

# Water Rate Study Recommendations

---

**City of Columbia, MO**

**May 5, 2025**

# A Rate Study is a Series of Connected Investigations

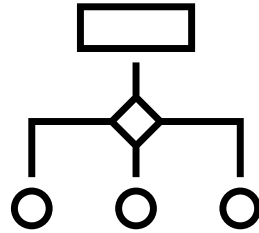
**How  
Much?**



## Revenue Sufficiency

- Maintain policies & targets
- Fund system investment needs
- Achieve sustainable funding of operations

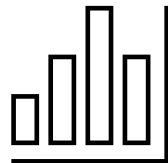
**From  
Whom?**



## Defensible Allocation Methods

- Utilize industry accepted approaches
- Maintain inter and intra class proportionality
- Define correct and appropriate units of service


**How to  
Collect?**



## Simple & Sustainable Rates

- Collect revenue proportional to services provided
- Balance affordability and financial objectives
- Accomplish revenue stability

# Water Rate Study Overview




**Financial Plan**

February



**Cost of Service**

February




**Rate Design**

March



**Miscellaneous Fees**

March



**Provide Recommendations**

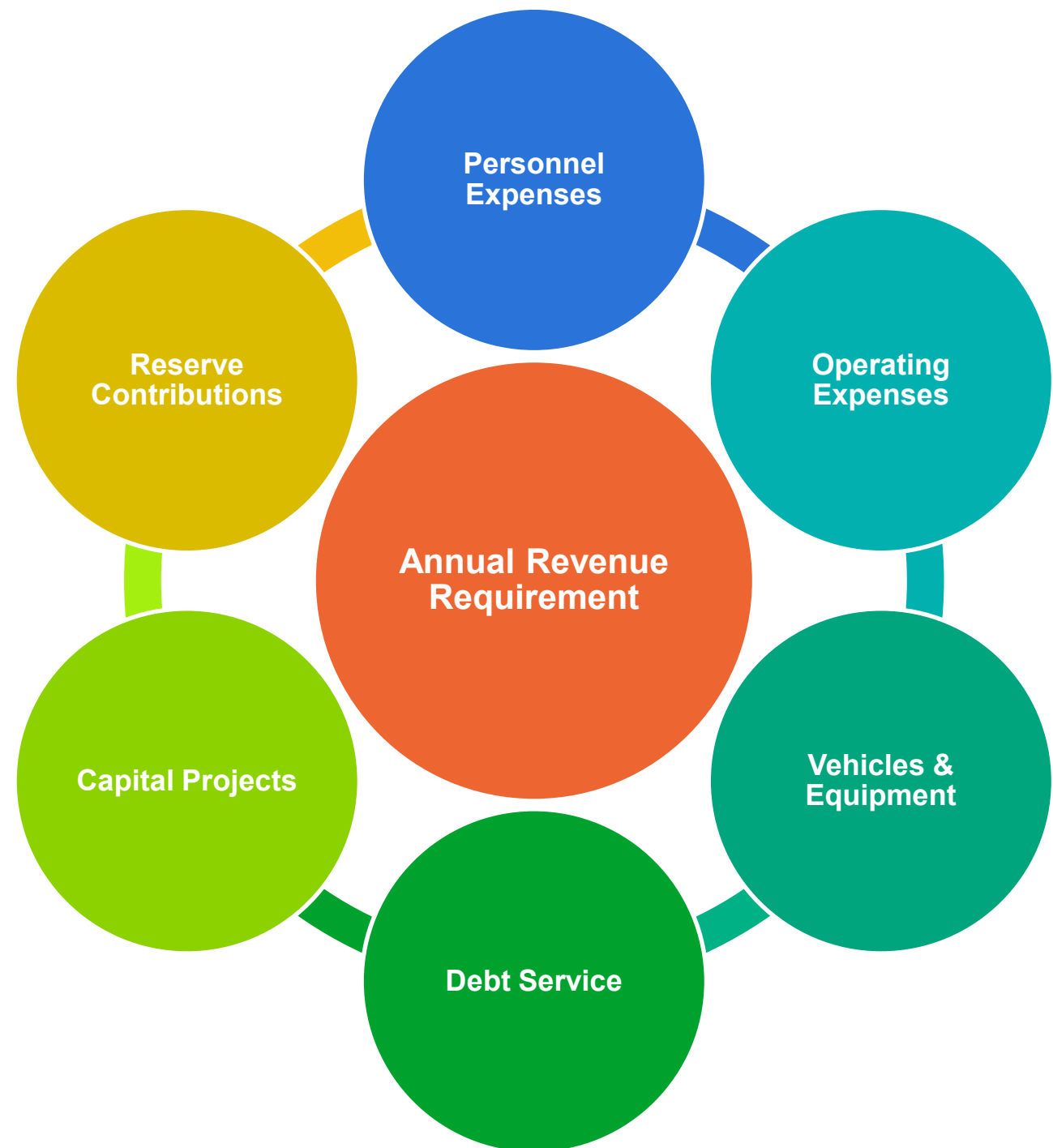
April/May



**1**

# **Financial Plan**

# Typical Components of Utility Revenue Requirements



# Starting Water System Revenue Requirements

## Personnel and Operating Expenses

Source: FY25 Budget  
(budget execution factors applied)

\$21.7M

## Capital Projects, Vehicles, and Repair & Replacement

Source: Conservative CIP Master

\$3.3M

## Debt Service

Source: 2014A, 2015A, 2019A, 2019B, 2023A

\$6.7M

## Transfers

Source: PILOT, 2016 SO Bonds,  
General fund, Parks & Recreation

\$4.3M

**FY 25**

**\$36.0M**

WATER RATE STUDY RECOMMENDATIONS

1: Total may be off due to rounding

# Key Assumptions

- Audited FY 2024 ending balances
- FY 2025 Adopted Budget
- Forecasting reflects status quo operations and capital investments
  - Excludes the purchase of AMI Meters
  - Minimum capital investment needs are met
  - No new personnel positions forecasted
  - Next debt referendum in FY 2030 (\$51M)

# 10-Year Financial Plan – Diagnostic



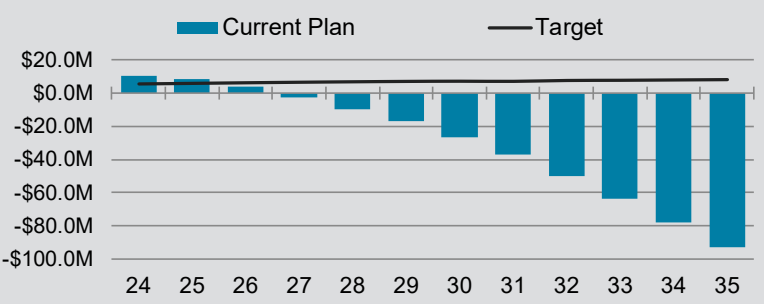
COLUMBIA, MO



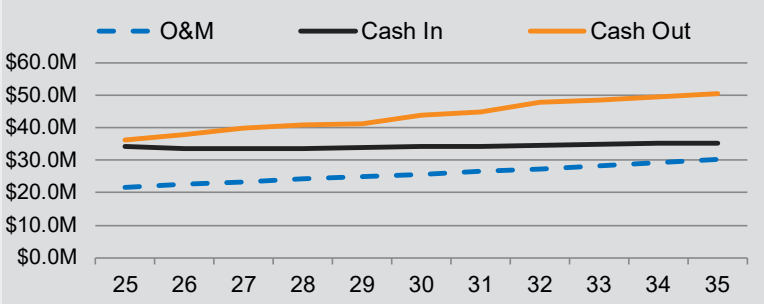
CALC SAVE CTRL LAST OVR

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2030	FY 2035
Water Rate Plan		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Senior-Lien Debt Service Coverage	1.86	1.59	1.49	1.53	1.65	1.14	0.89	0.80	0.73	0.66	0.58	Scenario Manager	

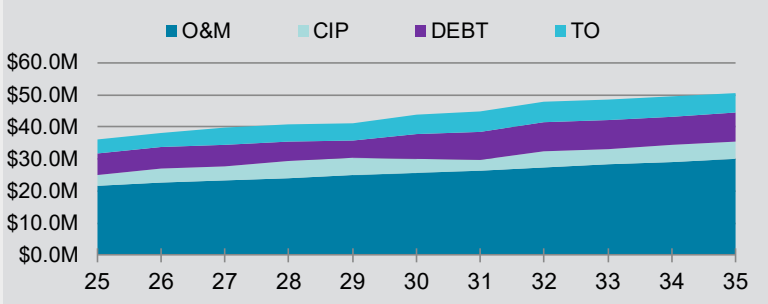
Operating Fund



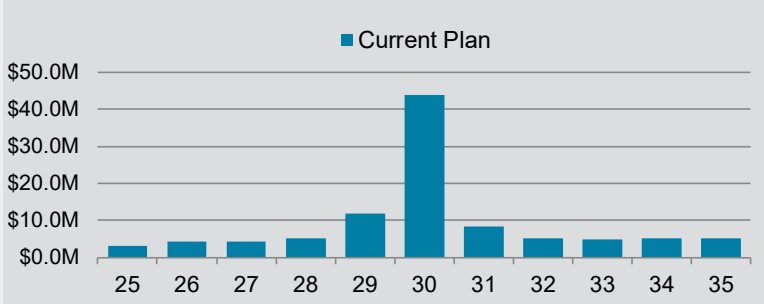
Revenues vs. Expenses



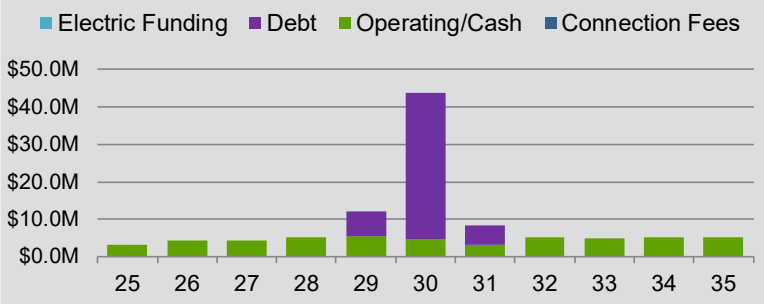
Expenses by Type



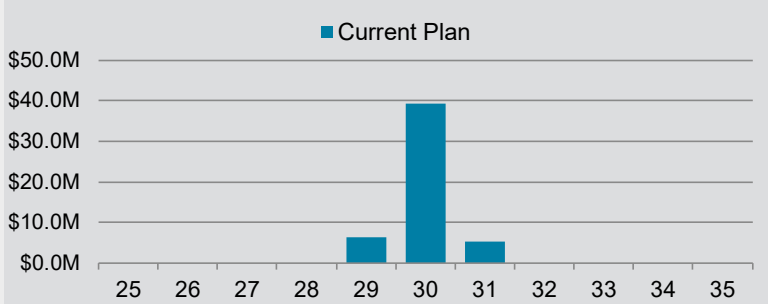
CIP Spending



CIP Funding



Borrowing



WATER RATE STUDY RECOMMENDATIONS



# 10-Year Financial Plan – Diagnostic



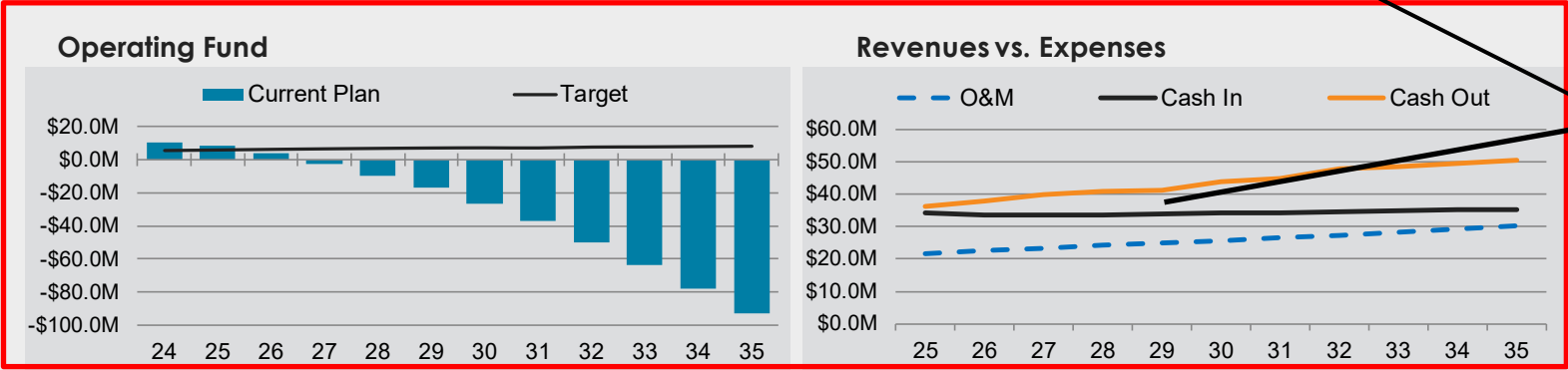
COLUMBIA, MO



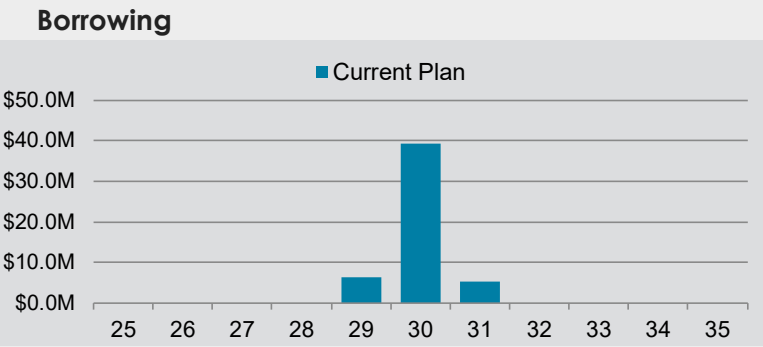
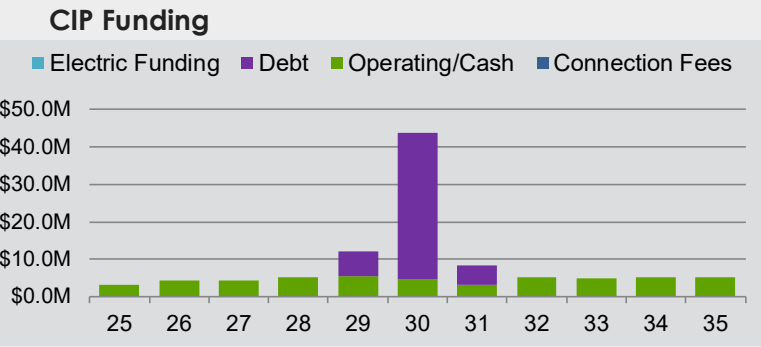
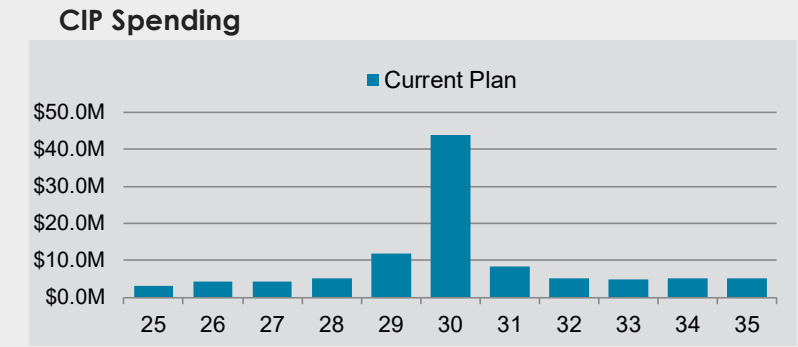
CALC SAVE CTRL LAST OVR

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2030	FY 2035
Water Rate Plan		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Senior-Lien Debt Service Coverage	1.86	1.59	1.49	1.53	1.65	1.14	0.89	0.80	0.73	0.66	0.58		

Scenario Manager



Current revenues are unbalanced with expenditures



WATER RATE STUDY RECOMMENDATIONS

# 10-Year Financial Plan – Just In Time Revenue Increases



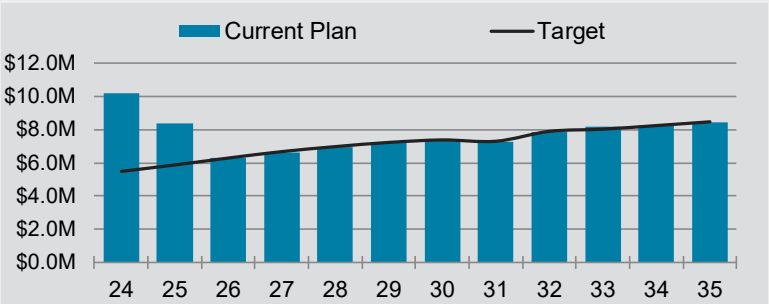
COLUMBIA, MO



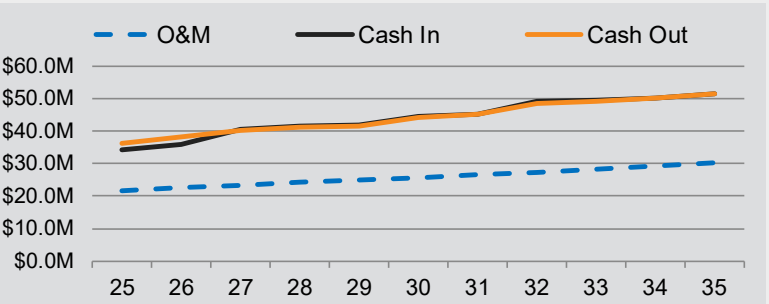
CALC SAVE CTRL LAST OVR

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2030	FY 2035
Water Rate Plan		8.48%	13.04%	1.66%	0.38%	6.16%	1.15%	8.55%	0.00%	1.20%	2.13%	32.85%	50.72%
Senior-Lien Debt Service Coverage	1.86	1.97	2.52	2.76	3.09	2.52	2.12	2.40	2.34	2.34	2.37	Scenario Manager	

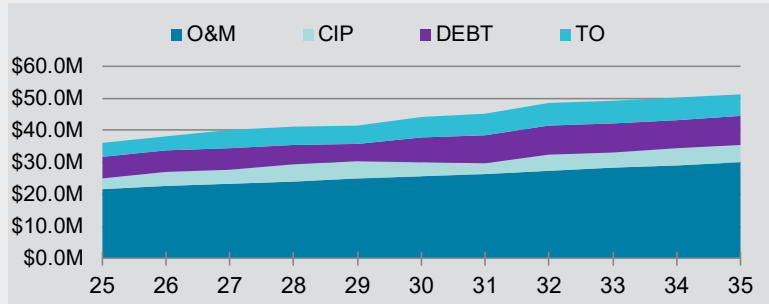
Operating Fund



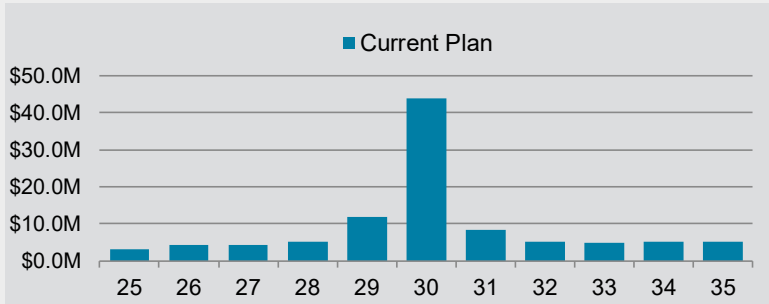
Revenues vs. Expenses



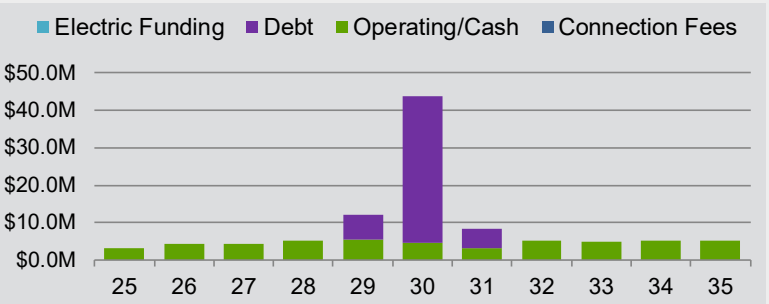
Expenses by Type



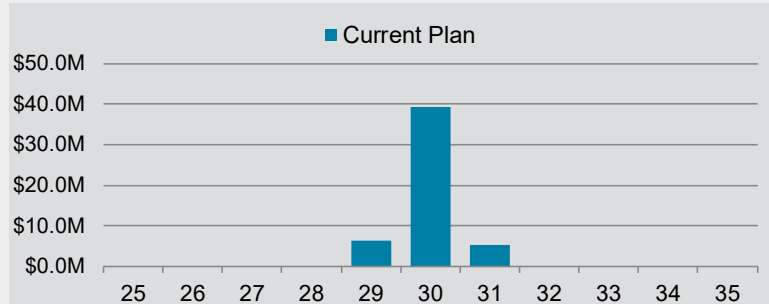
CIP Spending



CIP Funding



Borrowing



WATER RATE STUDY RECOMMENDATIONS

# 10-Year Financial Plan – Just In Time Revenue Increases



COLUMBIA, MO

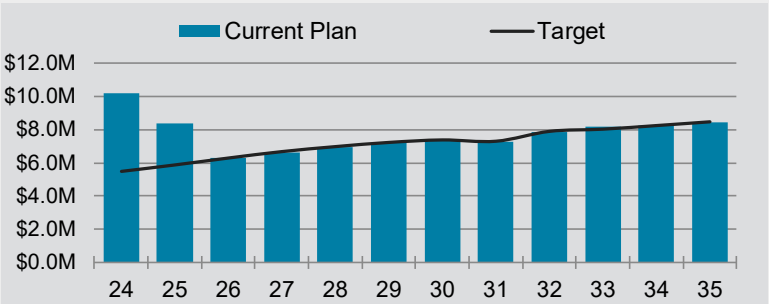


CALC SAVE CTRL LAST OVR

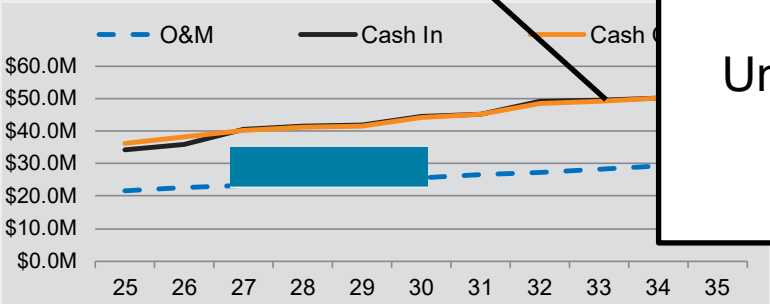
	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2030	FY 2035
Water Rate Plan		8.48%	13.04%	1.66%	0.38%	6.16%	1.15%	8.55%	0.00%	1.20%	2.13%	32.85%	50.72%
Senior-Lien Debt Service Coverage	1.86	1.97	2.52	2.76	3.09	2.52	2.12	2.40	2.34	2.34	2.37	Scenario Manager	

Unpredictable revenue increases can shock customers

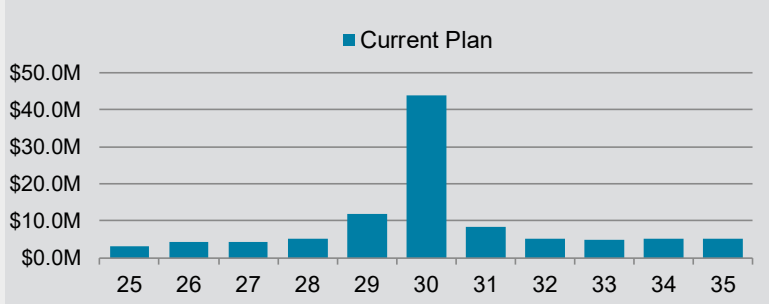
Operating Fund



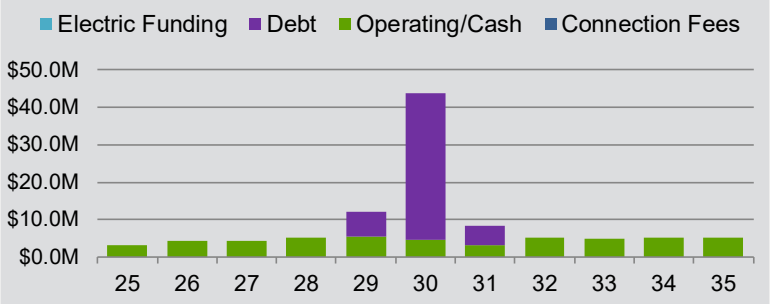
Revenues vs. Expenses



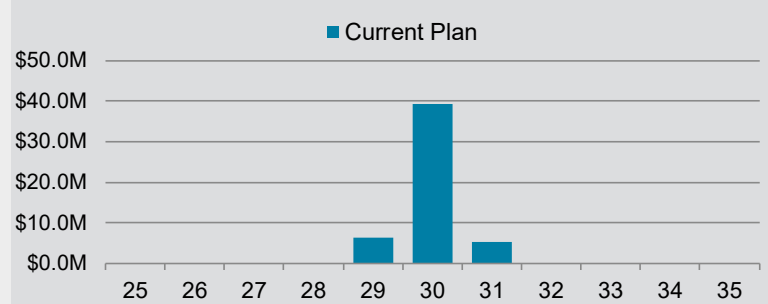
CIP Spending



CIP Funding



Borrowing



WATER RATE STUDY RECOMMENDATIONS

# 10-Year Financial Plan – Recommended Revenue Increase



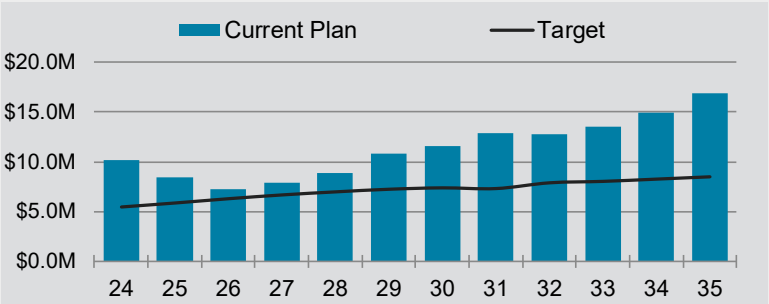
COLUMBIA, MO



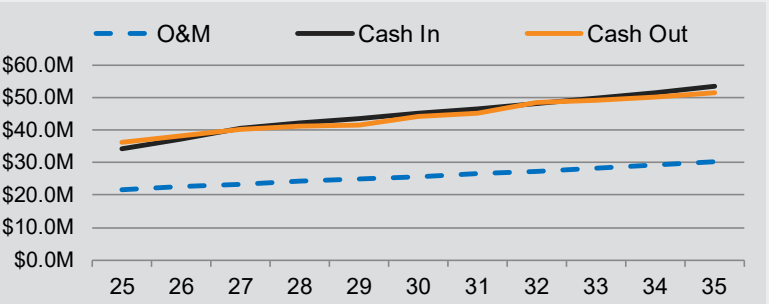
CALC SAVE CTRL LAST OVR

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2030	FY 2035
Water Rate Plan		12.00%	10.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	34.70%	56.09%
Senior-Lien Debt Service Coverage	1.86	2.13	2.55	2.88	3.42	2.60	2.28	2.31	2.40	2.49	2.58	Scenario Manager	

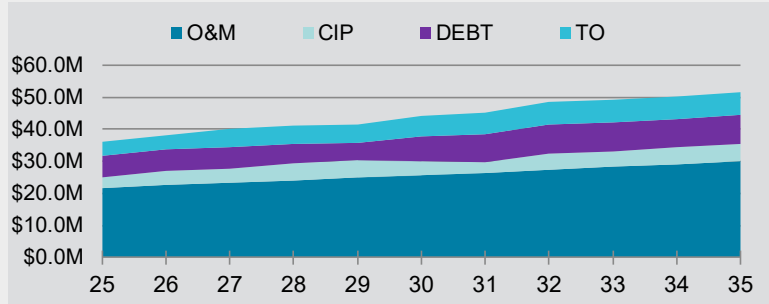
Operating Fund



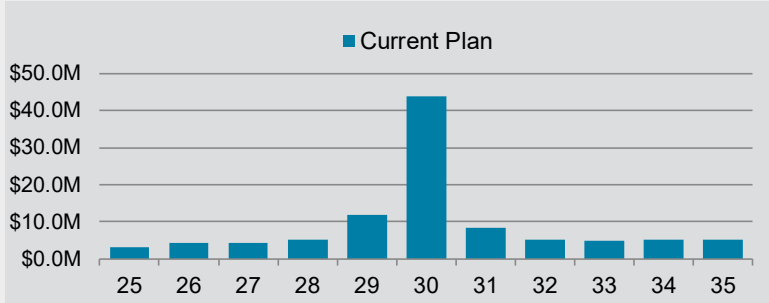
Revenues vs. Expenses



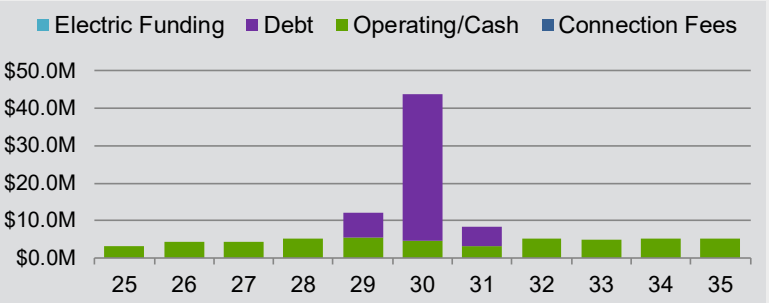
Expenses by Type



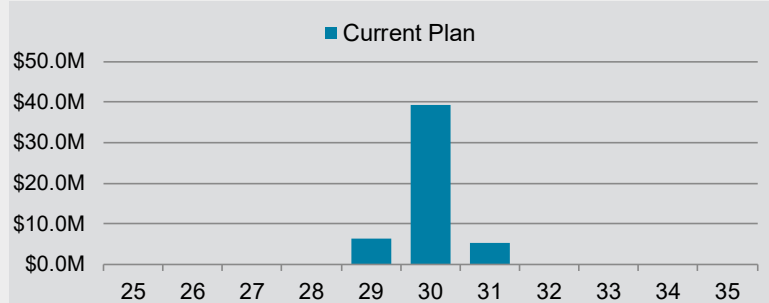
CIP Spending



CIP Funding



Borrowing



WATER RATE STUDY RECOMMENDATIONS

# 10-Year Financial Plan – Recommended Revenue Increase

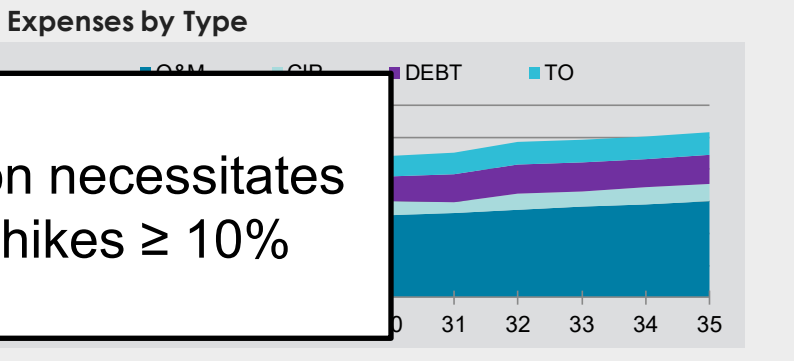
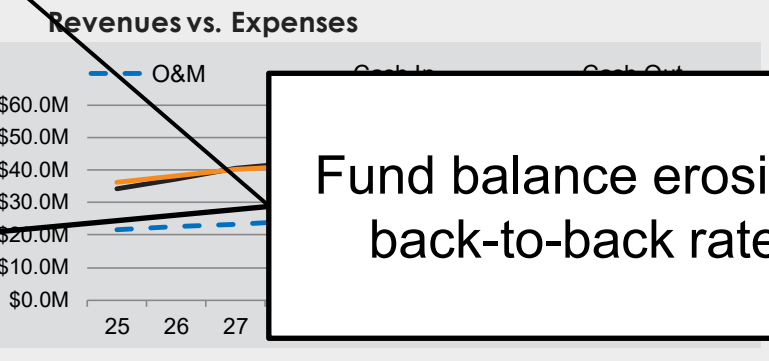
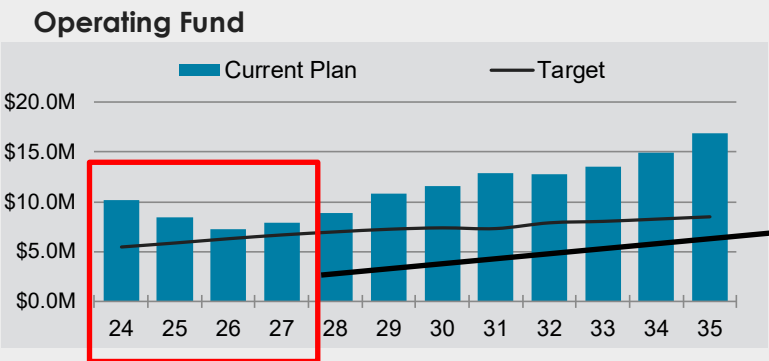


COLUMBIA, MO

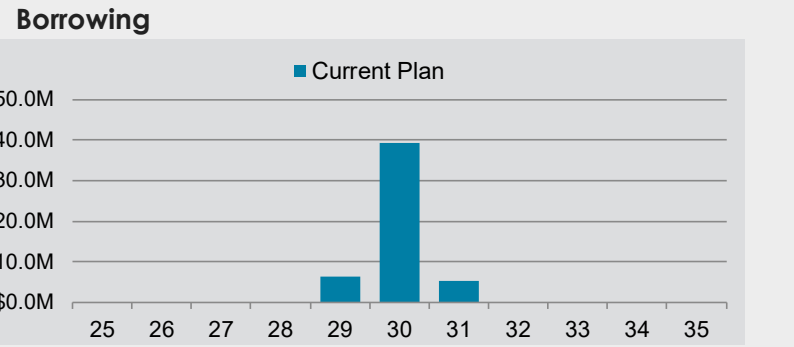
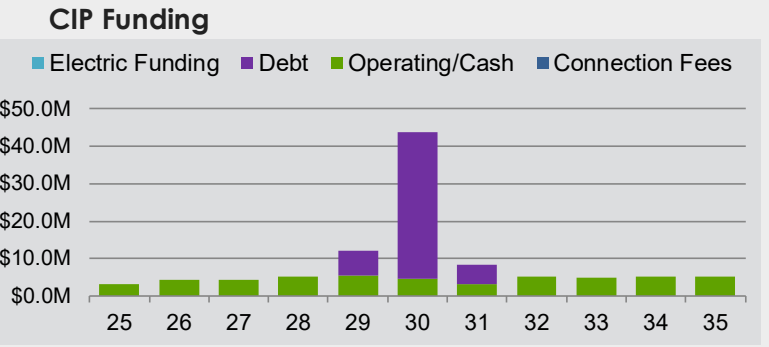
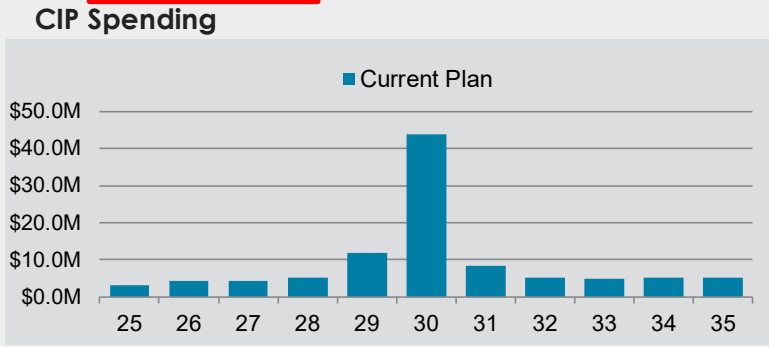


CALC SAVE CTRL LAST OVR

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2030	FY 2035
Water Rate Plan		12.00%	10.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	34.70%	56.09%
Senior-Lien Debt Service Coverage	1.86	2.13	2.55	2.88	3.42	2.60	2.28	2.31	2.40	2.49	2.58	Scenario Manager	



Fund balance erosion necessitates back-to-back rate hikes  $\geq 10\%$



WATER RATE STUDY RECOMMENDATIONS

# 10-Year Financial Plan – Recommended Revenue Increase



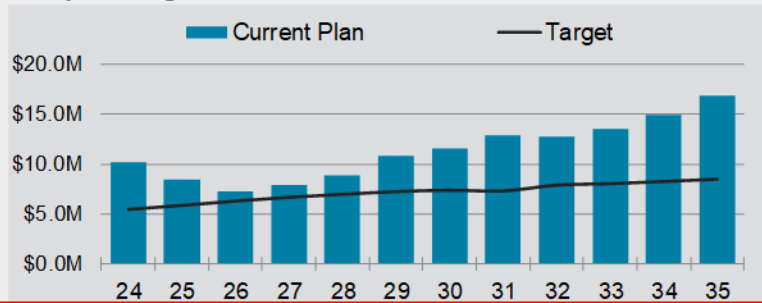
COLUMBIA, MO



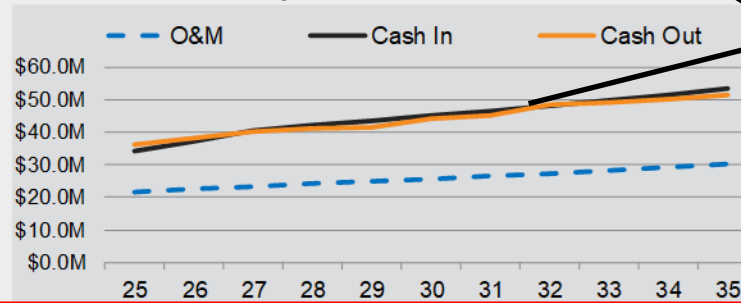
CALC SAVE CTRL LAST OVR

	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034	FY 2035	FY 2030	FY 2035
Water Rate Plan		12.00%	10.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	34.70%	56.09%
Senior-Lien Debt Service Coverage	1.86	2.13	2.55	2.88	3.42	2.60	2.28	2.31					

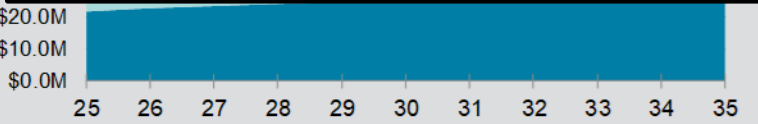
Operating Fund



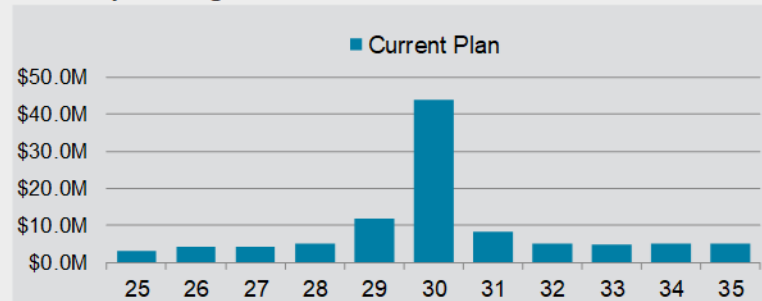
Revenues vs. Expenses



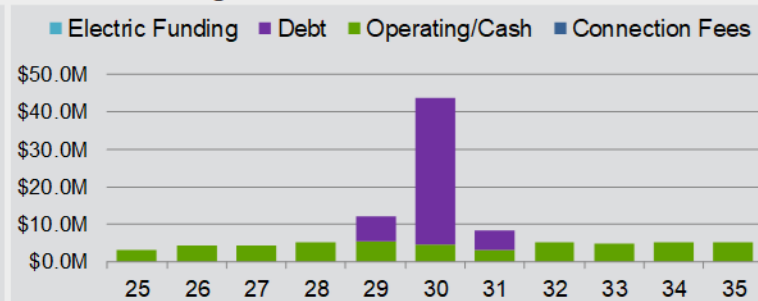
Balance Cash In and Cash Out to maintain a minimum operating reserve target and DSC > 1.25 times net income



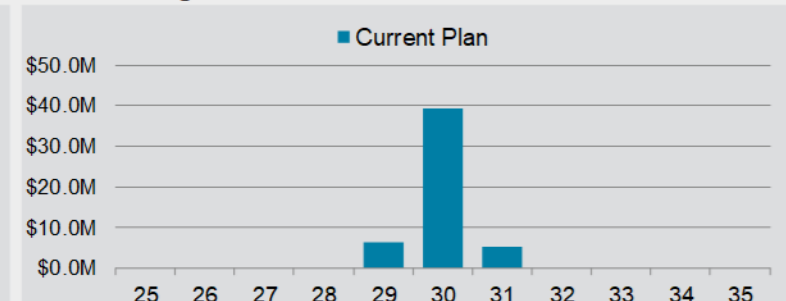
CIP Spending



CIP Funding



Borrowing



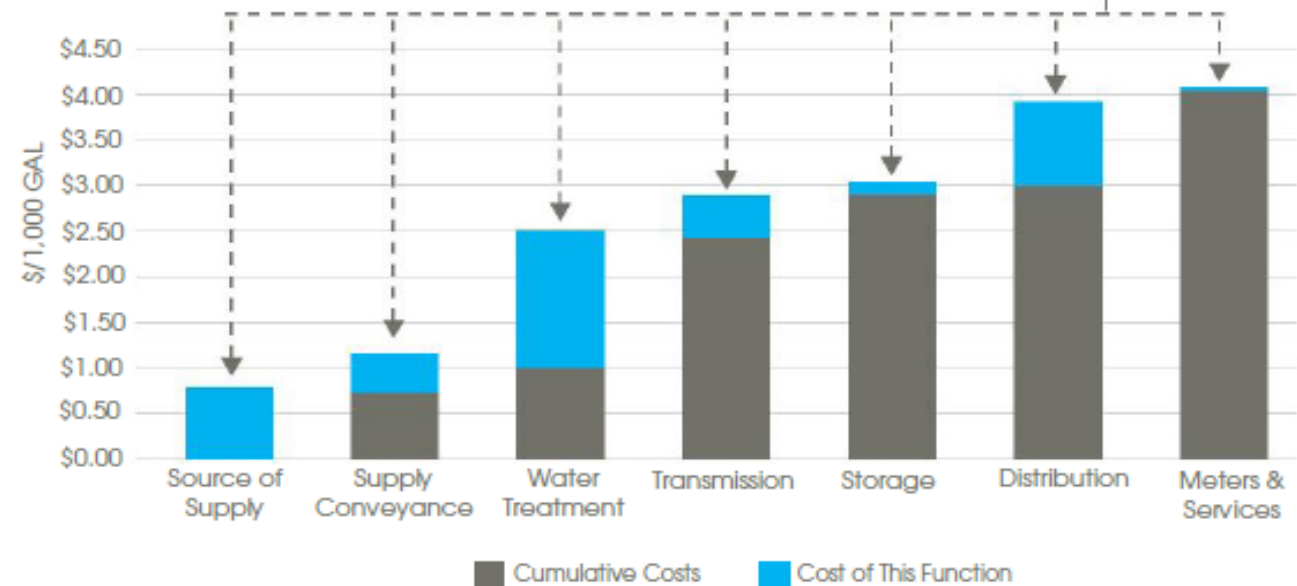
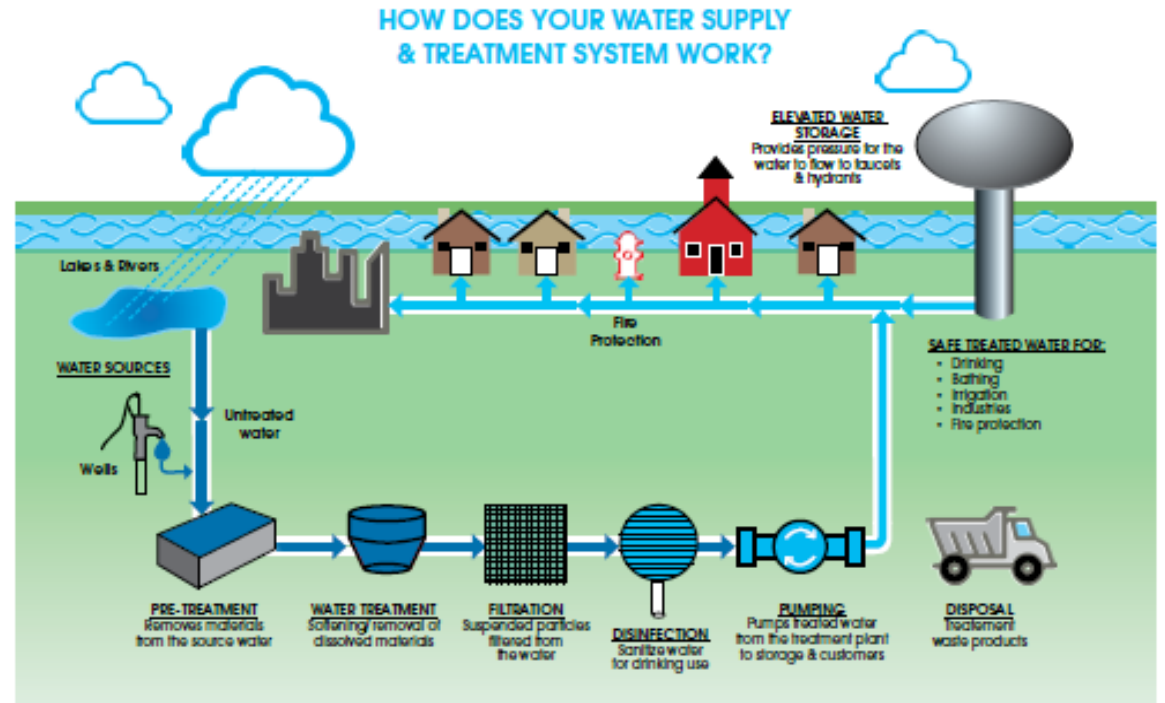
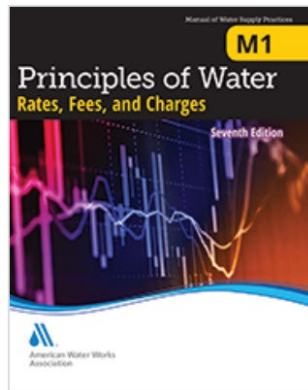


# 2

# Cost of Service

# Cost to Serve

Goal: Determine the cost of providing service by function





# Starting Water System Revenue Requirements

## Personnel and Operating Expenses

Source: FY25 Budget  
(budget execution factors applied)

\$21.7M

## Capital Projects, Vehicles, and R&R

Source: Conservative CIP Master

\$3.3M

## Debt Service

Source: 2014A, 2015A, 2019A, 2019B, 2023A

\$6.7M

## Transfers

Source: PILOT, 2016 SO Bonds,  
General fund, Parks & Recreation

\$4.3M

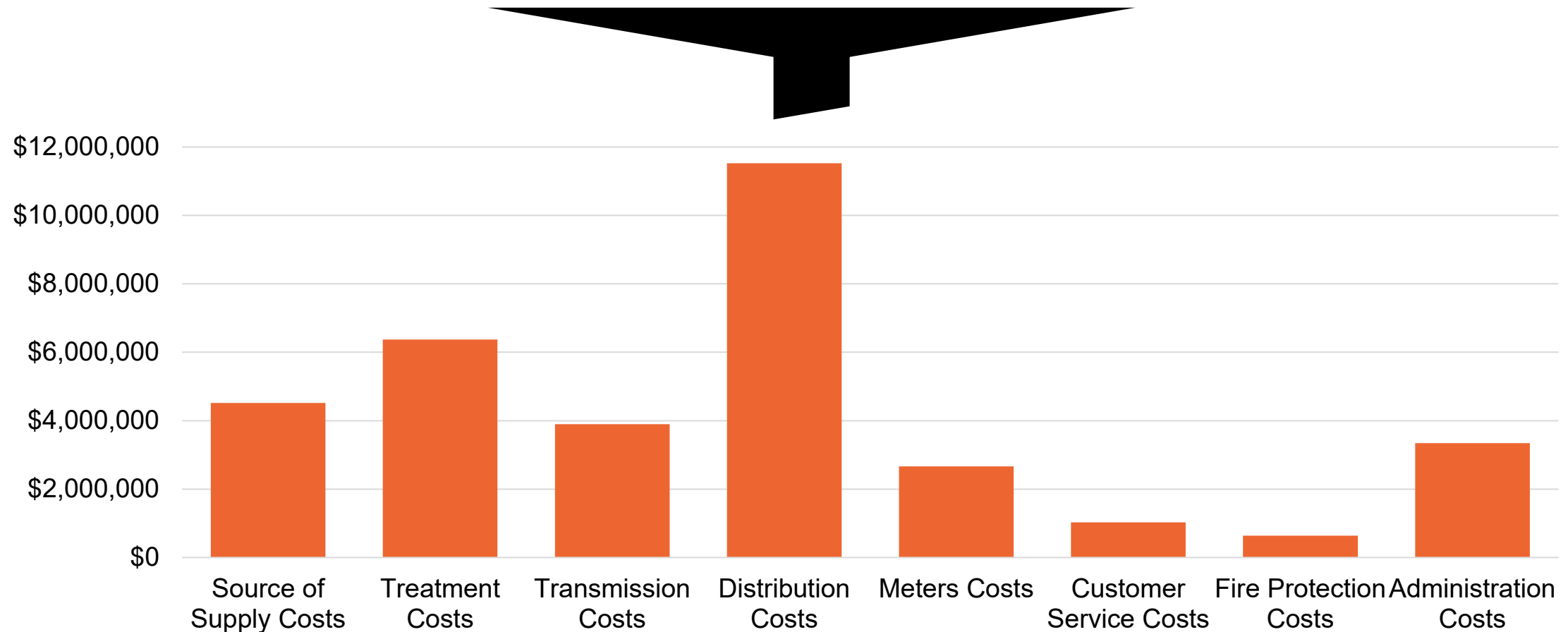
**FY 25**

**\$36.0M**

# Functional Allocations

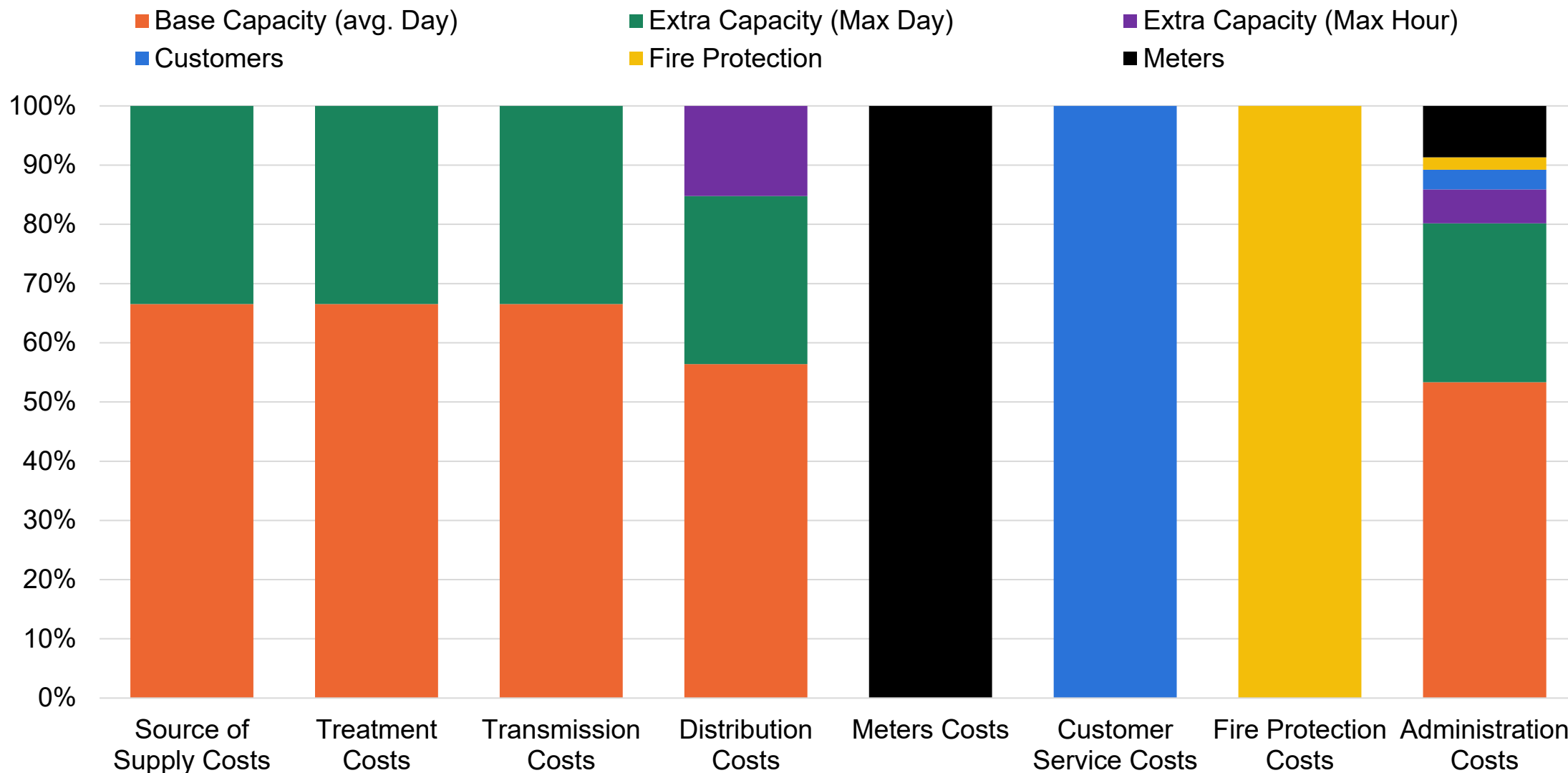
**FY 2026 Test Year Rate Revenue Requirements  
\$34.1M (With Offsetting Revenues)**

WATER RATE STUDY RECOMMENDATIONS



# System Functions to System Units

WATER RATE STUDY RECOMMENDATIONS



# Unit Costs

<b>Average Day</b>	<b>Average Day Allocation</b>	<b>CCF per Year</b>	<b>Unit Cost</b>
Total	\$18,175,950	5,480,631	\$3.32
<b>Max Day</b>	<b>Max Day Allocation</b>	<b>CCF per Year</b>	<b>Unit Cost</b>
Total	\$9,135,754	9,609	\$950.71
<b>Peak Hour</b>	<b>Max Hour Allocation</b>	<b>CCF per Year</b>	<b>Unit Cost</b>
Total	\$1,953,892	4,432	\$440.81
<b>Customer</b>	<b>Customer Allocation</b>	<b>Annual Bills</b>	<b>Unit Cost</b>
Total	\$1,143,067	626,892	\$1.82
<b>Public Fire Protection</b>	<b>Customer Allocation</b>	<b>Hydrants</b>	<b>Unit Cost</b>
Total	\$705,148	6,443	\$109.44
<b>Meters</b>	<b>Customer Allocation</b>	<b>EQ Meters</b>	<b>Unit Cost</b>
Total	\$2,962,524	62,937	\$47.07



# 3

# Rate Design

# Current Rates

## Customer Classes:

Residential  
Commercial  
Large Commercial  
Residential Irrigation  
Commercial Irrigation  
Airport

## Additional Charges

- Lawn Irrigation is charged at tier 3 in the summer
- An additional fire flow charge is applied based on meter size
- Backflow prevention charge is \$2.00 per device
- Columbia Regional Airport has separate rate

Monthly Base Charges		
Meter Size	In-City Base	Fire Charge
5/8" and 3/4"	\$12.48	\$1.59
1"	\$20.15	\$1.69
1.5"	\$40.52	\$2.44
2"	\$61.41	\$2.63
3"	\$189.99	\$6.31
4"	\$398.45	\$9.75
6"	\$850.20	\$19.51

In City Volumetric Charges		
Tier	Summer (June through September)	Non-Summer
Tier 1 (70% of WAC)	\$3.22	\$3.22
Tier 2 (71%-170% of WAC)	\$4.44	\$3.22
Tier 3 (>170% of WAC)	\$6.89	\$3.22

WAC = Winter Average Consumption

# Base Rate Recommendations

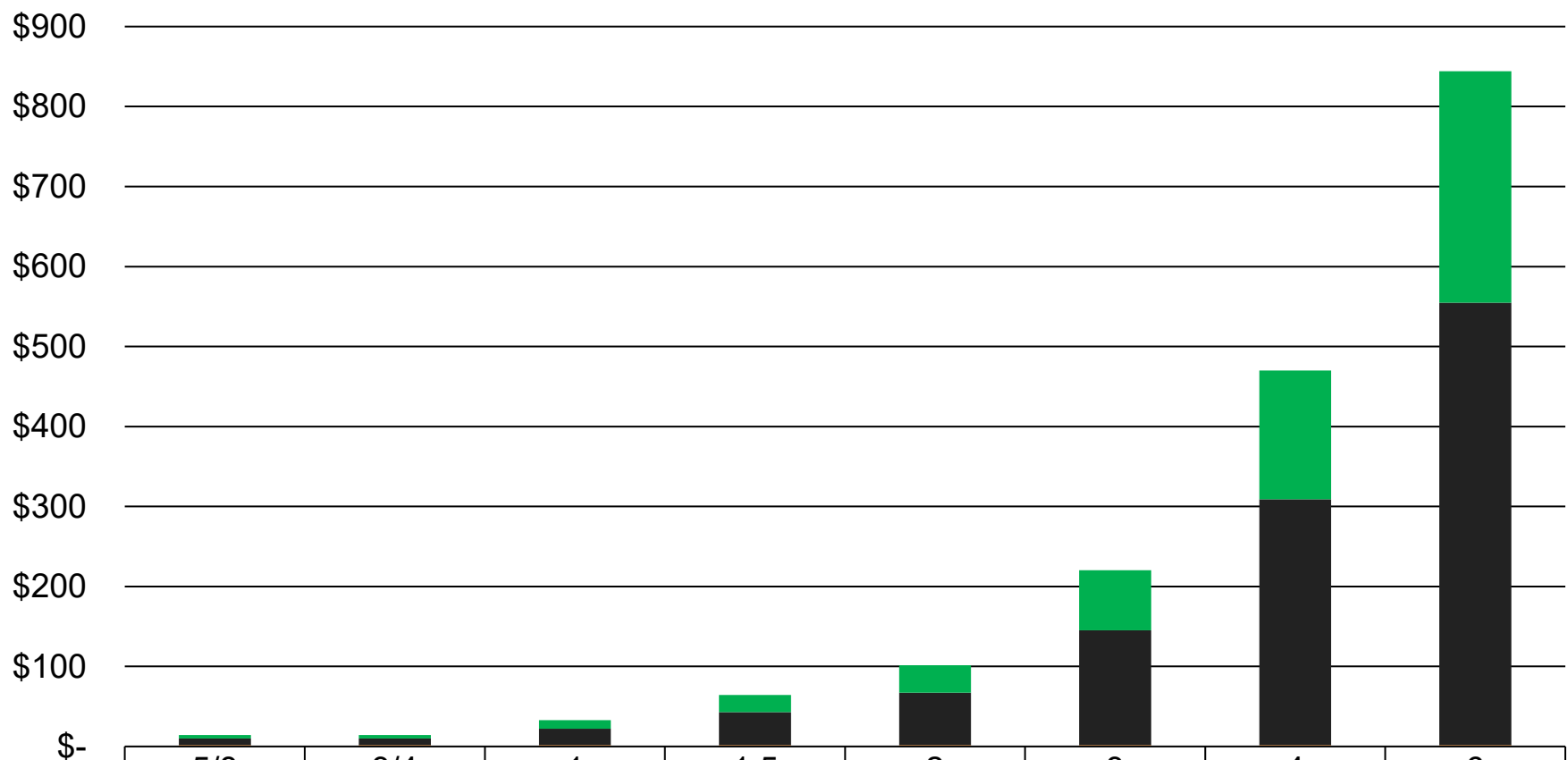
- Recover 30% of rate revenue requirements in monthly base charges (currently 29%)
- Simplify by including public fire protection cost in base charges
- Combine scaled and unscaled cost by meter size to calculate fees using strong cost basis

Cost Components		Cost	Recovery %	Fixed Cost Recovered	
Customer	\$	1,143,067	100%	\$	1,143,067
Meters	\$	2,962,524	100%	\$	2,962,524
Fire Protection	\$	705,148	100%	\$	705,148
Average Day	\$	18,175,950	30%	\$	5,452,785
				\$	<b>10,263,524</b>

# Calculated Base Rates

WATER RATE STUDY RECOMMENDATIONS

Monthly Base Charge by Meter Size



	5/8	3/4	1	1.5	2	3	4	6
■ Meter Cost Scaled Cost	\$4.29	\$4.29	\$10.73	\$21.45	\$34.32	\$75.08	\$160.88	\$289.58
■ Meter Capacity Scaling	\$8.19	\$8.19	\$20.48	\$40.95	\$65.52	\$143.33	\$307.13	\$552.83
■ Customer Cost	\$1.84	\$1.84	\$1.84	\$1.84	\$1.84	\$1.84	\$1.84	\$1.84
Total	\$14.32	\$14.32	\$33.04	\$64.24	\$101.68	\$220.24	\$469.84	\$844.24



# Base Rates Impacts

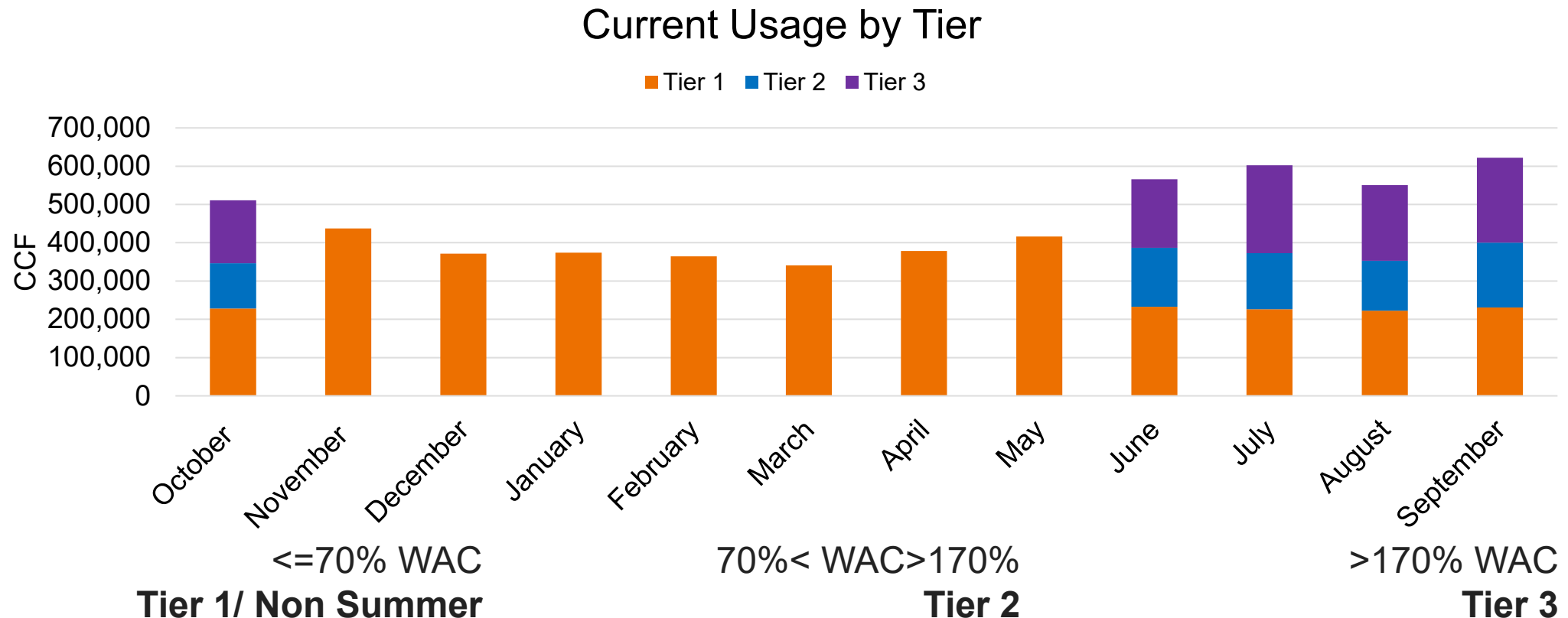
WATER RATE STUDY RECOMMENDATIONS

Meter Size		Current		Calculated		\$ Change	% Change
5/8	\$	14.07	\$	14.32	\$	0.25	1.8%
3/4	\$	14.07	\$	14.32	\$	0.25	1.8%
1.0	\$	21.84	\$	33.04	\$	11.20	51.3%
1.5	\$	42.96	\$	64.24	\$	21.28	49.5%
2.0	\$	64.04	\$	101.68	\$	37.64	58.8%
3.0	\$	196.30	\$	220.24	\$	23.94	12.2%
4.0	\$	408.20	\$	469.84	\$	61.64	15.1%
6.0	\$	869.71	\$	844.24	\$	(25.47)	-2.9%

Note: current base fees include fire charges in this table

# Volume Rates Observations

- 70% of winter average use is restrictive and penalizes steady use during peak months
- Peak use occurs outside the summer; significant shoulder-month use is present
- Tier pricing should reflect the defined cost as identified in the cost of service



WAC = Winter Average Consumption

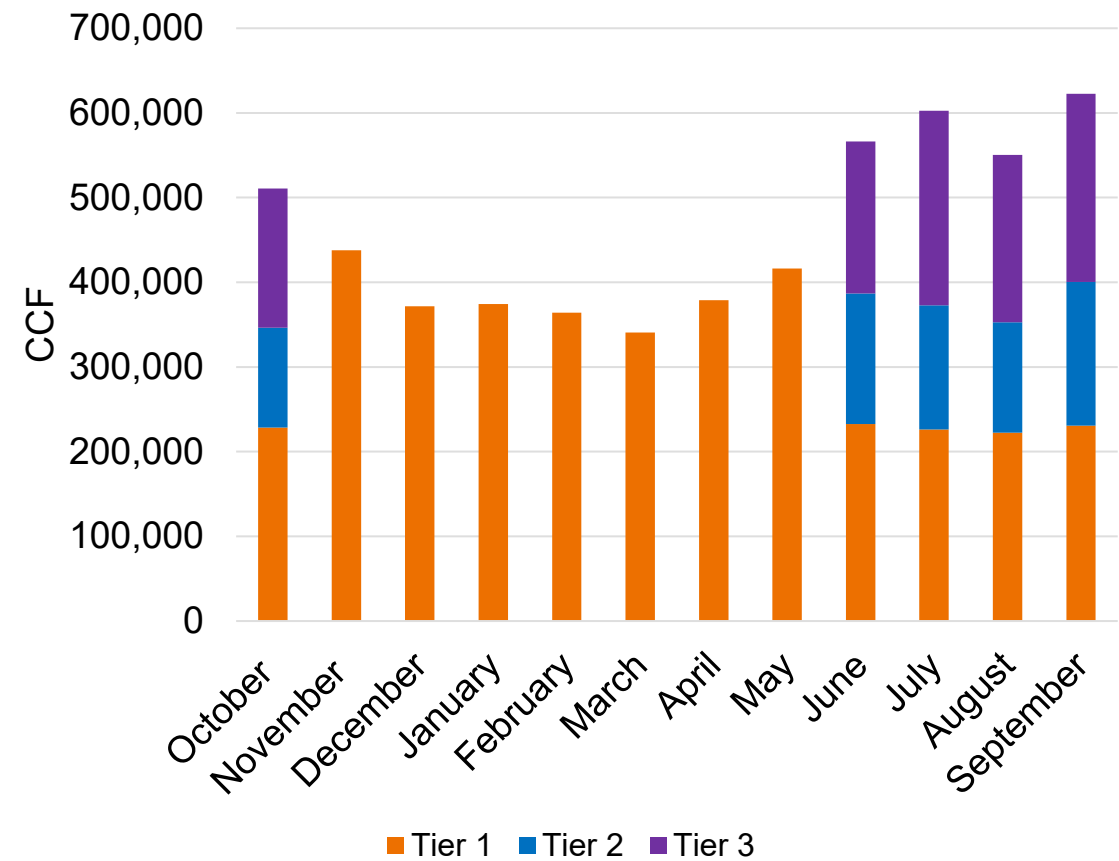
# Volume Tiers

$\leq 100\%$  WAC  
Tier 1/ Non Summer

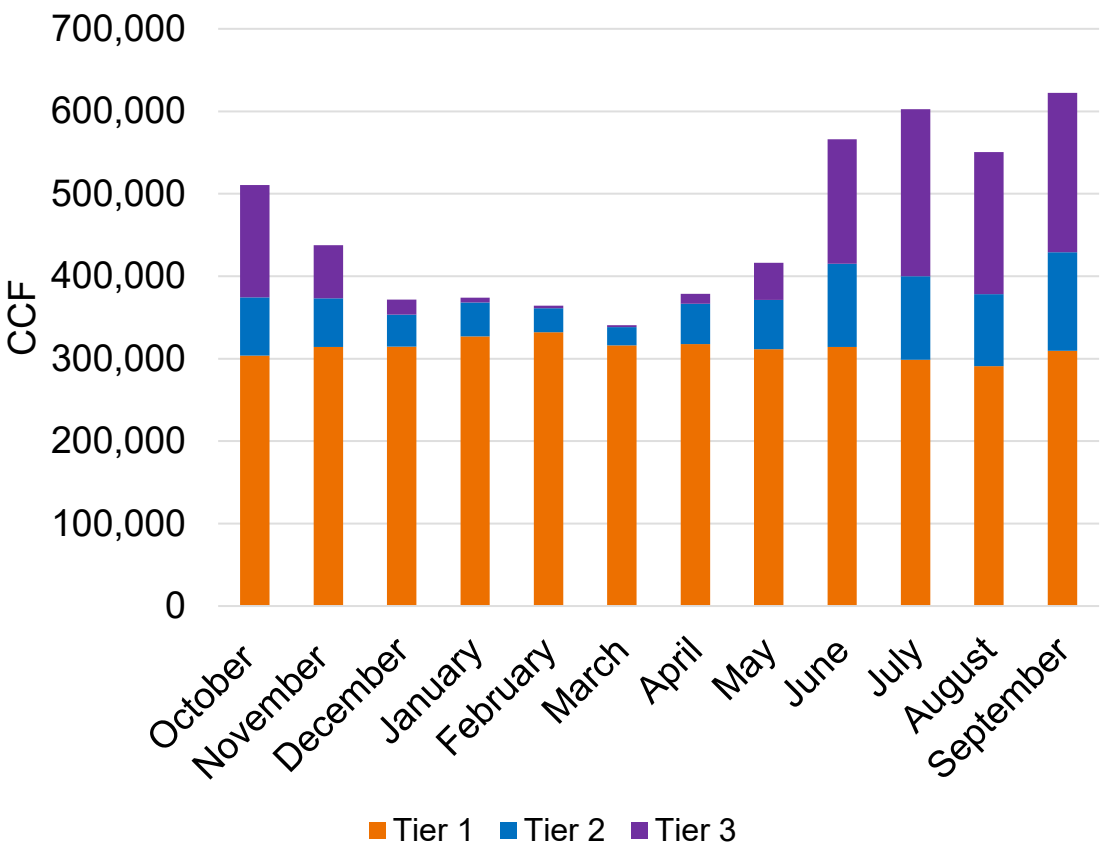
$100\% < \text{WAC} < 200\%$   
Tier 2

$> 200\%$  WAC  
Tier 3

Current Usage by Tier



Calculated Usage by Tier



WAC = Winter Average Consumption

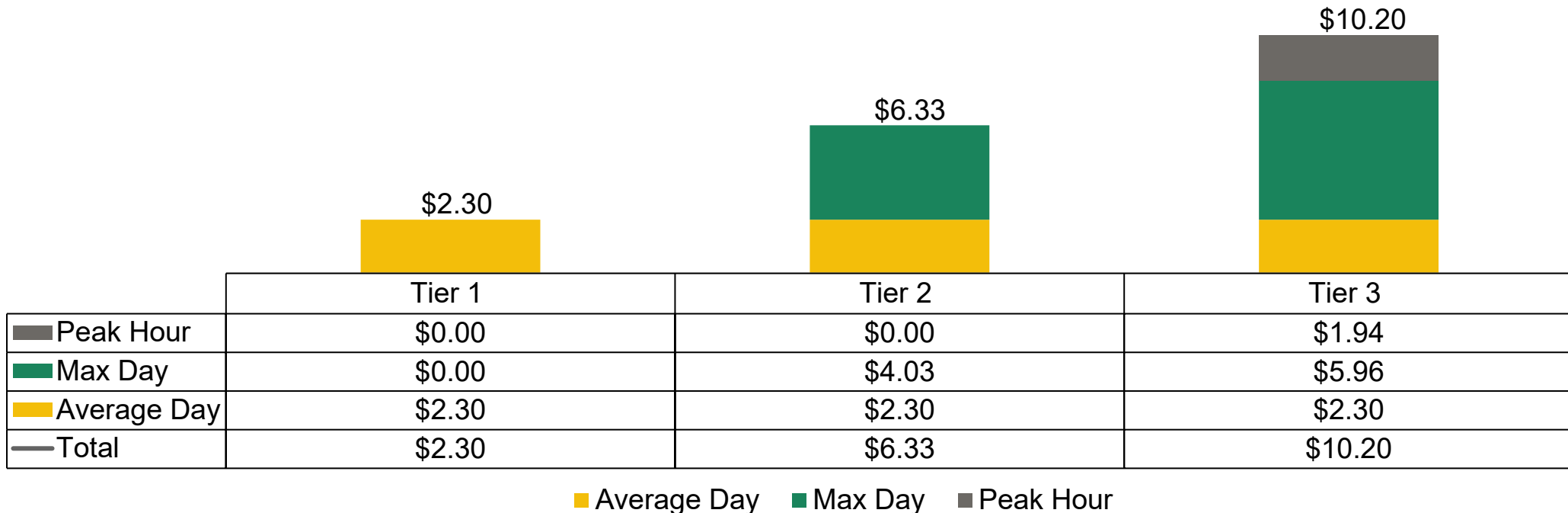
# Volume Rates

<b>Average Day</b>	<b>Average Day Allocation</b>	<b>CCF per Year</b>	<b>Unit Cost</b>
Total	\$18,175,950	5,480,631	\$3.32
<b>Max Day</b>	<b>Max Day Allocation</b>	<b>CCF per Year</b>	<b>Unit Cost</b>
Total	\$9,135,754	9,609	\$950.71
<b>Peak Hour</b>	<b>Max Hour Allocation</b>	<b>CCF per Year</b>	<b>Unit Cost</b>
Total	\$1,953,892	4,432	\$440.81
<b>Customer</b>	<b>Customer Allocation</b>	<b>Annual Bills</b>	<b>Unit Cost</b>
Total	\$1,143,067	626,892	\$1.82
<b>Public Fire Protection</b>	<b>Customer Allocation</b>	<b>Hydrants</b>	<b>Unit Cost</b>
Total	\$705,148	6,443	\$109.44
<b>Meters</b>	<b>Customer Allocation</b>	<b>EQ Meters</b>	<b>Unit Cost</b>
Total	\$2,962,524	62,937	\$47.07

*Note 70% of average day costs are allocated to the volume rates*

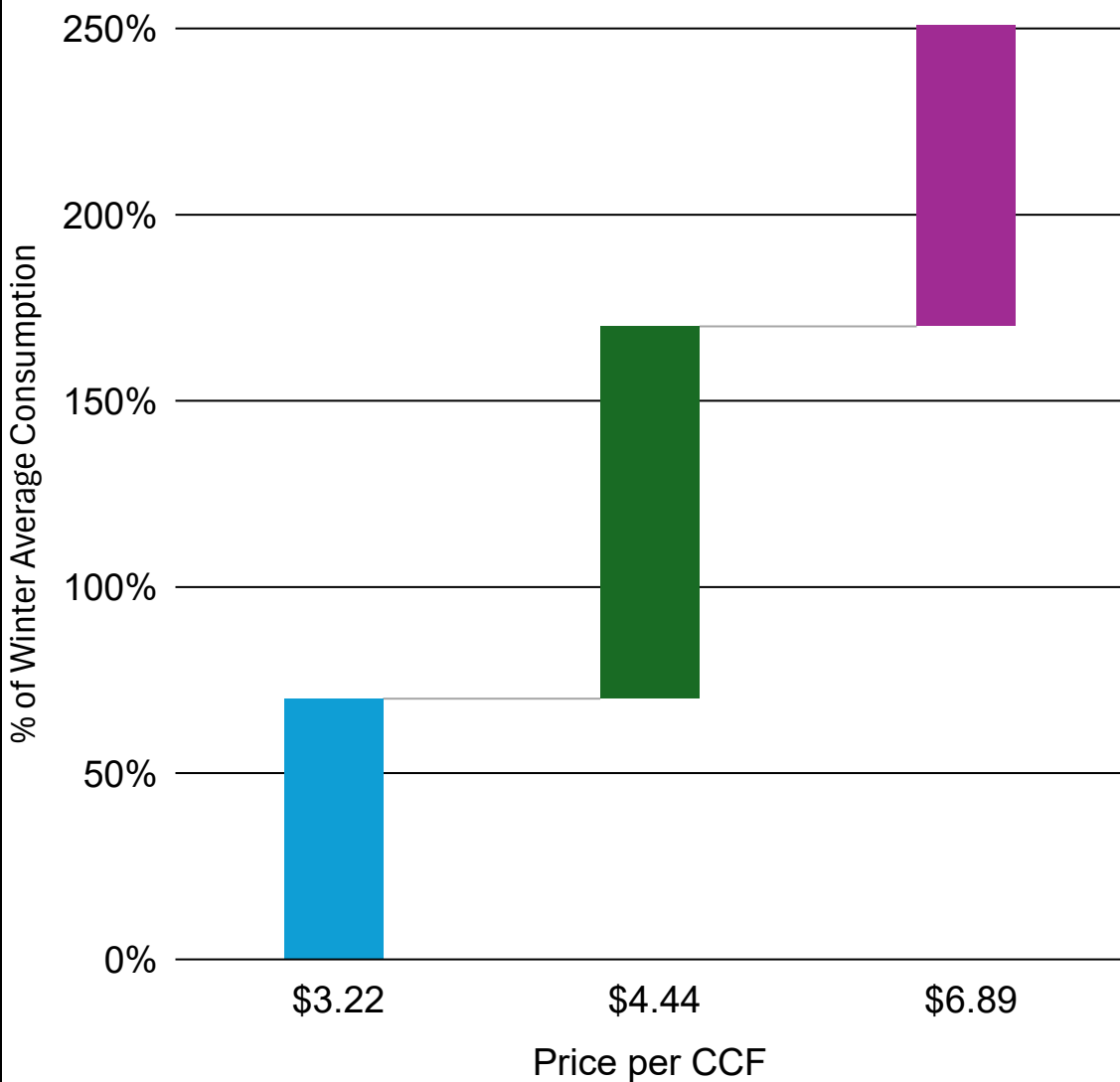
# Calculated Volume Rates

- Use 100% of winter average consumption for Tier 1
- Set tier two max to 200% of winter average consumption based on system peaking data
- Apply tiers year round
- Use identified cost of service components and volume characteristics to calculate rates

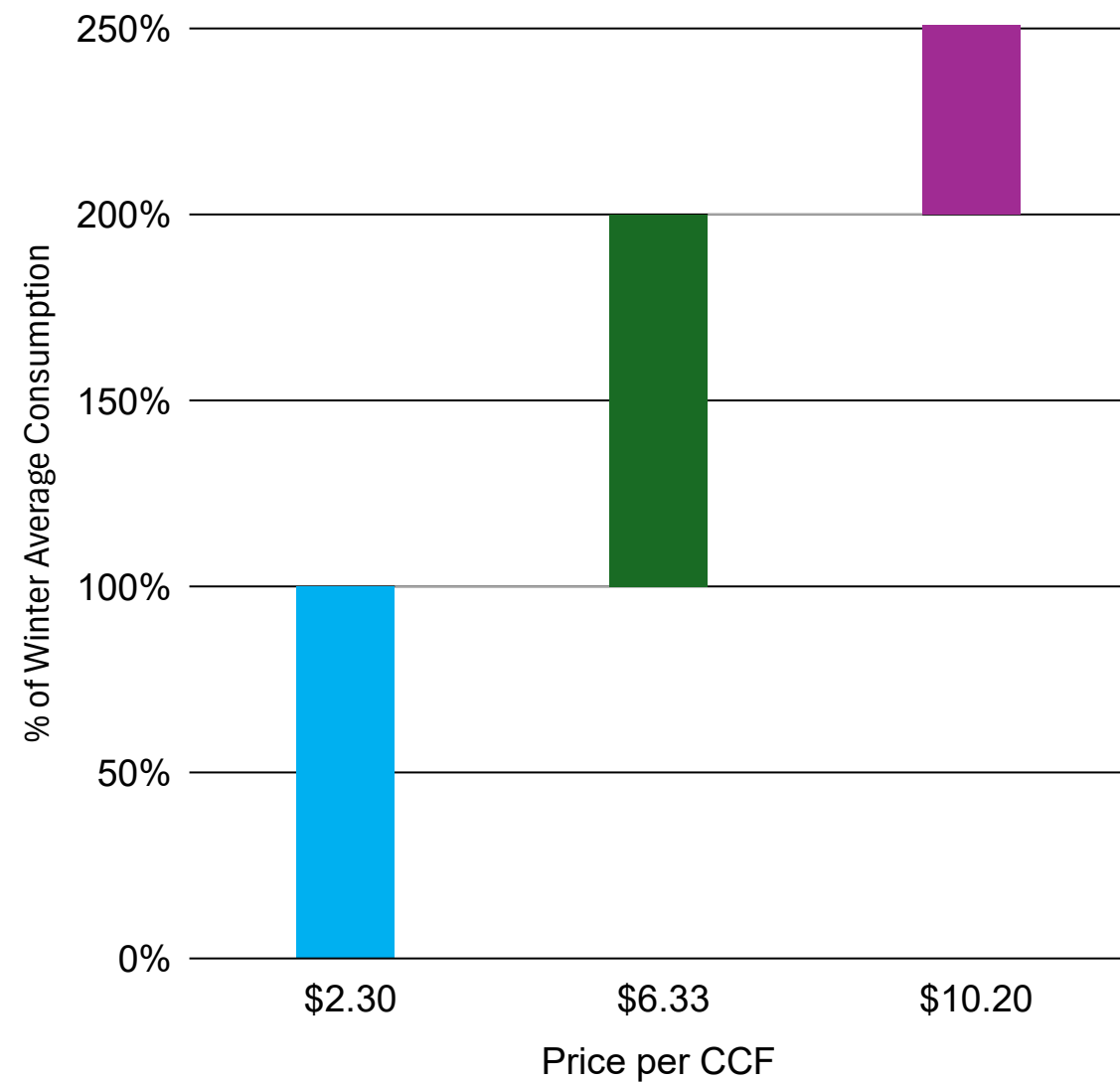


# Rate Comparison

Current Tiers

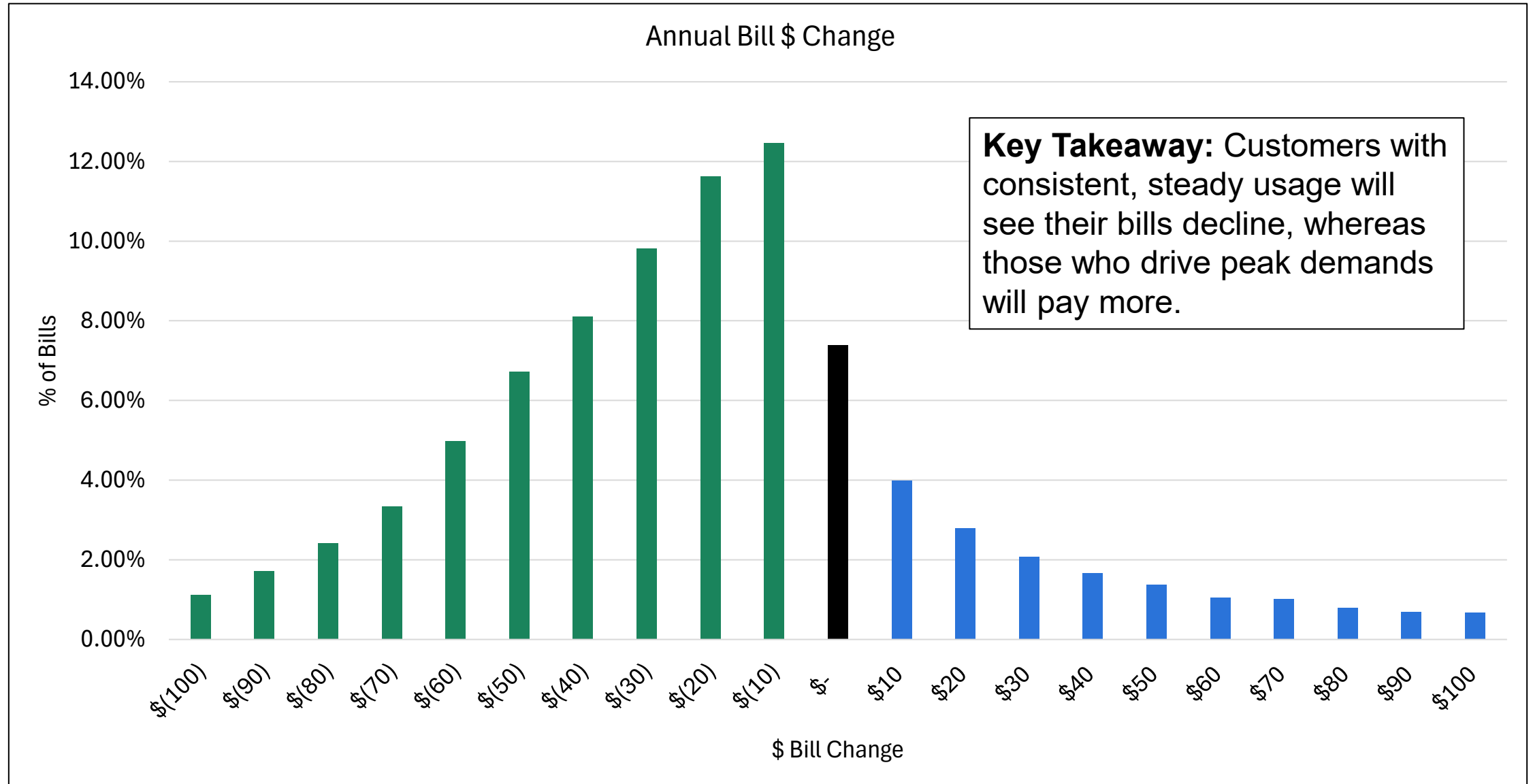


Calculated Tiers



# Customer Impacts – Residential

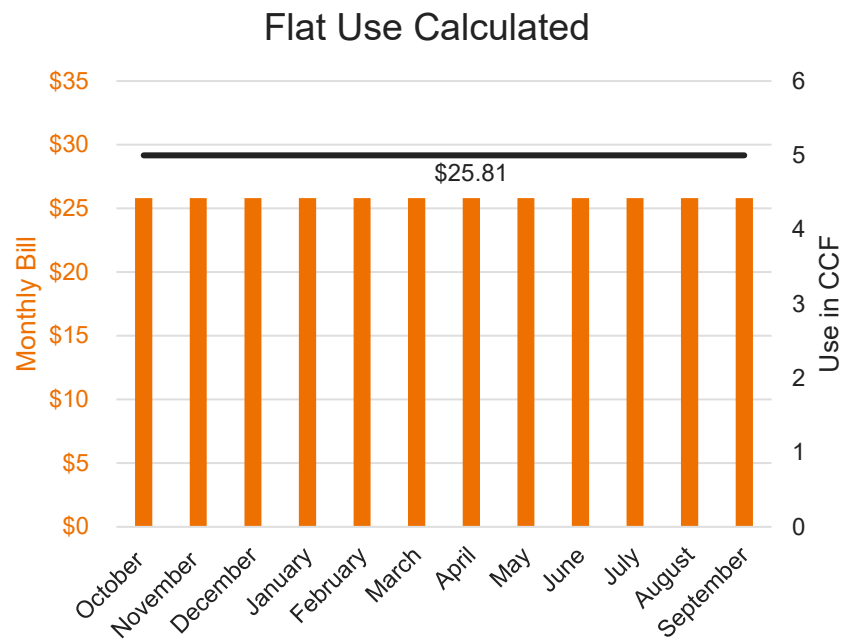
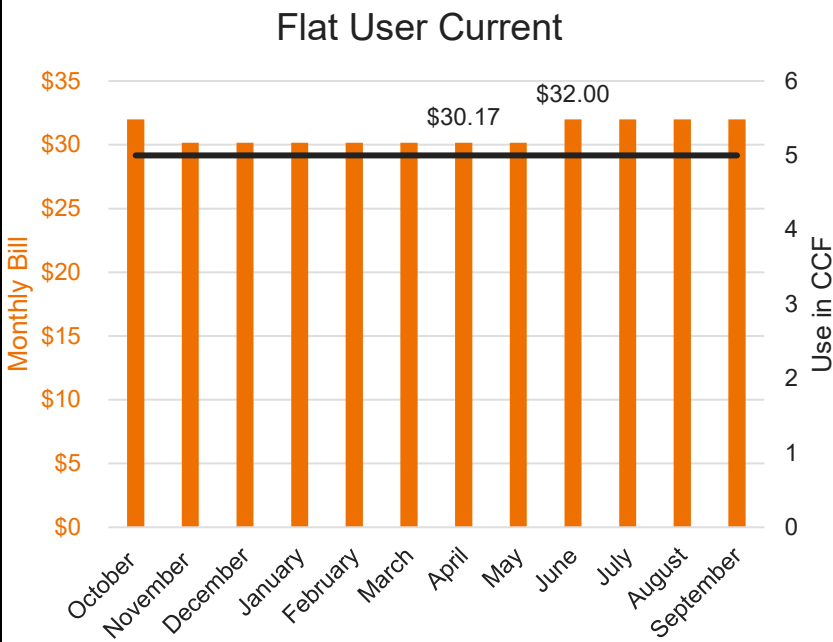
WATER RATE STUDY RECOMMENDATIONS



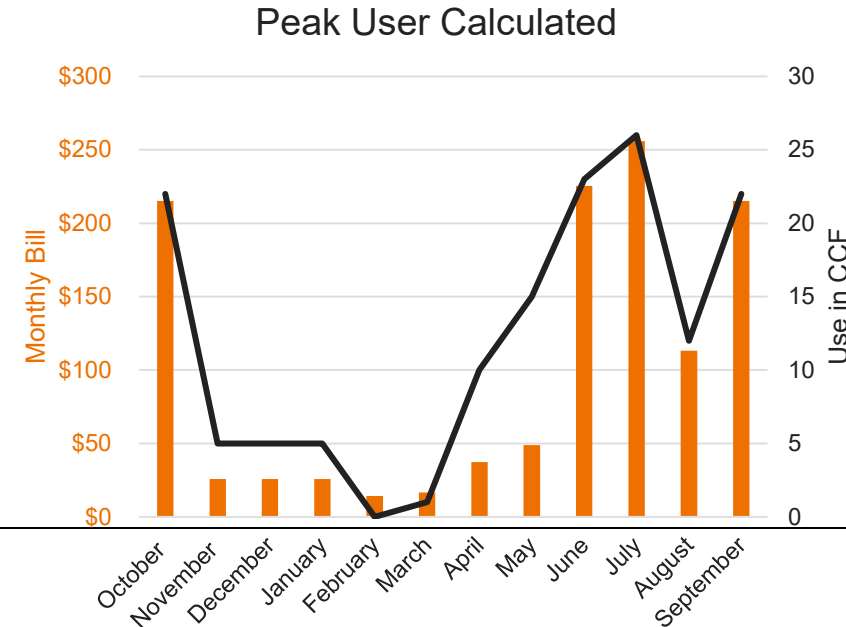
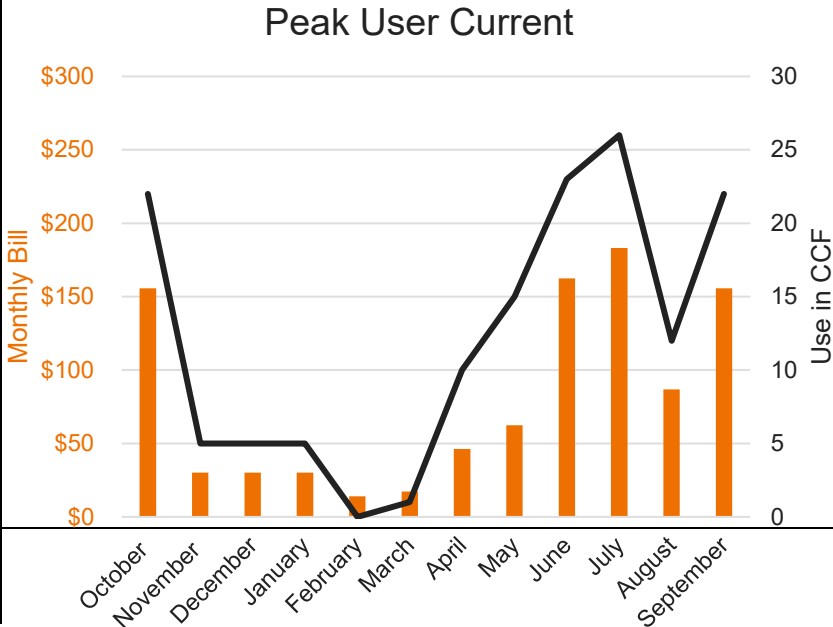
**Overall:** 65% of annual bills are expected to decrease, while 35% will increase

# Customer Impacts – Residential Illustration

WATER RATE STUDY RECOMMENDATIONS



Annual  
Change  
\$(61.50)

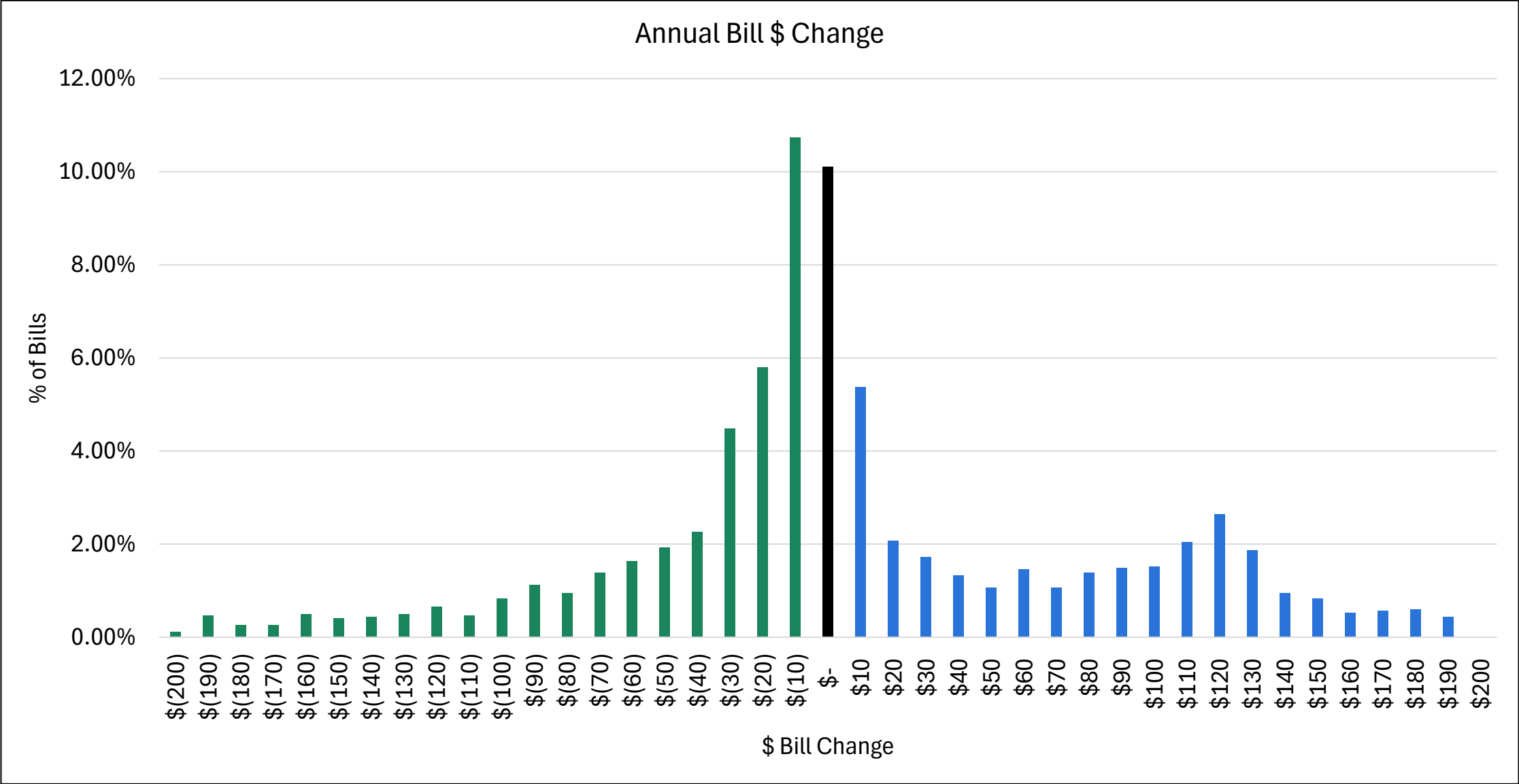


Annual  
Change  
\$244.97



# Customer Impacts – Small Commercial

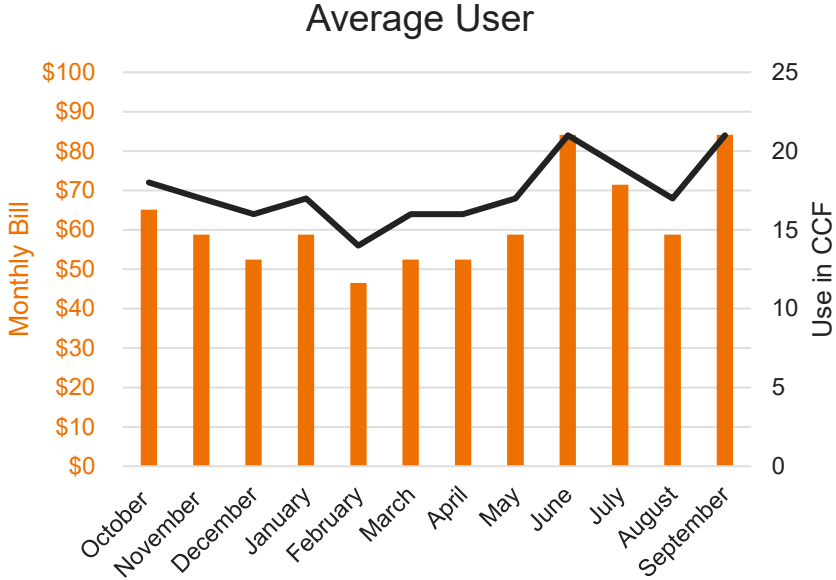
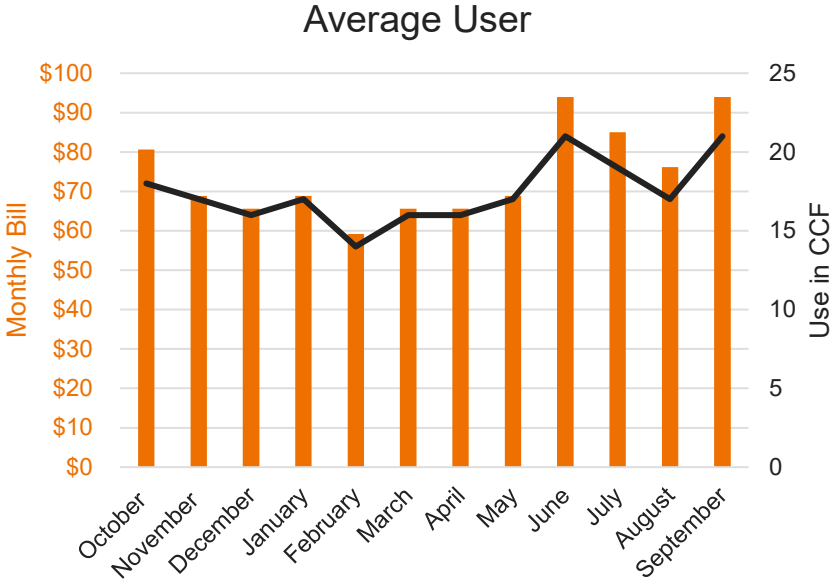
WATER RATE STUDY RECOMMENDATIONS



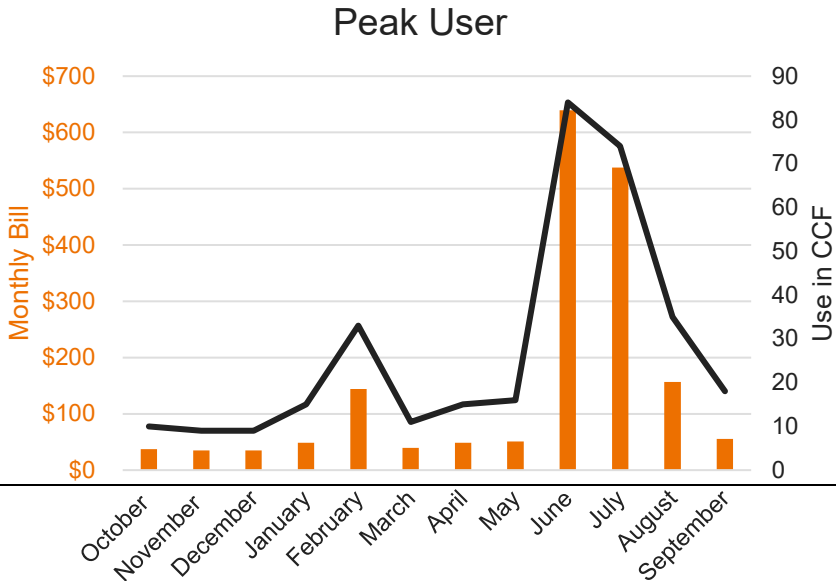
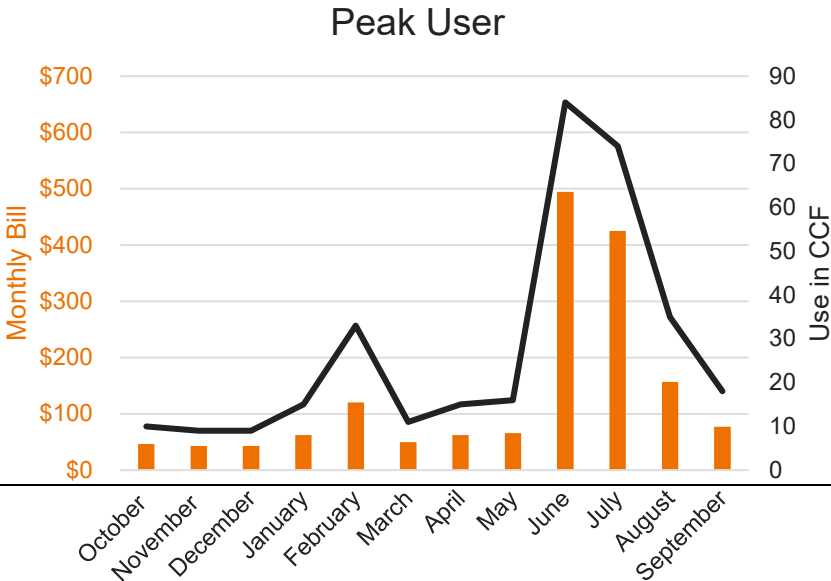
**Overall:** 46% of annual bills are expected to decrease, while 54% will increase

# Customer Impacts – Small Commercial Illustration

WATER RATE STUDY RECOMMENDATIONS



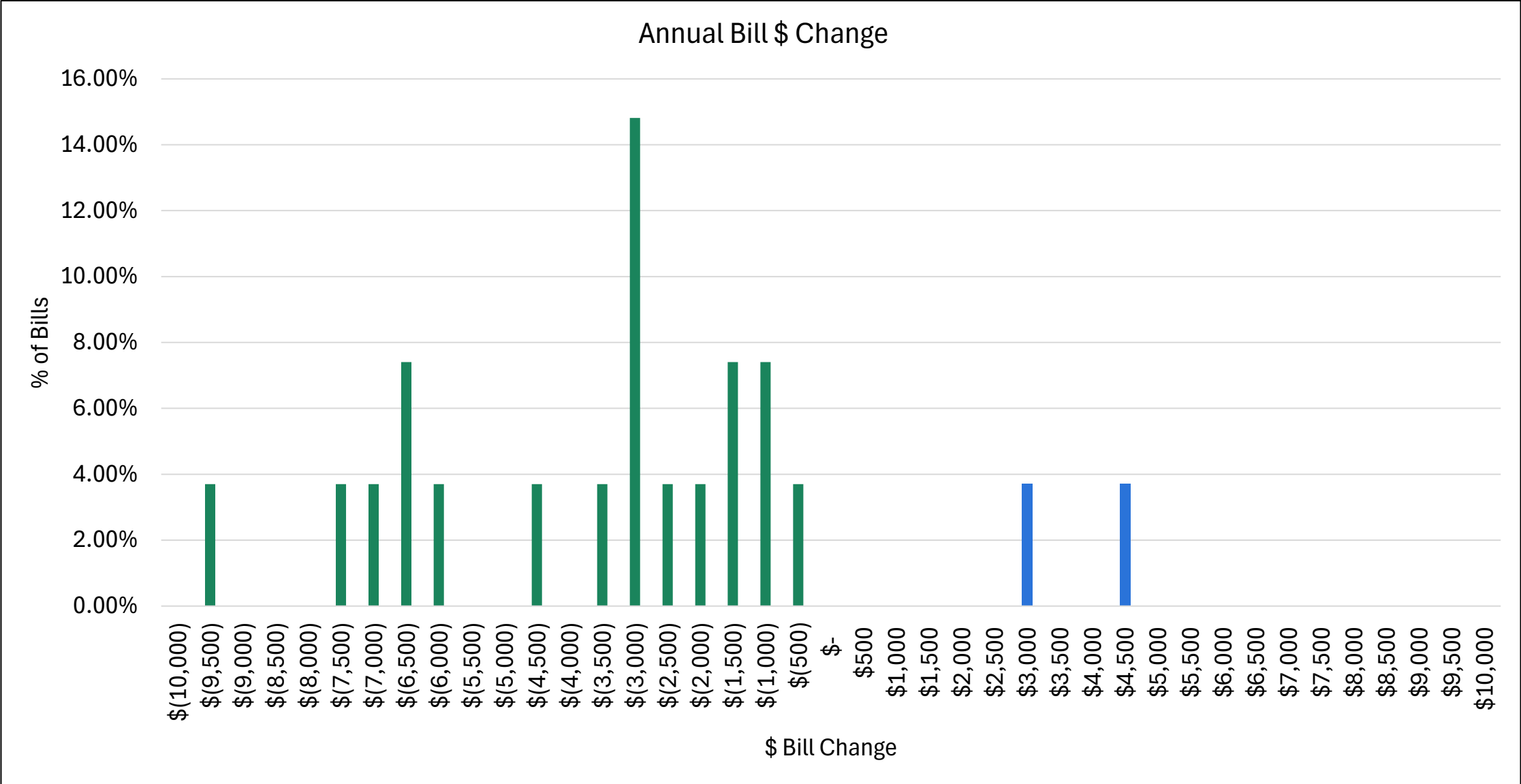
Annual  
Change  
\$(148.49)



Annual  
Change  
\$183.30

# Customer Impacts – Large Commercial

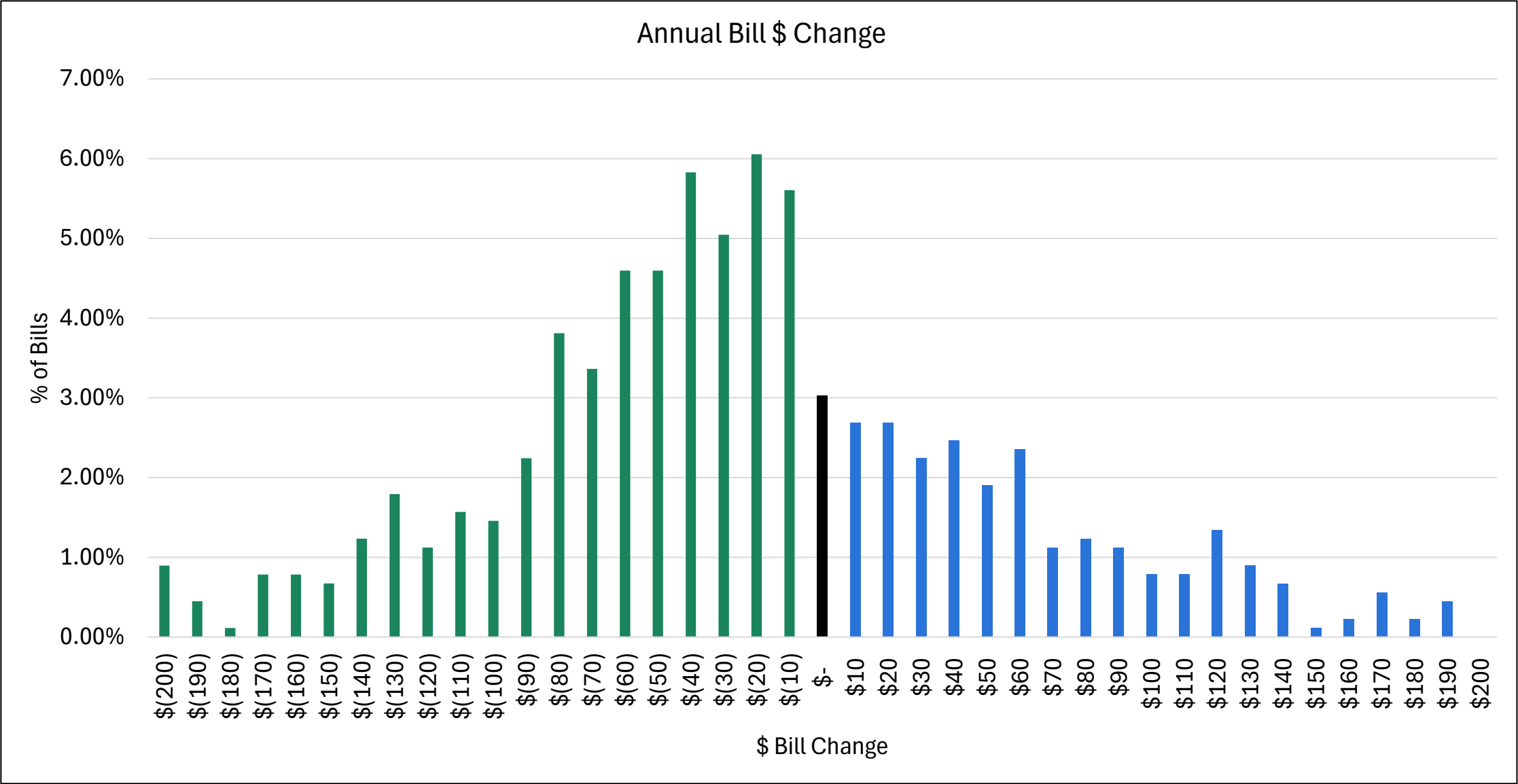
WATER RATE STUDY RECOMMENDATIONS



**Overall:** 89% of annual bills are expected to decrease, while 11% will increase

# Customer Impacts – Master Metered

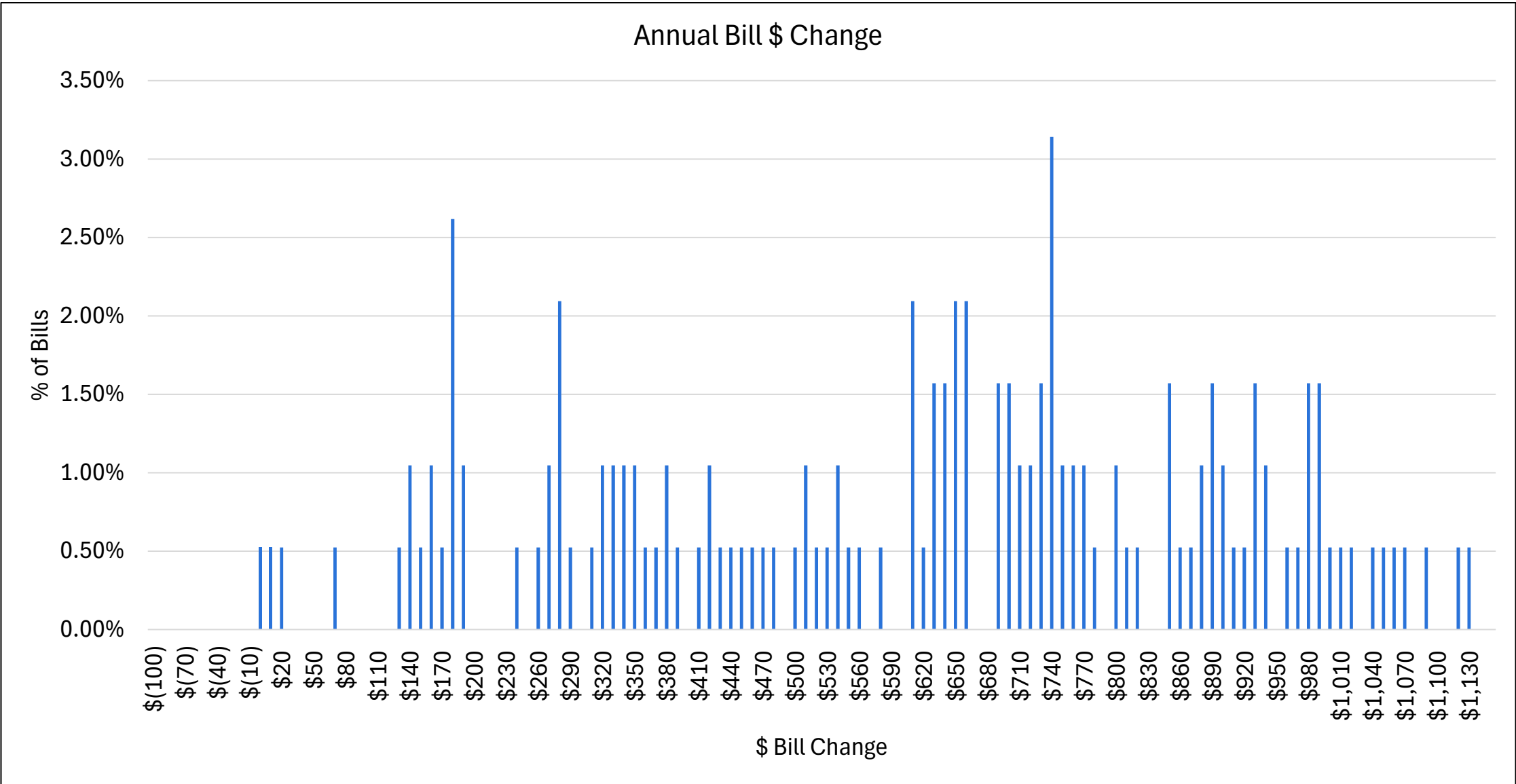
WATER RATE STUDY RECOMMENDATIONS



**Overall:** 67% of annual bills are expected to decrease, while 33% will increase

# Customer Impacts – Residential Irrigation

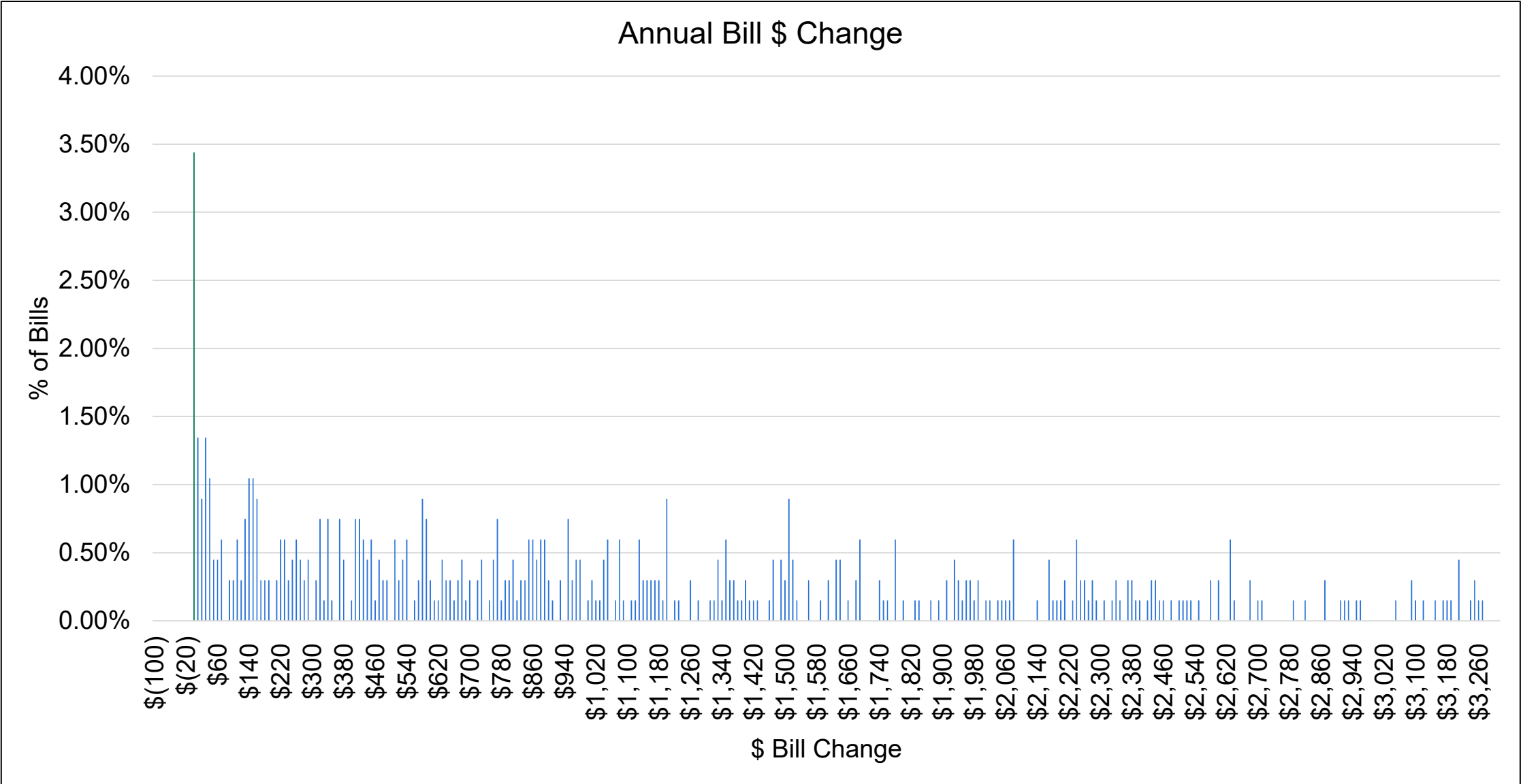
WATER RATE STUDY RECOMMENDATIONS



**Overall:** 100% of bills will increase

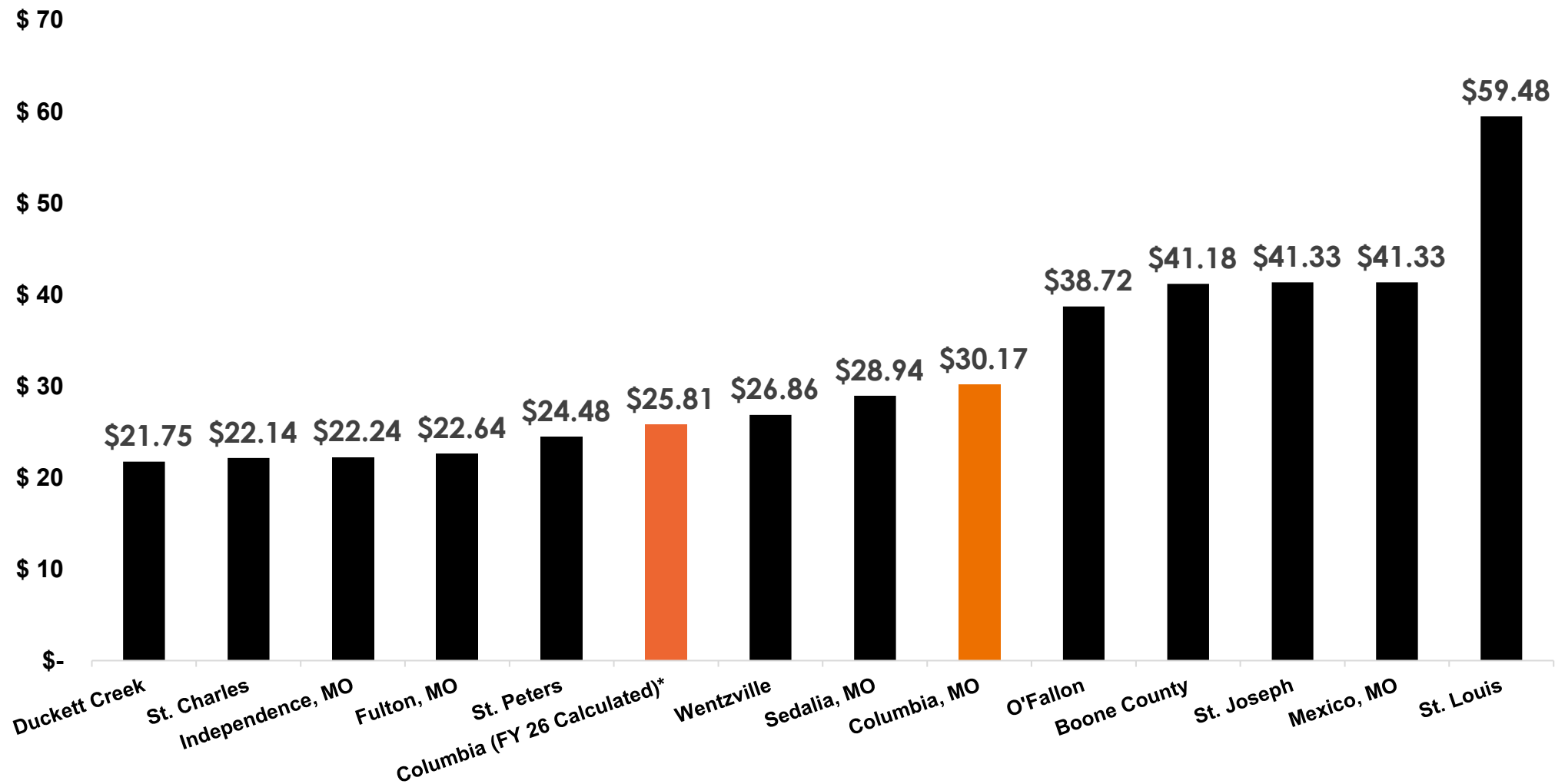
# Customer Impacts –Commercial Irrigation

WATER RATE STUDY RECOMMENDATIONS



**Overall:** 100% of bill will increase

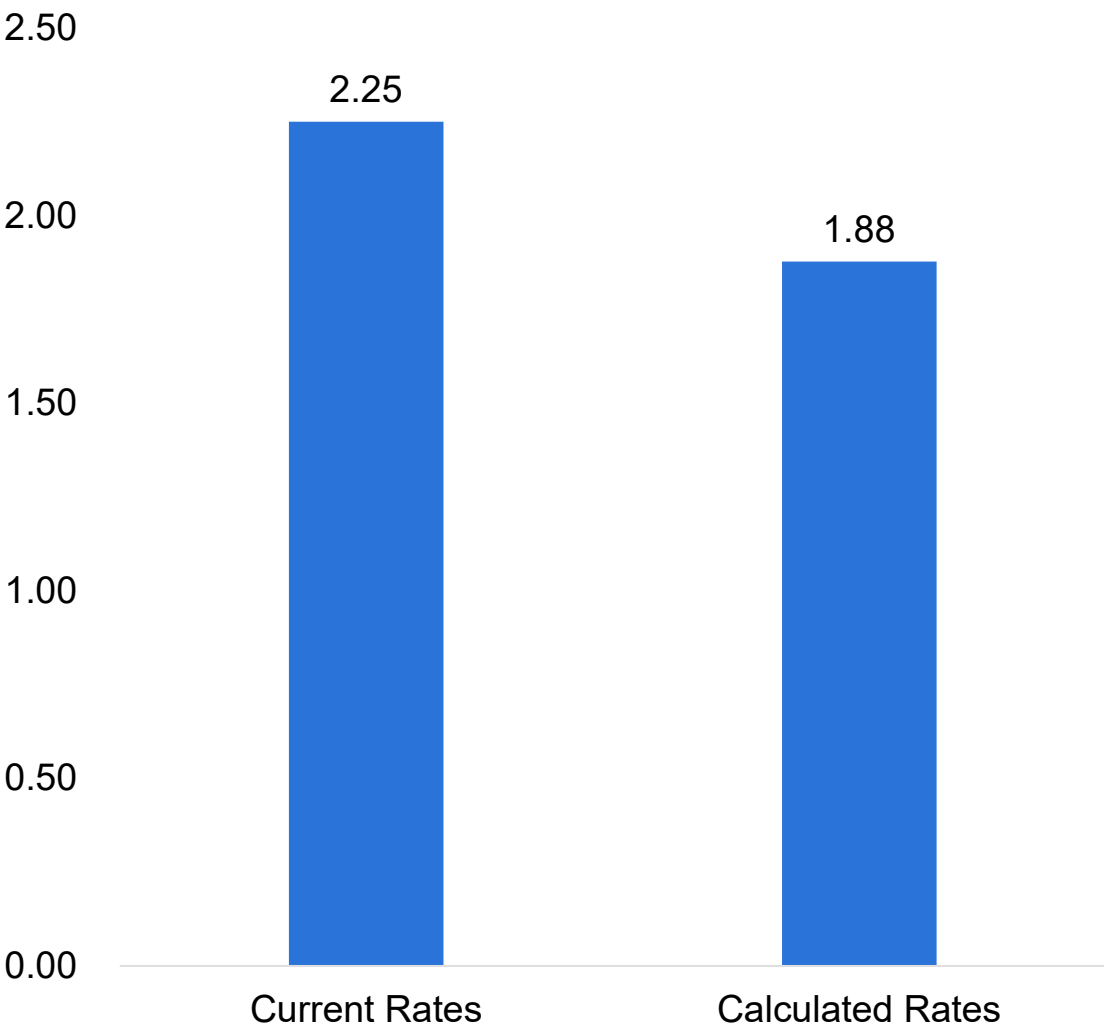
# Rate Survey at 5 CCF Monthly



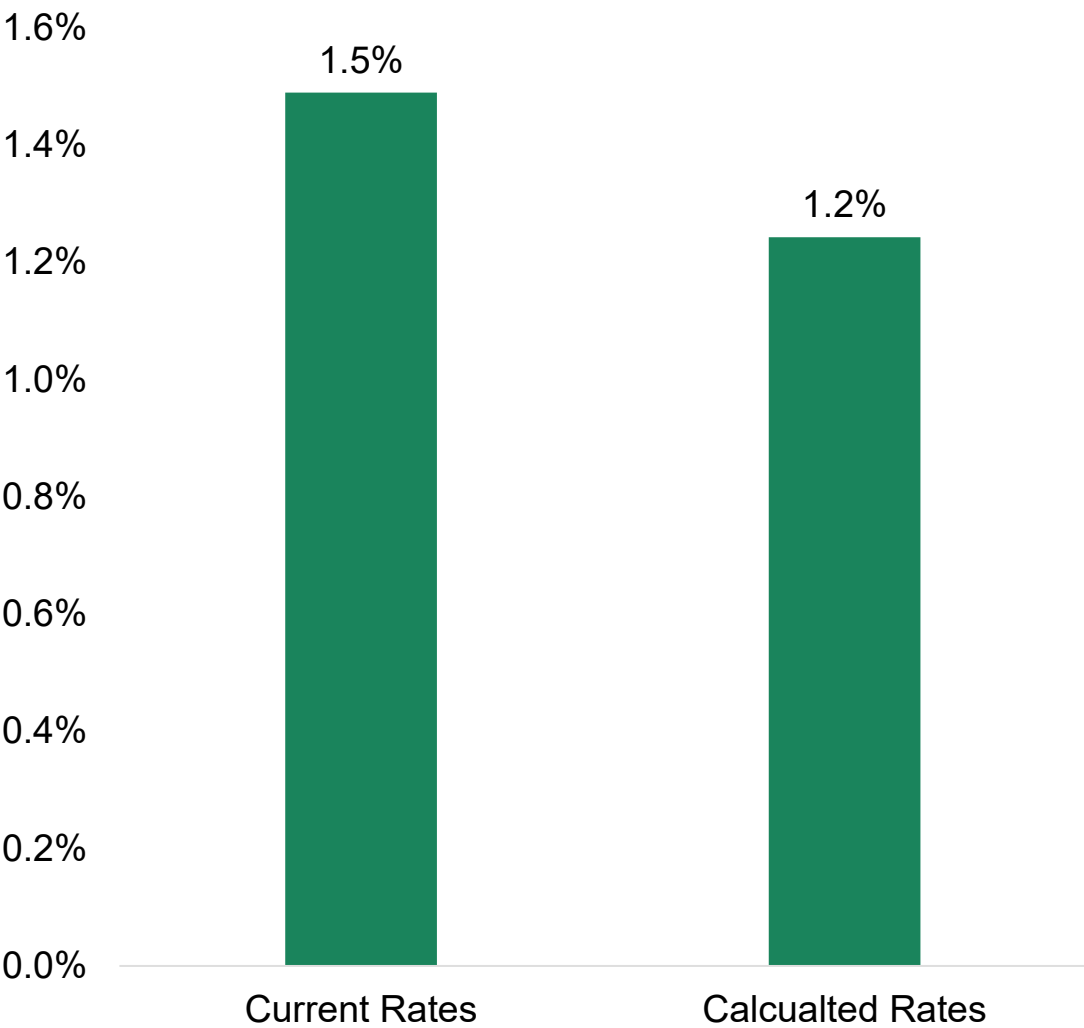
\* Winter bill shown for Comparisons and steady use at 5 CCF

# Affordability Considerations

Hours Worked at Min Wage Monthly



Water Bill @ 20th Percentile of Income



*Assumes 5 CCF Use, \$13.75 min wage and \$24,920 of income at 20<sup>th</sup> percentile*





# 4

# Miscellaneous Fees

# Miscellaneous Fee Calculation

Identify costs and activities for each service and populate in Stantec's cost template

## Labor

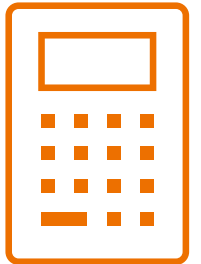
- How much time does each role spend to perform this service?

## Equipment/Vehicles

- What pieces of equipment or vehicles are utilized to perform the service?

## Materials

- What materials are used as part of this service?



$$\begin{array}{c} \text{Hours Spent} \\ \text{(Customer Service, Utility Tech)} \end{array} \times \begin{array}{c} \text{Costs per Hour} \\ \text{(Labor, vehicles \& equipment)} \end{array} + \begin{array}{c} \text{Unit Costs} \\ \text{(Materials)} \end{array} = \text{Cost of Service}$$

# Miscellaneous Fees

Fee/Charge Title	Current Charge	Full Cost Recovery Charge	Current Cost Recovery (%)	Proposed Charge	Change (\$)	Proposed Cost Recovery
Service Initiation Fee	\$6.00	\$15.59	38.49%	\$15.00	\$9.00	96.22%
Disconnect/Reconnect Fee (Residential)	\$30.00	\$373.59	8.03%	\$30.00	\$0.0	8.03%
Disconnect/Reconnect Fee (All Other Customers)	\$100.00	\$373.59	26.77%	\$100.00	\$0.0	26.77%
Reconnect Fee - Same Day, Weekend, Holiday, After-Hours (Residential)	\$90.00	\$373.59	24.09%	\$90.00	\$0.0	24.09%
Reconnect Fee - Same Day, Weekend, Holiday, After-Hours (All Other Customers)	\$200.00	\$373.59	53.53%	\$200.00	\$0.0	53.53%
Security Deposits (Water Service)	\$25.00	N/A	N/A	\$25.00	\$0.00	N/A
Tap Fee (Residential 1"-2" )	\$1,000.00	\$1,278.44	78.22%	\$1,250.00	\$250.00	97.78%
Tap Fee (Commercial 1", 1.5", 2")	\$335.00	\$186.30	179.82%	\$335.00	\$0.00	179.82%
Tap Fee (Commercial 4" and Larger)	\$575.00	\$1,278.44	44.98%	\$1,000.00	\$425.00	97.00%
Appurtenance Fee (5/8", 1")	\$450.00	\$1,237.09	36.38%	\$1,200.00	\$750.00	100.00%
Meter Fee (5/8")	\$250.00	\$675.10	37.03%	\$675.00	\$425.00	100.00%
Meter Fee (3/4")	\$270.00	\$689.04	39.18%	\$689.00	\$420.00	100.00%
Meter Fee (1")	\$300.00	\$563.63	53.23%	\$710.00	\$410.00	125.97%
Meter Fee (Larger than 1")	At Cost	At Cost	N/A	N/A	N/A	N/A
Special Meter Test (1" or Less)	\$65.00	\$65.00	0.00%	\$65.00	\$0.00	N/A
Special Meter Test (Larger than 1")	\$120.00	\$120.00	0.00%	\$120.00	\$0.00	N/A

# Connection Fees (Water System Equity Charge)

Methodology	Description	Appropriate For
<b>Buy-In Method</b>	Fees are based on cost of constructing existing utility system	System with ample existing capacity to sell
<b>Incremental Cost Method</b>	Fees are based on planned growth-related capital improvements	System with limited or no existing capacity to sell
<b>Combined Method</b>	Fees are based on cost of existing system and planned capital improvements	System with existing capacity to sell and with planning growth-related capital projects

# Connection Fees (Water System Equity Charge)

Methodology	Description	Appropriate For
<b>Buy-In Method</b>	Fees are based on cost of constructing existing utility system	System with ample existing capacity to sell
<b>Incremental Cost Method</b>	Fees are based on planned growth-related capital improvements	System with limited or no existing capacity to sell
<b>Combined Method</b>	Fees are based on cost of existing system and planned capital improvements	System with existing capacity to sell and with planning growth-related capital projects

# Water System Equity Fee Calculation

$$\text{Water System Equity Fee} = \frac{\text{Value of system} - \text{Debt}}{\text{System capacity}}$$

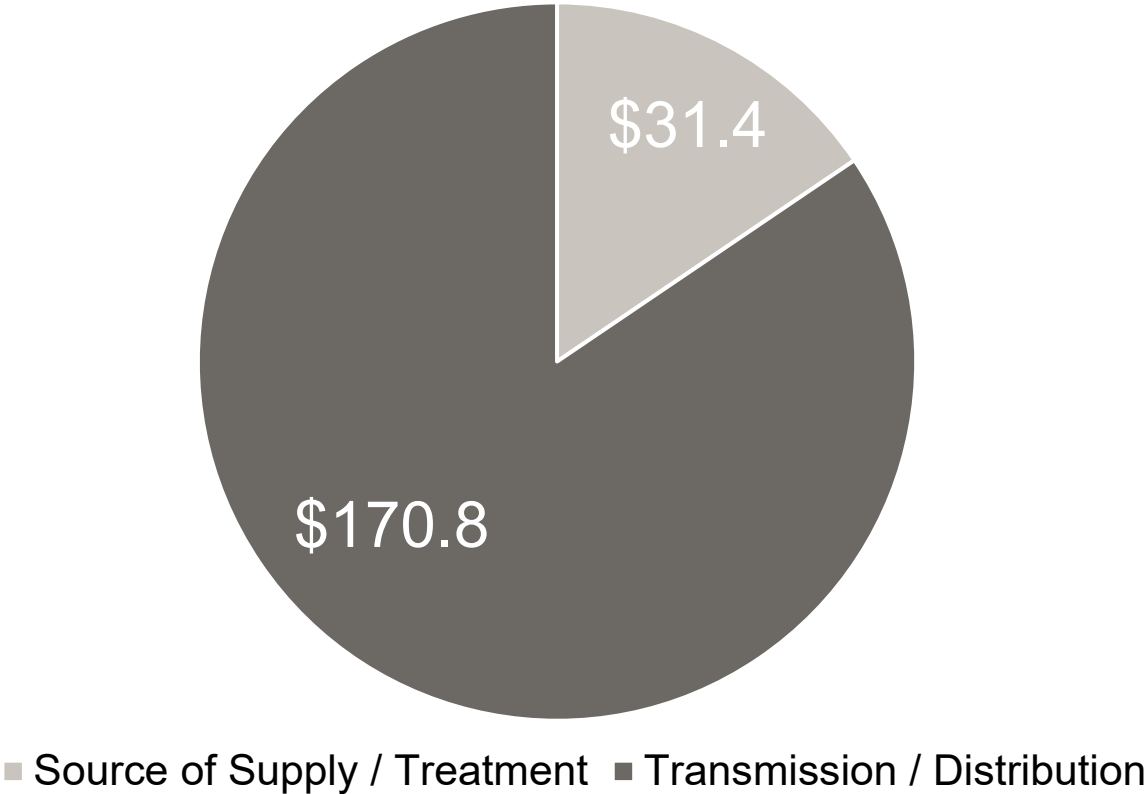
**Value of system:** Depreciated value escalated to current replacement cost (excludes contributed assets)

**Debt:** Outstanding principal on existing utility debt

**System capacity:** Volume capacity measured in equivalent units

# Water System Assets and Capacity

Net Asset Value + Allocated Admin (\$M)



Water System Capacity	Existing Capacity (MGD)
Source of Supply / Treatment	32.00
Transmission / Distribution	32.00

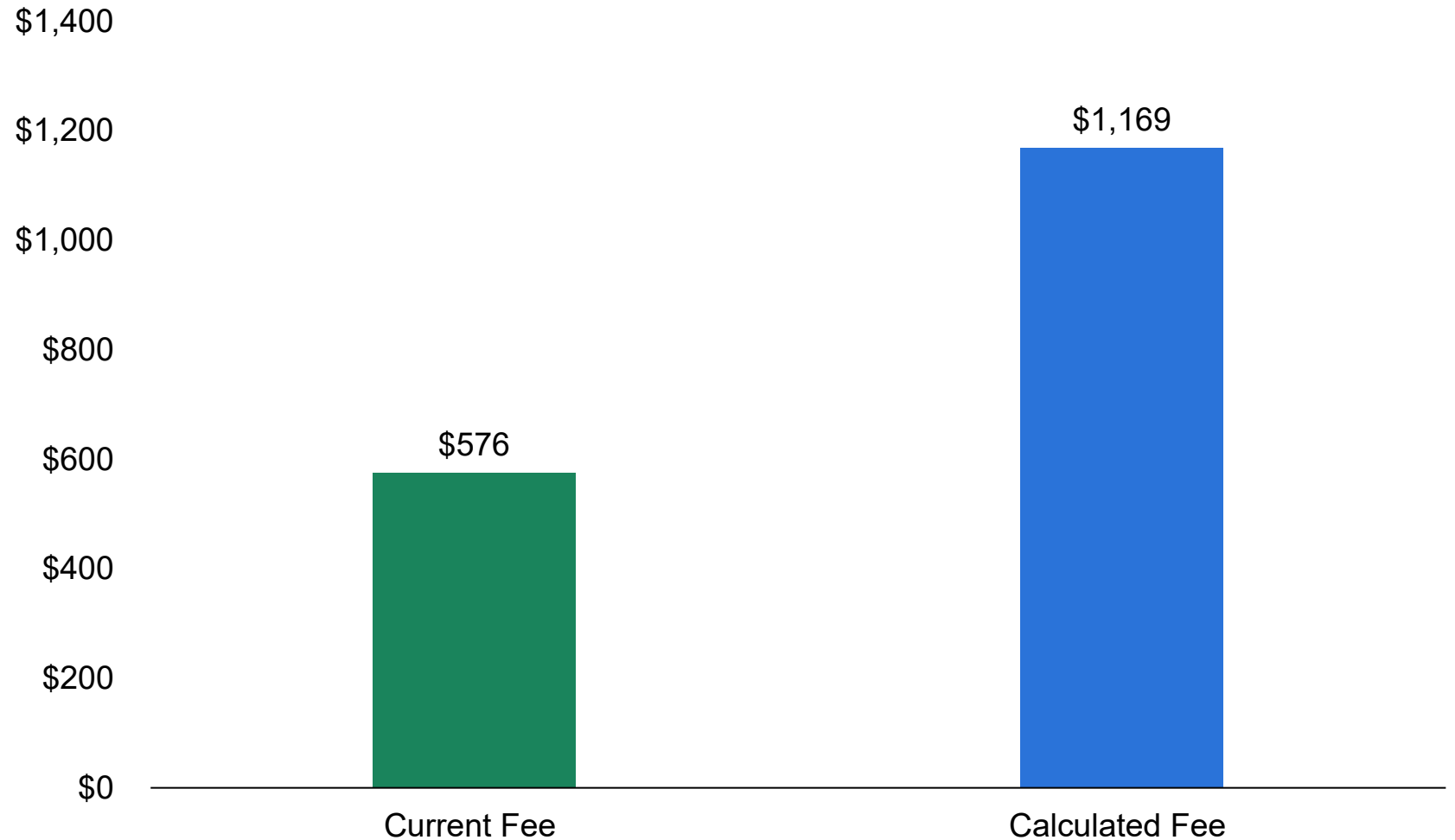
  

Level of Service	LOS (GPD)
Source of Supply / Treatment	227
Transmission / Distribution	227



## Water System Equity Fee Calculation

Buy-In  
Method  
Supports a  
doubling of  
the current  
Fee per ERU

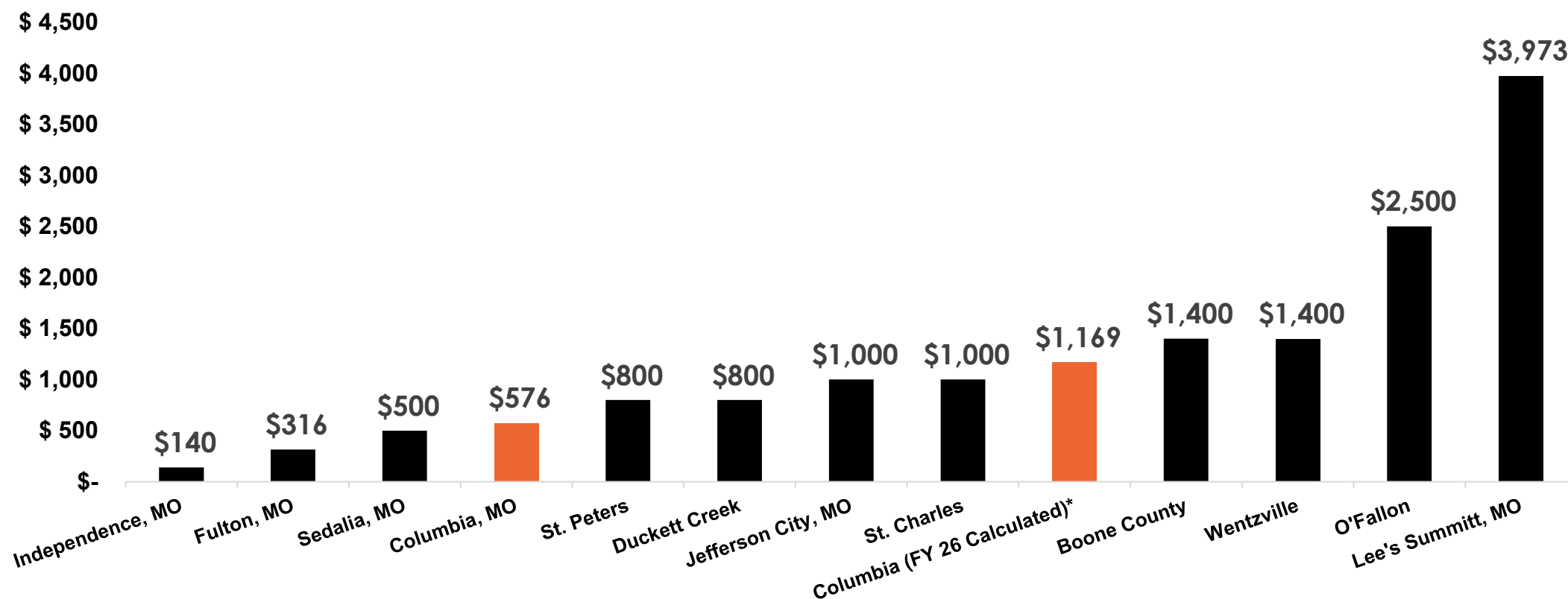


- Water Equity Fee should be increased to reflect the value of the system that the City has invested in
- Phasing could be considered to manage impacts





# Capacity Fee Survey (Water System Equity Fee)





**5**

# Next Steps

# Outlooks and Recommendations

## Financial Plan

- Recommended 12% and 10% revenue increases for FY26 and 27, followed by a 3% each year
- Planned borrowing of ~\$50M to accommodate higher levels of CIP spending in FY29-31

## Cost of Service & Rate Design

- Implement Base-Extra Capacity Rates to reflect COS
- Base Rate Charges for 1" to 2" are most out of alignment
- Peak water users and irrigators would see the largest percent changes to their bill impacts

## Equity Fee & Misc. Fees

- Buy-in Method Supports ~100% increase in Equity Fee
- Majority of Miscellaneous fees are currently only recovering approximately 20-60% of costs

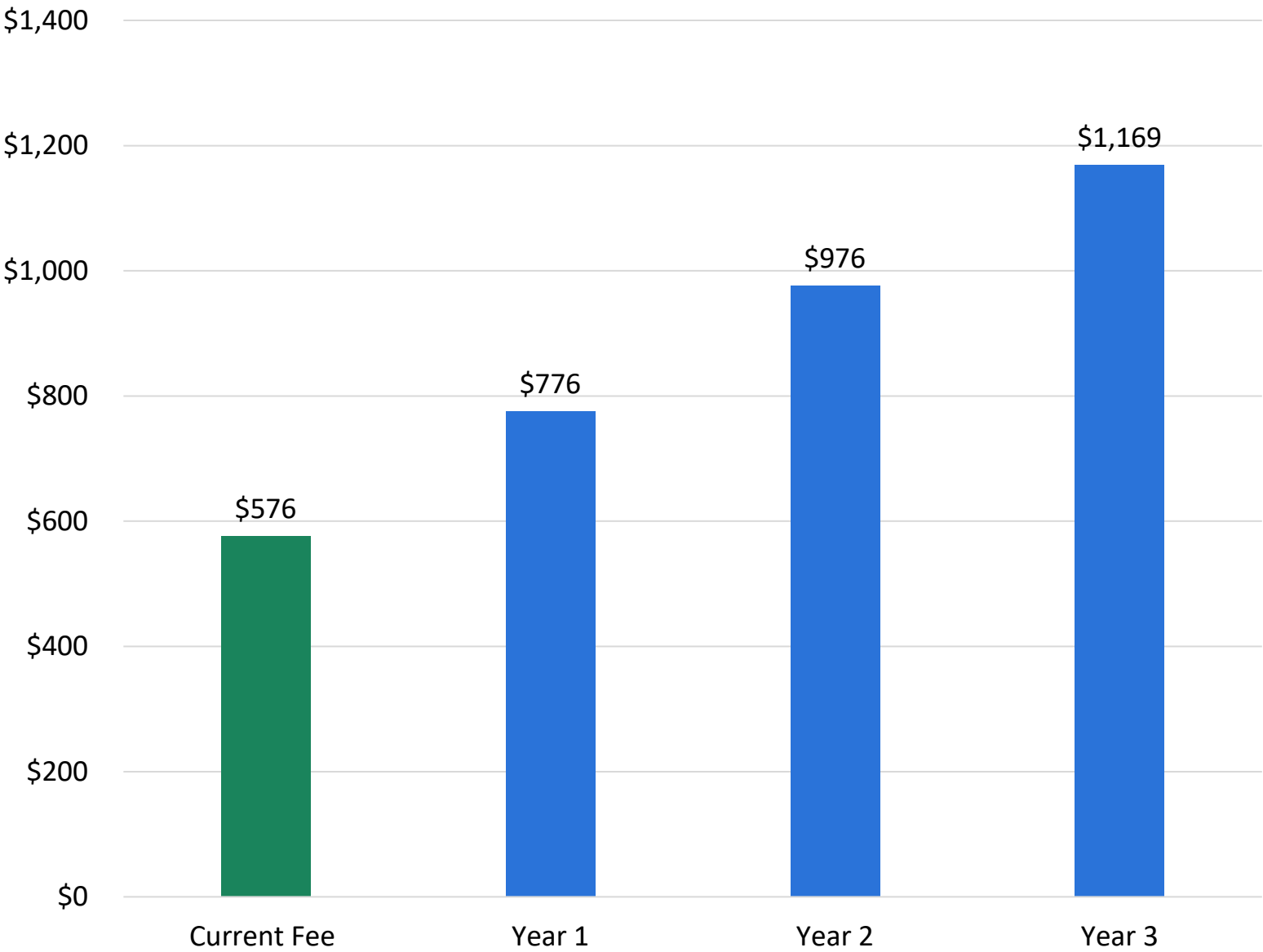
# Discussion & Next Steps

---



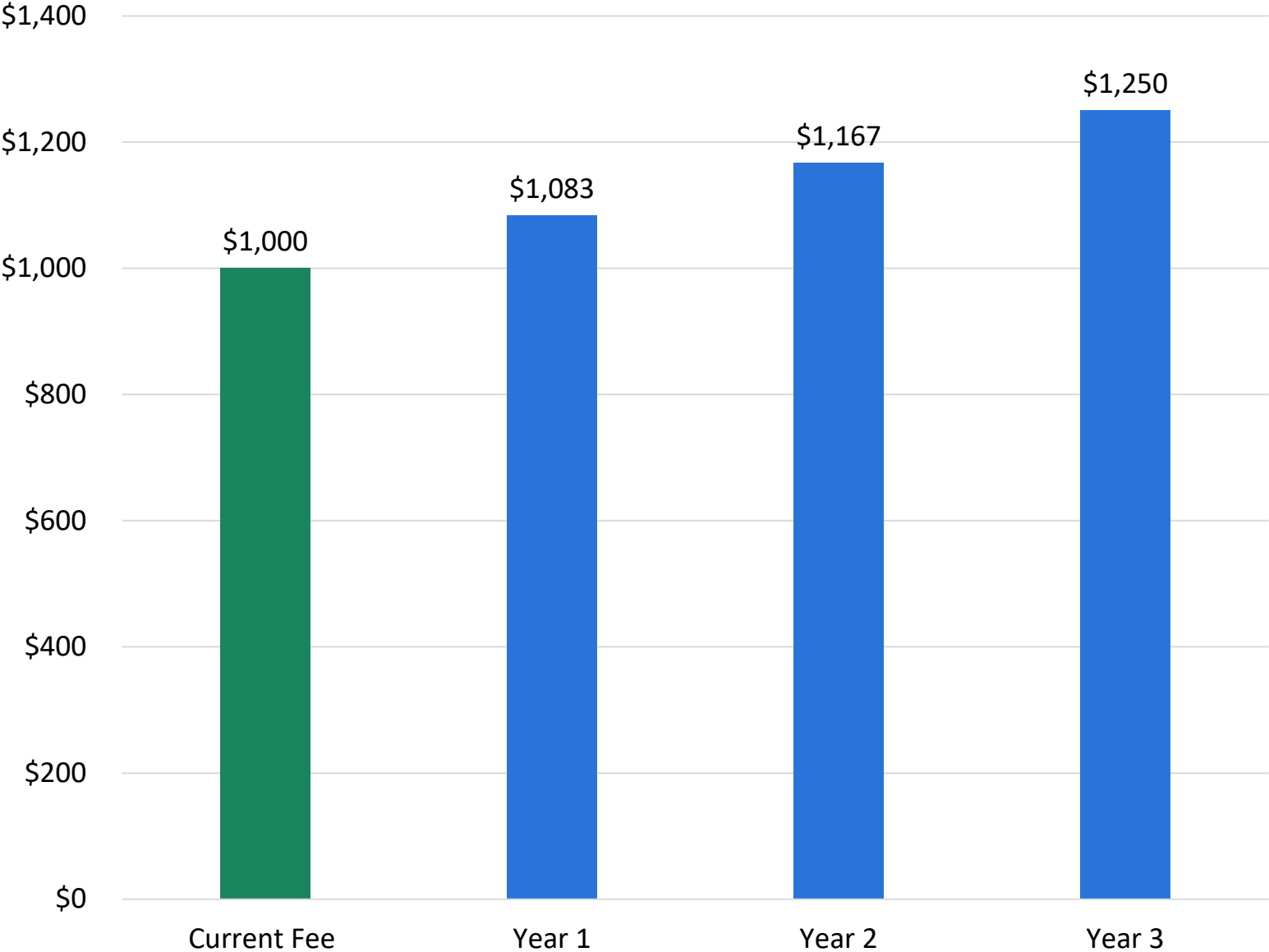
# Water System Equity Fee

Three-year  
phase in, to  
manage  
impacts



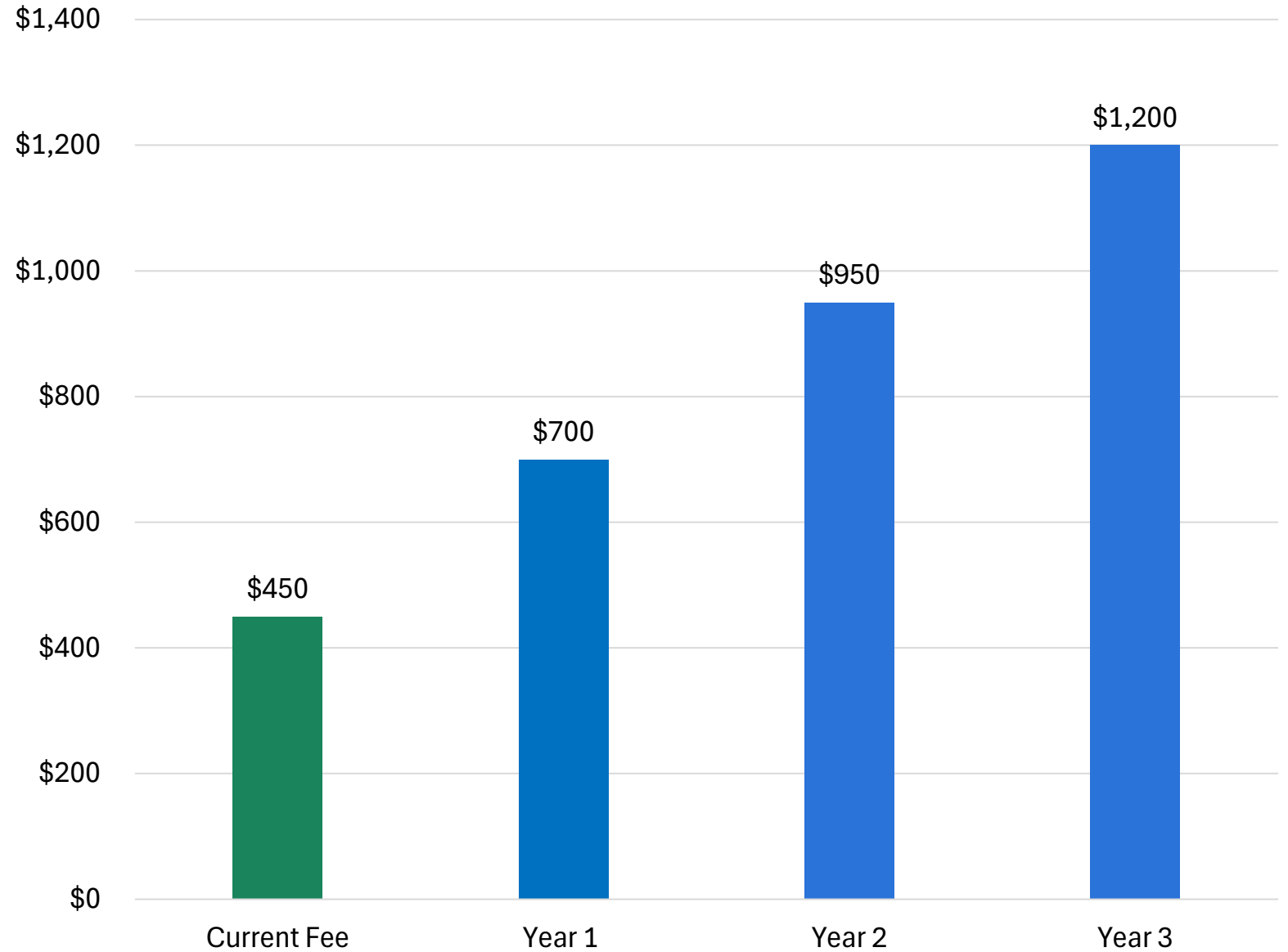
**Tap Fee  
(Residential  
1"-2" )**

Three-year  
phase in, to  
manage  
impacts



## Appurtenance Fee (5/8", 1")

Three-year phase in, to manage impacts



## Meter Fees

Three-year  
phase in, to  
manage  
impacts

