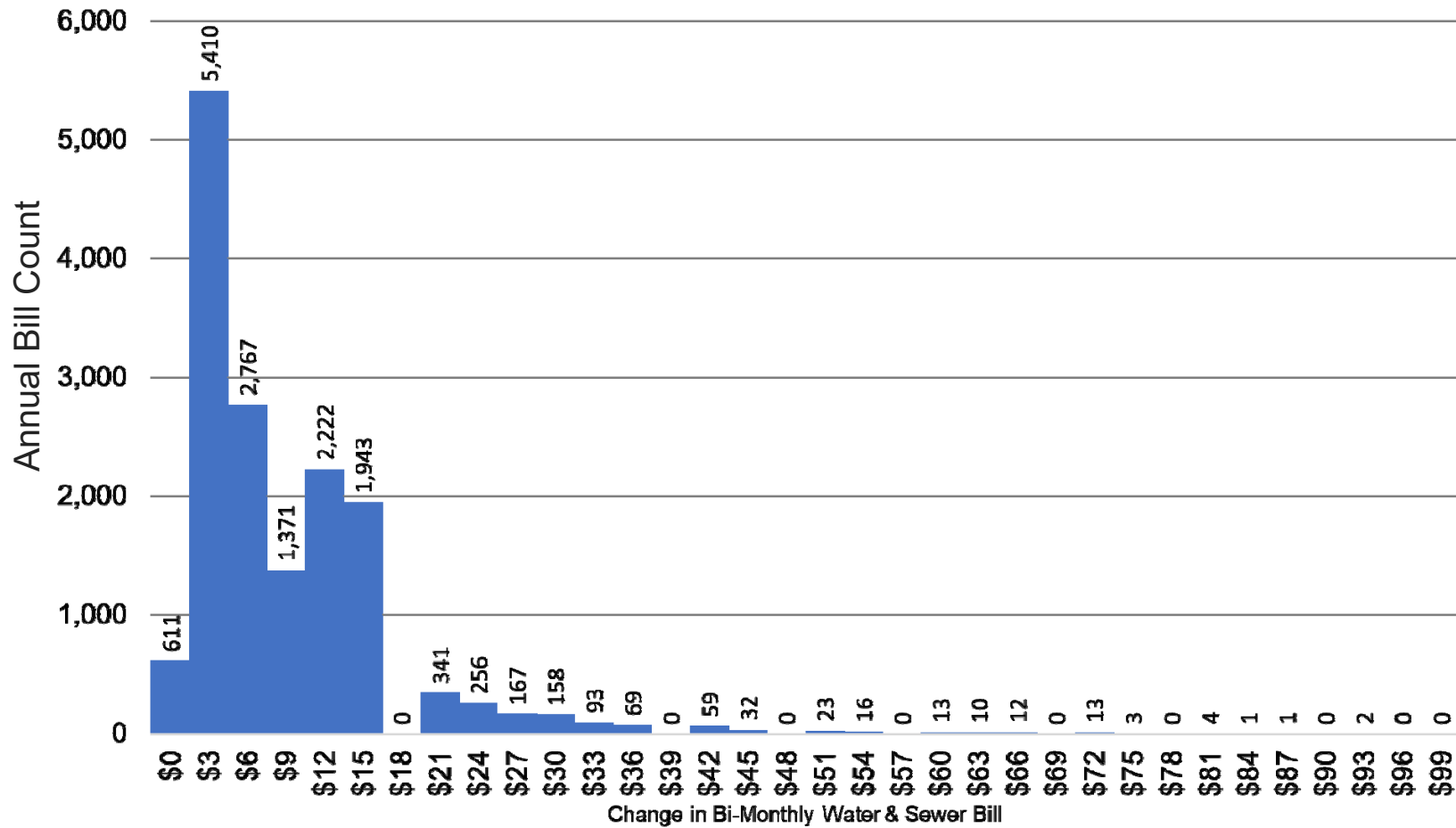
Current Calculated

\$ Change: \$1.75
% Change: 0.80%

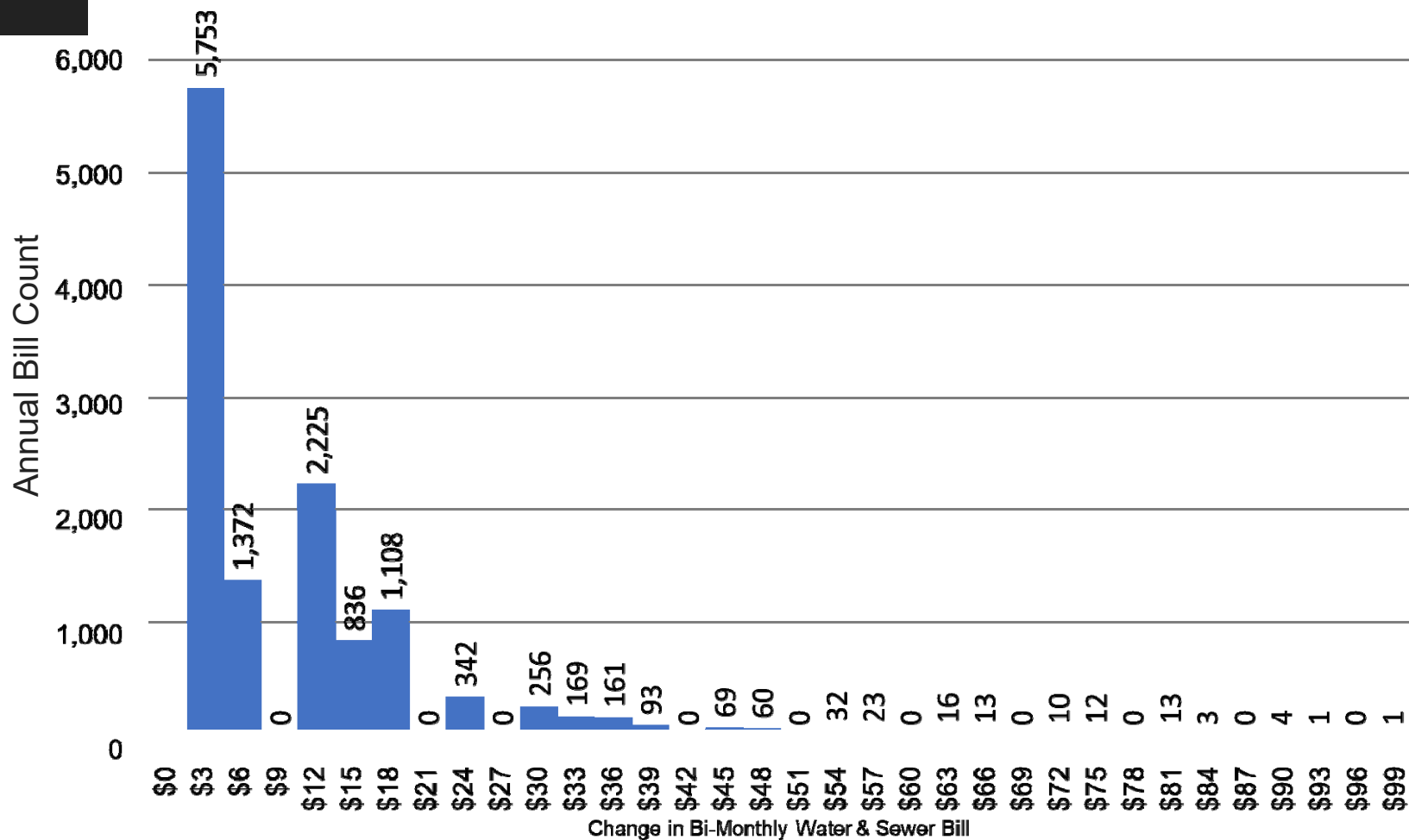
Summary Single Family Customers Bill Impacts

Alternative	Meter Size	Average Bi-Monthly Usage (1,000 gallons)	Current Bi-Monthly Bill	Alternative Bi-Monthly Bill	\$ Change in Bi-Monthly Bill	% Change in Bi-Monthly Bill	Count of Bills
A	5/8"	4	\$120.44	\$126.56	\$6.12	5.08%	1,076
	5/8"	8	\$217.57	\$229.17	\$11.60	5.33%	1,527
	5/8"	14	\$373.89	\$403.83	\$29.94	8.01%	463
	5/8"	20	\$544.05	\$606.09	\$62.04	11.40%	69
B	5/8"	4	\$120.44	\$123.04	\$2.60	2.16%	1,076
	5/8"	8	\$217.57	\$221.67	\$4.10	1.88%	1,527
	5/8"	14	\$373.89	\$388.29	\$14.40	3.85%	463
	5/8"	20	\$544.05	\$579.87	\$35.82	6.58%	69
C	5/8"	4	\$120.44	\$121.78	\$1.34	1.11%	1,076
	5/8"	8	\$217.57	\$219.32	\$1.75	0.80%	1,527
	5/8"	14	\$373.89	\$391.46	\$17.57	4.70%	463
	5/8"	20	\$544.05	\$586.67	\$42.62	7.83%	69

Distribution of Bill Change: Single-Family Customers Alternative B



Distribution of Bill Change: Single-Family Customers Alternative C

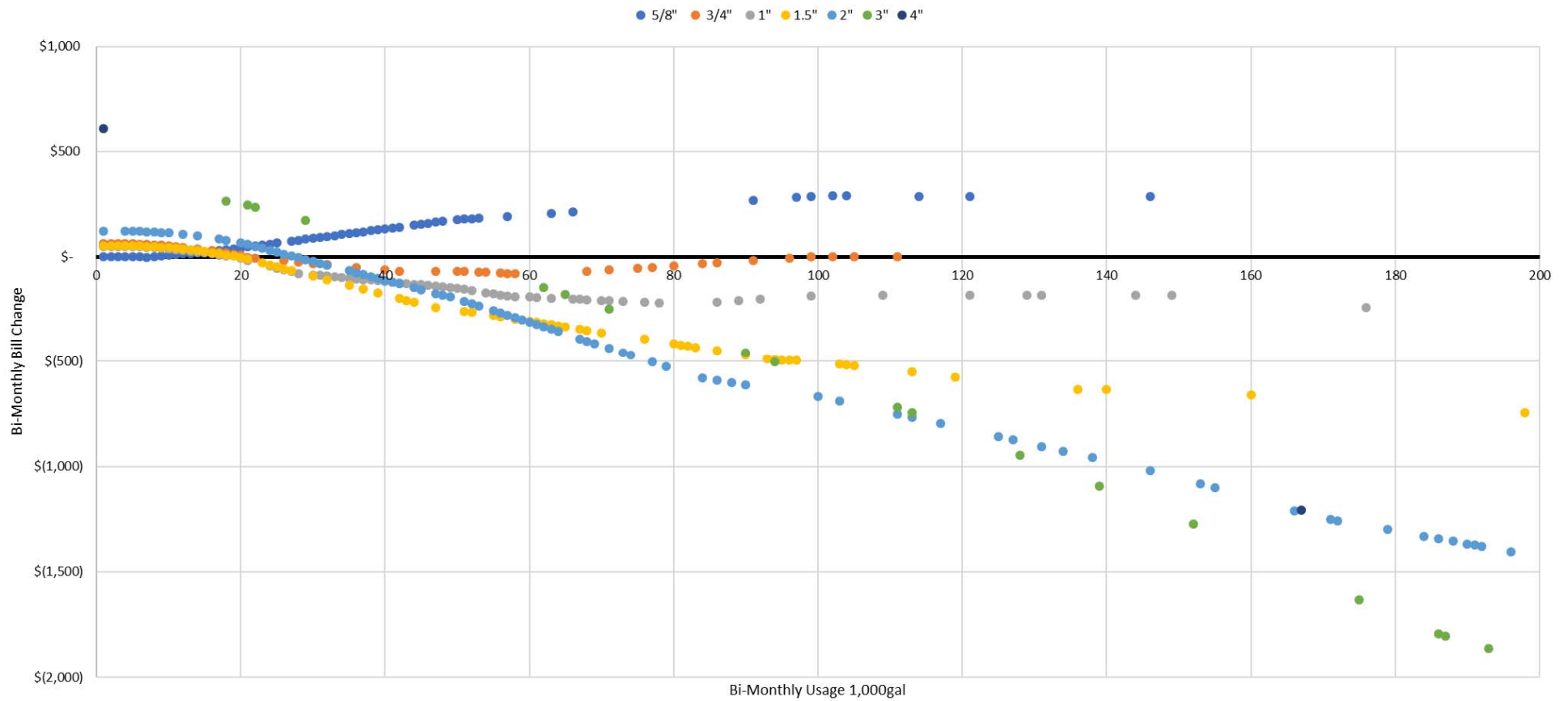


Representative Non-Single Family Customers

Alternative	Meter Size	Average Bi-Monthly Usage (kgal)	Current Bi-Monthly Bill	Alternative Bi-Monthly Bill	\$ Change in Bi- Monthly Bill	% Change in Bi- Monthly Bill
A	5/8"	11	\$294	\$301	\$7	2.4%
	1.5"	91	\$3,019	\$2,446	(\$616)	-21.3%
	2"	587	\$27,146	\$14,884	(\$12,367)	-45.9%
	3"	531	\$23,707	\$13,904	(\$10,076)	-43.3%
	4"	277	\$10,951	\$8,155	(\$2,796)	-25.5%
B	5/8"	11	\$294	\$305	\$11	3.8%
	1.5"	91	\$3,019	\$2,524	(\$495)	-16.4%
	2"	587	\$27,146	\$19,125	(\$8,021)	-29.5%
	3"	531	\$23,707	\$15,411	(\$8,296)	-35.0%
	4"	277	\$10,951	\$7,837	(\$3,114)	-28.4%
C	5/8"	11	\$294	\$305	\$12	3.9%
	1.5"	91	\$3,019	\$2,543	(\$475)	-15.7%
	2"	587	\$27,146	\$19,647	(\$7,498)	-27.6%
	3"	531	\$23,707	\$15,613	(\$8,094)	-34.1%
	4"	277	\$10,951	\$7,718	(\$3,233)	-29.5%

Distribution of Bill Change: Non-Single Family Customers Alternative C

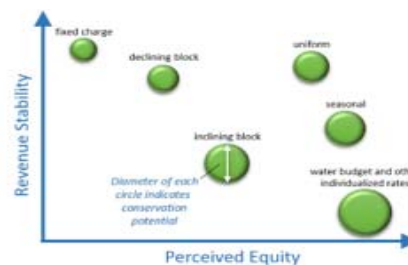
Bill Impacts



Key Recommendations

- Consider the adoption of Alternative C rate option, which:
 - Corrects an unsustainable rate structure
 - Balances customer impacts with cost of service findings and rate equity
 - Enhances the transparency and understandability of rates
 - Promotes conservation for all customers

Study Approach



Financial Plan

Defines how much total revenue is needed each year

Cost of Service

Defines proportional revenue recovery between customer classes

Rate Design

Structure of how revenues are recovered by class

Communication

Explains why

Financial Modeling Assumptions

Current Chargeback per Fund: \$493k

Rate Adjustments:

- 1% Increase in Water Rates = \$21,000 of additional revenue
- 1% Increase in Sewer Rates = \$32,000 of additional revenue

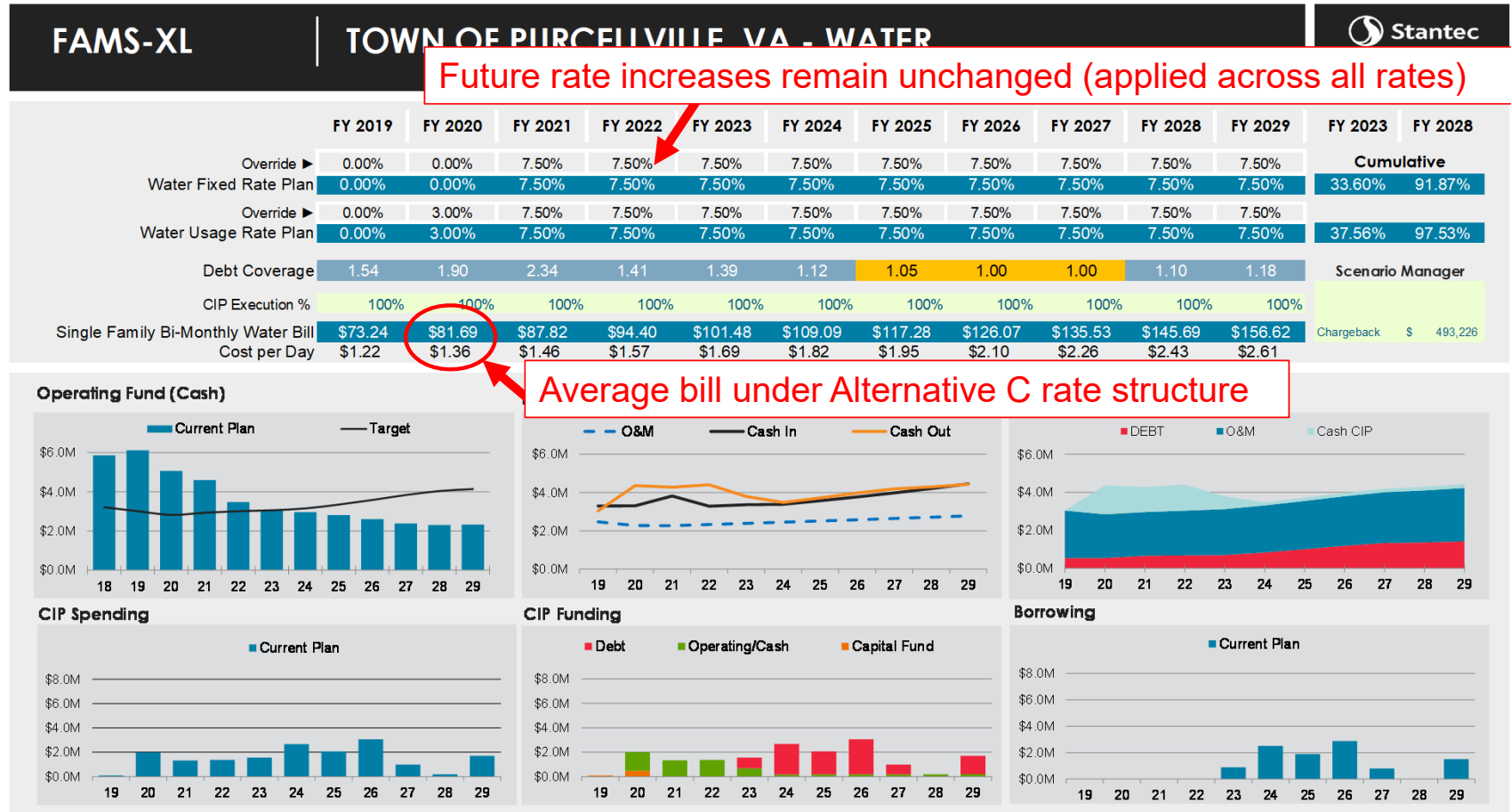
If Any Support from General Fund:

- 1% Increase in Meals Tax = \$430k
- 1 Cent Increase in Property Tax = \$141k

Water CIP was reduced per risk analysis presented by Public Works on 10/9/19

Bringing it all Together – Water Revenue Sufficiency Analysis

Summary

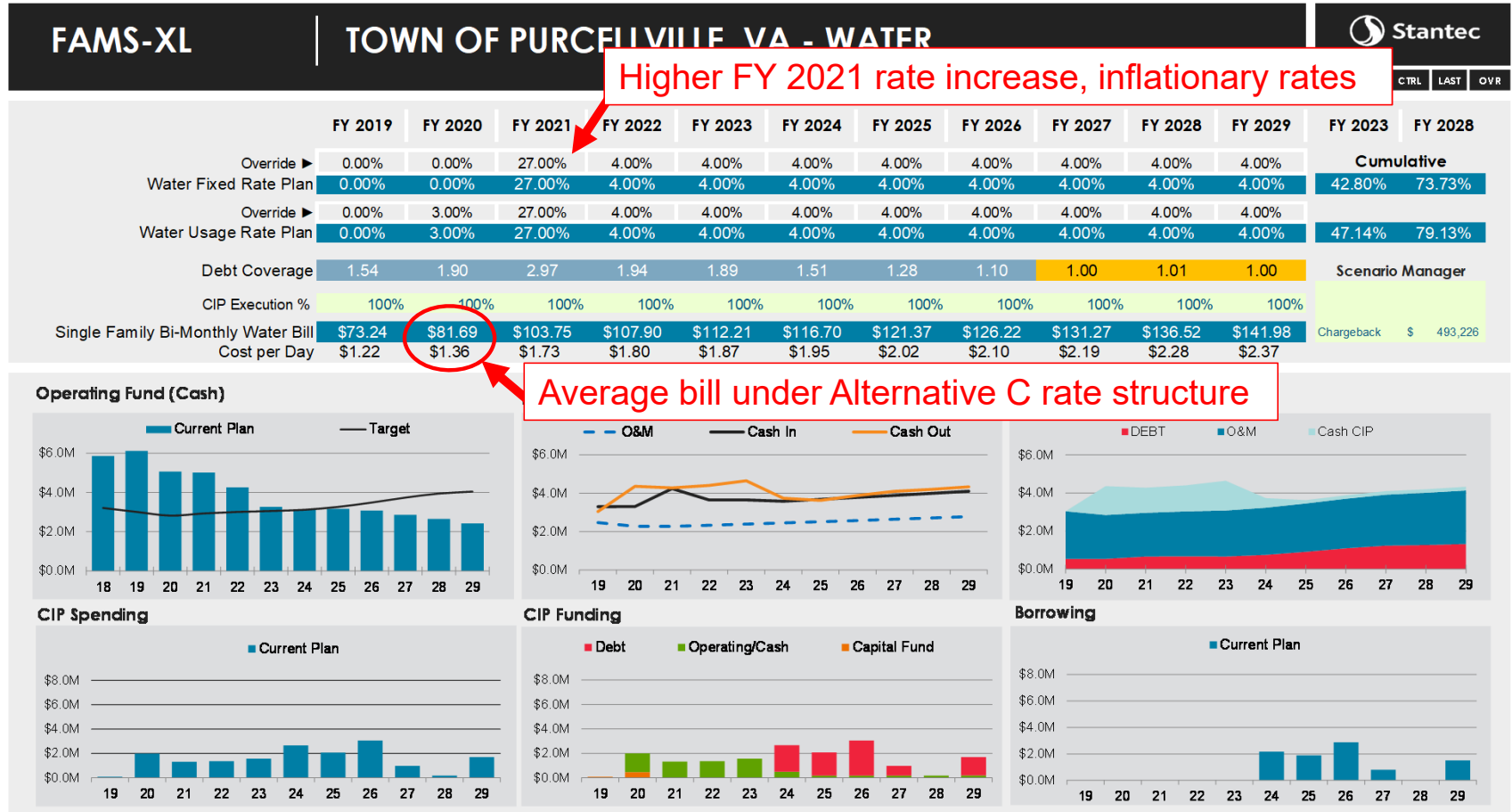


Assumptions:
Alternative C rate structure, Level Fixed and Usage increases beginning in FY21

Bringing it all Together – Water Revenue Sufficiency Analysis

Summary

Assumptions:
Alternative C rate structure, Higher FY 2021 rate increase, Level inflationary Fixed and Usage increases beginning in FY22



Bringing it all Together – Water Revenue Sufficiency Analysis

Summary

FAMS-XL

TOWN OF PURCELLVILLE VA - WATER



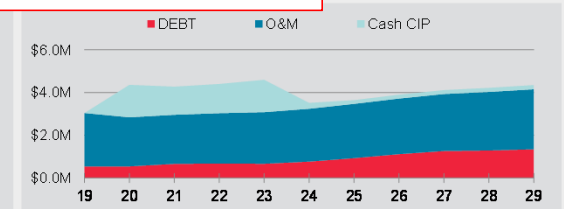
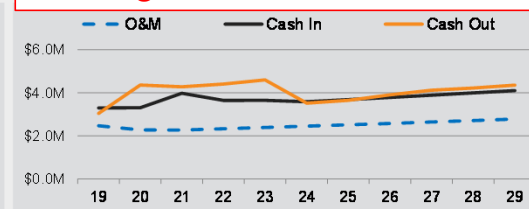
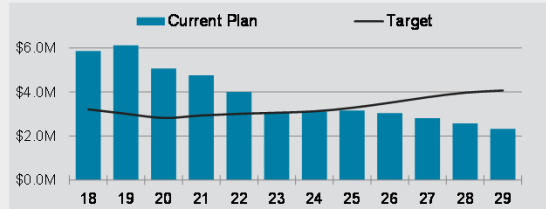
Higher FY 2021 and FY 2022 rate increase, inflationary rates

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2023	FY 2028
Override ►	0.00%	0.00%	15.00%	15.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	Cumulative	
Water Fixed Rate Plan	0.00%	0.00%	15.00%	15.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	43.07%	74.07%
Override ►	0.00%	3.00%	15.00%	15.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%		
Water Usage Rate Plan	0.00%	3.00%	15.00%	15.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	47.30%	79.29%
Debt Coverage	1.54	1.90	2.58	1.94	1.89	1.48	1.26	1.08	0.99	0.99	0.98	Scenario Manager	
CIP Execution %	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Single Family Bi-Monthly Water Bill	\$73.24	\$81.69	\$93.94	\$108.04	\$112.36	\$116.85	\$121.52	\$126.39	\$131.44	\$136.70	\$142.17	Chargeback	\$ 493,226
Cost per Day	\$1.22	\$1.36	\$1.57	\$1.80	\$1.87	\$1.95	\$2.03	\$2.11	\$2.19	\$2.28	\$2.37		

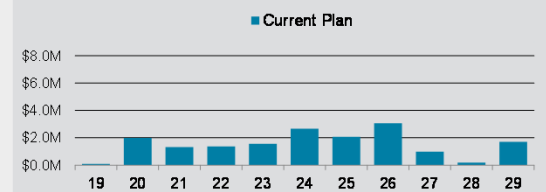
Assumptions:
Alternative C rate structure, Higher FY 2021 and 2022 rate increase, Level inflationary Fixed and Usage increases beginning in FY23

Average bill under Alternative C rate structure

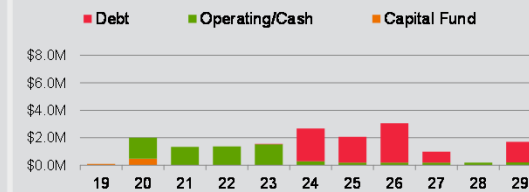
Operating Fund (Cash)



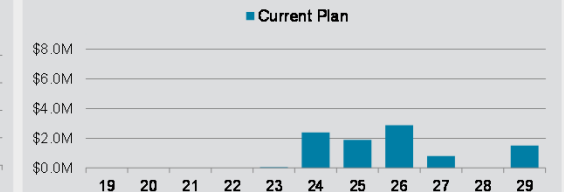
CIP Spending



CIP Funding



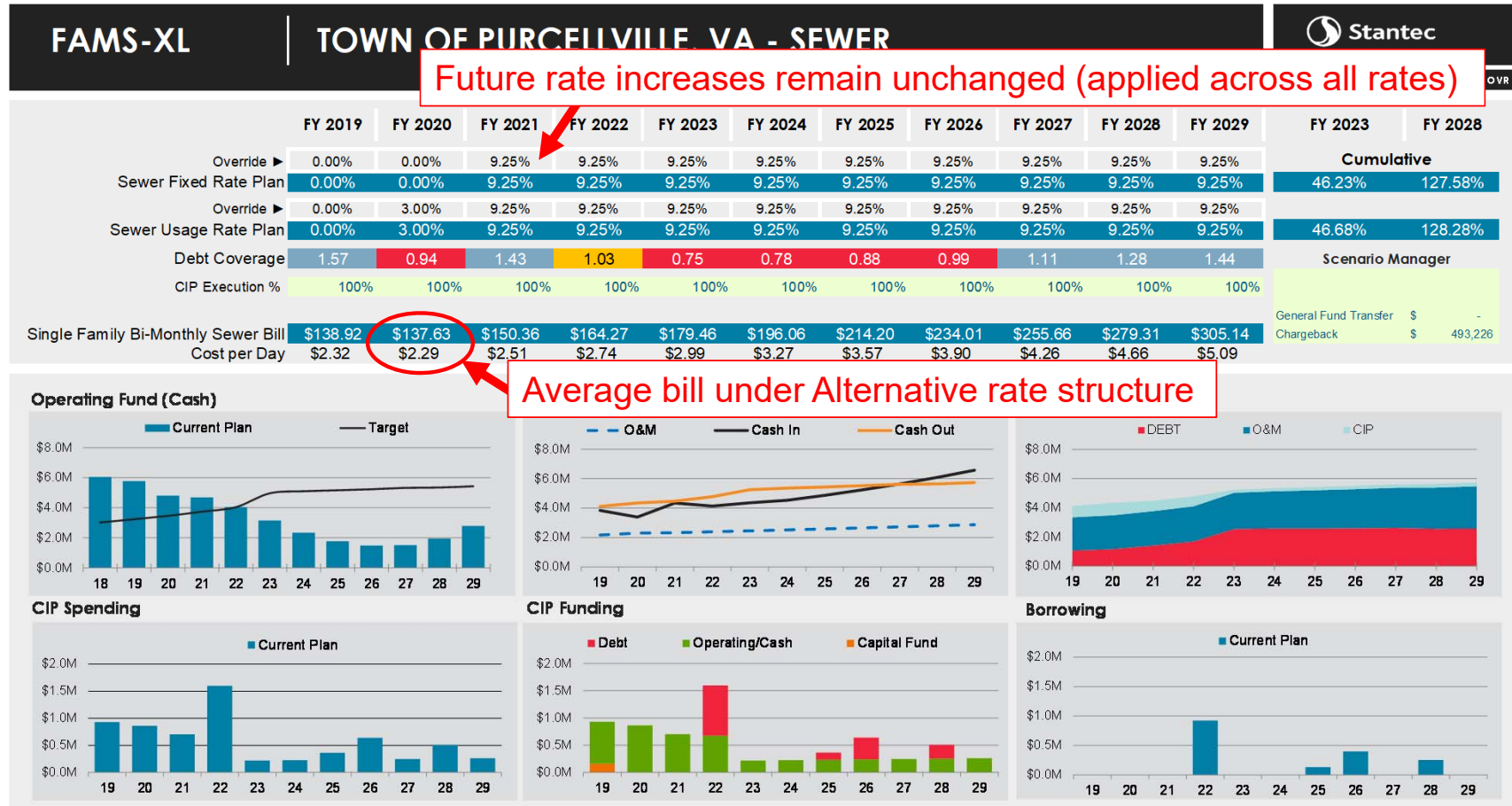
Borrowing



Bringing it all Together – Sewer Revenue Sufficiency Analysis

Summary

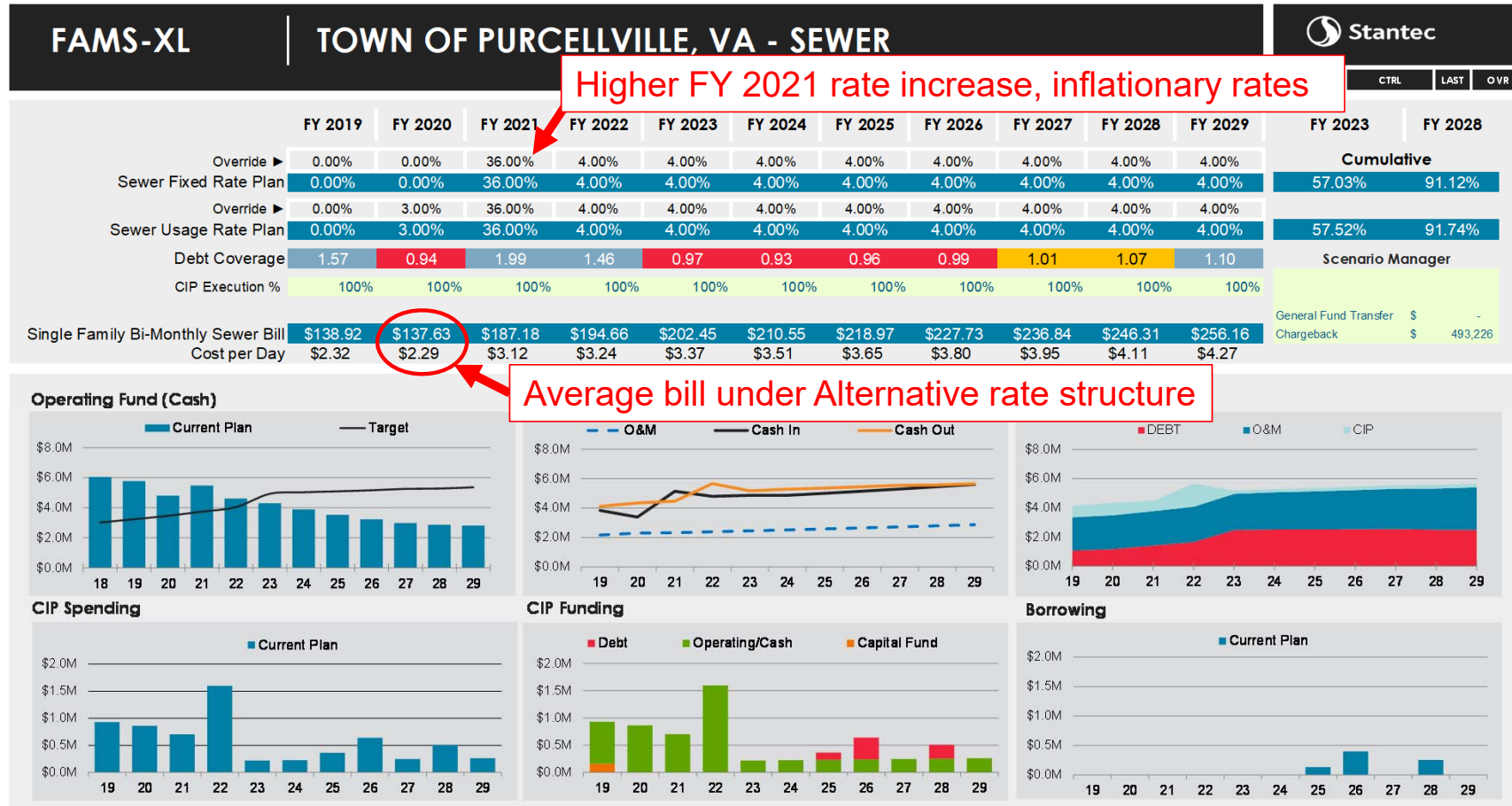
Assumptions: Alternative rate structure, Level Fixed and Usage Increases beginning in FY21



Bringing it all Together – Sewer Revenue Sufficiency Analysis

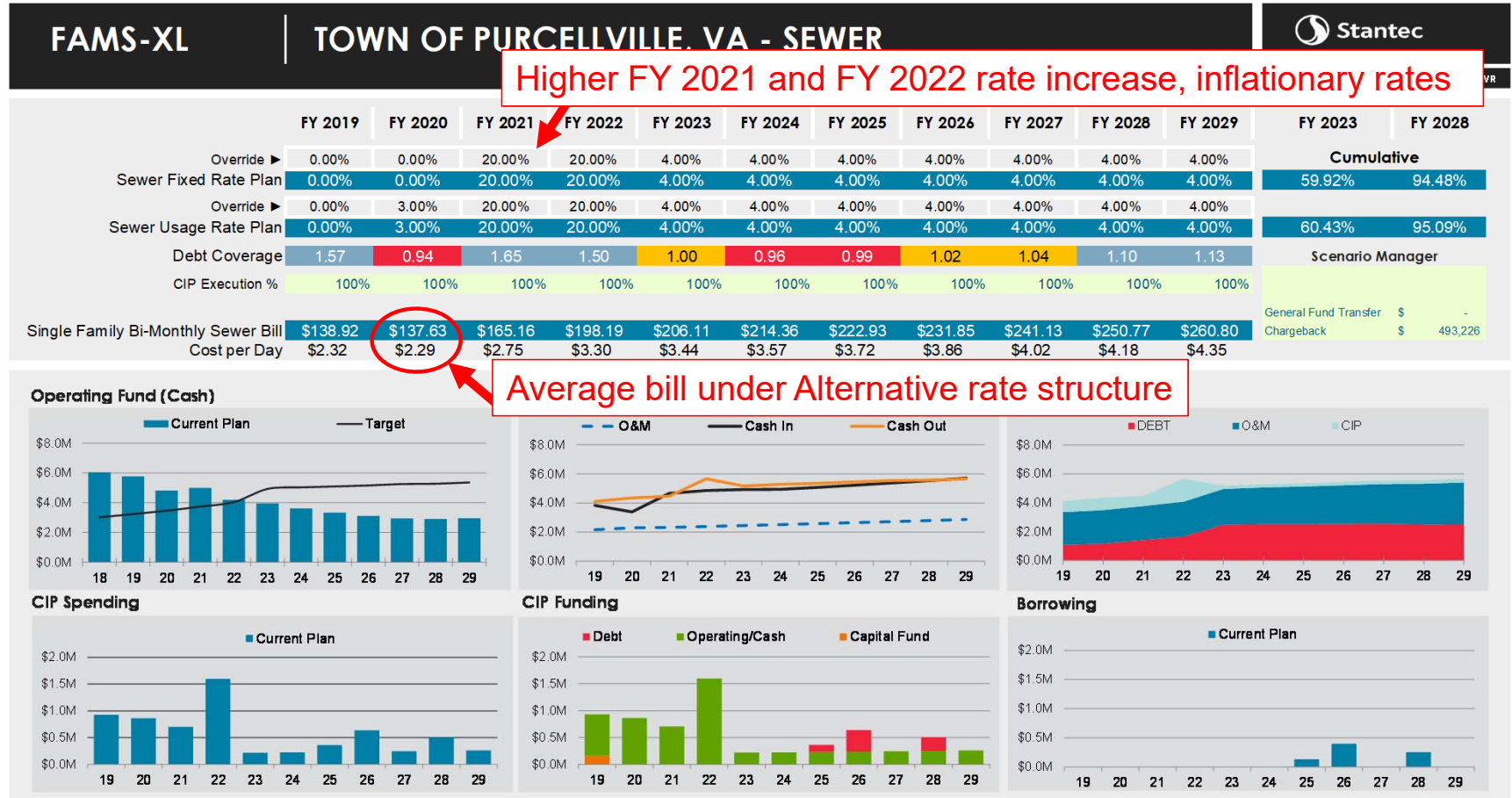
Summary

Assumptions:
Alternative rate structure, Higher FY 2021 rate increase, Level inflationary Fixed and Usage increases beginning in FY22



Bringing it all Together – Sewer Revenue Sufficiency Analysis

Summary



Assumptions:
Alternative rate structure, Higher FY 2021 and 2022 rate increase, Level inflationary Fixed and Usage increases beginning in FY23

Average Customer Bill Impact (8,000 gallons / bi-monthly period) Alternative C – Smooth Rate Plan

	FY 20	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Water	\$74.97	\$81.69	\$87.82	\$94.40	\$101.48	\$109.09	\$117.28
Sewer	\$142.60	\$137.63	\$150.36	\$164.27	\$179.46	\$196.06	\$214.20
Bi-Monthly Bill	\$217.57	\$219.32	\$238.18	\$258.67	\$280.95	\$305.16	\$331.48
Change / Day		\$0.03	\$0.31	\$0.34	\$0.37	\$0.40	\$0.44
Change / Month		\$0.88	\$9.43	\$10.25	\$11.14	\$12.11	\$13.16
Change %		0.80%	8.60%	8.60%	8.61%	8.62%	8.62%

Change due to Rate Structure Change



Average Customer Bill Impact (8,000 gallons / bi-monthly period) Alternative C – One-Year Rate Impact

	FY 20	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Water	\$74.97	\$81.69	\$103.75	\$107.90	\$112.21	\$116.70	\$121.37
Sewer	\$142.60	\$137.63	\$187.18	\$194.66	\$202.45	\$210.55	\$218.97
Total	\$217.57	\$219.32	\$290.92	\$302.56	\$314.66	\$327.25	\$340.34
Change / Day		\$0.03	\$1.19	\$0.19	\$0.20	\$0.21	\$0.22
Change / Month		\$0.88	\$35.80	\$5.82	\$6.05	\$6.29	\$6.54
Change %		0.80%	32.65%	4.00%	4.00%	4.00%	4.00%

Change due to Rate Structure Change



Average Customer Bill Impact (8,000 gallons / bi-monthly period) Alternative C – Two-Year Rate Impact

	FY 20	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Water	\$74.97	\$81.69	\$93.94	\$108.04	\$112.36	\$116.85	\$121.52
Sewer	\$142.60	\$137.63	\$165.16	\$198.19	\$206.11	\$214.36	\$222.93
Total	\$217.57	\$219.32	\$259.10	\$306.22	\$318.47	\$331.21	\$344.46
Change / Day		\$0.03	\$0.66	\$0.79	\$0.20	\$0.21	\$0.22
Change / Month		\$0.88	\$19.89	\$23.56	\$6.13	\$6.37	\$6.63
Change %		0.80%	18.14%	18.19%	4.00%	4.00%	4.00%

Change due to Rate Structure Change

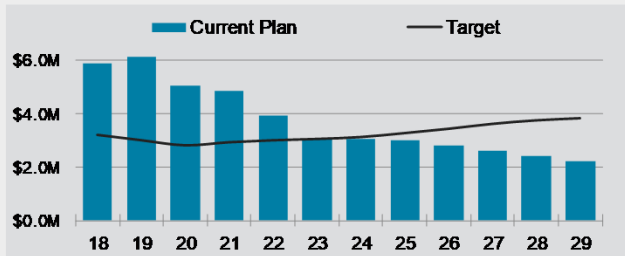


USDA Funding

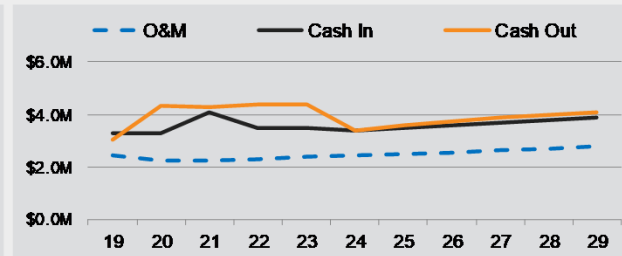
7% Lower rate increase due to use of USDA 40-year debt

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2023	FY 2028
Override ▶	0.00%	0.00%	20.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	Cumulative	
Water Fixed Rate Plan	0.00%	0.00%	20.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	35.00%	64.27%
Override ▶	0.00%	3.00%	20.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%		
Water Usage Rate Plan	0.00%	3.00%	20.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	38.95%	68.93%
Debt Coverage	1.54	1.90	2.75	1.71	1.63	1.27	1.16	1.05	1.01	1.03	1.02	Scenario Manager	
CIP Execution %	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Single Family Bi-Monthly Water Bill	\$73.24	\$81.69	\$98.03	\$101.95	\$106.03	\$110.27	\$114.68	\$119.27	\$124.04	\$129.00	\$134.16	Chargeback	\$ 493,226
Cost per Day	\$1.22	\$1.36	\$1.63	\$1.70	\$1.77	\$1.84	\$1.91	\$1.99	\$2.07	\$2.15	\$2.24		

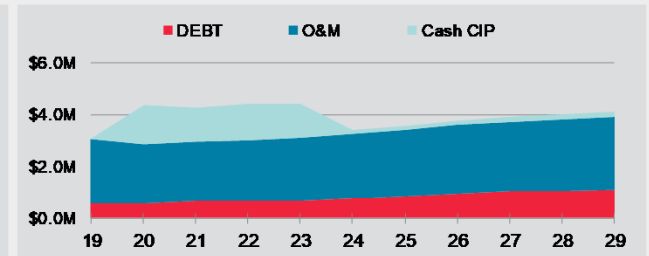
Operating Fund (Cash)



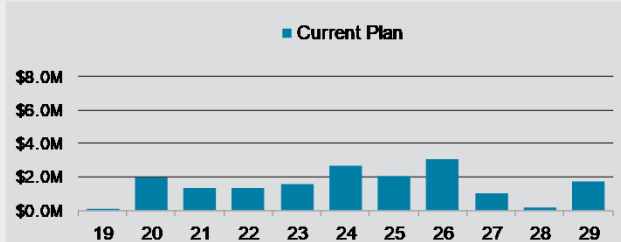
Revenues vs. Expenses



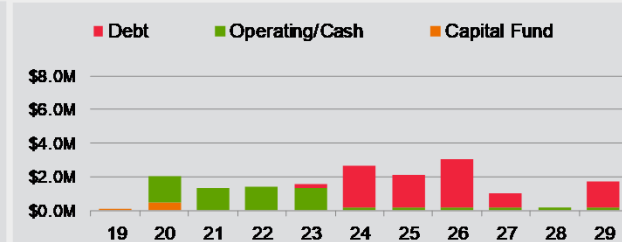
Expenses by Type



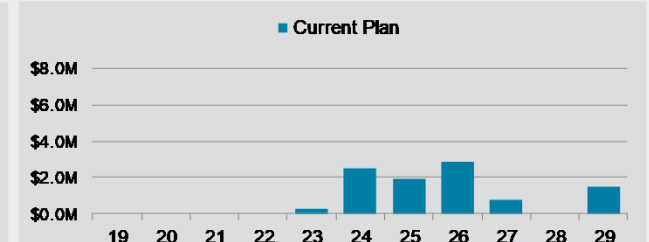
CIP Spending



CIP Funding



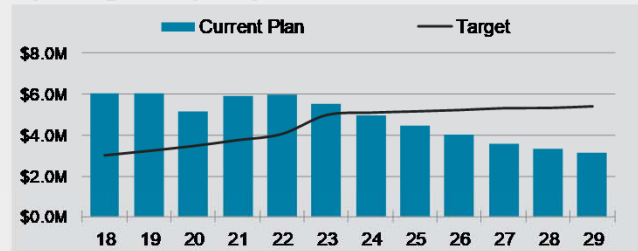
Borrowing



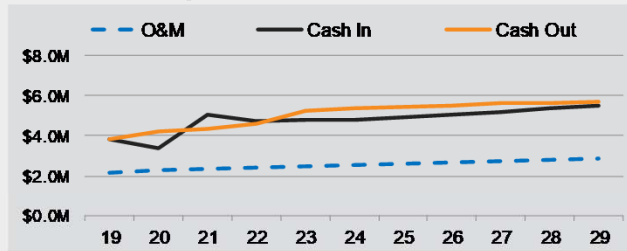
3% Lower rate increase due to use of USDA 40-year debt

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2023	FY 2028
Override ▶	0.00%	0.00%	33.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	Cumulative	
Sewer Fixed Rate Plan	0.00%	0.00%	33.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	53.56%	86.77%
Override ▶	0.00%	3.00%	33.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%		
Sewer Usage Rate Plan	0.00%	3.00%	33.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	54.03%	87.35%
Debt Coverage	1.56	0.93	1.90	1.36	0.92	0.88	0.90	0.93	0.95	1.00	1.03	Scenario Manager	
CIP Execution %	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
Single Family Bi-Monthly Sewer Bill	\$138.92	\$137.63	\$183.05	\$190.37	\$197.98	\$205.90	\$214.14	\$222.71	\$231.61	\$240.88	\$250.51		
Cost per Day	\$2.32	\$2.29	\$3.05	\$3.17	\$3.30	\$3.43	\$3.57	\$3.71	\$3.86	\$4.01	\$4.18		
												General Fund Transfer	\$ -
												Chargeback	\$ 493,226

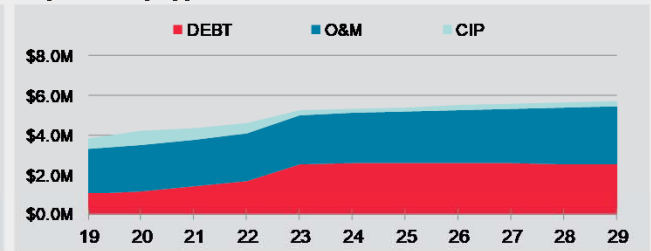
Operating Fund (Cash)



Revenues vs. Expenses



Expenses by Type



CIP Spending



CIP Funding



Borrowing



Average Customer Bill Impact (8,000 gallons / bi-monthly period) Alternative C – One-Year Rate Impact – with 40 Year Water Debt

	FY 20	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
Water	\$74.97	\$81.69	\$98.03	\$101.95	\$106.03	\$110.27	\$114.68
Sewer	\$142.60	\$137.63	\$183.05	\$190.37	\$197.98	\$205.90	\$214.14
Total	\$217.57	\$219.32	281.08	288.40	296.01	303.93	312.17
Change / Day		\$0.03	\$1.03	\$0.19	\$0.19	\$0.20	\$0.21
Change / Month		\$0.88	\$30.88	\$5.62	\$5.85	\$6.08	\$6.32
Change %		0.80%	28.20%	4.00%	4.00%	4.00%	4.00%

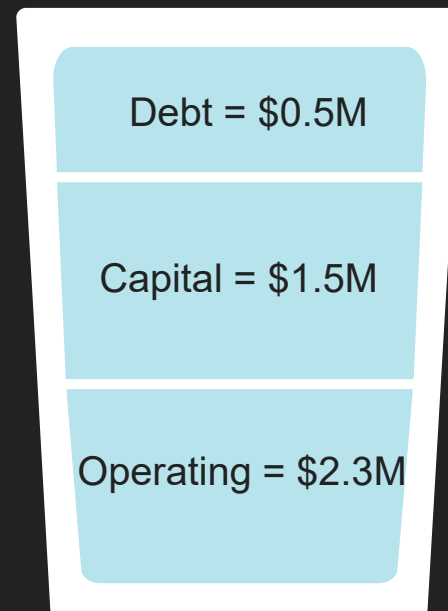
Change due to Rate Structure Change



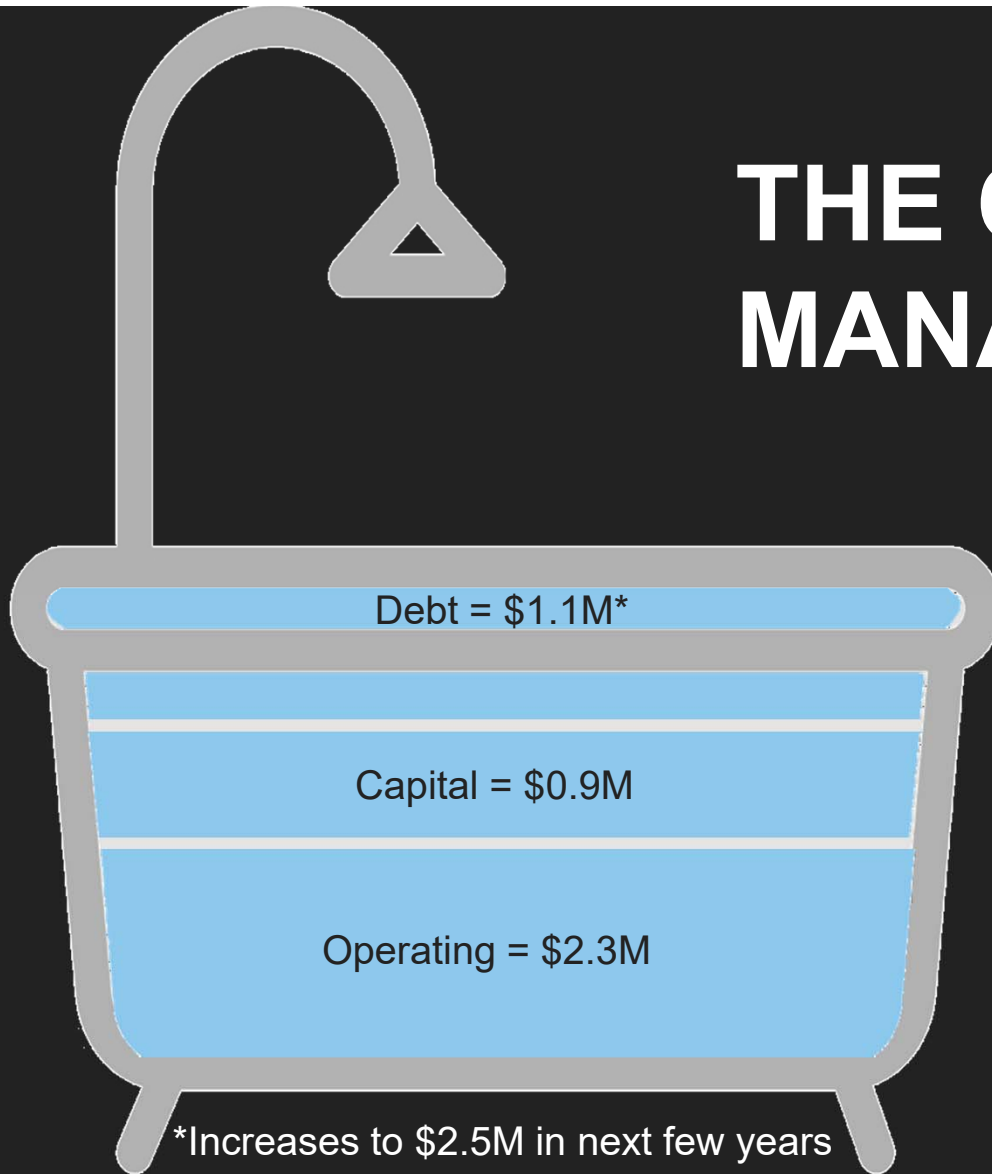
Public Engagement Examples

THE COST TO PROVIDE WATER

Total Water Costs = \$4.3M
Current Water Revenue = \$2.2M
Current Funding Gap = \$1.9M



THE COST TO MANAGE SEWER



<i>Total Sewer Costs</i>	<i>= \$4.3M</i>
<i>Current Sewer Revenue</i>	<i>= \$3.0M</i>
Current Funding Gap	= \$1.3M

\$8.00 for 1,000 gallons or.....



58 showers



40 minutes of
watering with a
hose



285 toilet flushes



33 loads of laundry



16,000 cups of water

Appendix

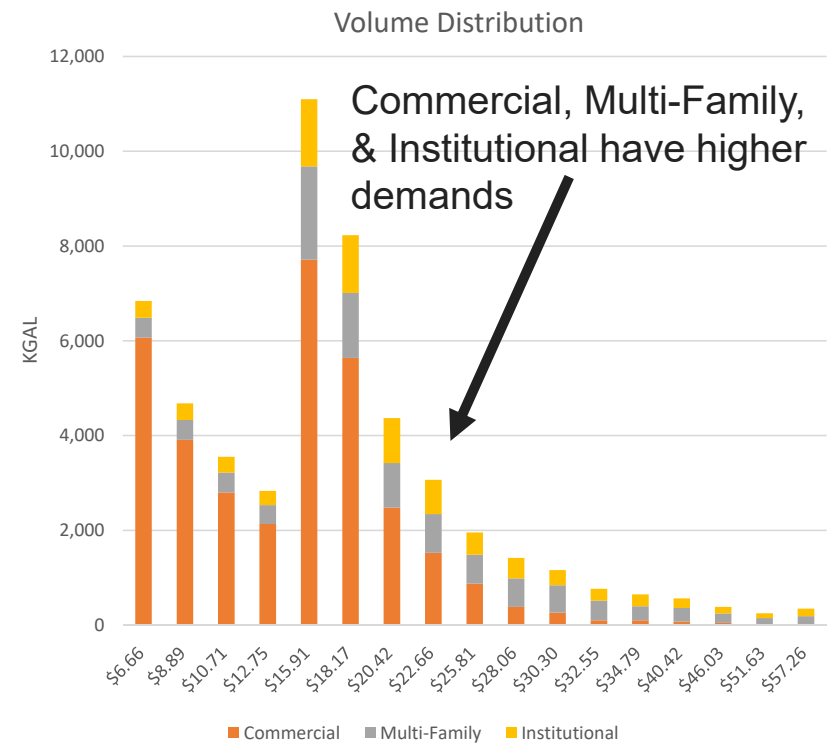
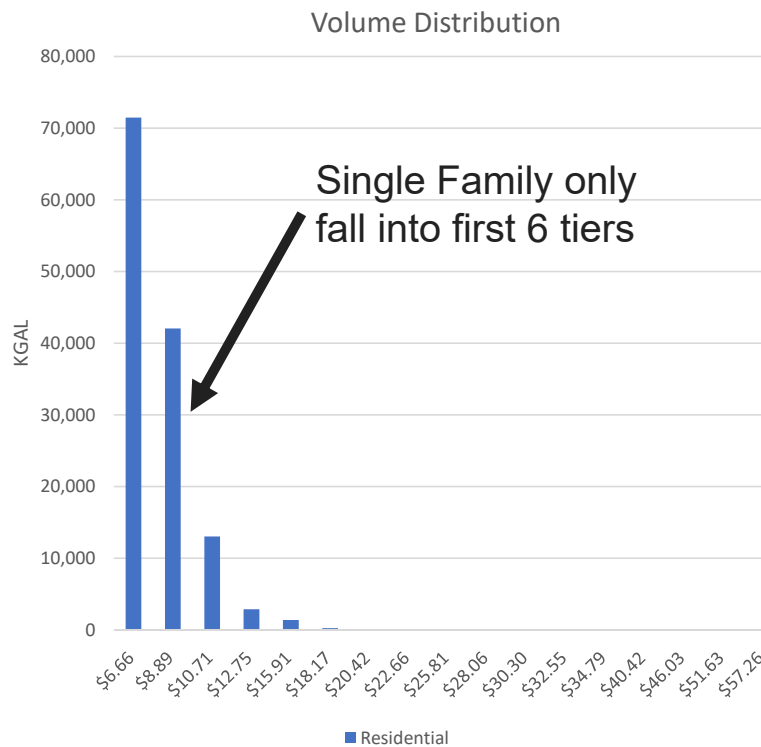
Objectives of Cost of Service Analysis

- The total cost of service is the annual revenue requirement of the utility, which is recovered from the utility's customers.
- The utility system is made up of different functions, which drive costs.
- Different customer types use the system functions differently and, as a result, the cost to serve these customer types vary.

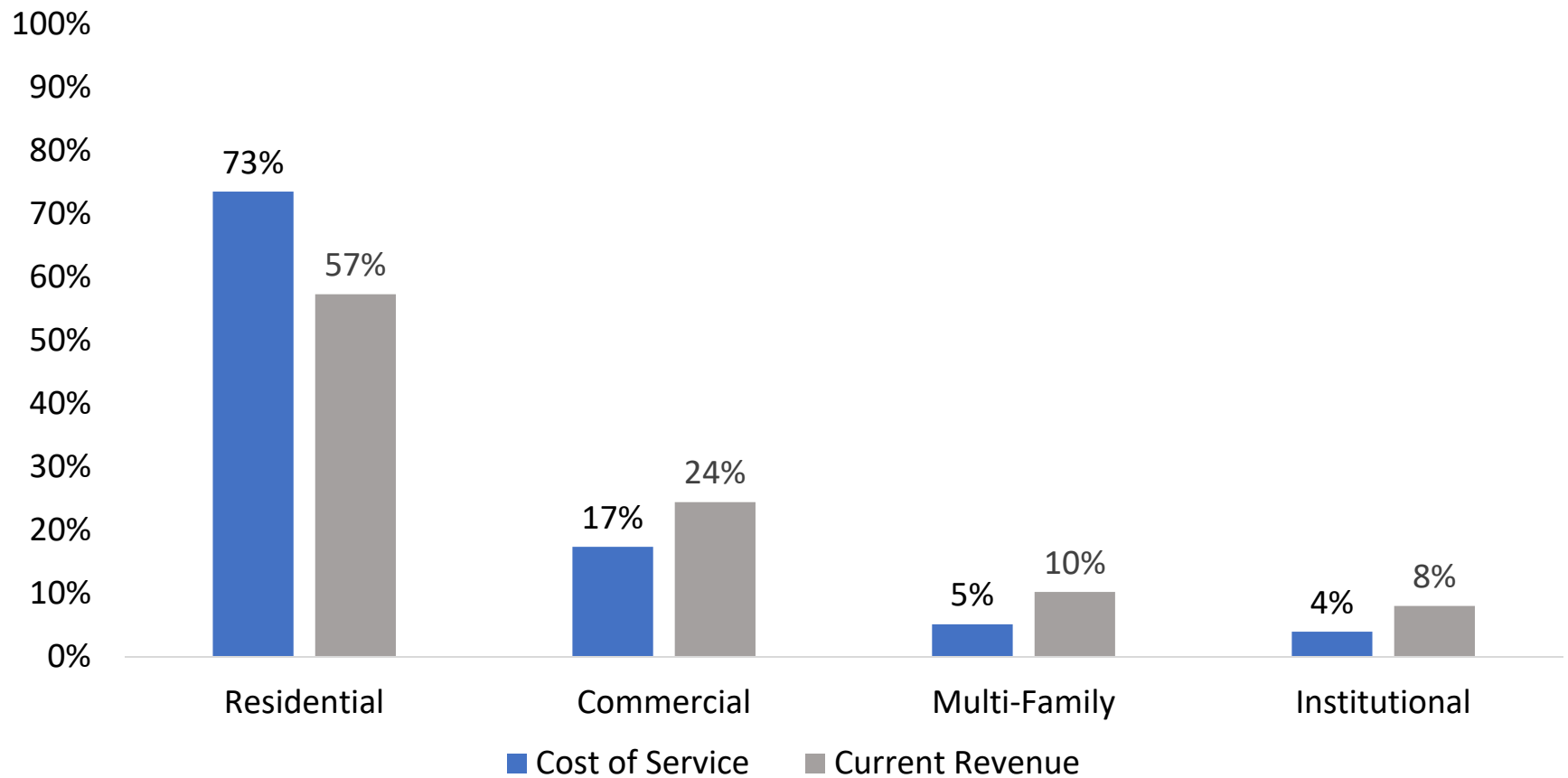
Goal: Use customer and system data to determine the **cost to serve** each class and collect revenue from each class according to the resulting cost allocation.

Current Water Rate Structure Impacts

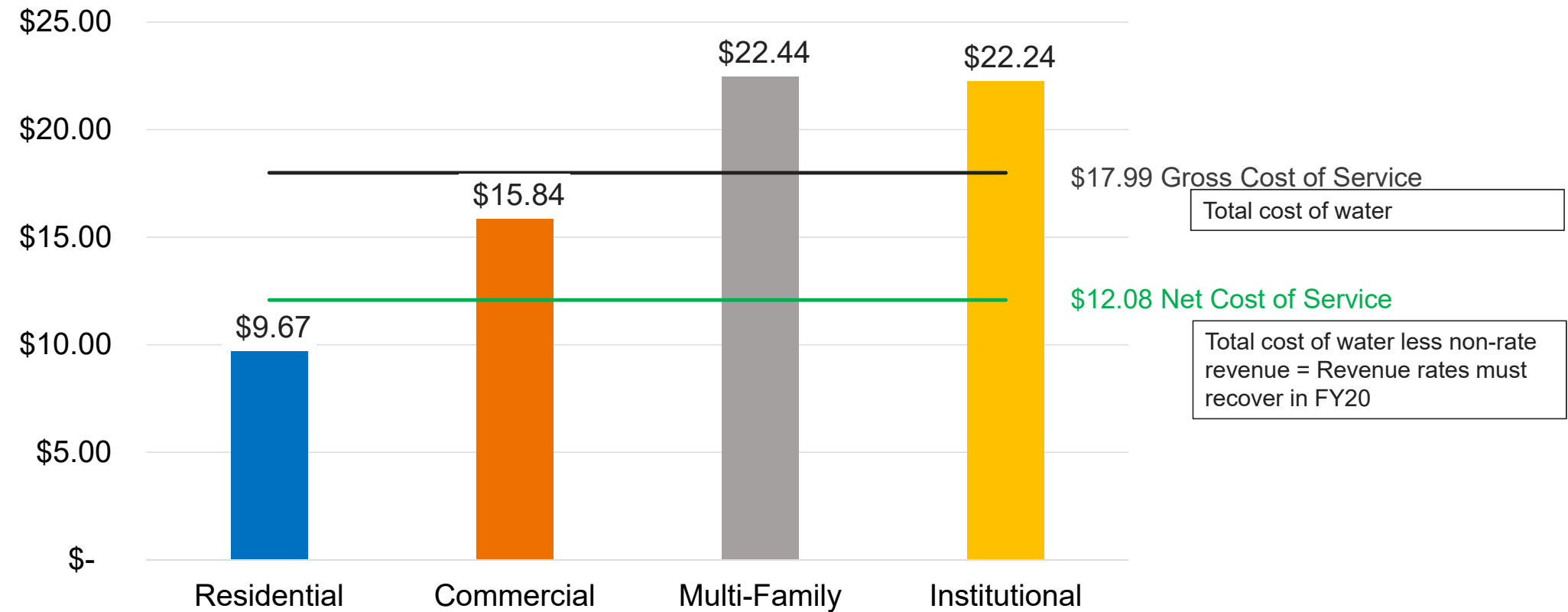
Usage Tier (kgal)	Water Rate (per kgal)
0 to 5	\$6.66
5 – 10	\$8.89
10 – 15	\$10.71
15 – 20	\$12.75
20 – 50	\$15.91
50 – 100	\$18.17
100 – 150	\$20.42
150 – 200	\$22.66
200 – 250	\$25.81
250 – 300	\$28.06
300 – 350	\$30.30
350 – 400	\$32.55
400 – 450	\$34.79
450 – 500	\$40.42
500 – 550	\$46.03
550 – 600	\$51.63
Over 600	\$57.26



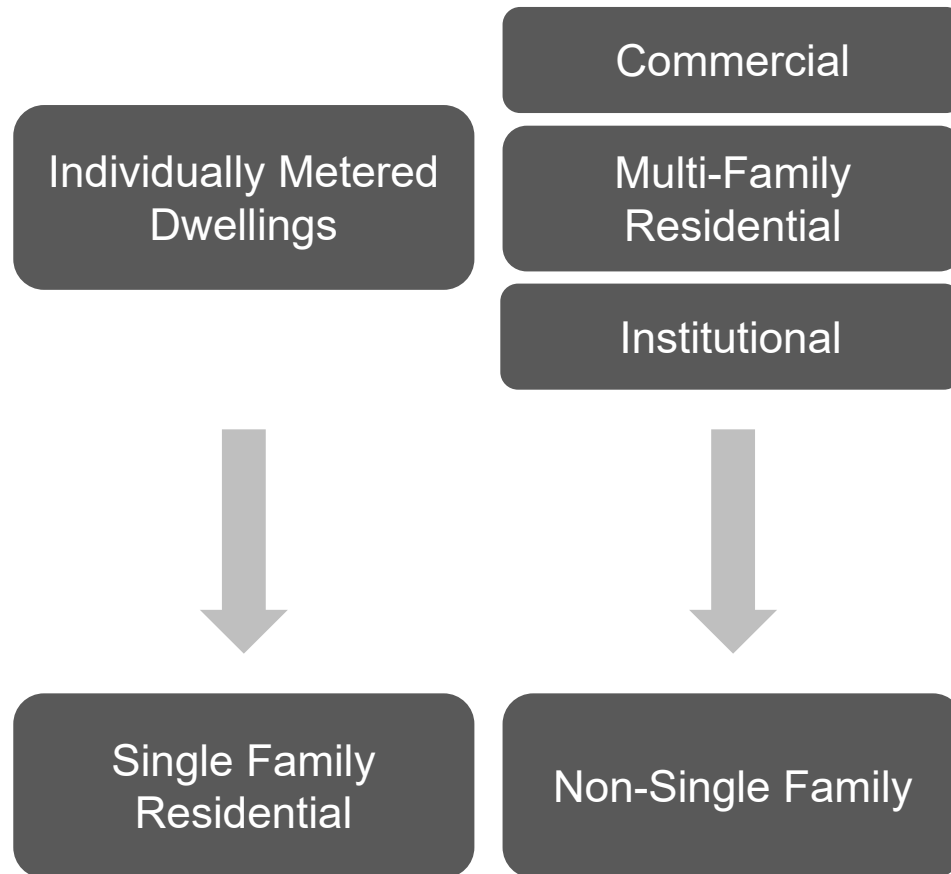
Cost of Service To Current Revenue



Water Unit Cost Comparison per 1,000 gallons



Recommended Customer Classes



Bi-Monthly Single Family Tier Sizing: Tier 1



Tier 1 = 7,000 gallons

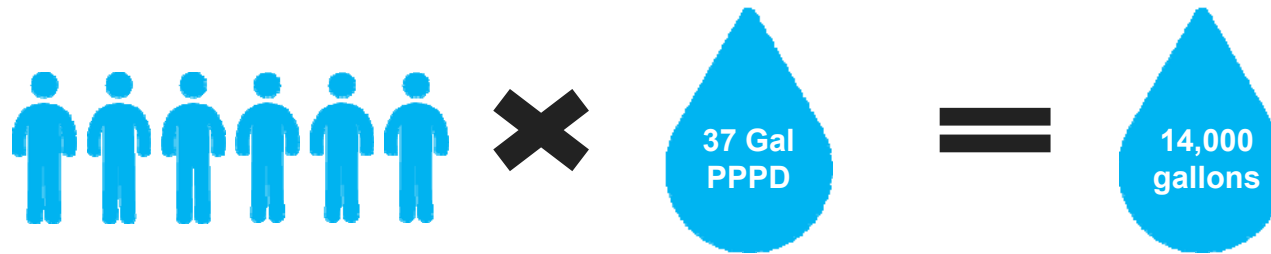
Bi-Monthly Tiers

Tier 1



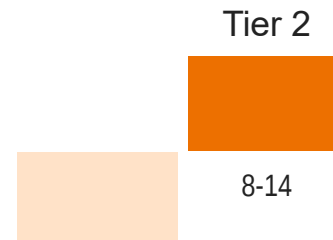
0-7

Bi-Monthly Single Family Tier Sizing: Tier 2

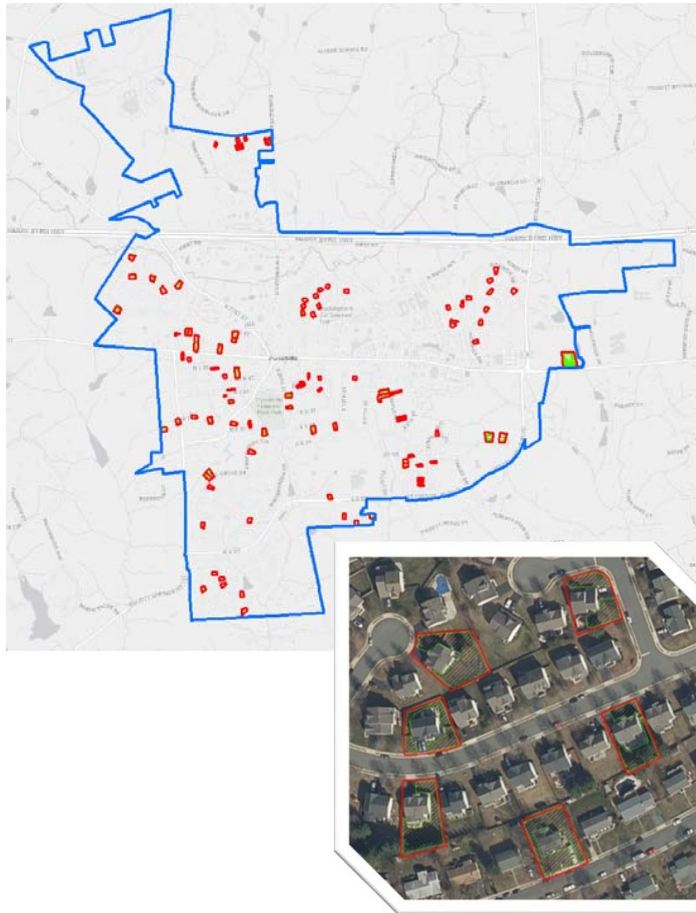


Tier 2 = Additional 7,000 gallons

Bi-Monthly Tiers



Distribution of Single Family Lot Sizes



101 Properties
Sampled

Average Size:
13,988 Sq. Ft.

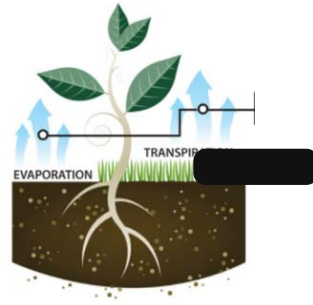
Average Irrigation:
6,495 Sq. Ft.

Parcel Irrigated: 46%

Outdoor Use: Calculating Irrigation Requirements for the Average Parcel



Parcel Size: 14,000
Landscape Area: 6,500



Evapotranspiration:
23.4 Inches



Beneficial Rainfall:
14 Inches



Irrigation System
Efficiency: 70%

Irrigation Requirement = 6,000 gallons

Bi-Monthly Single Family Tier Sizing: Tier 3



Parcel Size: 14,000
Landscape Area: 6,500

=

Bi-Monthly Tiers



Tier 3 = Additional 6,000 gallons

Current and Alternative A Volumetric Rates

Current Water Rates All Customers

Usage Tier (kgal)	Water Rate (per kgal)
0 – 5	\$6.66
5 – 10	\$8.89
10 – 15	\$10.71
15 – 20	\$12.75
20 – 50	\$15.91
50 – 100	\$18.17
100 – 150	\$20.42
150 – 200	\$22.66
200 – 250	\$25.81
250 – 300	\$28.06
300 – 350	\$30.30
350 – 400	\$32.55
400 – 450	\$34.79
450 – 500	\$40.42
500 – 550	\$46.03
550 – 600	\$51.63
Over 600	\$57.26

Alt. A Water Rates Single Family

Usage Tier (kgal)	Water Rate (per kgal)
0 – 7	\$9.20
8 – 14	\$13.81
15 – 20	\$18.41
Over 20	\$23.01

Alt. A Water Rates Non-Single Family

Usage Tier (kgal)	Water Rate (per kgal)
All Usage	\$9.47

Current Sewer Rates All Customers

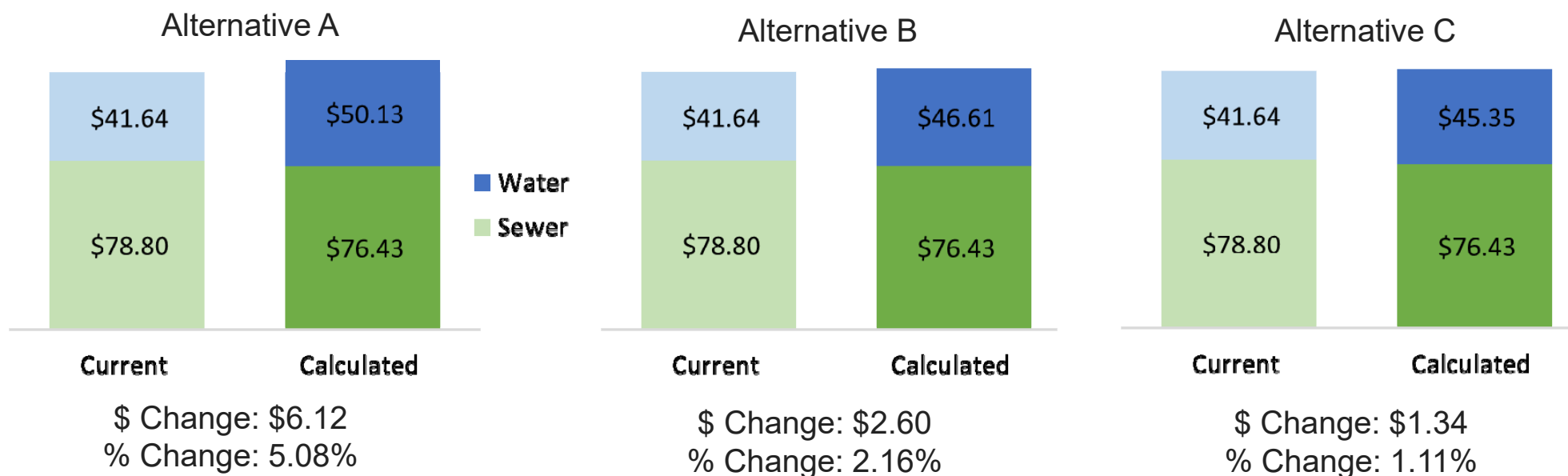
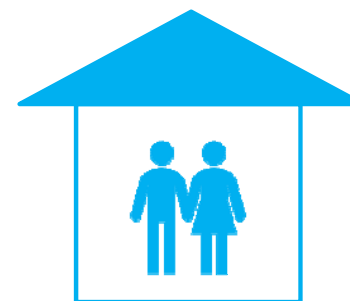
Usage Tier (kgal)	Sewer Rate (per kgal)
All Usage	\$15.95

Calculated Sewer Rates All Customers

Usage Tier (kgal)	Sewer Rate (per kgal)
All Usage	\$15.30

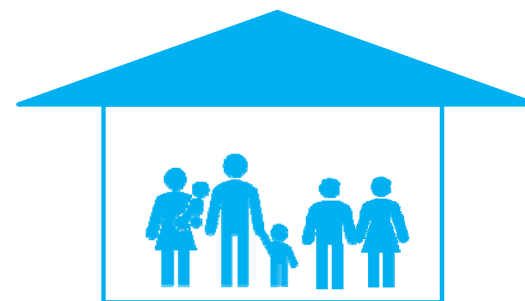
Bill Impacts: Single Family Customers

Customer with water and sewer service
Two-person household (**Small User**)
4,000 gallon bi-monthly (19th percentile)

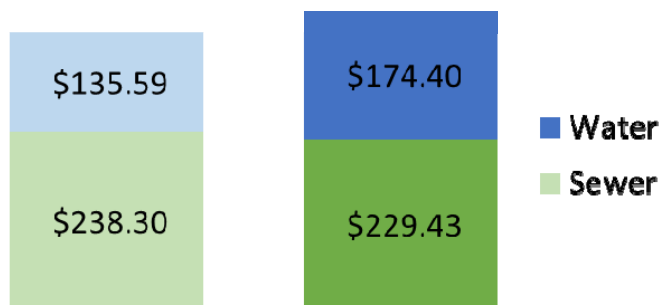


Bill Impacts: Single Family Customers

Customer with water and sewer service
Large household with indoor only use
 14,000 gallon bi-monthly (92nd percentile)

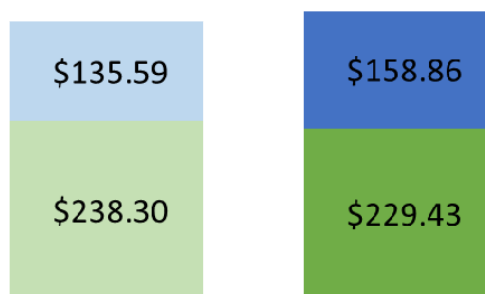


Alternative A



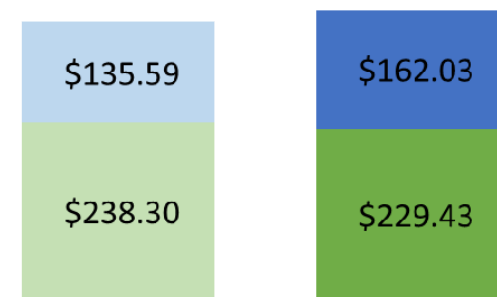
Current
Calculated
 \$ Change: \$29.94
 % Change: 8.01%

Alternative B



Current
Calculated
 \$ Change: \$14.40
 % Change: 3.85%

Alternative C

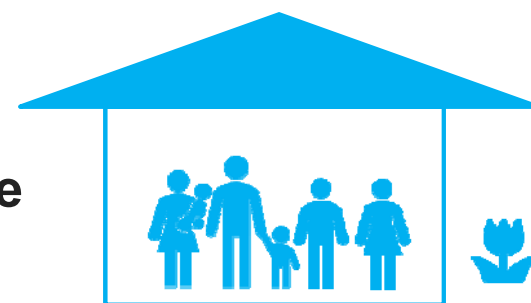


Current
Calculated
 \$ Change: \$17.57
 % Change: 4.70%

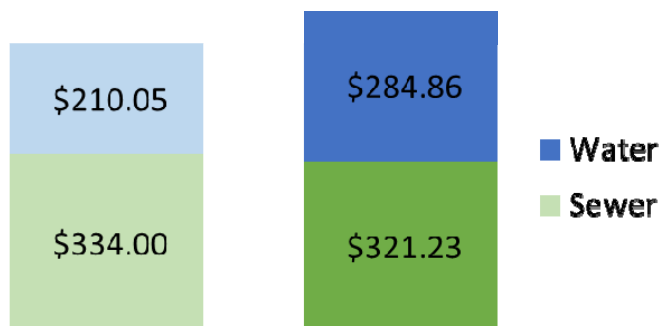
Bill Impacts: Single Family Customers

Customer with water and sewer service

Large household with indoor and outdoor water use
20,000 gallon bi-monthly (99th percentile)

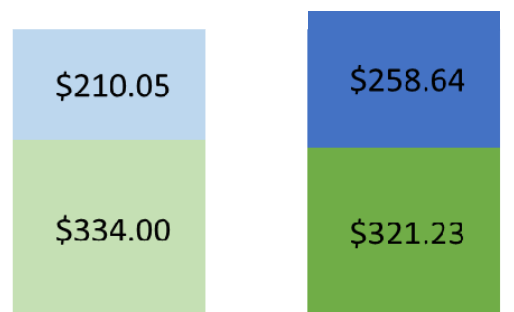


Alternative A



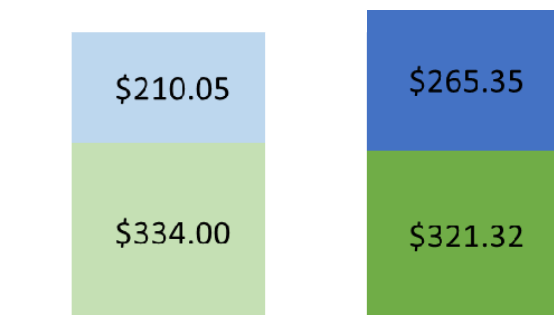
Current
\$ Change: \$62.04
% Change: 11.4%

Alternative B



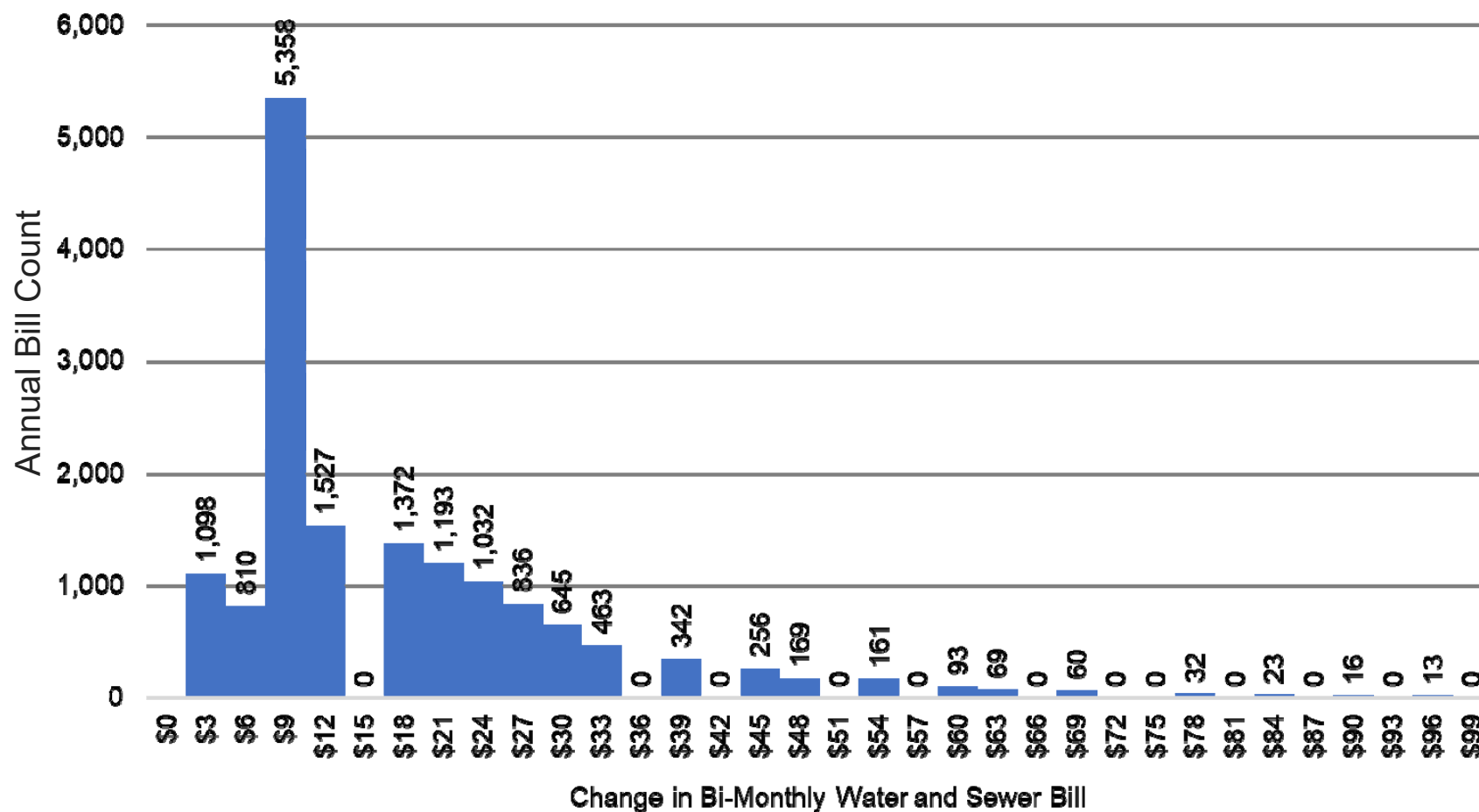
Current
\$ Change: \$35.82
% Change: 6.58%

Alternative C



Current
\$ Change: \$42.62
% Change: 7.83%

Distribution of Bill Change: Single-Family Customers Alternative A



Distribution of Bill Change: Non-Single Family Customers Alternative A

