Rate Setting With an Engineering Twist: Oswego, A Case Study

Presented By:

Jennifer Hughes, P.E., CFM
Public Works Director
Village of Oswego

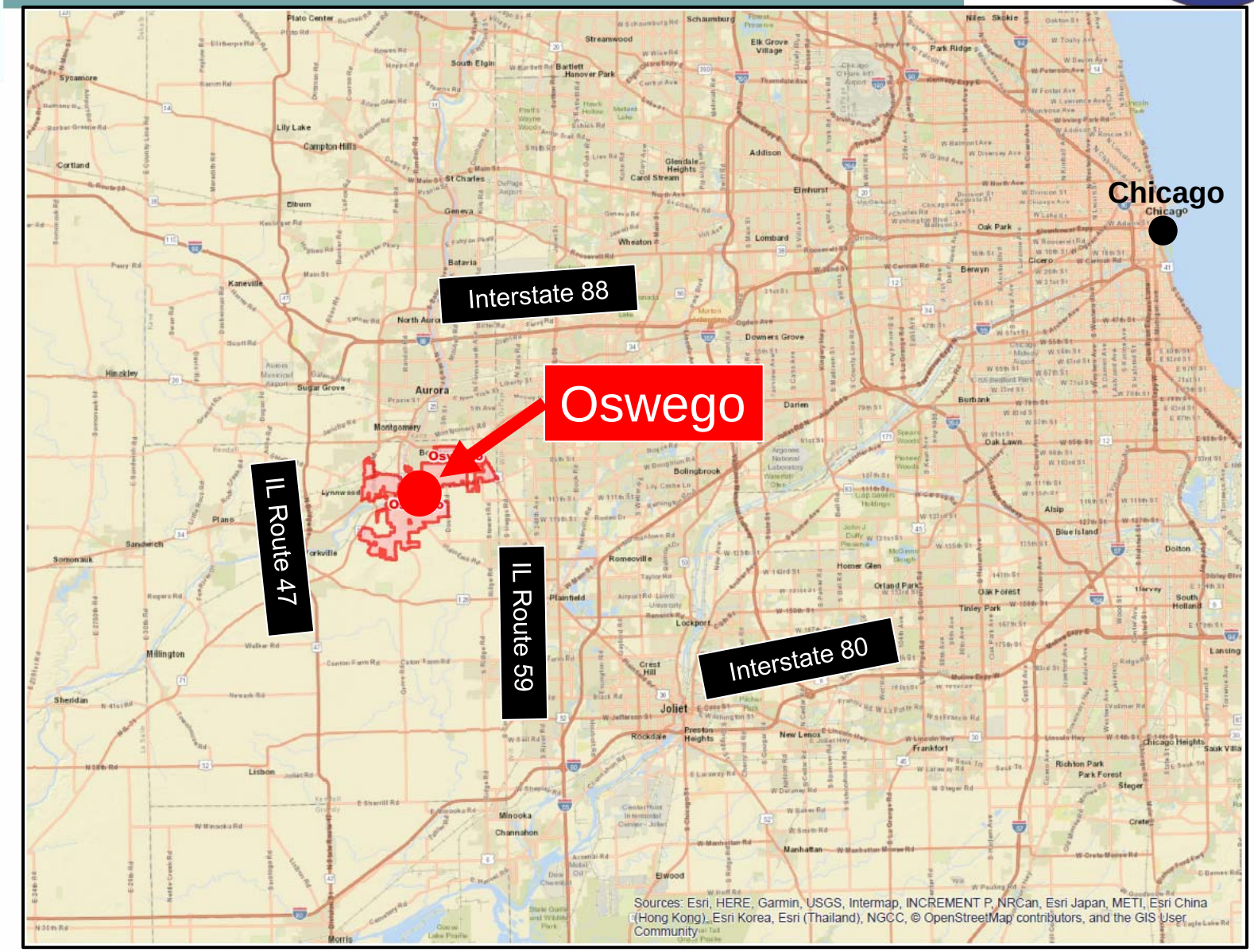
Michele L. Piotrowski, P.E., LEED AP
Engineering Enterprises, Inc.

WATERCON
March 20, 2018

Presentation Overview

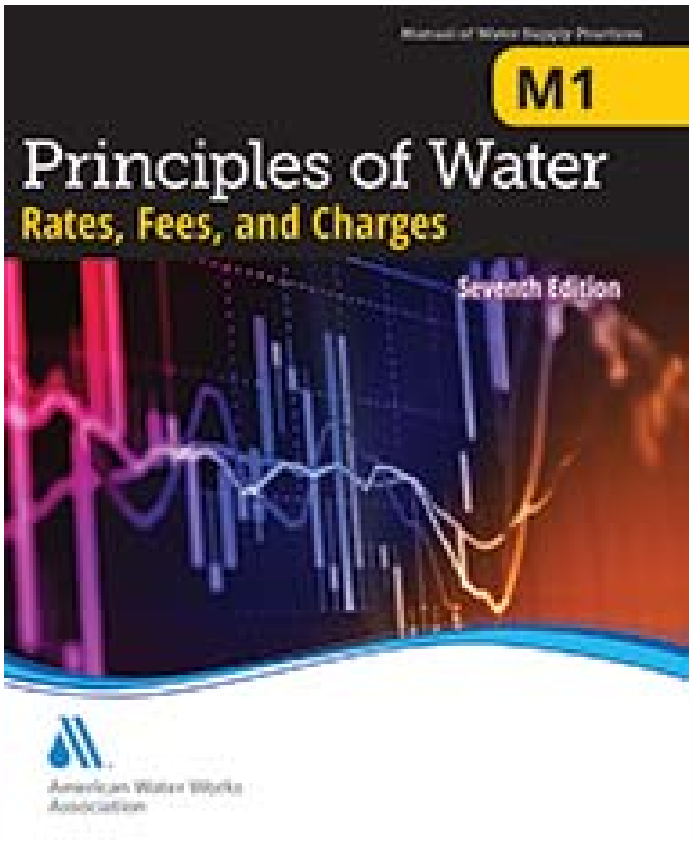
- Introduction
- Background
- Projections
- Fund Balance Reserves
- Rate Options
- Rate Comparisons & The Value of Water
- Next Steps & The Engineering Difference

Introduction



Introduction

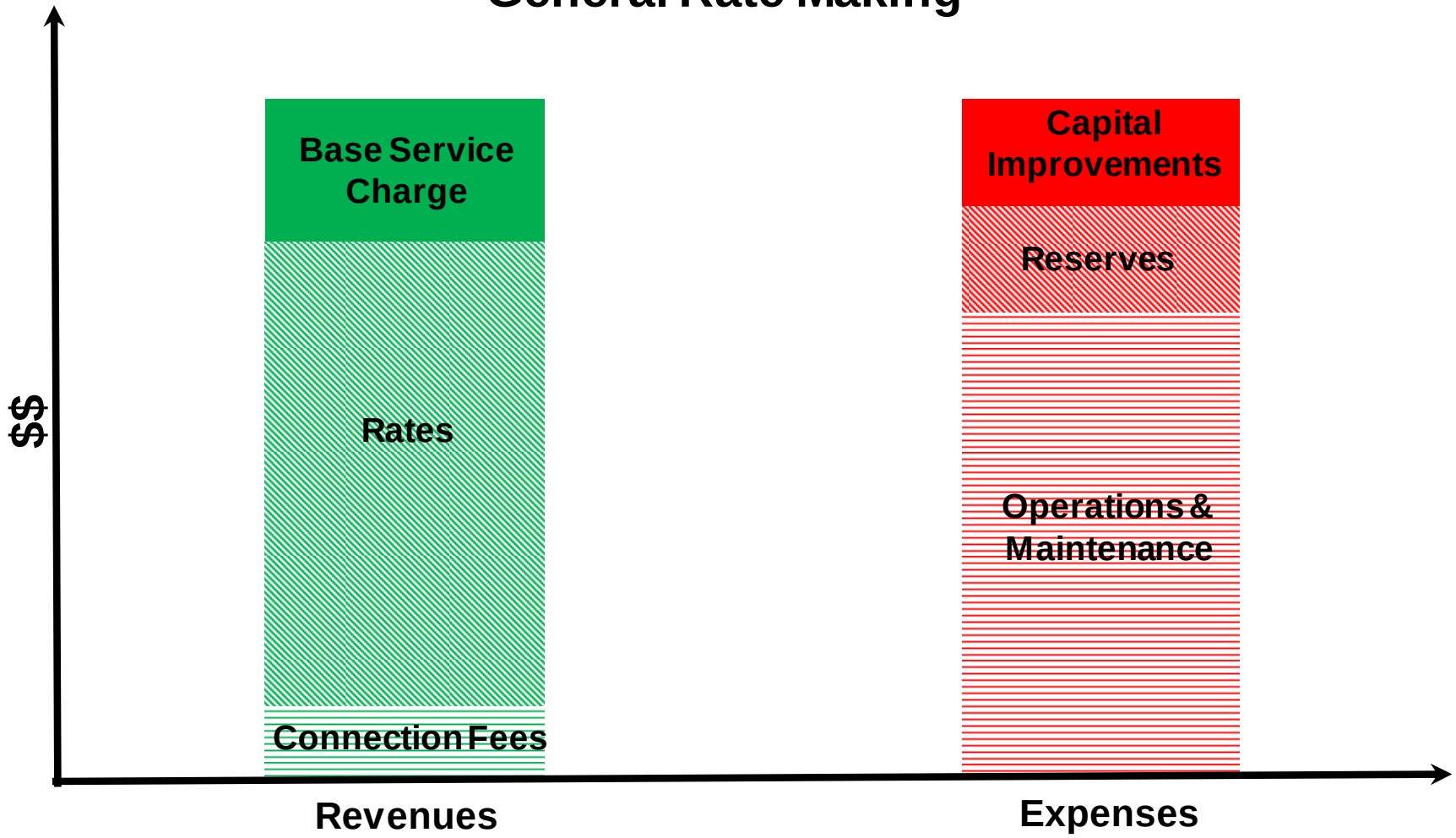
- Presentation Sources
  - ***Principles of Water Rates, Fees, and Charges*** (AWWA Manual of Water Supply Practices M1)



52 Wheeler Road, Sugar Grove, IL 60554 ~ (630) 466-6700 tel ~ (630) 466-6701 fax ~ www.eeiweb.com

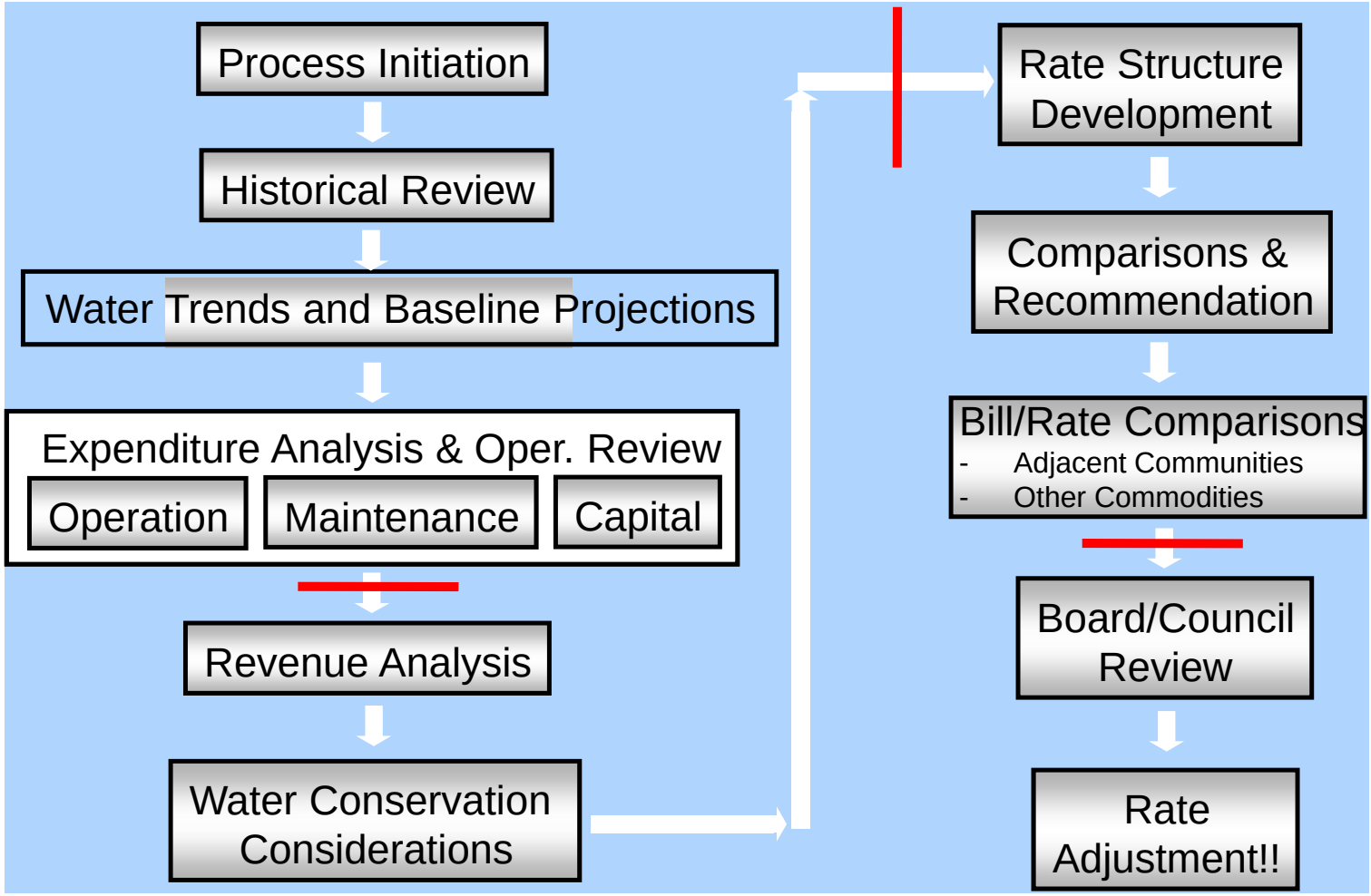
Introduction

General Rate Making



Introduction

General Rate Making Process Map



Potential Points For Additional Staff, Policymaker & Community Review & Input

52 Wheeler Road, Sugar Grove, IL 60554 ~ (630) 466-6700 tel ~ (630) 466-6701 fax ~ www.eeiweb.com

Introduction

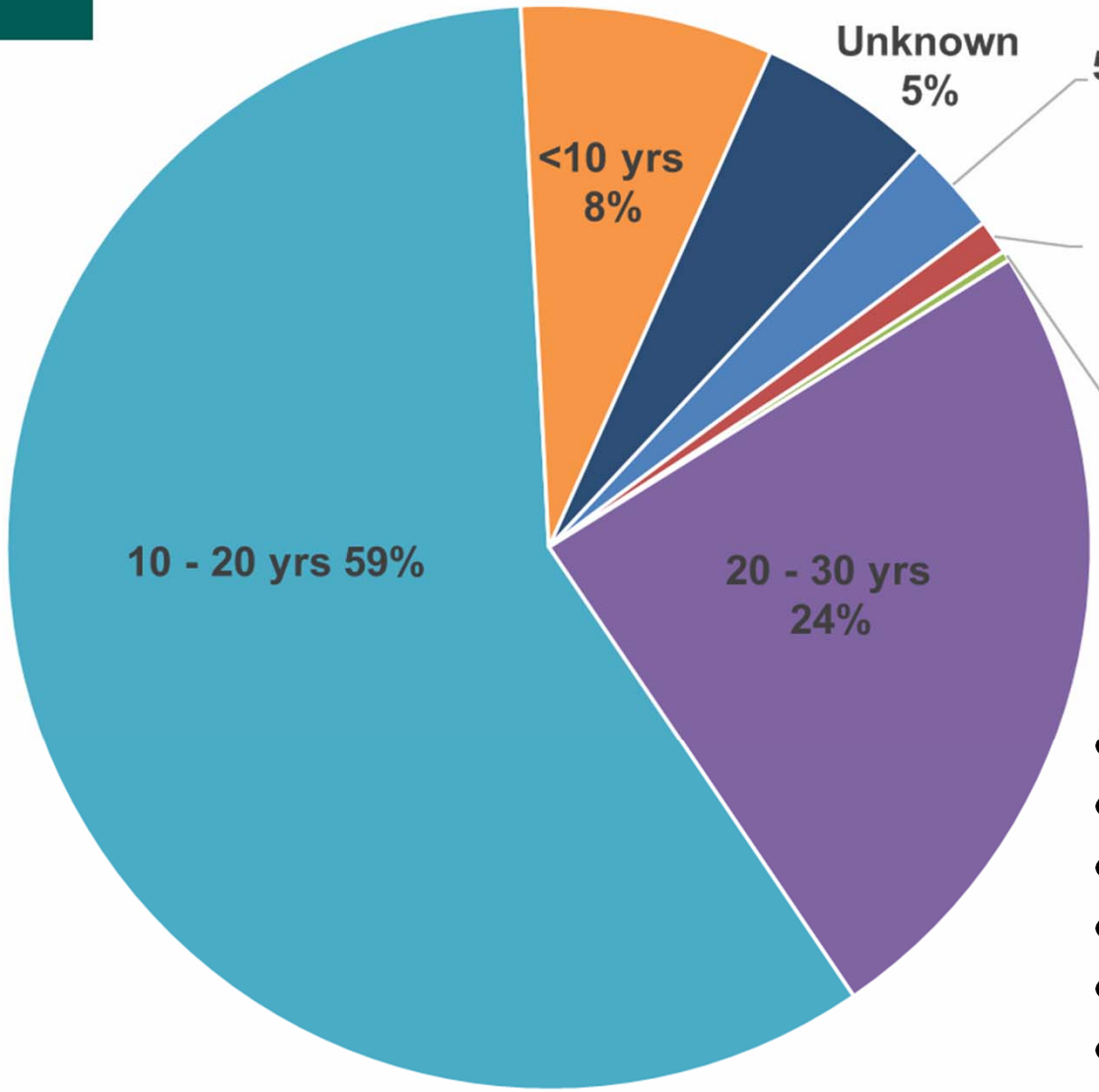
- Establish Rate Making Timeframe(s)
  - ➔ Near Future Timeframe: 3 – 5 Years
    - Reasonable Timeframe To Make Projections With Relative Confidence
    - Provides A Rate Plan That Should Cover Community For A Reasonable Timeframe
  - ➔ Longer Term Timeframe: 10 – 20 Years
    - Provides Timeframe To Capture All Facility Maintenance Expenditures
    - Provides Timeframe To Plan For One or Multiple Capacity Expansions

Background

- Water and Sewer Funds Responsible For:
  - ➔ Water
  - ➔ Sanitary
  - ➔ Storm

- Typical Expenditure Categories:
  - ➔ Operational Expenses
  - ➔ Debt Service
  - ➔ Capital Improvement Expenses
    - ⌗ Facility Maintenance Expenses

Background - Water

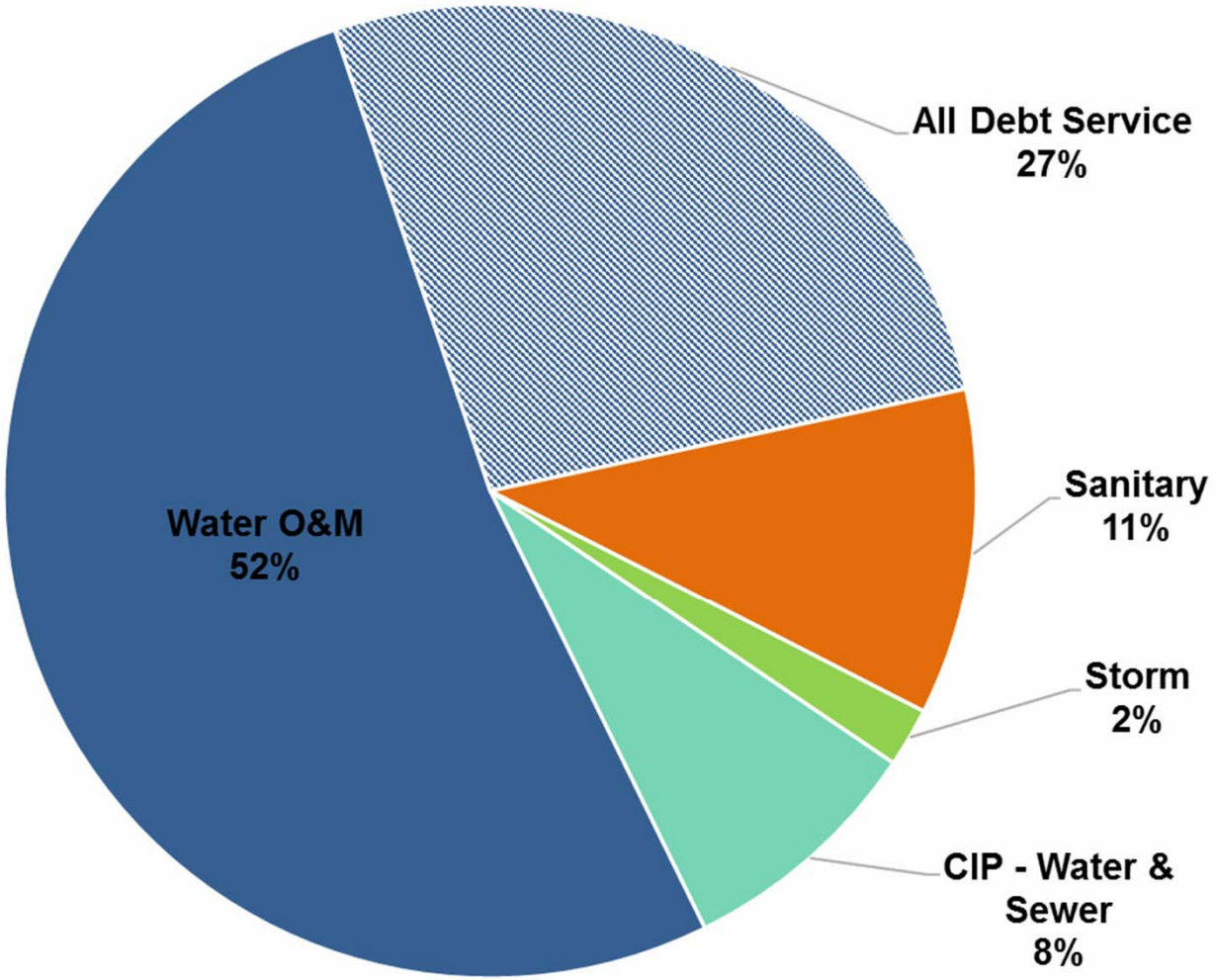


91% of Main < 30 Years

- 172+ Miles of Water Main
- 5 Pressure Reducing Valves
- 2 Booster Pumps
- 5 Water Towers
- 8 Wells
- Basic Components

Background

Historical Expenses by Utility Type (Average FY2013 - FY2018) ($5.56M Average)



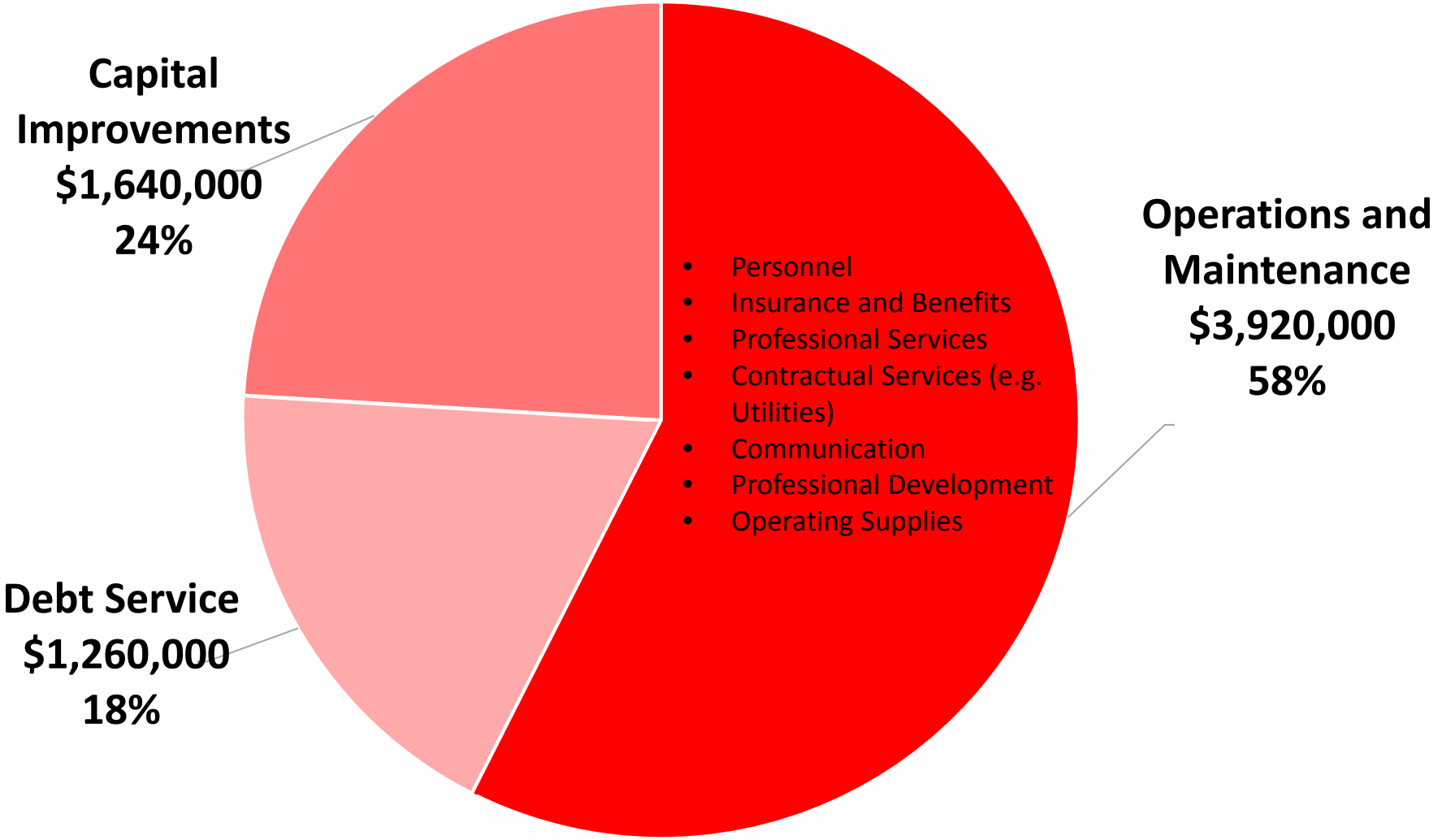
Background

- Expenses - Operations Considerations
  - ➔ Operations Audit
- Expenses - CIP Considerations (5 - 20 Yrs.)
  - ➔ Major New or Replacement Projects
    - New or Replacement Supply, Treatment, or Storage
    - Distribution System Replacement or Installation
    - Control Upgrade or Replacement
    - System Wide Meter Replacements
  - ➔ CIP Definition and Amount Specific to the Agency

Background

Projected Expenses ($6.82M - Average FY2019-FY2023)

Village of Oswego, Illinois



Background

Based on Population and Water Use

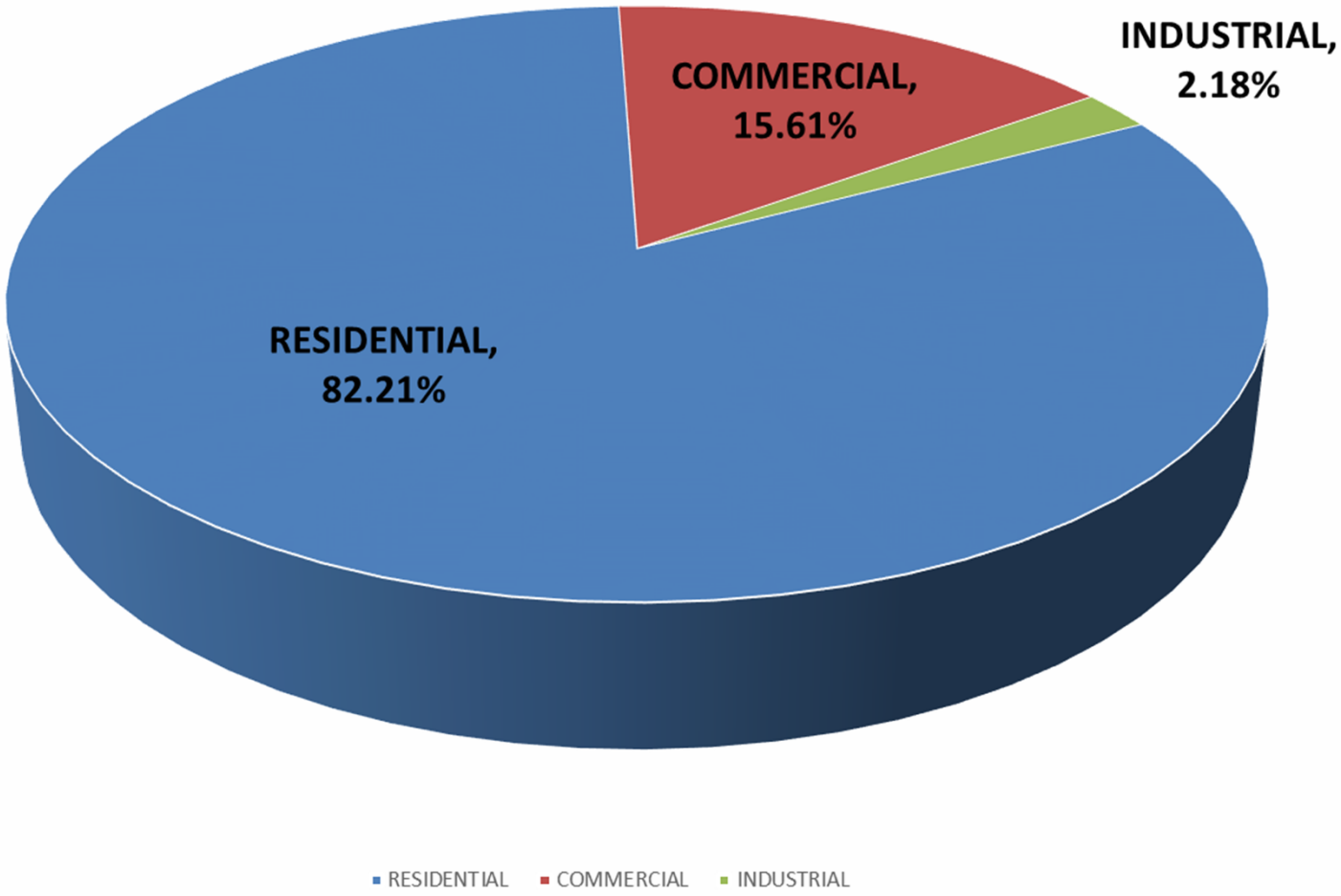
- Revenues
  - ➔ Water & Sewer Fund
    - Charges for Service
    - Permits
    - Grants
    - Interest
    - Donations/Contributions
    - Miscellaneous
  - ➔ Water & Sewer Capital Fund ($0.16M Avg.)
    - Meter Tap On Fees
    - MXU Fees

Background

- Existing Pumped Water Use (FY2016)
  - ➔ Average Day Demand = 2.32 MG (70 gpcd)
  - ➔ Maximum Day Demand = 3.96 MG (120 gpcd)
- Estimated Population Served is 35,000 (FY2016)
- Conversions:
  - ➔ 100 cubic feet = 748 gallons
  - ➔ 1,000 gallons = 134 cubic feet

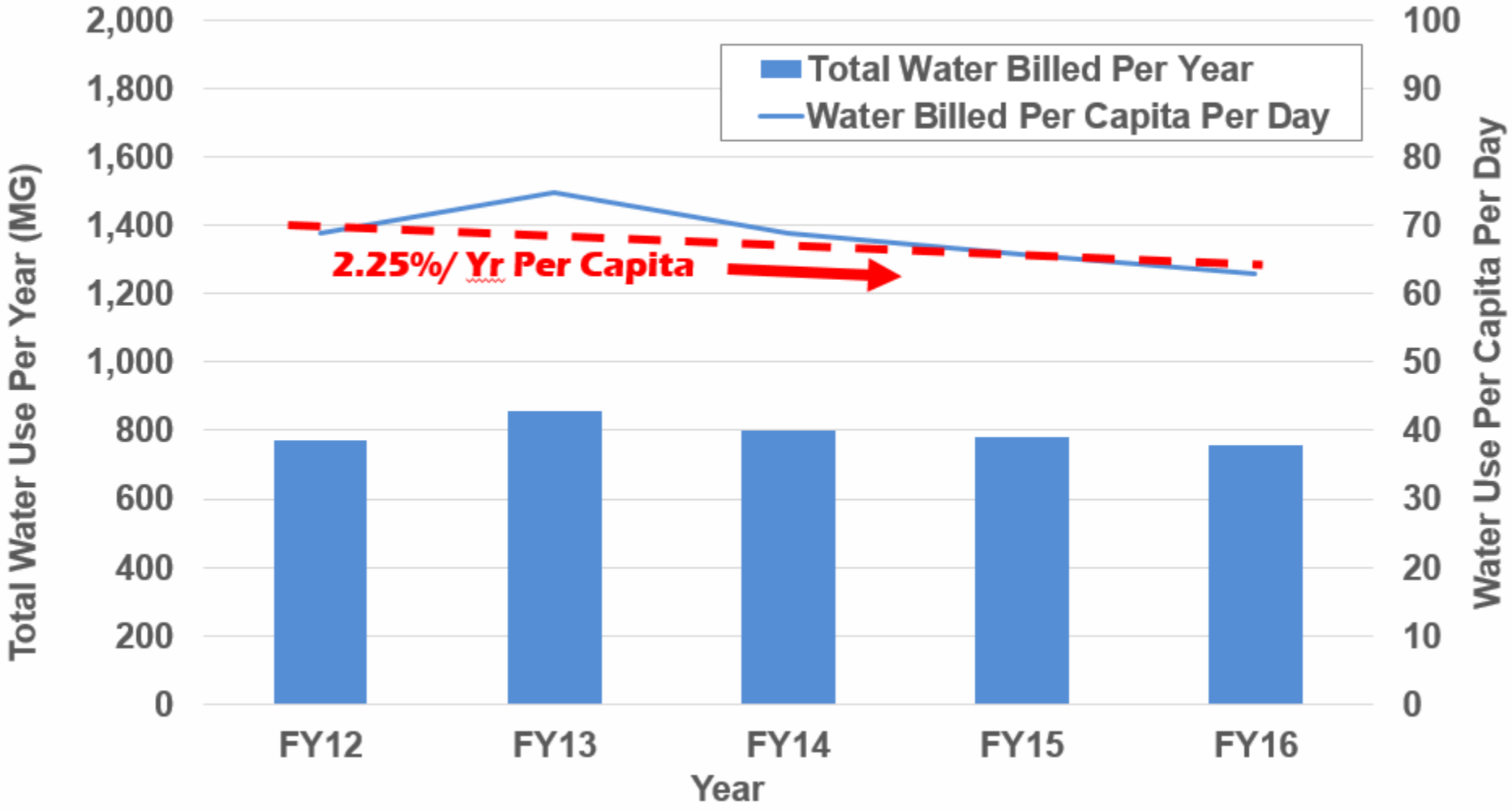
Background

2015 Water Consumption By Customer Class

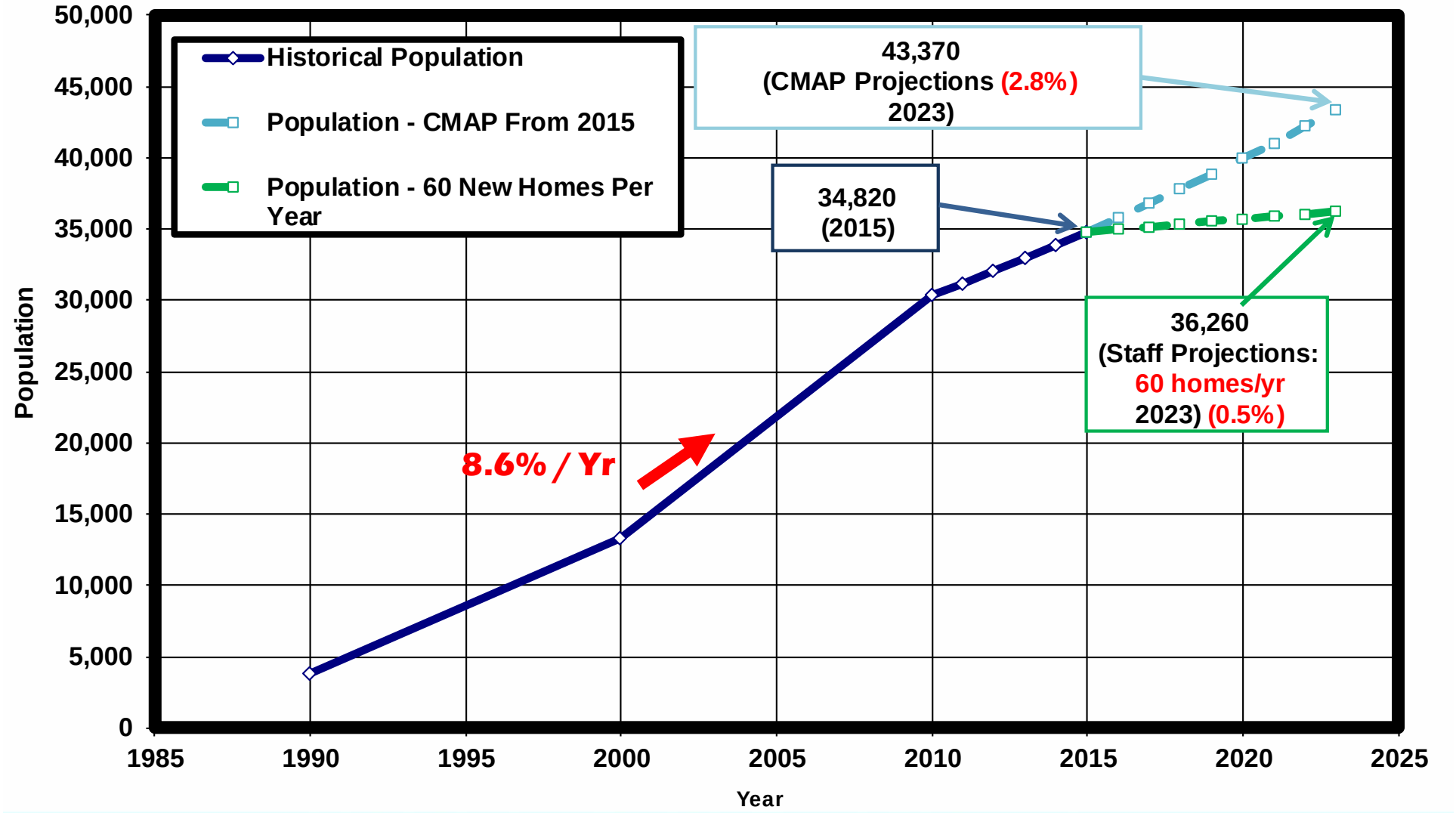


Background

Historical Billed Per Capita and Total Billed Water Use



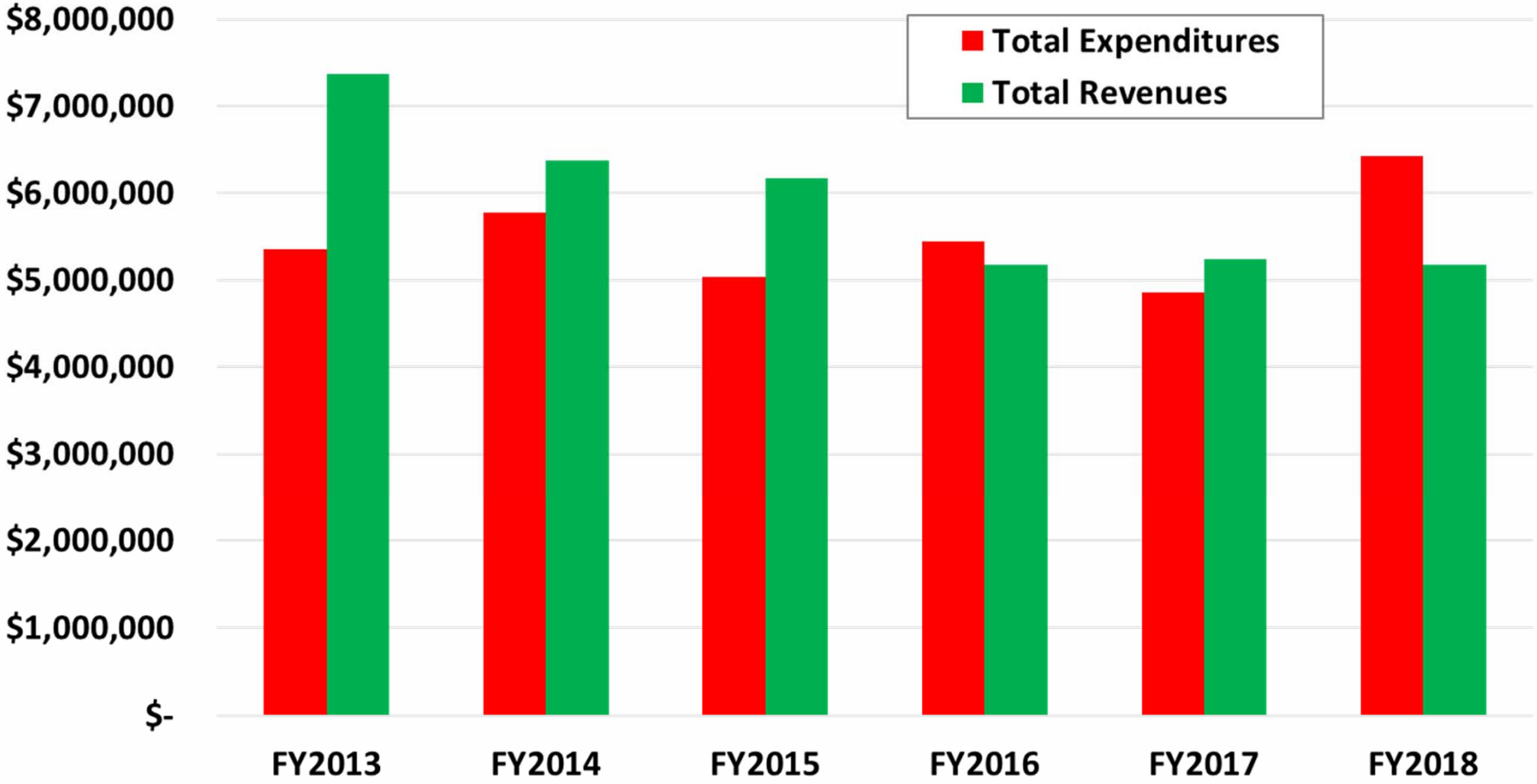
Background - Population



52 Wheeler Road, Sugar Grove, IL 60554 ~ (630) 466-6700 tel ~ (630) 466-6701 fax ~ www.eeiweb.com

Background

Historical Expenditures and Revenues



Note: For FY2013, a $1,621,000 fund transfer into the Water and Sewer Fund was removed from the revenues, but a $600,000 grant is included in the revenue for FY2013. (Grants for all other years are approximately $100,000).

Fund Balance Reserves

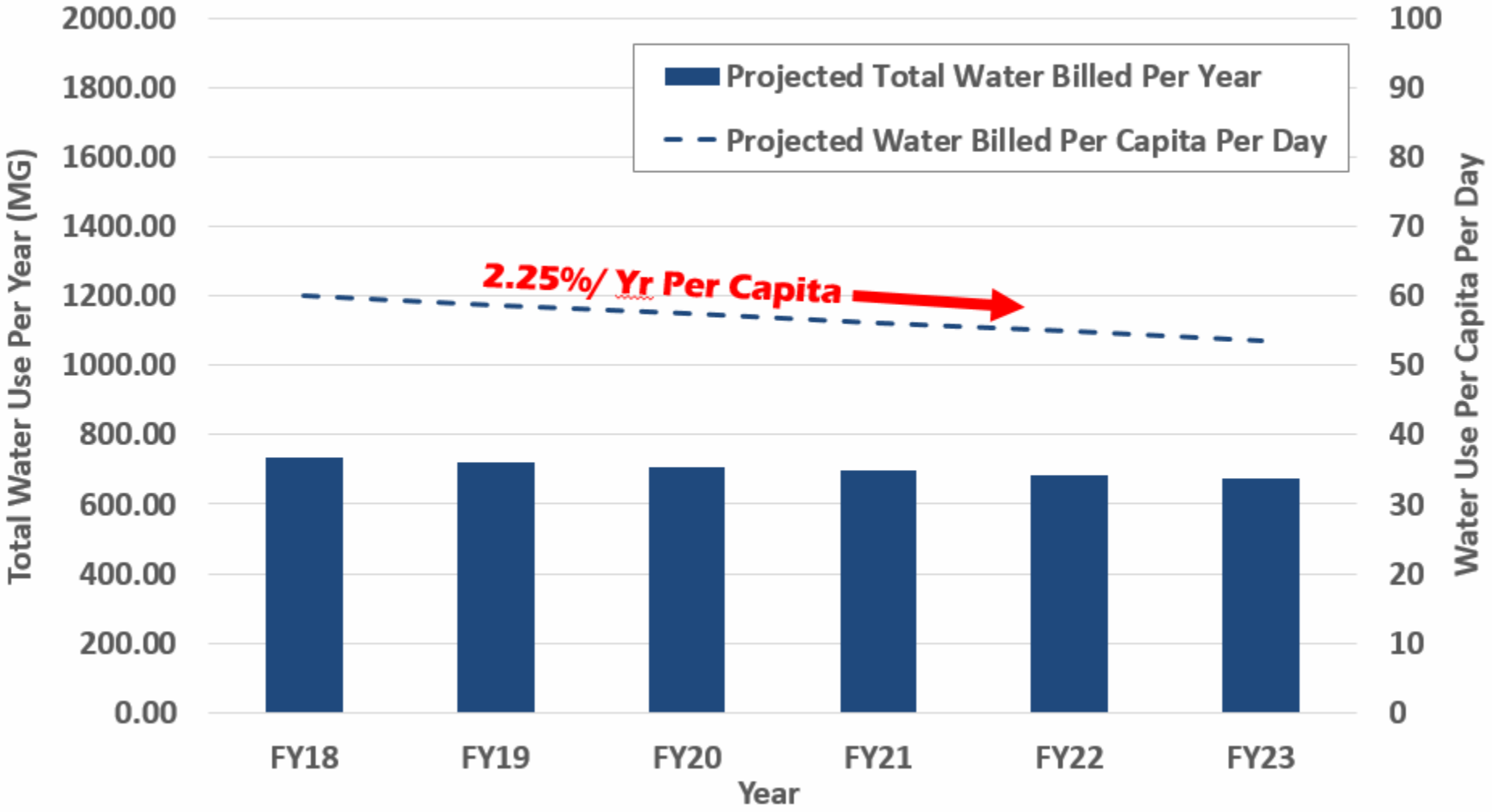
- Fund Balance Policies
  - ➔ Water and Sewer Fund = 30% of Annual Operating Expenses + 1 Year Debt Service
    - FY2019-2023 Average = $2.3M
  - ➔ Water and Sewer Capital Fund = One Year of CIP Expenses
    - FY2019-2023 Average = $1.6M
  - ➔ Total Avg. FY2019-2023 = $3.9M

Fund Balance Reserves

- Current Reserves (Proj. Ending FY2018):
  - ➔ Water & Sewer Fund = $0.7M
  - ➔ Water & Sewer Capital Fund = $4.4M
  - ➔ Total = $5.1M
- Reserves Beyond Policy Requirements = $5.1M - $3.9M = $1.2M

Projections

Projected Billed Water Use



*Population Increases By 180 PE/Year

Projections

Expense (Fund)	Last 5 Yr. Annual Average (FY2014-FY2018)	Proposed 5 Yr. Annual Average (FY2019-FY2023)	Additional Expenses
O&M (Water & Sewer Fund)	$4,942,022	$5,177,955	$235,933
CIP (Water & Sewer Capital Fund)	$621,911	$1,640,463	$1,018,553
Total	$5,563,933	$6,818,419	$1,254,485

- CIP Adjustments (FY2019-2023):

➔ Major Improvements:

- 3 Tank Rehabs Included in the Next 5 Years ($2.1M)
- Meter Replacement Program Within the Next 5 Years ($4.8M)
- Sewer Lining ($0.6M)

➔ Exclusions:

- All Major Supply and Treatment Expenses
- Well No. 4 Generator
- Minkler Road Water Main
- Wolf Road Water Main

Rate Options

- Current Rates Per Ordinance
  - ➔ Rates
    - Water = $4.05/1000 Gallons ($3.03/100 cf)
    - Sewer = $1.71/1000 Gallons ($1.28/100 cf)
    - Combined Rate = $5.76/1000 Gallons
  - ➔ Monthly Service Charge
    - Water = $3.17/Month
    - Sewer = $0/Month
  - ➔ Excludes Fox Metro Fees

Rate Options

Current

- Avg. Customer Bill (Bi-Monthly) = 10,800 Gal.
  - Rate Charges

    $5.76/1000 Gals x 10,800 Gallons/1,000 Gallons = $62.21
  - Service Charge

    $3.17/month x 2 months = $6.34
  - Total Bill = Rate Charges + Service Charge

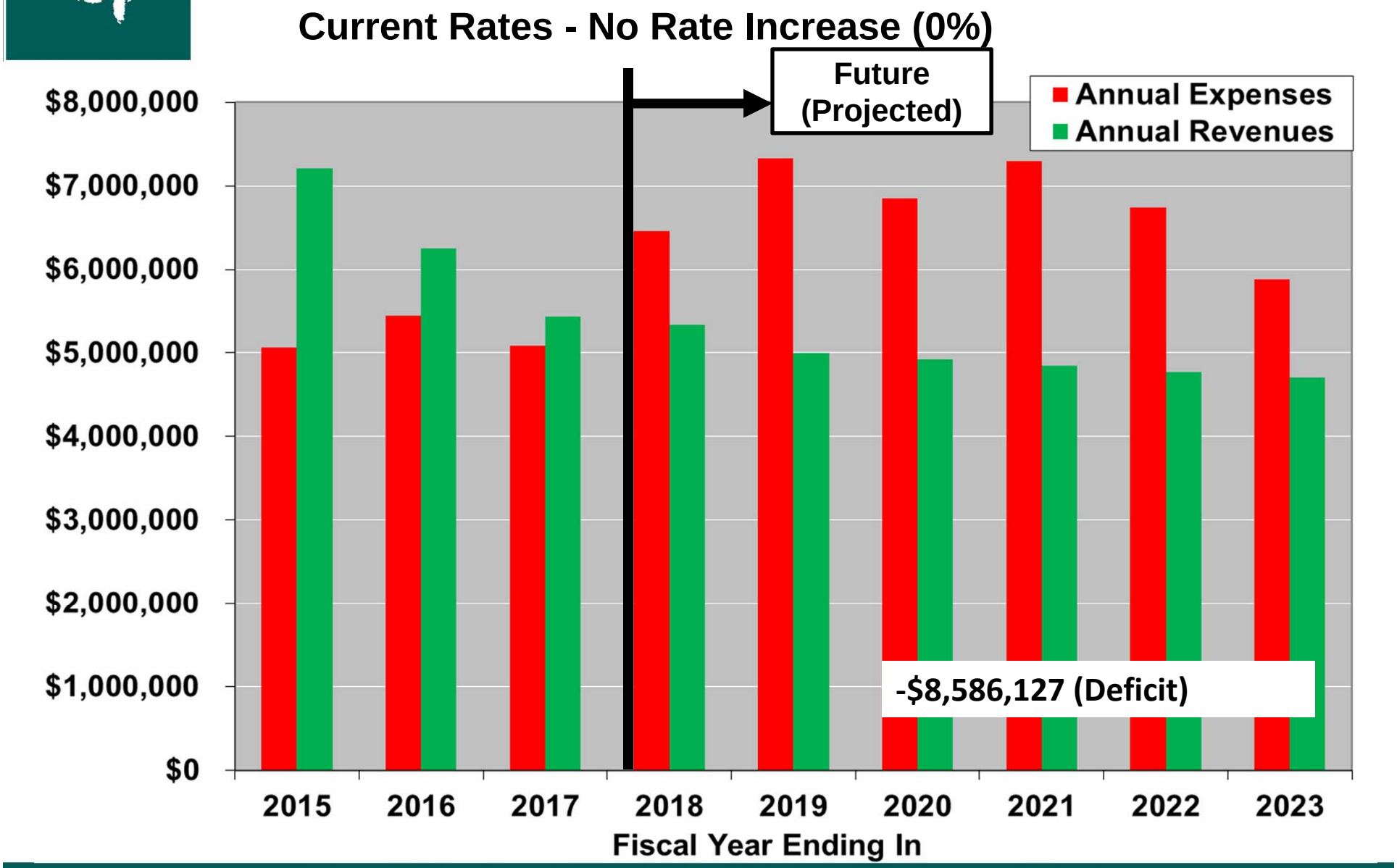
    $62.21 + $6.34 = $68.55

- Avg. Customer Bill (Monthly) = 5,400 Gal.
  - Bi-Monthly Bill / 2 = $34.27

Rate Options

- Current Rates – No Rate Increase (0%)
- No CIP – $0.14/1000 Gallons Annual Rate Increase - (Break Even With the O&M Expenses) (Annual Avg. = 2.25%)
- Option No. 1 - $0.60/1000 Gallons Annual Rate Increase for 6 Years (Annual Avg. = 10.5%)
- Option No. 2 - $0.80/1000 Gallons Annual Rate Increase for 3 Years, Then $0.10 Annual Increase for 3 Years (Annual Avg. = 8%)

Rate Options

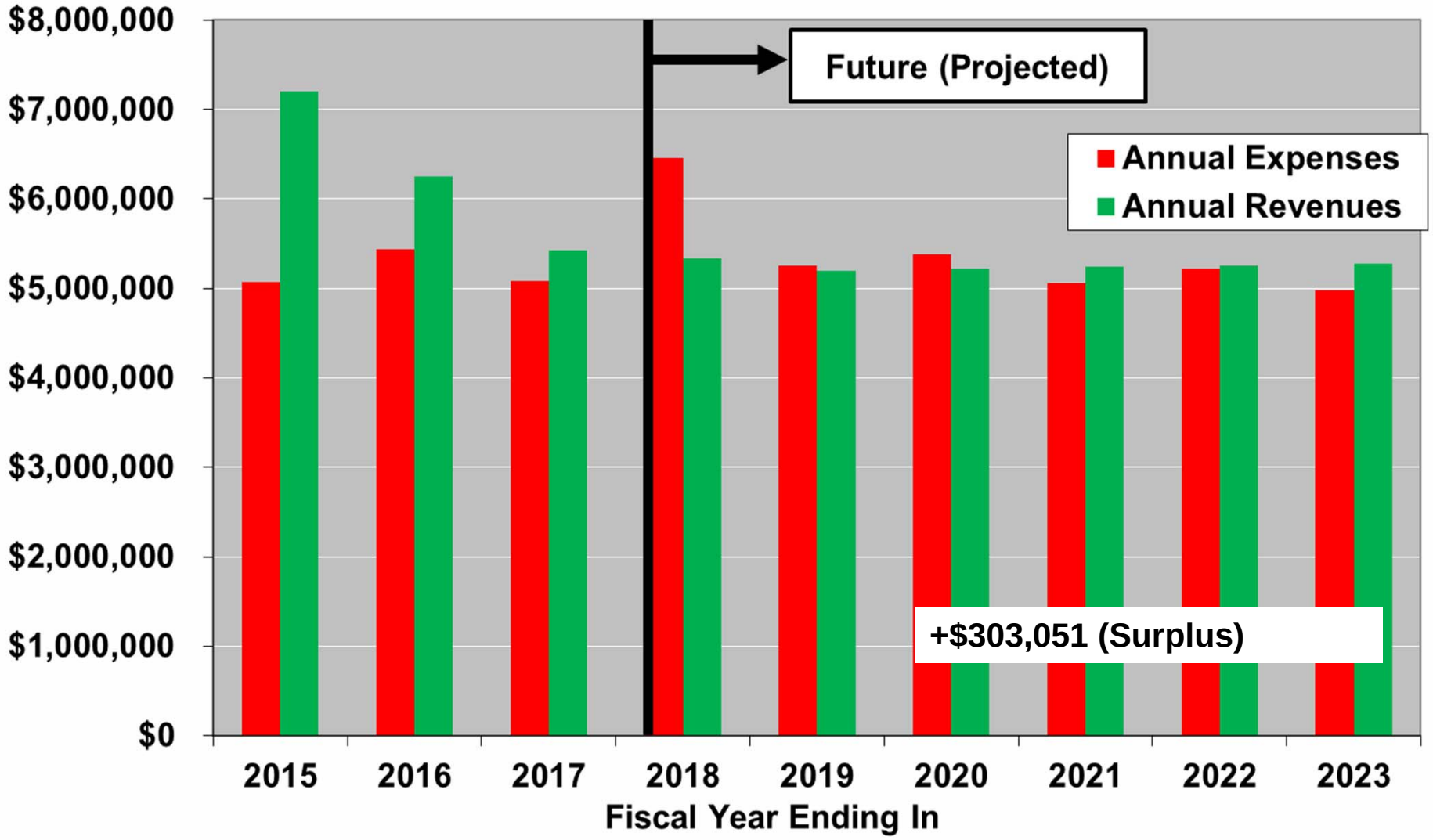


52 Wheeler Road, Sugar Grove, IL 60554 ~ (630) 466-6700 tel ~ (630) 466-6701 fax ~ www.eeiweb.com

Rate Options

No CIP – $0.14/1000 Gallons Annual Rate Increase - (Annual Avg. = 2.25%)

(Break Even With the O&M Expenses)

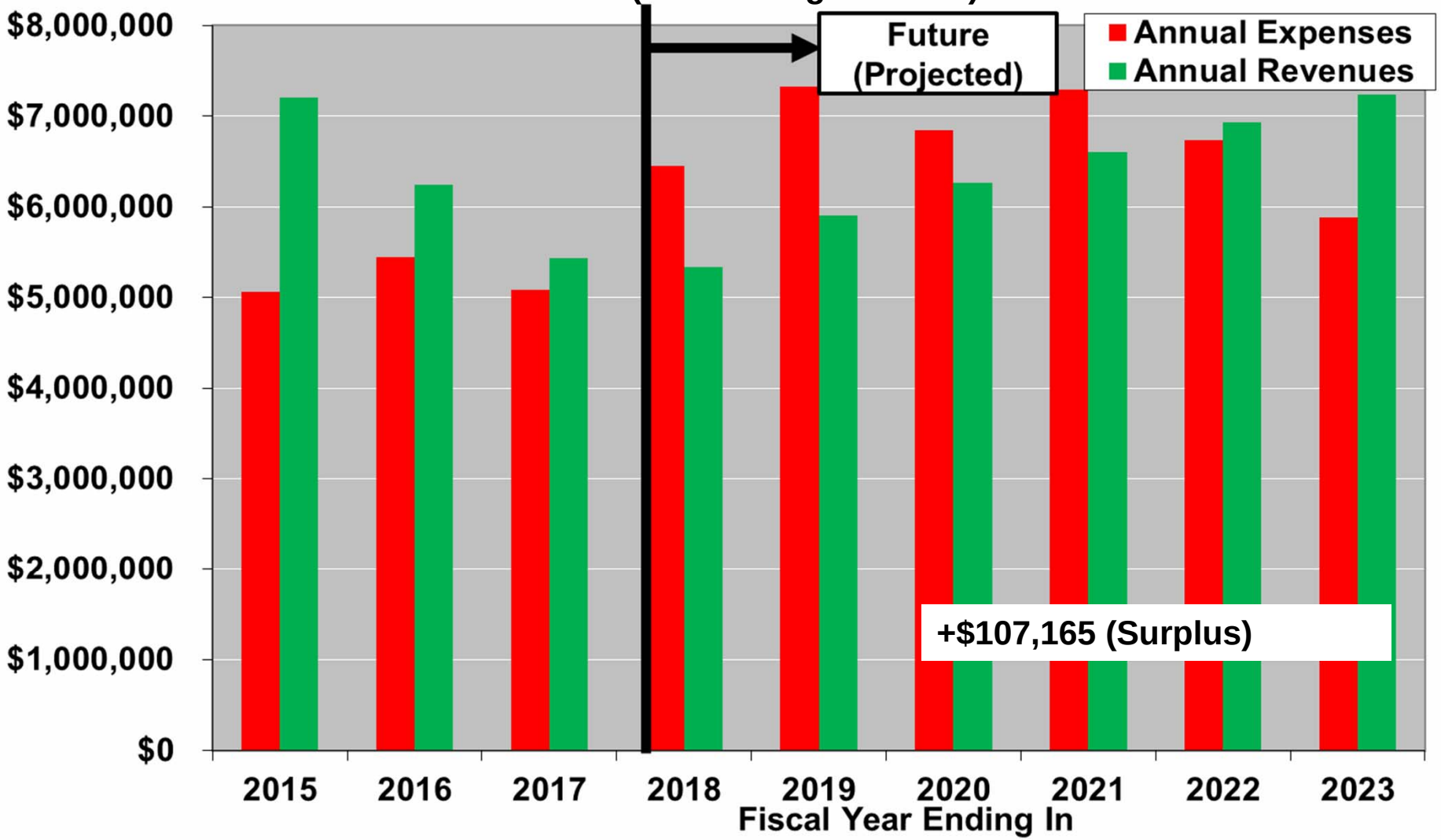


52 Wheeler Road, Sugar Grove, IL 60554 ~ (630) 466-6700 tel ~ (630) 466-6701 fax ~ www.eeiweb.com

Rate Options

Option No. 1 - $0.60/1000 Gallons Annual Rate Increase for 6 Years

(Annual Avg. = 10.5%)

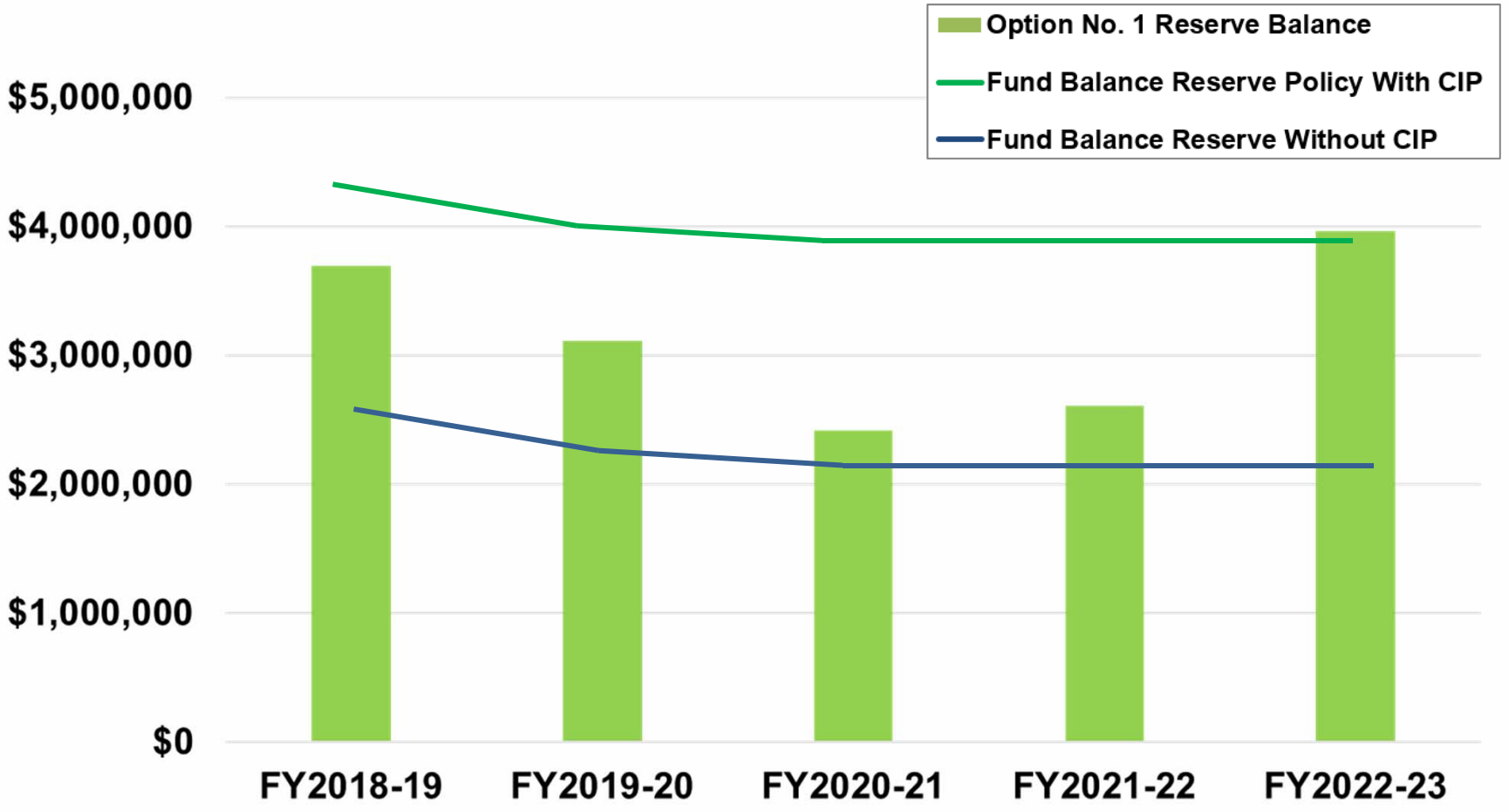


52 Wheeler Road, Sugar Grove, IL 60554 ~ (630) 466-6700 tel ~ (630) 466-6701 fax ~ www.eeiweb.com

Rate Options

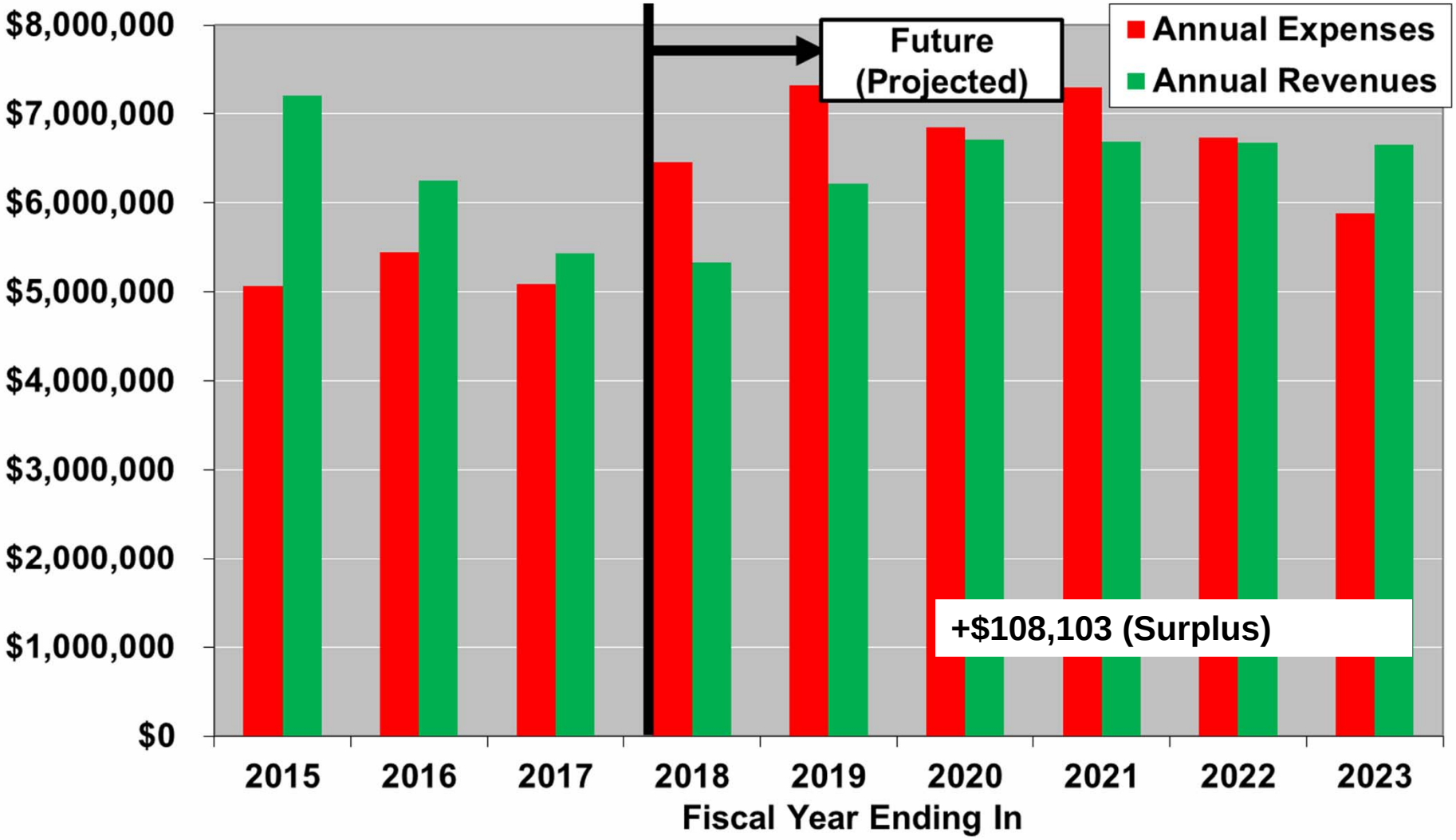
Option No. 1 – $0.60/1000 Gal. Annual Rate Increase for 6 Years

Fund Balance Reserves



Rate Options

Option No. 2 - $0.80/1000 Gallons Annual Rate Increase for 3 Years, Then $0.10 Annual Increase for 3 Years (Annual Avg. = 8%)

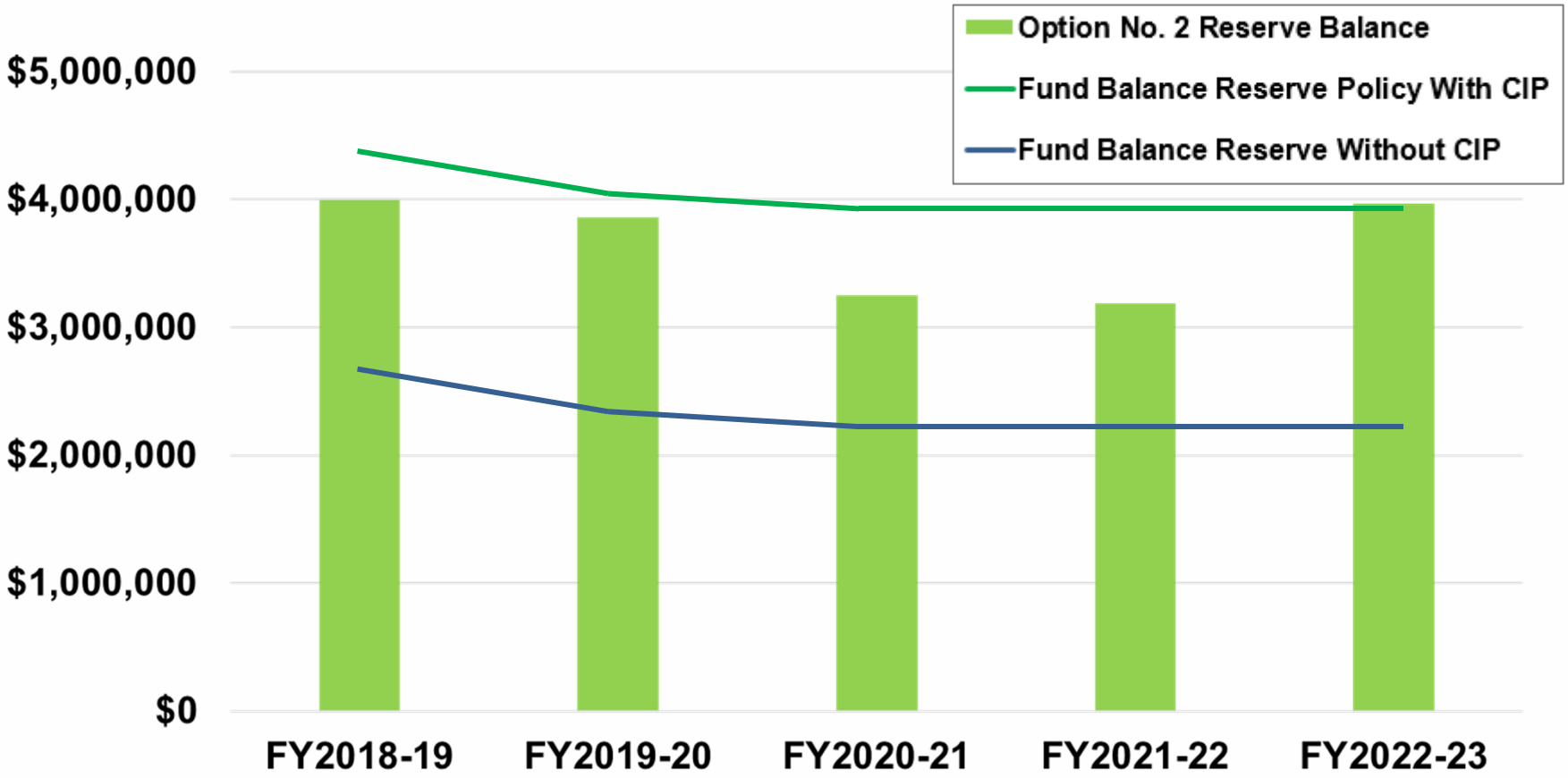


52 Wheeler Road, Sugar Grove, IL 60554 ~ (630) 466-6700 tel ~ (630) 466-6701 fax ~ www.eeiweb.com

Rate Options

Option No. 2 - $0.80/1000 Gallons Annual Rate Increase for 3 Years, Then $0.10 Annual Increase for 3 Years (Annual Avg. = 8%)

Fund Balance Reserves



Rate Options

Projected Cumulative Surplus/Deficit Above the Fund Reserve Policy

Fiscal Year	Fund Balance Reserve By Policy	Current Rates	No CIP	Option No.	
		No Rate Increase (0%)	$0.14/1000 Gallons Annual Rate Increase - (Break Even With the O&M Expenses) (Annual Avg. = 2.25%)	1 $0.60/1000 Gallons Annual Rate Increase for 6 Years (Annual Avg. = 10.5%)	2 $0.80/1000 Gallons Annual Rate Increase for 3 Years, Then $0.10 Annual Increase for 3 Years (Annual Avg. = 8%)
FY2018-19	$4,275,093	-$1,487,433	-$51,499	-$578,704	-$275,766
FY2019-20	$3,947,178	-$3,085,179	-$166,073	-$837,404	-$88,088
FY2020-21	$3,828,545	-$5,414,177	$183,194	-$1,412,580	-$573,963
FY2021-22	$3,859,711	-$7,409,103	$35,846	-$1,254,072	-$669,403
FY2022-23	$3,859,711	-$8,586,127	$303,051	$107,165	$108,103

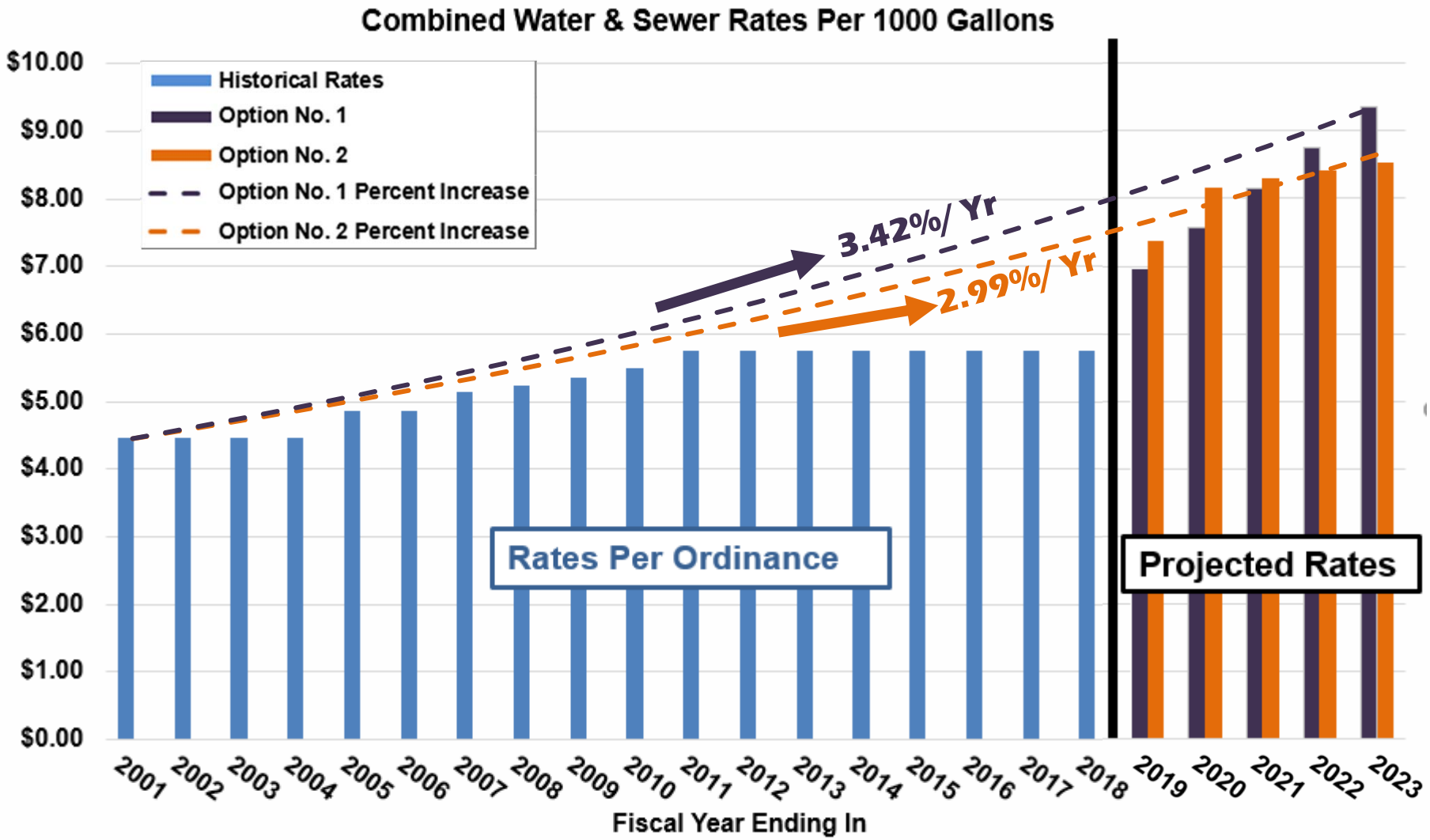
Rate Options

Rate Per 1000 Gallons (Combined Water & Sewer)

Fiscal Year	Current Rates	No CIP	Option No.	
			1	2
	No Rate Increase (0%)	$0.14/1000 Gallons Annual Rate Increase - (Break Even With the O&M Expenses) (Annual Avg. = 2.25%)	$0.60/1000 Gallons Annual Rate Increase for 6 Years (Annual Avg. = 10.5%)	$0.80/1000 Gallons Annual Rate Increase for 3 Years, Then $0.10 Annual Increase for 3 Years (Annual Avg. = 8%)
FY2018-19	$5.76	$6.03	$6.96	$7.36
FY2019-20	$5.76	$6.16	$7.56	$8.16
FY2020-21	$5.76	$6.29	$8.16	$8.29
FY2021-22	$5.76	$6.43	$8.76	$8.41
FY2022-23	$5.76	$6.59	$9.36	$8.54
Average Annual Increase	**0%**	**2.25%**	**10.5%**	**8%**

Historical & Projected Rates

Village of Oswego



52 Wheeler Road, Sugar Grove, IL 60554 ~ (630) 466-6700 tel ~ (630) 466-6701 fax ~ www.eeiweb.com

Rate Options

Average Water & Sewer Monthly Bill

FY	Current Rates	No CIP	Option No.	
	No Rate Increase (0%)	$0.14/1000 Gallons Annual Rate Increase - (Break Even With the O&M Expenses) (Annual Avg. = 2.25%)	1 $0.60/1000 Gallons Annual Rate Increase for 6 Years (Annual Avg. = 10.5%)	2 $0.80/1000 Gallons Annual Rate Increase for 3 Years, Then $0.10 Annual Increase for 3 Years (Annual Avg. = 8%)
FY2018-19	$34.27	$35.73	$40.75	$42.91
FY2019-20	$34.27	$36.43	$43.99	$47.23
FY2020-21	$34.27	$37.14	$47.23	$47.94
FY2021-22	$34.27	$37.89	$50.47	$48.58
FY2022-23	$34.27	$38.76	$53.71	$49.29

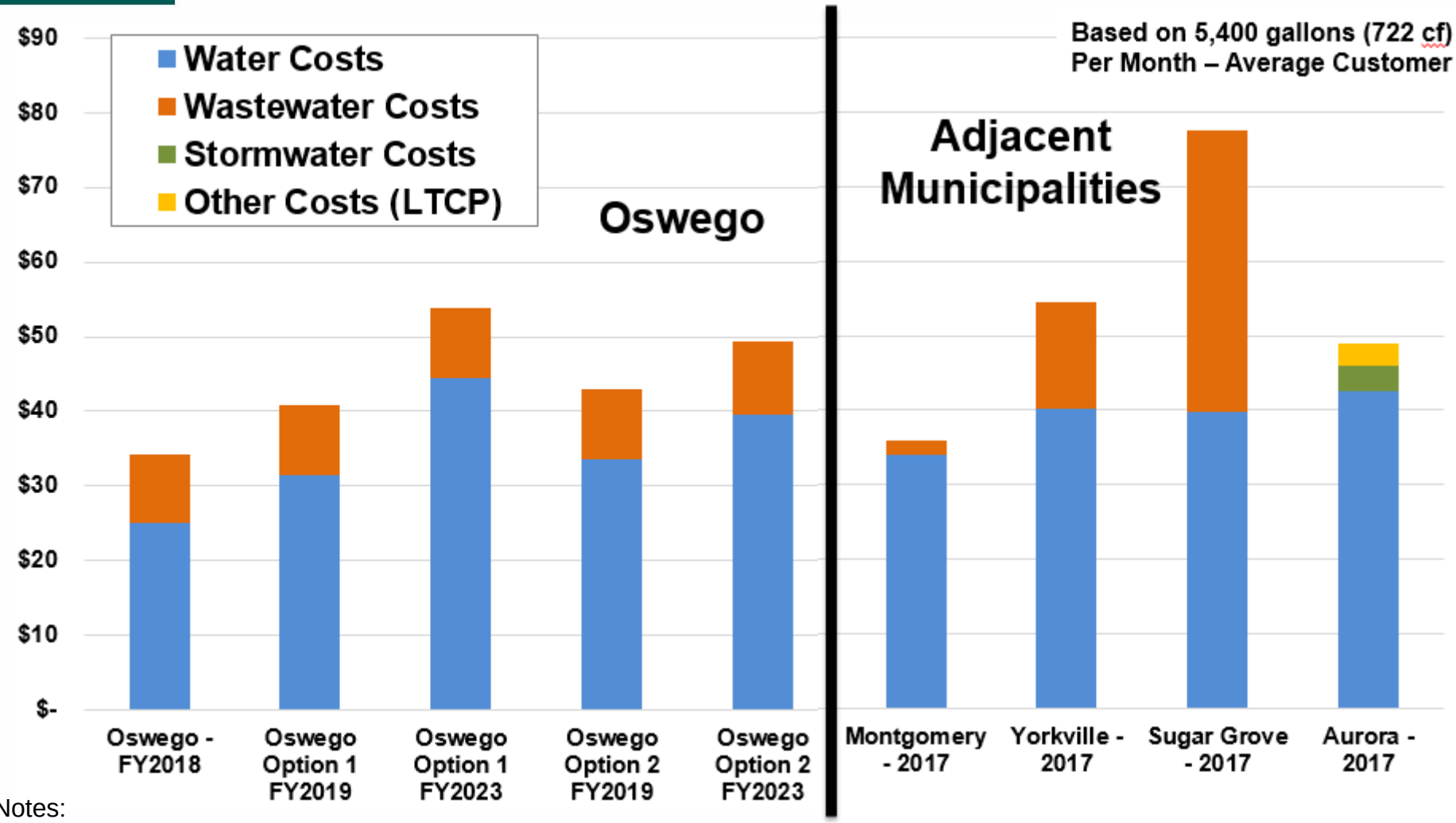
Notes:
FMWRD Fees are not included.
Garbage/Refuge Fees not included.
Based on 5,400 Gallons Per Month – Average Customer

Rate Comparisons

- Almost All Policymakers Are Interested In "What Everyone Else Is Charging"
- Tips For Developing Rate Comparison
  - ➔ Make Sure Assigned Staff Has Good Understanding Of Rate Components
  - ➔ Need To Consider All Fees & Differing Billing Cycles
  - ➔ If Comparing Water Sales Rate, Only, Then Need To Convert To Common Water Use Measurement (i.e. $ / 1000 Gallons Versus $ / 100 Cubic Feet)
  - ➔ Compare Apples To Apples By Computing A "Typical Bill" (i.e. Typical Household Water Use = 7,000 gallons / month)
  - ➔ Watch For Rate Increases In the Newspaper

Rate Comparison

Monthly Municipal Water & Sewer Bill Comparisons



Notes:
Current Rates Based on rates as of July 1, 2017
Garbage/Refuge Fees not included in this comparison

Value of Water

- 1 Gallon of Milk = $2.92
- 1 Can of Soda (Machine) = $1.00
- 1 Bottle of Water (Machine) = $1.00
- 1 Starbucks Coffee = $2.45
- 1 Gallon of Delivered Water = $1.45
- 1 Gallon of Village Water = $0.005

Value of Water

What Would You Pay to Have 200 Gallons of Treated Water Delivered to Your Door Every Day?

From Delivery Service -
$290.00 / Day

From the Village of Oswego -
$1.05 / Day

Next Steps

- Layout Expectations and Schedule for the Village Board
- State the Target Implementation Date
- Add an Annual Escalation Factor After Designated Rate Increases Are Done
- Re-Evaluate Rates As Needed Based On Population, Water Use, or Required Major Improvements

Final Outcomes

- Rate Option No. 2 Took Effect on 10/1/17

Fiscal			Option No. 1	Option No. 2
			$0.60/1000 Gallons Annual Rate Increase for 6 Years (Annual Avg. = 10.5%)	$0.80/1000 Gallons Annual Rate Increase for 3 Years, Then $0.10 Annual Increase for 3 Years (Annual Avg. = 8%)
FY20			$6.96	$7.36
FY20			$7.56	$8.16
FY20			$8.16	$8.29
FY20			$8.76	$8.41
FY20			$9.36	$8.54
Average Increase			10.5%	8%

2
$0.80/1000 Gallons Annual Rate Increase for 3 Years, Then $0.10 Annual Increase for 3 Years
(Annual Avg. = 8%)

The Engineering Difference

- Population and Water Trends
- Regulation Changes
- Operations Audit – What are we missing?
- CIP Outlook (5 Years, 20 Years)
- Rate Selling Tips
  - ➔ Know Your System & Plan For the Future
  - ➔ Monitor & Project Your Revenue Categories
  - ➔ Know What Neighboring Communities Are Charging and Why

Additional Q&A

Jennifer Hughes, P.E., CFM
Public Works Director
jhughes@oswegoil.org
630-551-2366

Michele L. Piotrowski, P.E., LEED AP
Senior Project Manager
mpiotrowski@eeiweb.com
630-466-6724