

Water & Sewer Rate Study

November 2015

City of Big Lake, Minnesota



Naeem Qureshi, PE
Progressive Consulting Engineers, Inc.

2013 Monthly Water Rates

Customer Class	Water Rates	
	Fixed Charge (monthly per meter)	Commodity Charge (per 1,000 gallons)
Residential (0-15,000 gallons)	\$11.00	\$3.36
(15,000-30,000 gallons)	-	\$4.20
(over 30,000 gallons)	-	\$6.30
Multi-Residential*	\$22.00	\$3.35
Commercial	\$22.00	\$3.35
Municipal	\$0	\$0

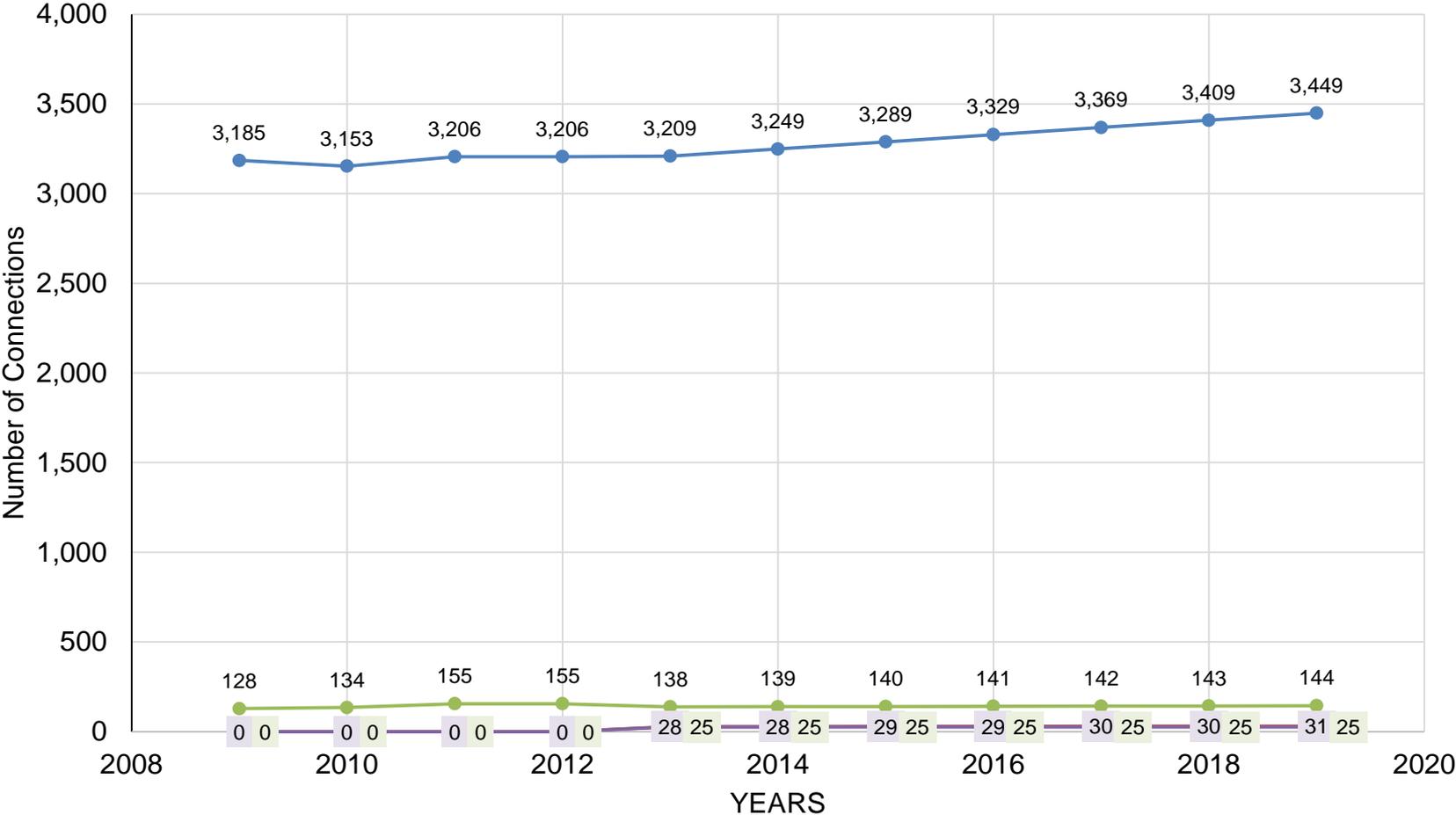
*Multi-residential customers were billed as a 'Commercial' customer in 2013.

2013 Monthly Sewer Rates

Customer Class	Sewer Rates	
	Fixed Charge (monthly per meter)	Sewage Charge (per 1,000 gallons)
Residential	\$11.00	\$5.81
Multi-Residential*	\$17.40	\$5.81
Commercial	\$17.40	\$5.81
Municipal	\$0	\$0

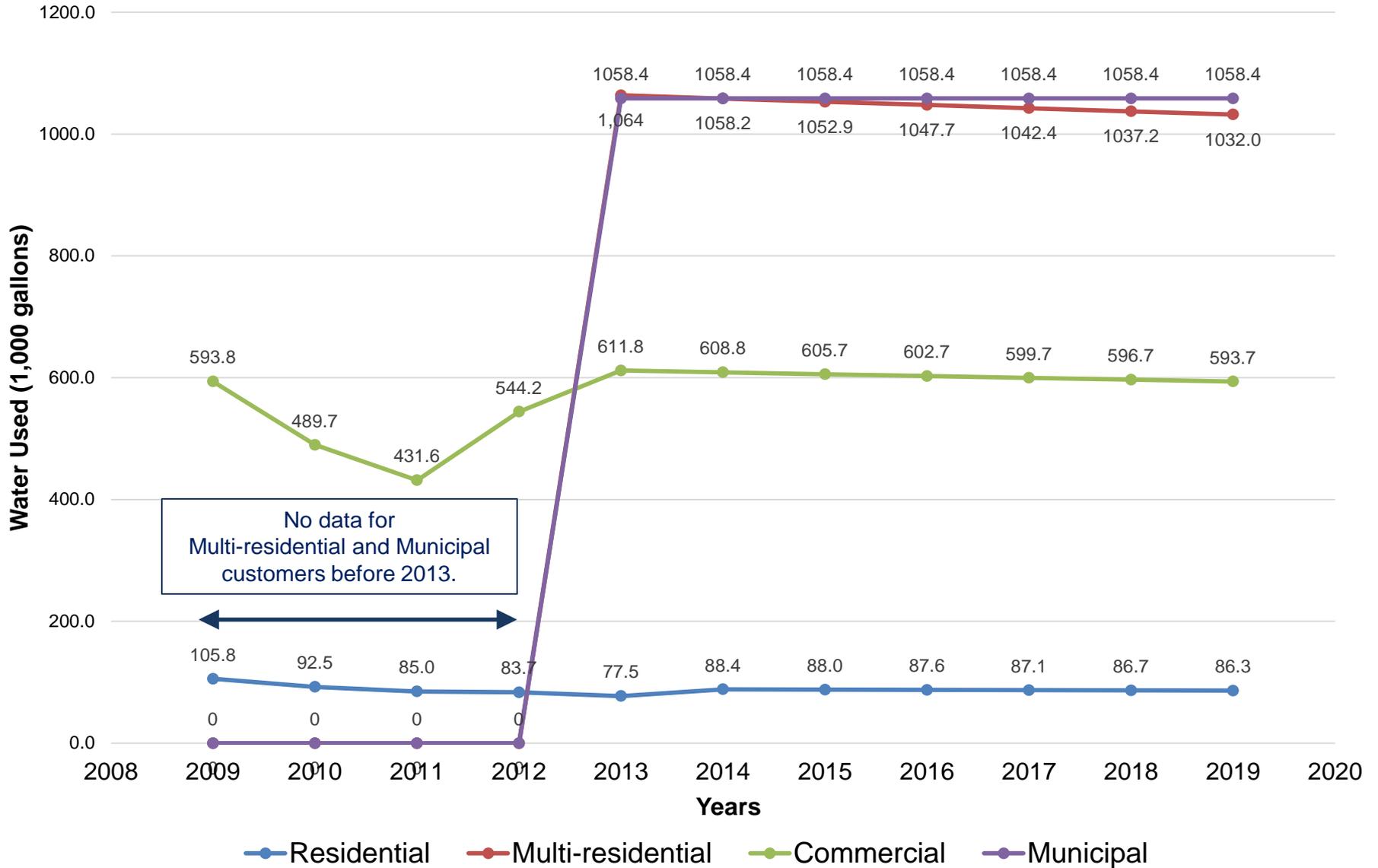
*Multi-residential customers were billed as a 'Commercial' customer in 2013.

Number of Connections Water & Sewer

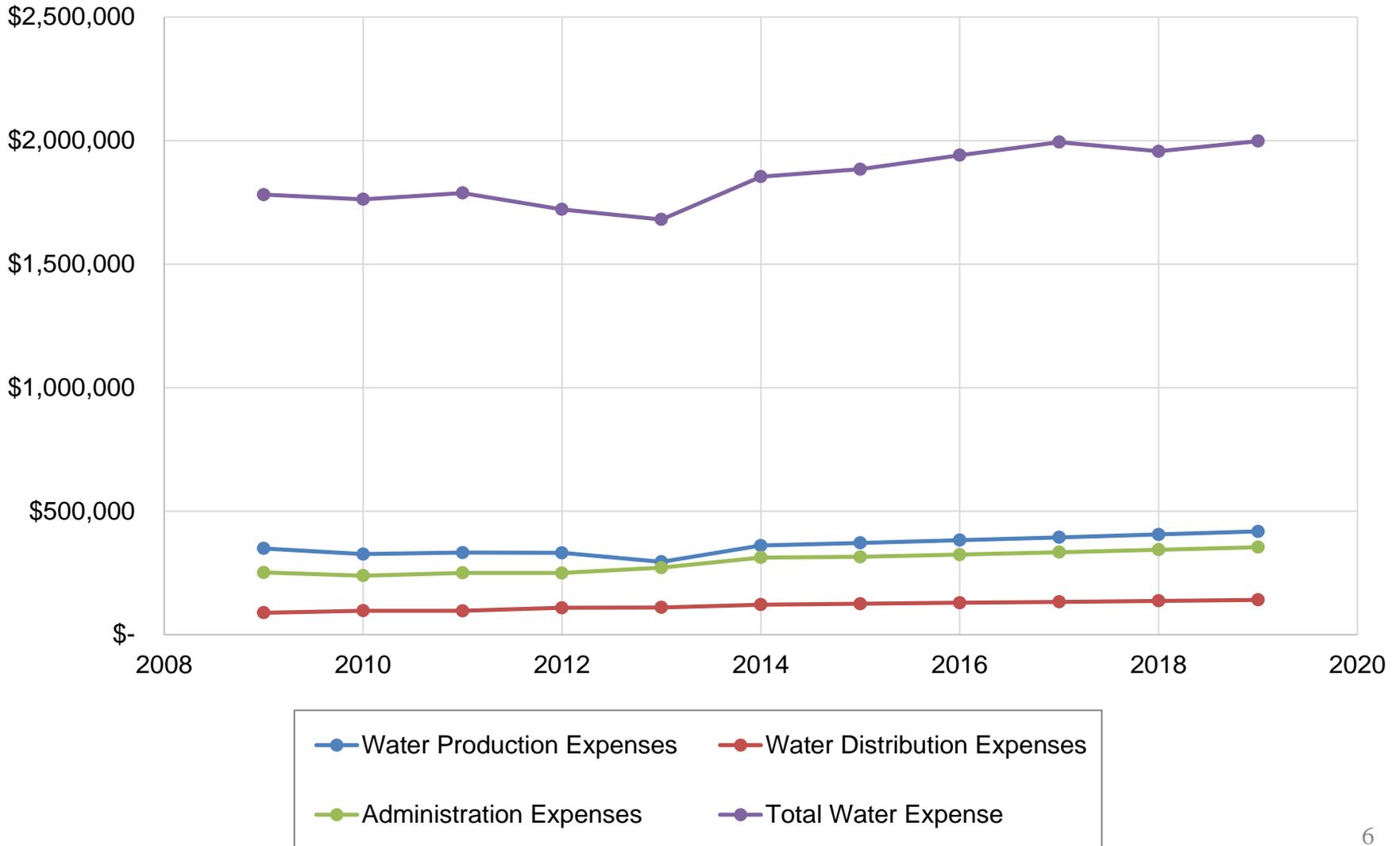


● Residential
 ● Multi-residential
 ● Commercial
 ● Municipal

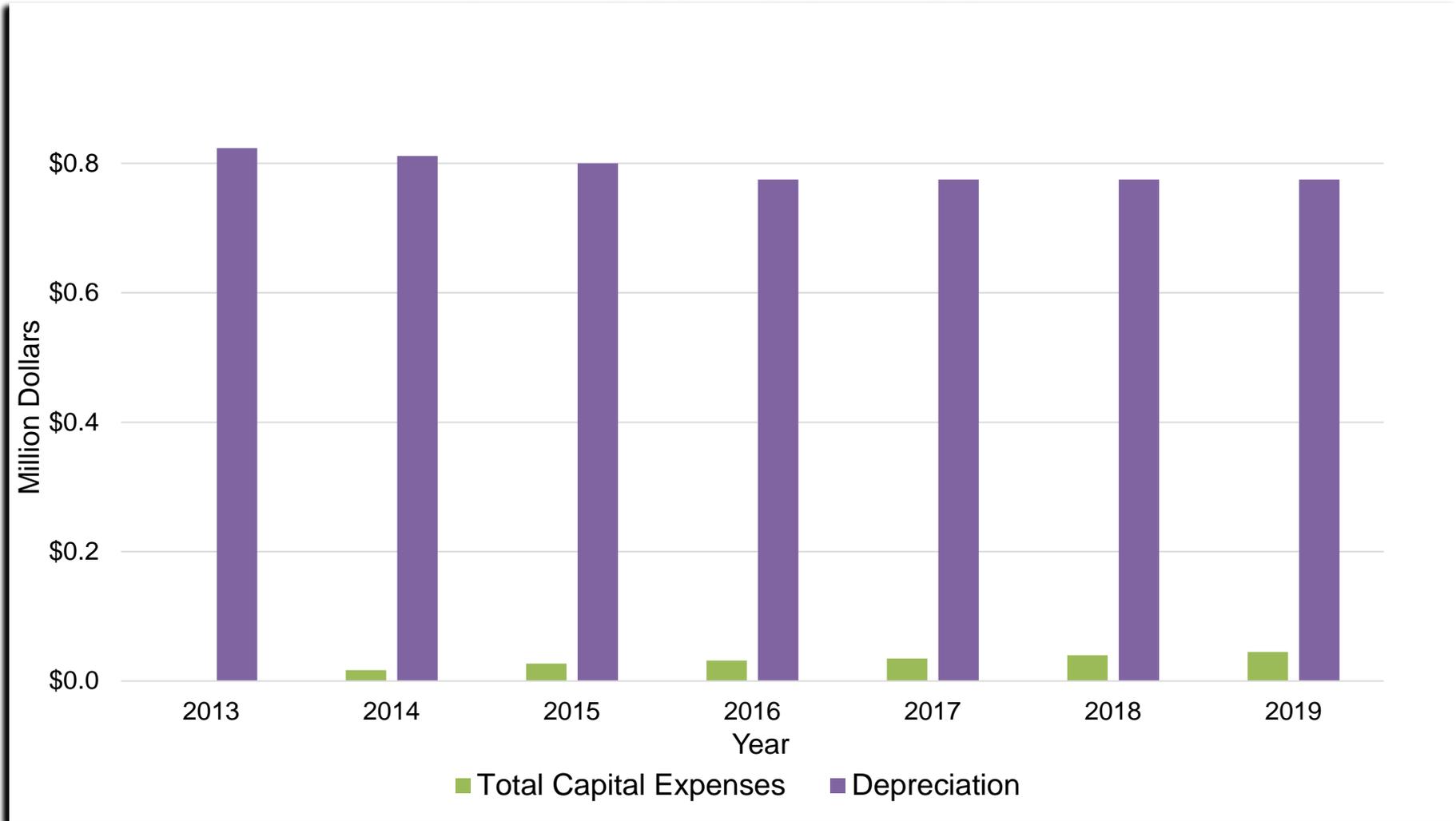
Average Connection Use: Water



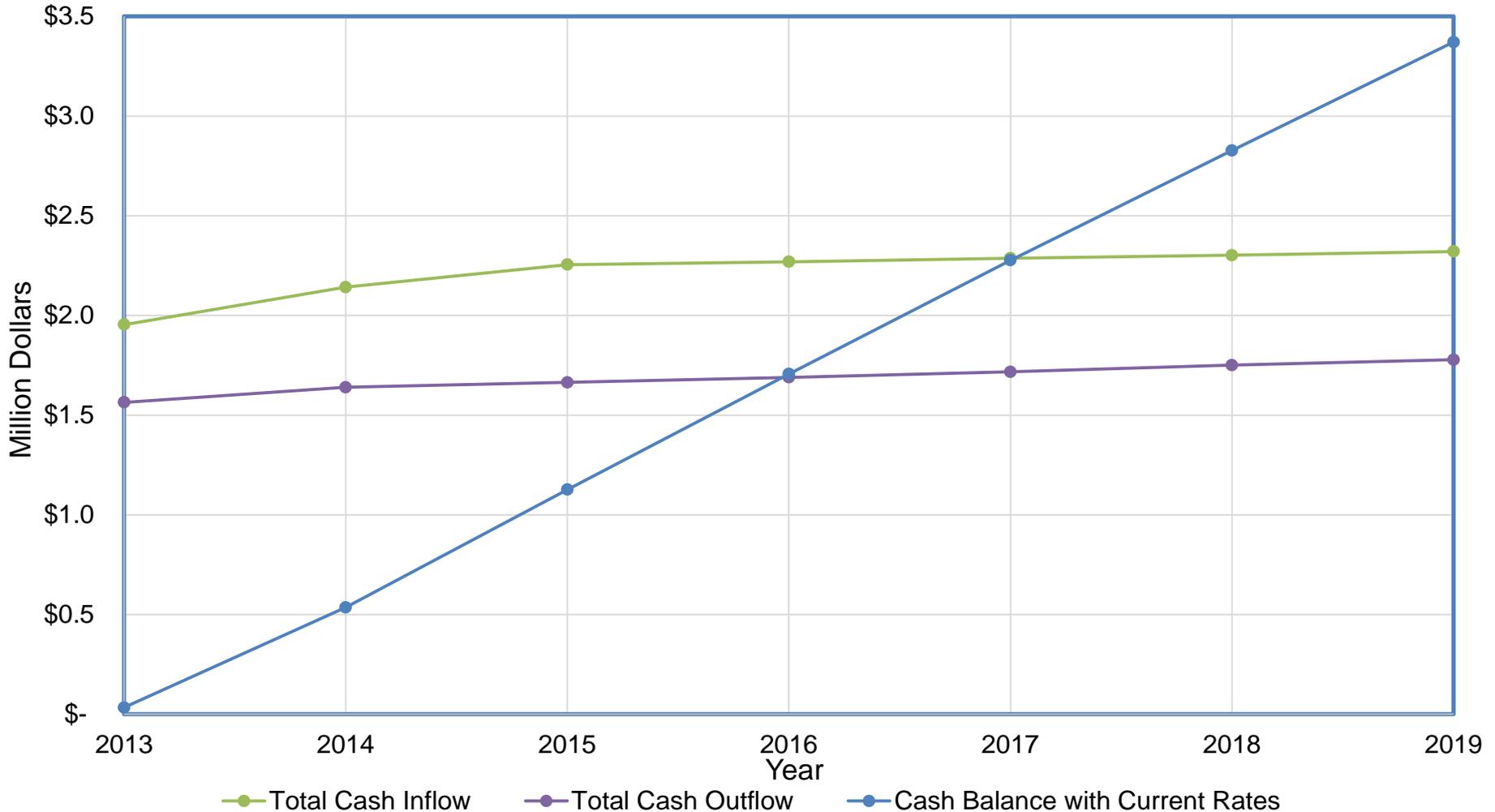
O&M Expenses for Water Service



Capital Improvements & Depreciation for Water Service



Cash Flow and Fund Balance Projected Water Service With Current Rates for 2015-2019

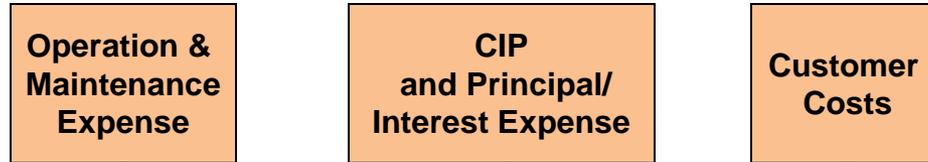


Meter and Meter Equivalent

Meter Size	Meter Equivalent Ratio
$\frac{5}{8}$ ($\frac{7}{8}$)	1
1 inch	1.4
1 $\frac{1}{2}$ inch	1.8
2 inch	2.9
3 inch	11
4 inch	14
6 inch	21
8 inch	29

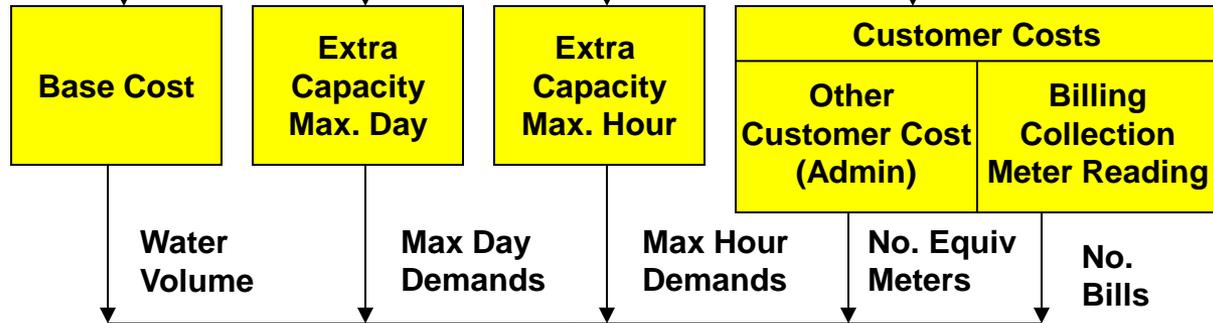
Cost of Service Study and Water Rate Design Process

Step 1:
Financial Planning
Revenue
Requirements

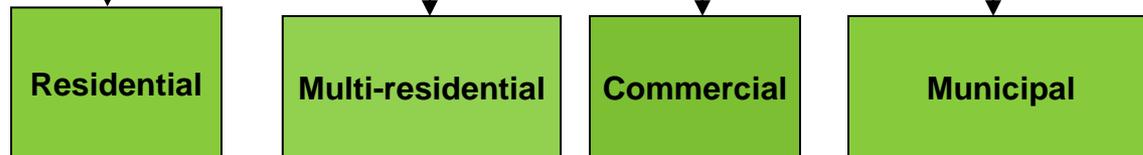


Allocation Factors: Average Day Demands
Max Day Demand
Max Hour Demand

Step 2:
Cost of Service
Functional
Allocations



Step 3:
Rate Design



Proposed Fixed Cost Water Rate Study

	Meter Size						
Quarterly Fixed Cost for Water Service	5/8"- 1"	1-1/2"	2"	3"	4"	6"	8"
All Big Lake Customers (\$/Month)	\$ 6.34	\$ 9.52	\$ 15.33	\$ 58.15	\$ 74.01	\$111.01	\$ 153.30

Proposed Water Rates

(Per 100 Gallons) 5% Annual Increase

Quarterly Water Cost		2015	2016	2017	2018	2019
Fixed Cost (5/8" Meter Equivalent)						
All Big Lake Customers (\$/Month)	\$	6.34	6.66	6.99	7.34	7.71
Residential						
Block 1						
Customers using 6,500 gallons or less water per month*						
Block 1 Rate (cents/100 gallons)	cent	37.0	38.9	40.8	42.8	45.0
Block 2						
Customers using water above 6,500 gallons per month						
Block 2 Rate (cents/100 gallons)	cent	46.3	48.6	51.0	53.6	56.3
Assume the cost 25% higher than Block 1 Rate						
Multi-residential						
Block 1						
Customers using 88,600 gallons or less water per month*						
Block 1 Rate (cents/100 gallons)	cent	27.6	29.0	30.4	32.0	33.5
Block 2						
Customers using water above 88,600 gallons per month						
Block 2 Rate (cents/100 gallons)	cent	34.5	36.2	38.0	39.9	41.9
Assume the cost 25% higher than Block 1 Rate						

*Block 1 is the average water usage per month by the customers in 2013.

Proposed Water Rates

(Per 100 Gallons) 5% Annual Increase

Quarterly Water Cost	2015	2016	2017	2018	2019
Fixed Cost (5/8" Meter Equivalent) All Big Lake Customers (\$/Month) \$	6.34	6.66	6.99	7.34	7.71
Commercial					
Block 1 Customers using 51,000 gallons or less water per month* Block 1 Rate (cents/100 gallons) cent	22.9	24.0	25.2	26.5	27.8
Block 2 Customers using water above 51,000 gallons per month Block 2 Rate (cents/100 gallons) cent Assume the cost 10% higher than Block 1 Rate	25.2	26.5	27.8	29.2	30.6
Municipal					
Block 1 Block 1 Rate (cents/100 gallons) cent	36.8	38.6	40.6	42.6	44.7
Block 2 ----					

*Block 1 is the average water usage per month by the customers in 2013.

Cash Flow and Fund Balance with Proposed Water Rates

5 % Annual Increased 2015-2019

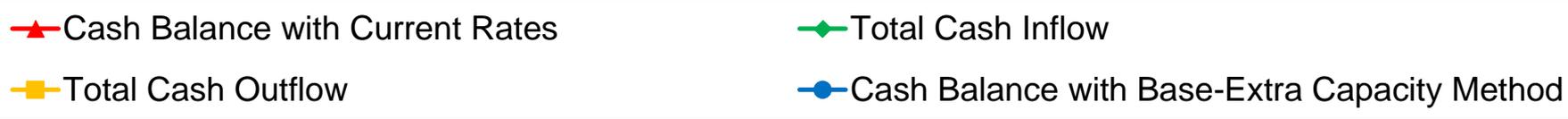
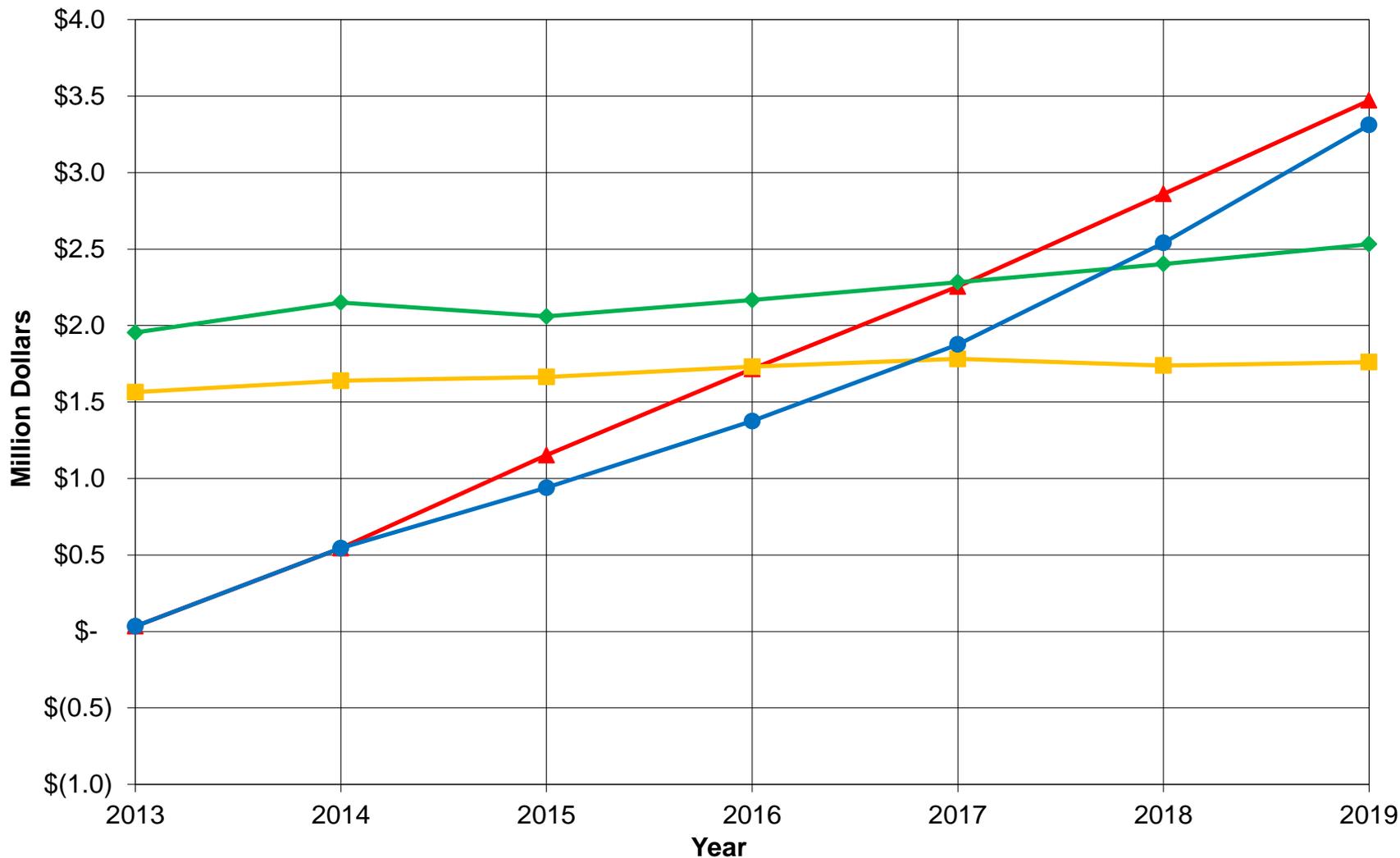
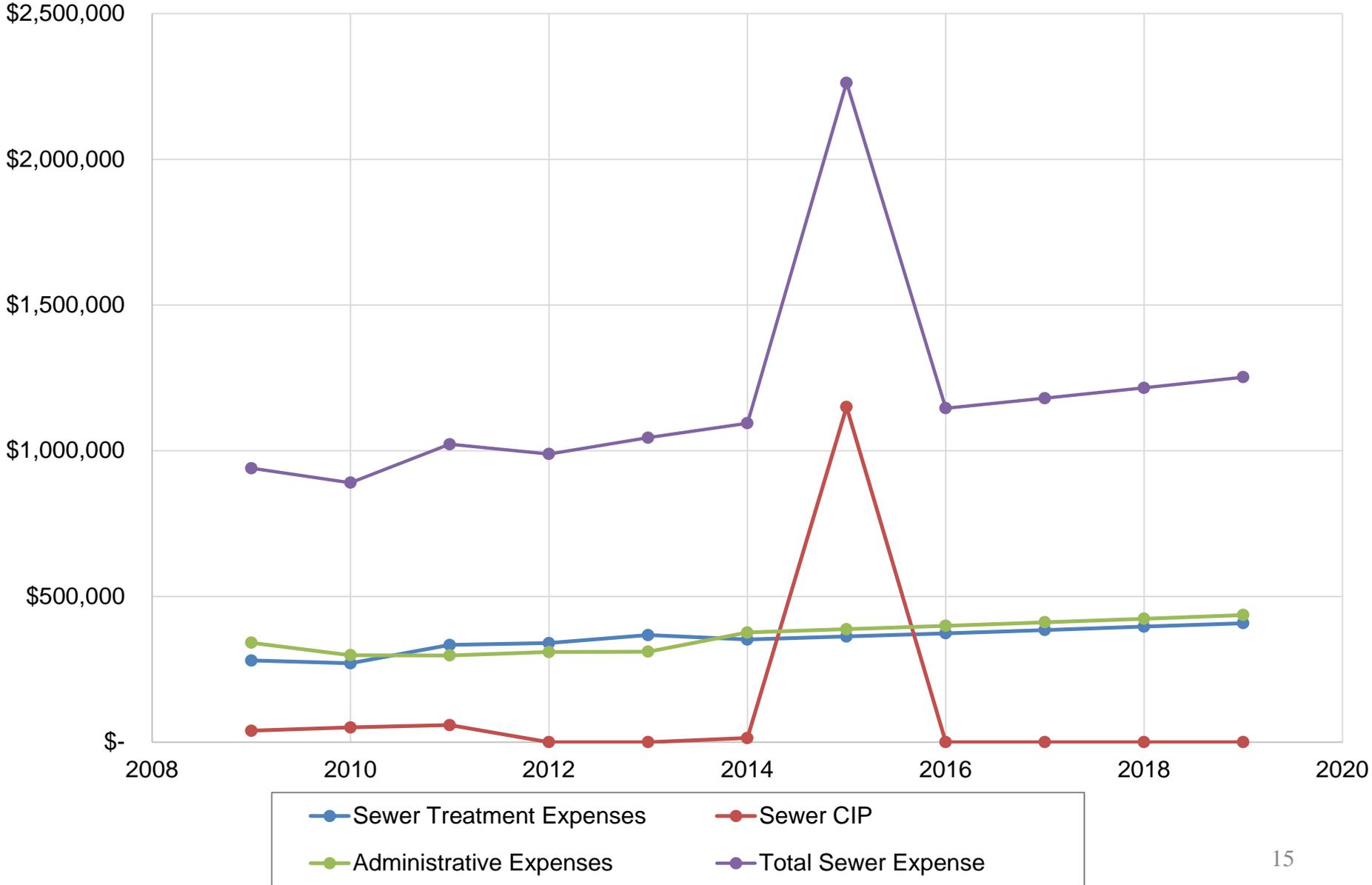
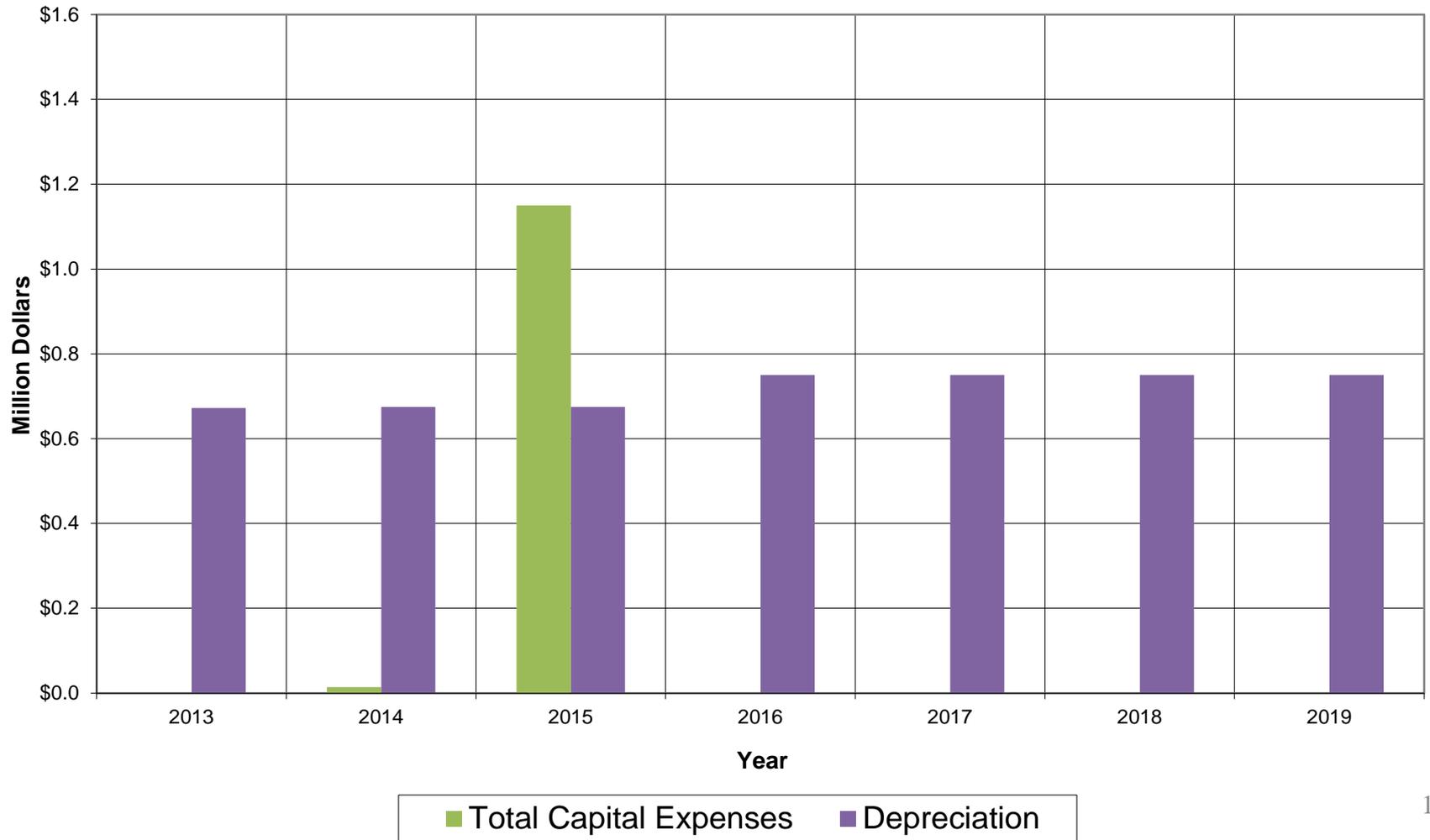


Chart Title

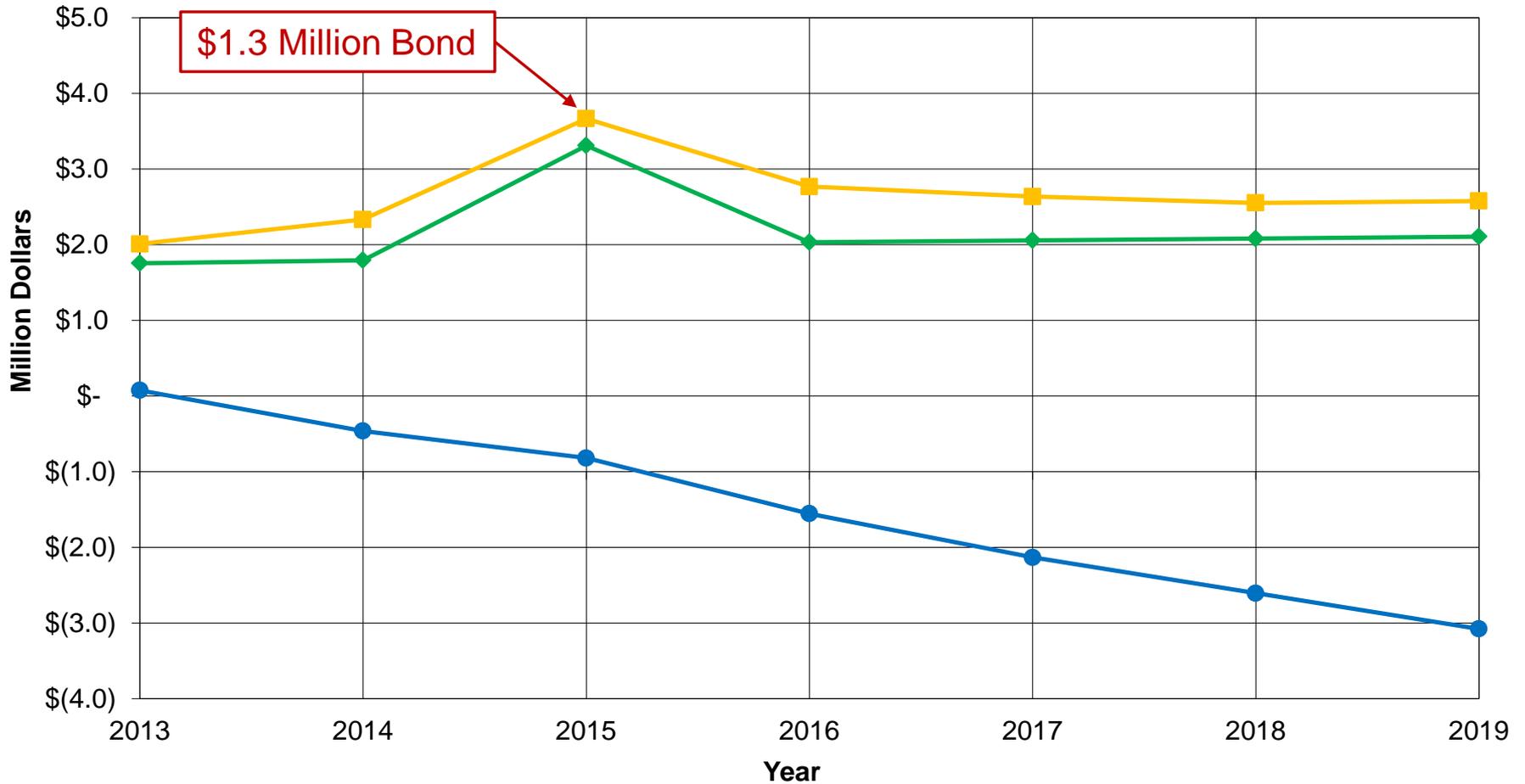
O&M Expenses for Sewer Service



Capital Improvements & Depreciation for Sewer Service

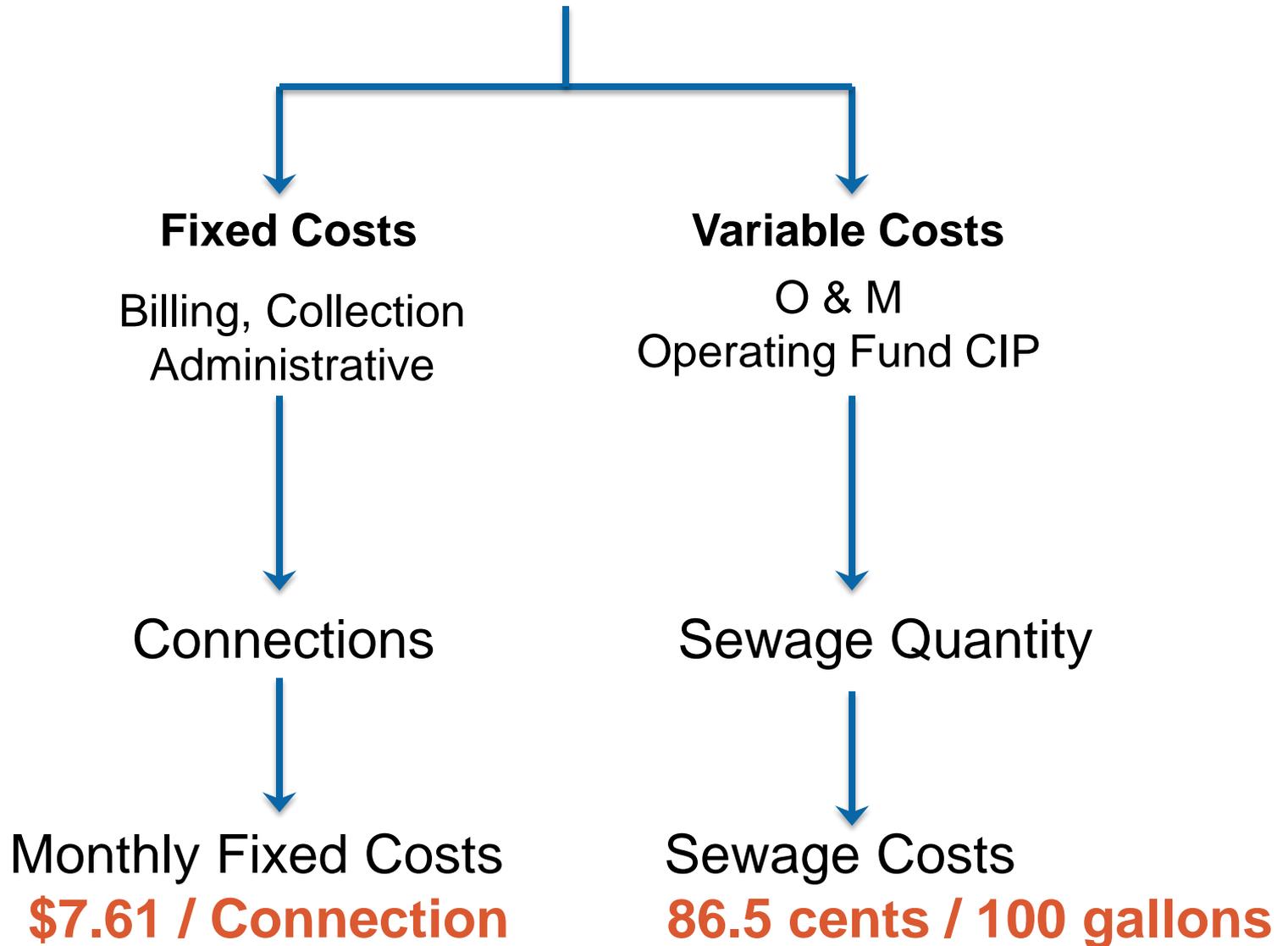


Cash Flow and Fund Balance for Sewer Service With Current Rates for 2015-2019



◆ Total Cash Inflow ■ Total Cash Outflow ● Cash Balance with Current Rates

Total Revenue Requirement



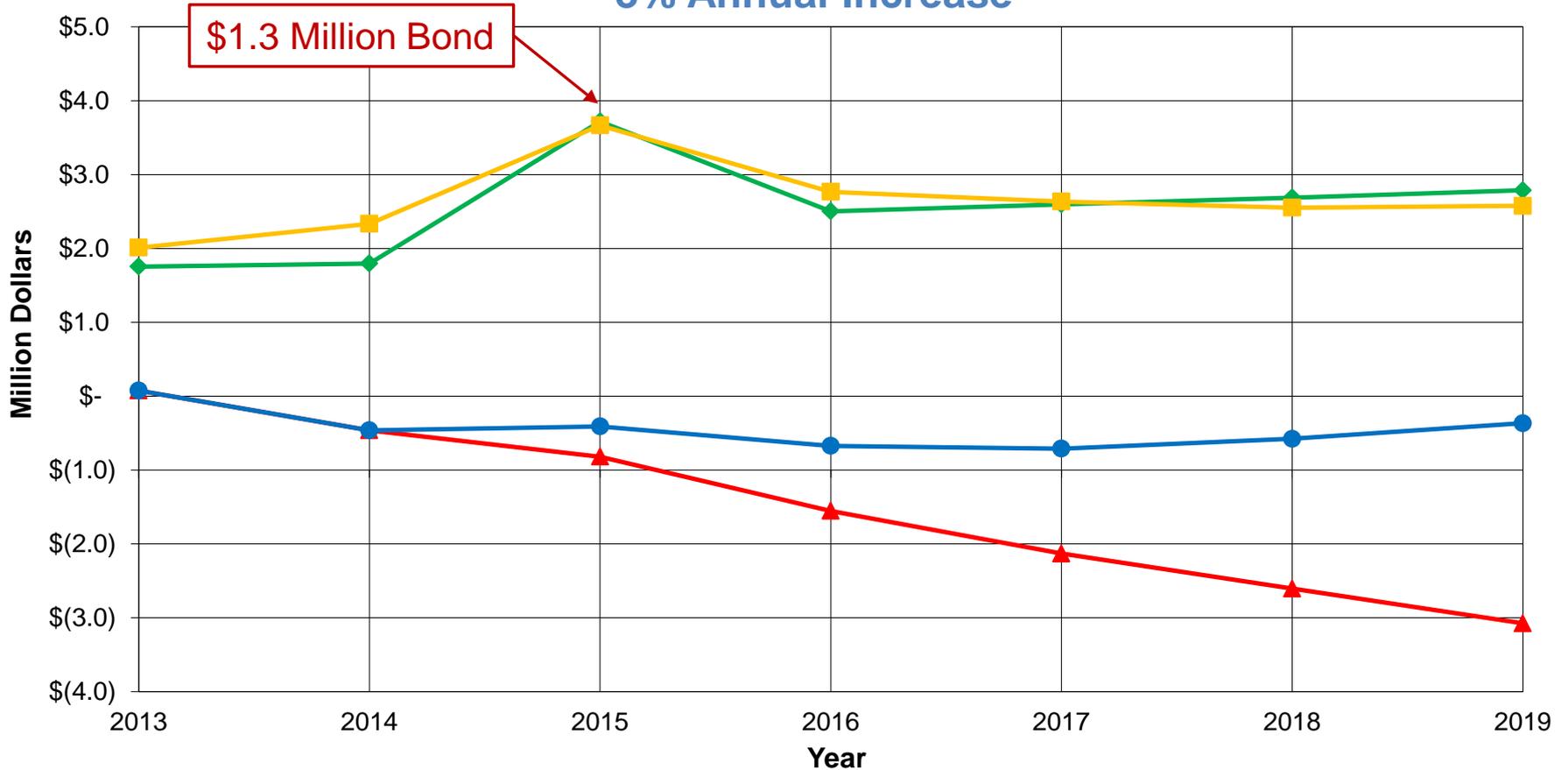
Calculated Sewer Rates

	2015	2016	2017	2018	2019
Fixed Cost per quarter	\$7.61	\$7.84	\$8.07	\$8.32	\$8.57
Sewage Cost Per 100 gallons	86.5 cents	89.1 cents	91.8 cents	94.6 cents	97.4 cents

Current (2014): Fixed Cost \$11.00/month for Residential customers
 \$17.40/month for all other customers
 Sewer Billed 58.1 cents/100 gallons

Cash Flow and Fund Balance with Calculated Sewage Rates

3% Annual Increase



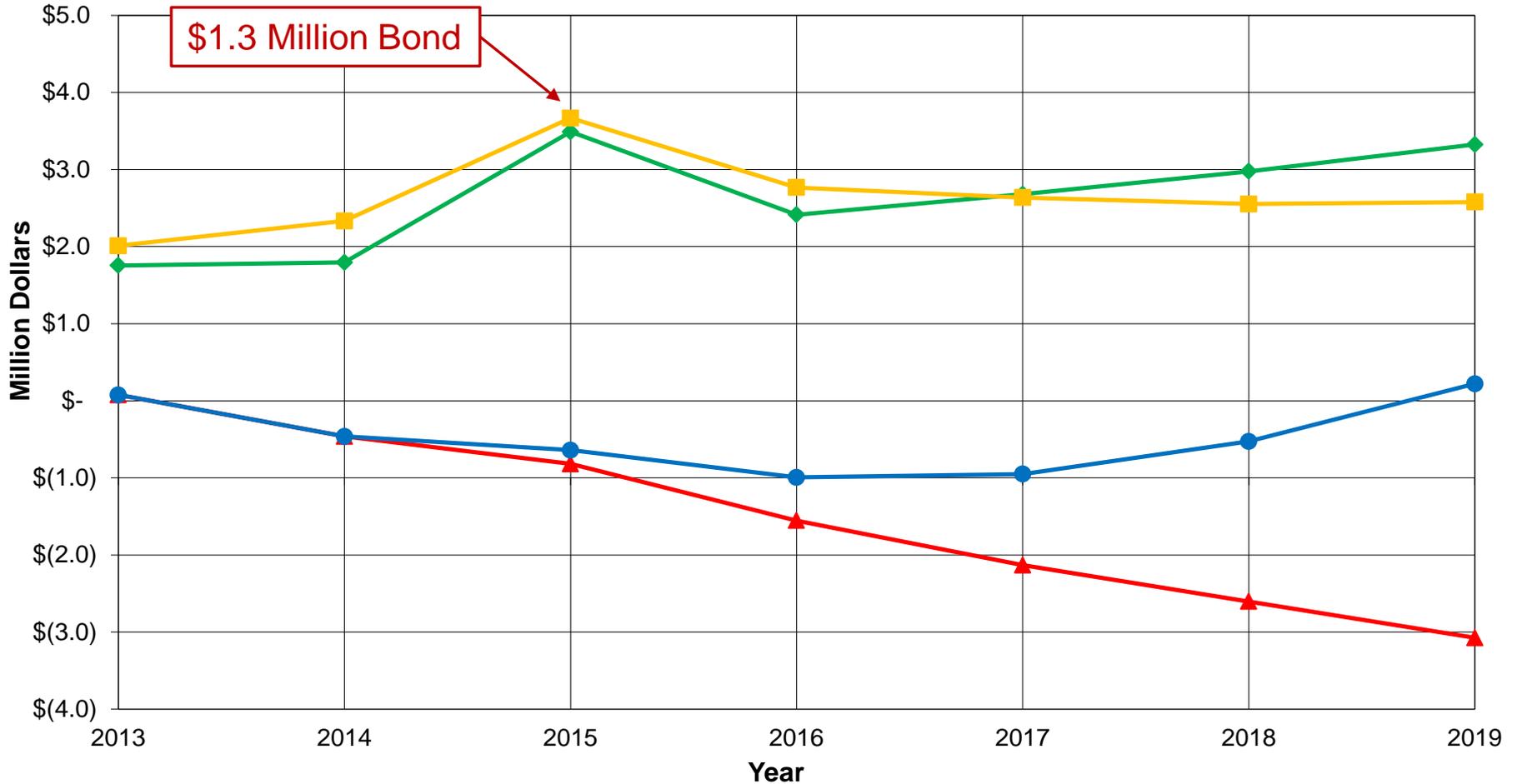
Proposed Phased Sewer Rates

Fixed Cost per month	2015	2016	2017	2018	2019
Residential	\$11.00	\$11.00	\$11.00	\$11.00	\$11.00
Other Customer Classes	\$17.40	\$17.40	\$17.40	\$17.40	\$17.40
Sewage Cost Per 100 gallons	66.8 cents	76.8 cents	88.4 cents	10.16 cents	11.69 cents

Current (2014): Fixed Cost \$11.00/month for Residential customers
 \$17.40/month for all other customers
 Sewer Billed 58.1 cents/100 gallons

Cash Flow and Fund Balance with Proposed Phased Sewage Rates

15% Annual Increase



Comparison of Water & Sewer Charges Existing 2014 to Proposed 2015

Description	Existing (2014)		Proposed (2015)	
	Rate		Rate	Cost
Example: Residential Use of 6,500 gallons per month (5/8" Meter Size)				
Existing Rates (2014)				
Water				
Fixed Cost per Month	\$ 11.00	\$ 11.00		
Commodity Rate per 100 gallons	Cents 33.6			
Commodity Charges per Month		\$ 21.84		
Total per Month		\$ 32.84		
Sewer				
Fixed Cost per Month	\$ 11.00	\$ 11.00		
Commodity Rate per 100 gallons	Cents 58.1			
Commodity Charges per Month		\$ 20.34		
Total per Month		\$ 31.34		
Total per Month		\$ 64.18		
Proposed Rates (2015)				
Water				
Fixed Cost per Month			\$ 6.34	\$ 6.34
Commodity Rate per 100 gallons (Block 1 - up to 6,500 gallons)			Cents 37.0	
Commodity Charges per Month				\$ 24.05
Total per Month				\$ 30.39
Sewer				
Fixed Cost per Month			\$ 11.00	\$ 11.00
Commodity Rate per 100 gallons			Cents 63.9	
Commodity Charges per Month				\$ 22.37
Total per Month				\$ 33.37
Total per Month				\$ 63.76
Monthly Dollar Increase (or Decrease)				(\$ 0.41)

Comparison of Water & Sewer Charges Existing 2014 to Proposed 2015

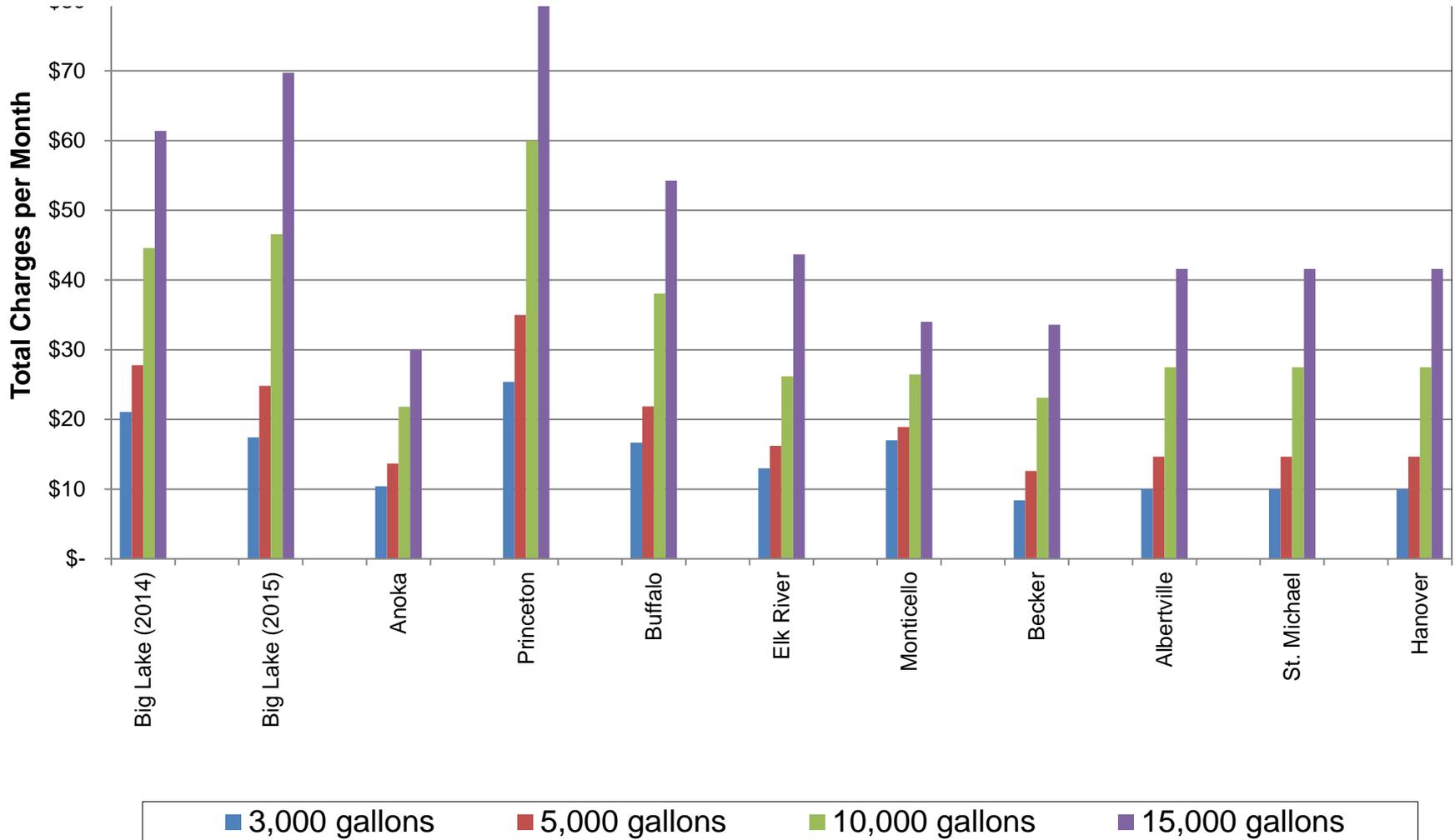
Description	Existing (2014)		Proposed (2015)	
	Rate		Rate	Cost
Example: Multi-residential Use of 88,600 gallons per Month (2" Meter Size)				
Existing Rates (2014)				
Water				
Fixed Cost per Month	\$ 22.00	\$ 22.00		
Commodity Rate per 100 gallons	Cents 33.5			
Commodity Charges per Month		\$ 296.81		
Total per Month		\$ 318.81		
Sewer				
Fixed Cost per Month	\$ 17.40	\$ 17.40		
Commodity Rate per 100 gallons	Cents 58.1			
Commodity Charges per Month		\$ 278.88		
Total per Month		\$ 296.28		
Total per Month		\$ 615.09		
Proposed Rates (2015)				
Water				
Fixed Cost per Month			\$ 15.33	\$ 15.33
Commodity Rate per 100 gallons			Cents 27.6	
Commodity Charges per Month				\$ 244.54
Total per Month				\$ 259.87
Sewer				
Fixed Cost per Month			\$ 17.40	\$ 17.40
Commodity Rate per 100 gallons			Cents 63.9	
Commodity Charges per Month				\$ 306.72
Total per Month				\$ 324.12
Total per Month				\$ 584.03
Monthly Dollar Increase (or Decrease)				(\$ 31.06)

Comparison of Water & Sewer Charges Existing 2014 to Proposed 2015

Description	Existing (2014)		Proposed (2015)	
	Rate		Rate	Cost
Example: Minicipal Use of 51,000 gallons per Month (2" Meter Size)				
Existing Rates (2014)				
Water				
Fixed Cost per Month	\$ 22.00	\$ 22.00		
Commodity Rate per 100 gallons	Cents 33.5			
Commodity Charges per Month		\$ 170.85		
Total per Month		\$ 192.85		
Sewer				
Fixed Cost per Month	\$ 17.40	\$ 17.40		
Commodity Rate per 100 gallons	Cents 58.1			
Commodity Charges per Month		\$ 110.39		
Total per Month		\$ 127.79		
Total per Month		\$ 320.64		
Proposed Rates (2015)				
Water				
Fixed Cost per Month			\$ 15.33	\$ 15.33
Commodity Rate per 100 gallons			Cents 22.9	
Commodity Charges per Month				\$ 116.79
Total per Month				\$ 132.12
Sewer				
Fixed Cost per Month			\$ 17.40	\$ 17.40
Commodity Rate per 100 gallons			Cents 63.9	
Commodity Charges per Month				\$ 121.41
Total per Month				\$ 138.81
Total per Month				\$ 270.95
Monthly Dollar Increase (or Decrease)				(\$ 49.69)

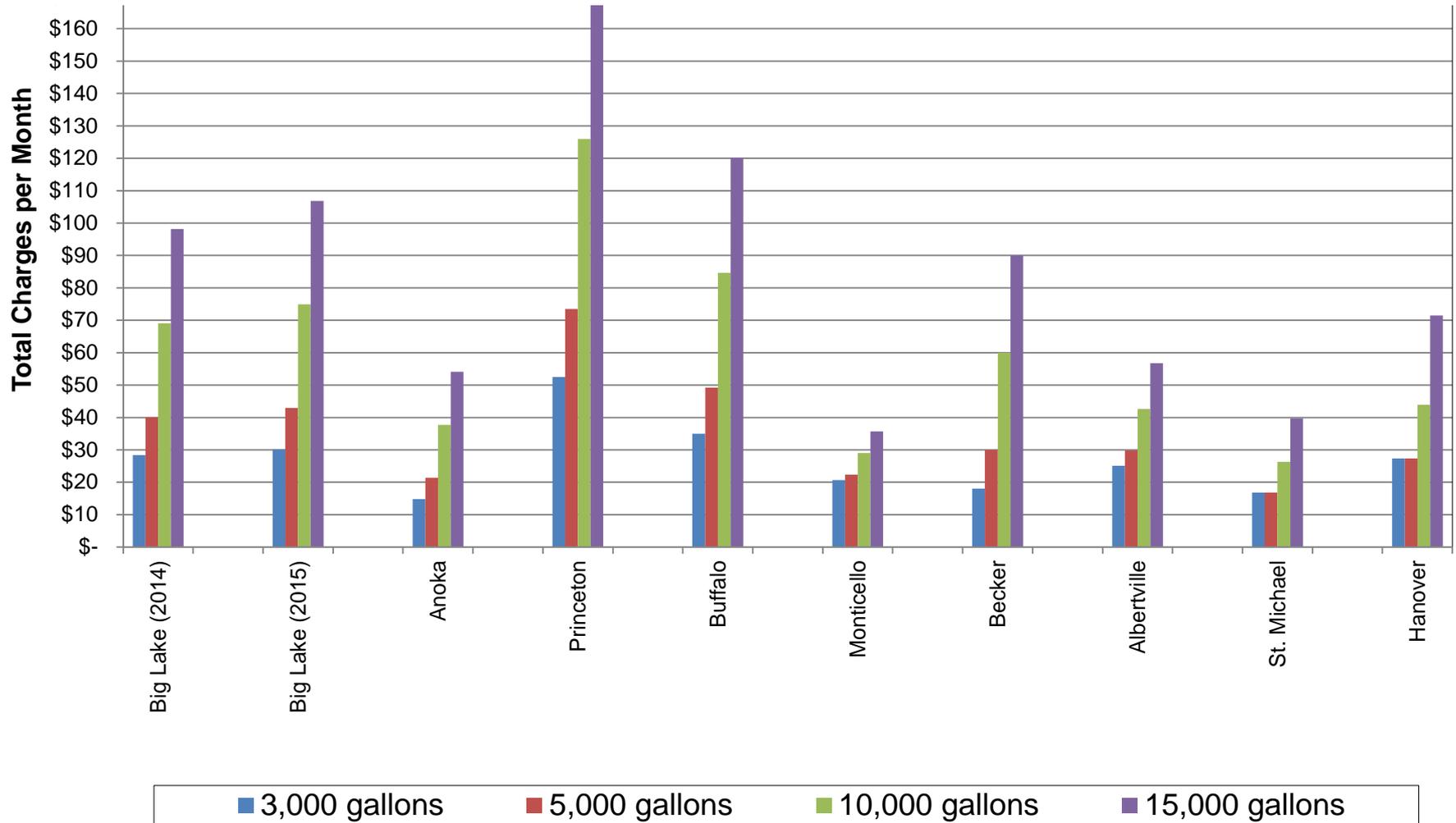
Water Rates Comparison

With Neighboring Cities



Sewer Rates Comparison

With Neighboring Cities



Conclusion and Recommendations

Water Rates

Current Rate Structure:

- Minimum cost of \$36.02 up to 15,000 gallons
  Not fair for low water use customers
- Municipal customers are not paying for water

Recommendations:

- Set the rates for higher water usage based on 2013 average water use for each customer class
- Include Municipal customers

Conclusion and Recommendations

Water Rates

Water Availability Charges (WAC)

- Implement rate of \$3,590 per new connection
- Increase the rate by \$100 each year

Fixed Monthly Charge:

- Implement rates for each meter size based on \$6.34 for 5/8" meter
- Increase the rate by 5% each year

Commodity Rate:

- Rate set for each customer class based on the Unit Cost of Service
- Inclining block rate structure to encourage water conservation
- Increase the rates by 5% each year

Conclusion and Recommendations

Water Rates

Future Recommendation:

- Projected 2019 Year End Balance: \approx \$3,311,000
- O & M Cost in 2013: \$1.7 Million
- Even though the water rates will be reduced based on the Unit Cost of Service calculation, there is a sufficient water fund balance.
- Reduced water cost would help customers pay increased sewer cost

Conclusion and Recommendations

Sewer Rates

Current Rates:

- Will not cover the CIP cost for the next five years
- Will not be able to sustain sufficient sewer cash balance

Recommended Rates:

- CIP for next 5 years is \$1.3 million
- Need to have about \$1.3 million bond sale when:
 - Sewer rates are increased at 15% annually from the current rate
 - Current fixed costs don't change for the next 5 years

Conclusion and Recommendations

Sewer Rates

Sewer Availability Charges (SAC)

- Implement rate of \$4,150 per new connection
- Increase the rate by \$100 each year

Fixed Monthly Charges:

- Keep the current Fixed Cost until 2019

Sewage Rate:

- Implement phased rates from 2014 to 2017
- Consistent rate to all customers of 93.6 cents per 100 gallons by 2019

Future Recommendation:

- Projected 2019 Year End Balance: ≈ \$220,000
- O & M Cost in 2013: \$2.5 Million
- **Need to continue to increase sewer rate beyond 2019**

Questions?

Naeem Qureshi, P.E.

Progressive Consulting Engineers, Inc.

6120 Earle Brown Dr. Minneapolis, MN 55430

(763) 560-9133

www.pce.com

naeemqureshi@pce.com



THANK YOU