

Water, Sewer, & Stormwater
FY23 Budget
City Council Presentation
May 18, 2022



Overview of Tonight's Meeting

- Introductions
 - Brian Goetz – Deputy Public Works Director (Water)
 - Terry Desmarais – City Engineer (Sewer)
 - Jamie McCarty – GIS/Stormwater Manager (Stormwater)
 - David Hyder – STANTEC (Rates)
- System Overviews and Highlights
- Rate Increase Adjustments
- Proposed FY23 Budgets
- Discussion

FY23 Budget Challenges

- Regulatory Compliance
 - Water
 - PFAS and other pending water quality regulations
 - Sewer
 - New NPDES wastewater treatment permits
 - Treatment system upgrades @ Pease
 - Stormwater
 - MS4 Stormwater Permit Compliance

FY23 Budget Challenges

■ Increasing Costs

- Treatment Chemicals for both Water and Wastewater
- Long-term financing costs
- Capital Project bids are all coming in high with few bidders
- Materials and supplies have long lead time

■ Staffing

- Need for additional staff to meet regulatory compliance requirements
- Very competitive job market for qualified and certified staff
 - 8 current job openings
 - 10 hires in Fy22
 - 5 retirements in Fy22
 - 9 resignations in Fy22

FY23 Budget Challenges

■ Aging Infrastructure:

■ “New” Madbury Water Treatment Facility

- 11 years old = 96,360 continuous hours of operation

■ Portions of Peirce Island Wastewater Treatment Facility

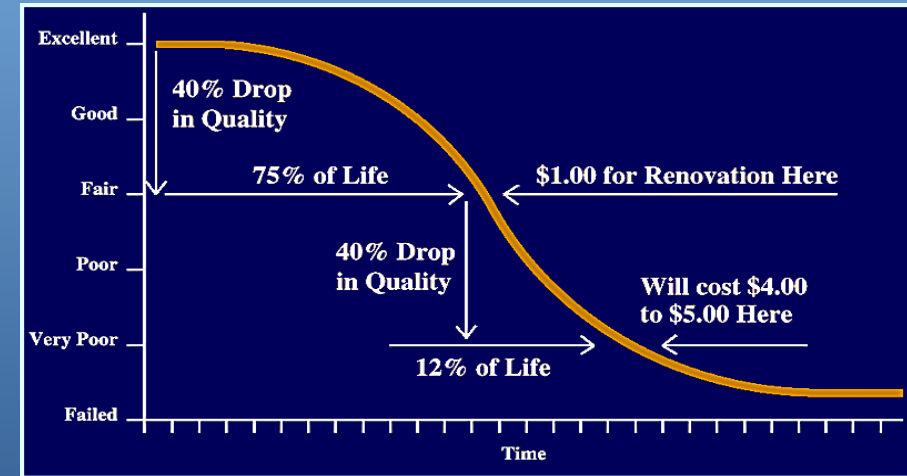
- 6 years old = 52,560 continuous hours of operation

■ Pease Wastewater Treatment Facility

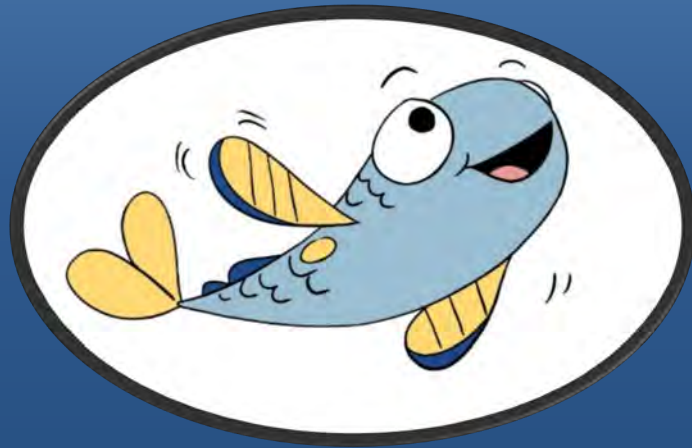
- Built in the 1950’s – 65 years old = 569,400 continuous hours of operation

■ Some pipes in water, sewer and stormwater systems are 100 years old

- Refer to Peter’s curve slide



Strawbery Banke's *Water has a Memory* Exhibit and "Think Blue" Outreach



Think Blue !

Water | Wastewater | Stormwater



Think Blue! Videos



Stormwater Outreach Video - Dog Walk Redemption

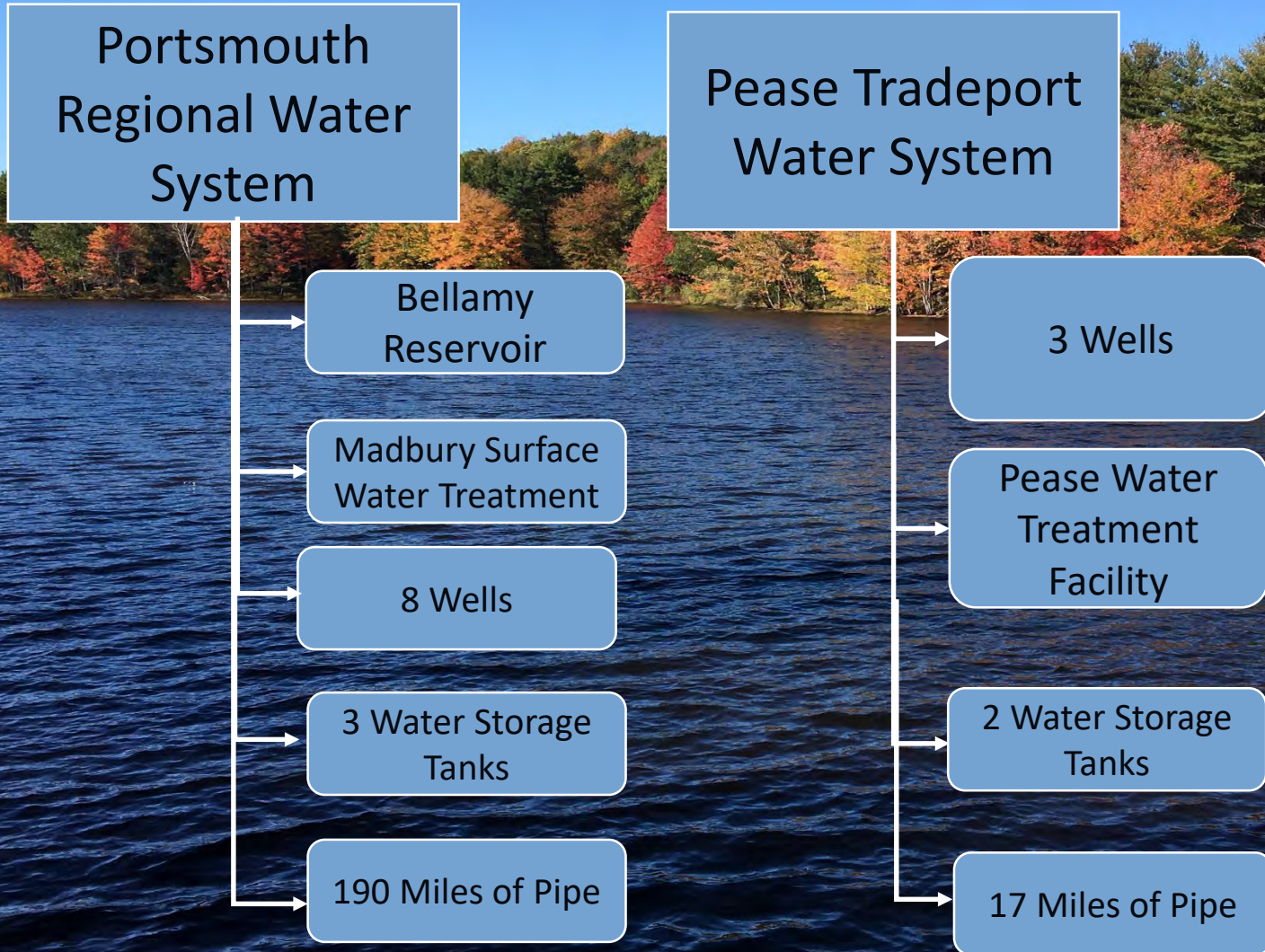
199 views Sep 23, 2021



Stormwater Outreach Video - Falling Leafs

207 views Nov 3, 2021

Water Division



Water System Highlights

- The Portsmouth and Pease drinking water systems are in compliance with all drinking water regulatory requirements
- Continue to respond and treat Pease Tradeport PFAS contamination
 - New Pease Water Treatment System Commissioned in April 2021
 - Haven Well reactivated in August 2021



Water System

Recent Grants and Agreements

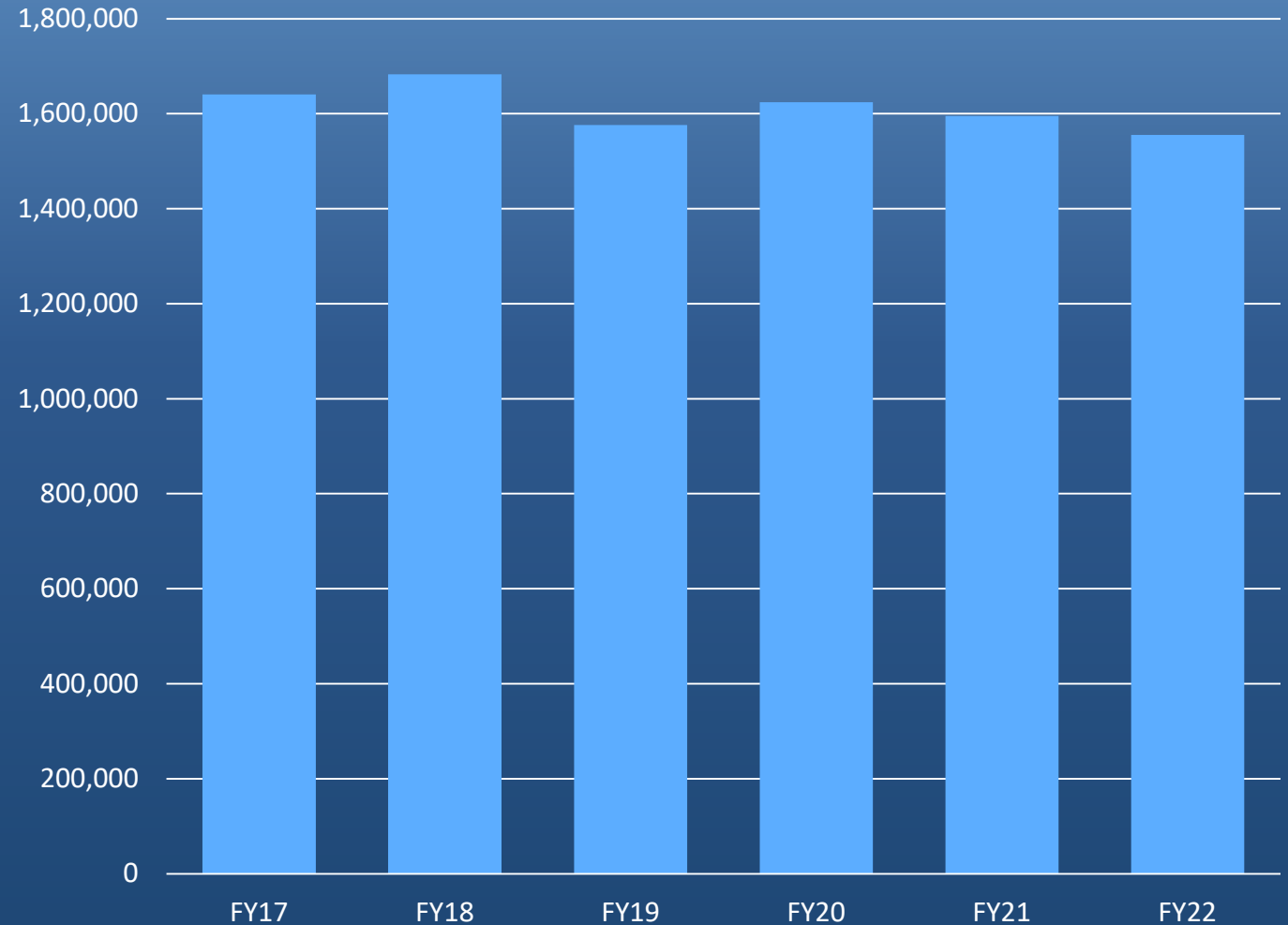
- Air Force agreements offsetting Pease Water Treatment Facility operating costs \$780,729
- Little Bay waterline replacement - \$600,000
- Lafayette Road area pressure study - \$50,000
- Cybersecurity grant - pending

Water System Highlights

- Drought ended in July 2022
- Continue to track precipitation and plan for future water demands
- Total system pumpage average of 3.59 Million Gallons/Day
 - Lowest in 40 years
 - Water Sales Remain Steady

Water FY Sales Trend (Total Units)

	Water Units Billed
FY17	1,640,856
FY18	1,682,823
FY19	1,576,453
FY20	1,624,340
FY21	1,583,537
FY22 (projected)	1,555,500

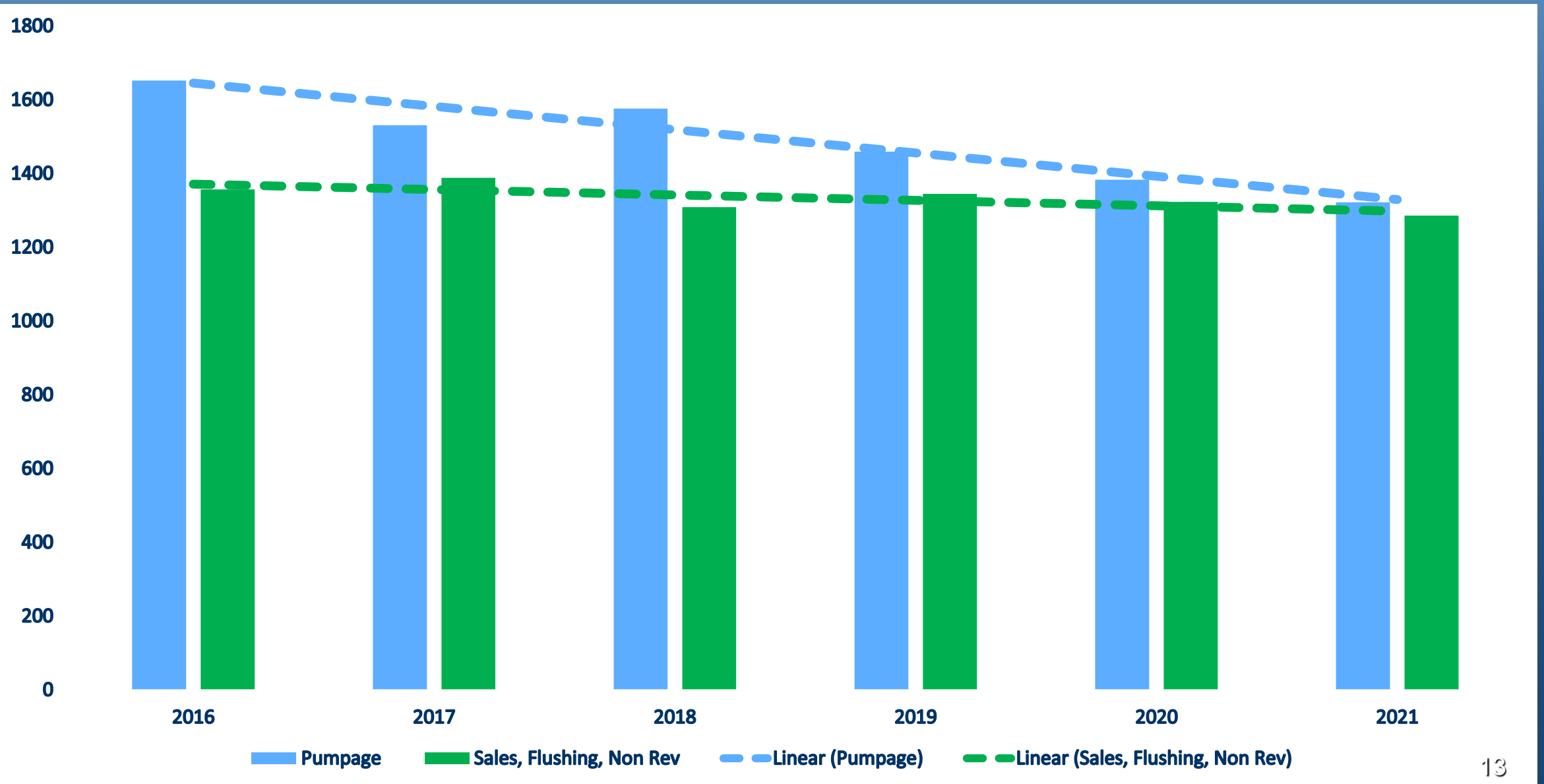


6 year ave. (17 to 22) = 1,611,000

FY23 Budget = 1,579,537

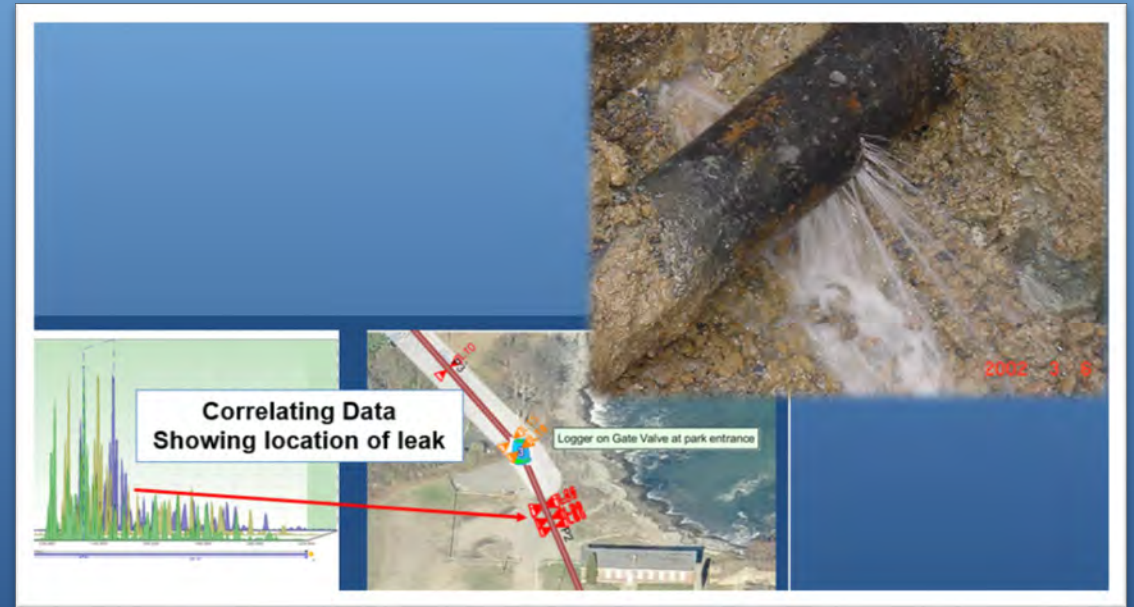
1.5% increase

Water Balance Trend – Pumped versus Sales and Other Use



Closing the Water Balance Gap

- Leak Detection
- Meter upgrades and tracking
- System pipe improvements
 - 42 miles of pipe replacements in last 20 years





Performance Measures:

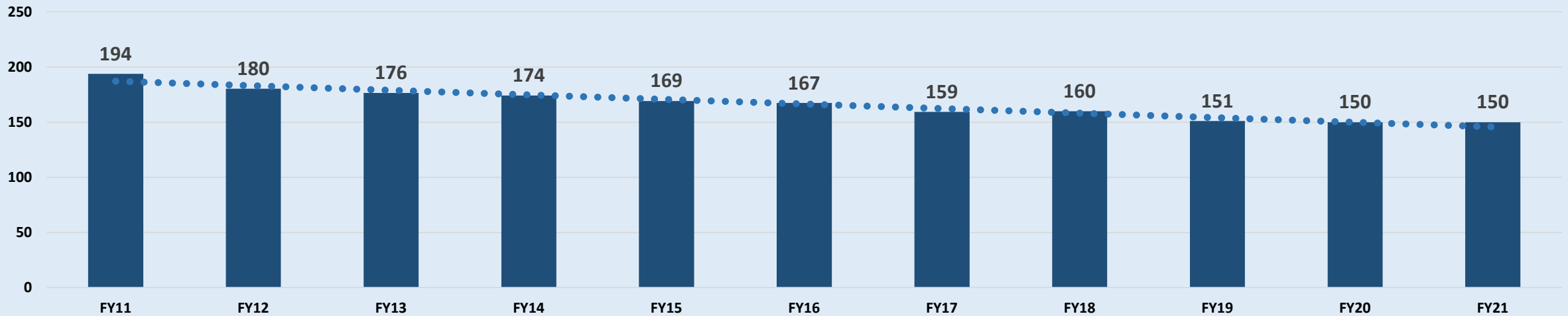
- 8,529 Total Customers
- 2,300 Work Orders
- 500 Meter Tests
- 804 Meter Replacements
- 900 Radio Replacements
- 721 Leak Notices
- 2,379 Backflow Tests
- 3,329 DigSafe Tickets
- Flushing – Spring & Fall



Water Efficiency Program:



Trend - Average Residential Water Use Average (gallons per day)



Water Efficiency Rebate Program

- Introduced in 2015
- The First Such Program in New Hampshire
- Over 1,000 Rebates Issued to date



\$100



\$150

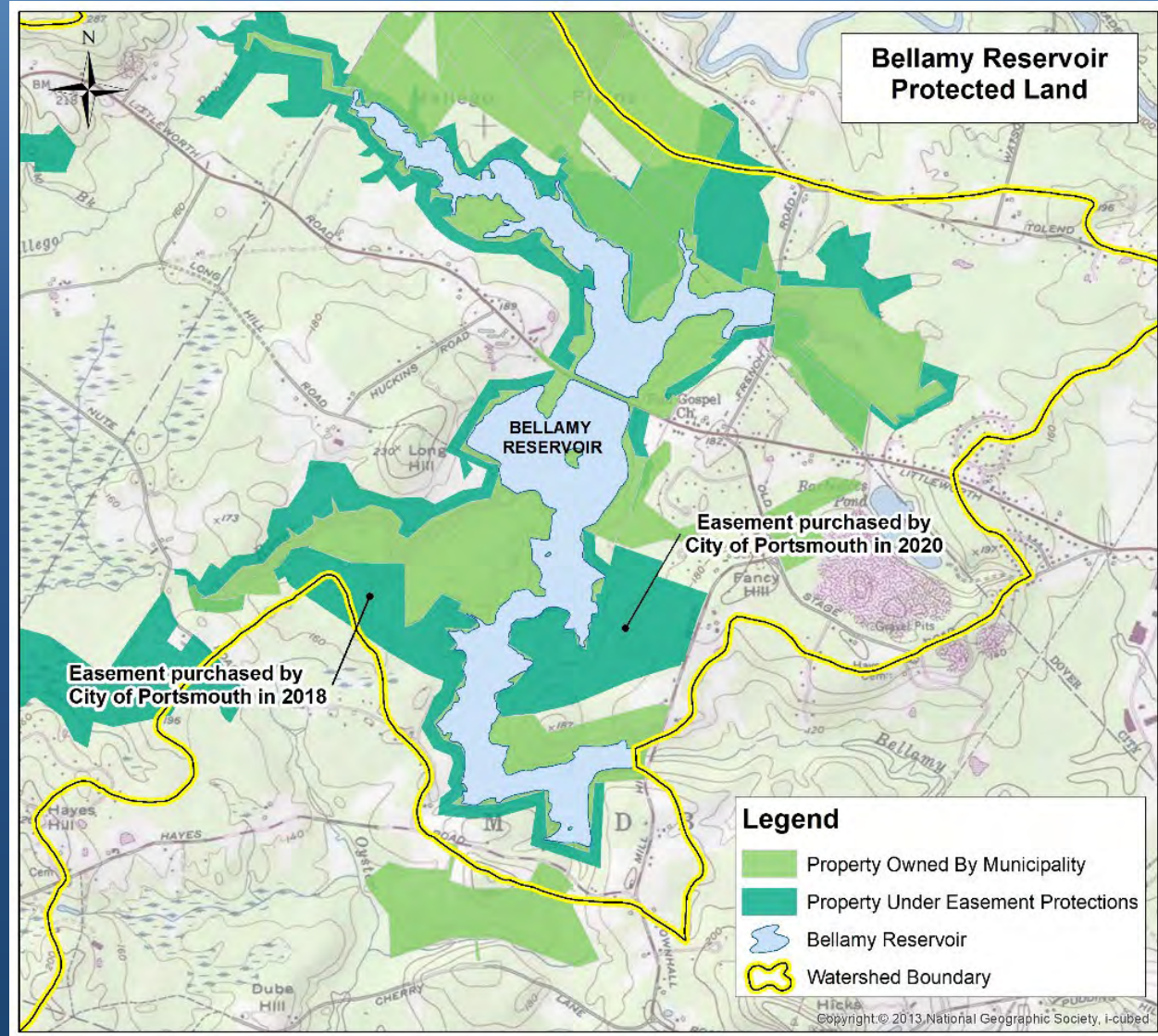


Residential Toilet and Washing Machine Rebate Program Additional Information

Q. Why is Portsmouth offering toilet and washing machine rebates?

A. We are offering this program to our customers as an incentive to replace older, inefficient toilets and washing machines with high efficiency models. This is another step toward making our water and sewer systems as efficient as possible. When customers use less water then we have to produce and treat less water and wastewater, which saves water and money for everyone in the long run.

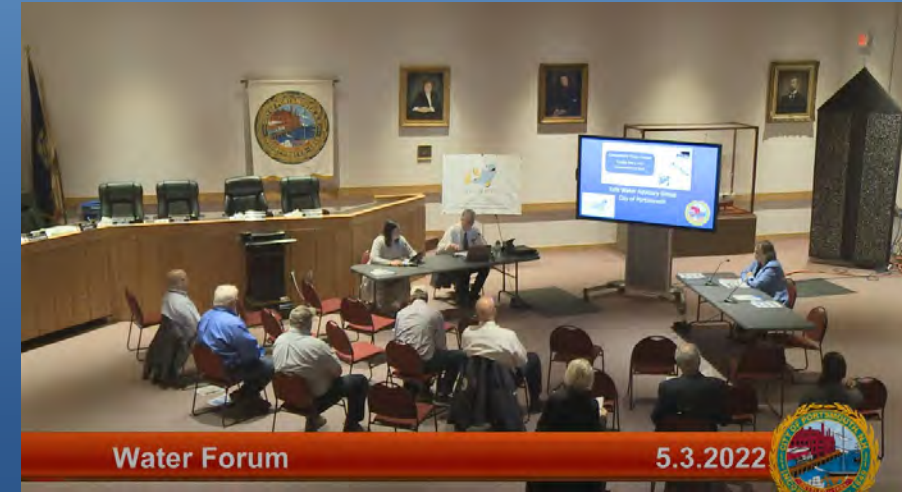
Continuing Source Water Protection Efforts



Community Involvement

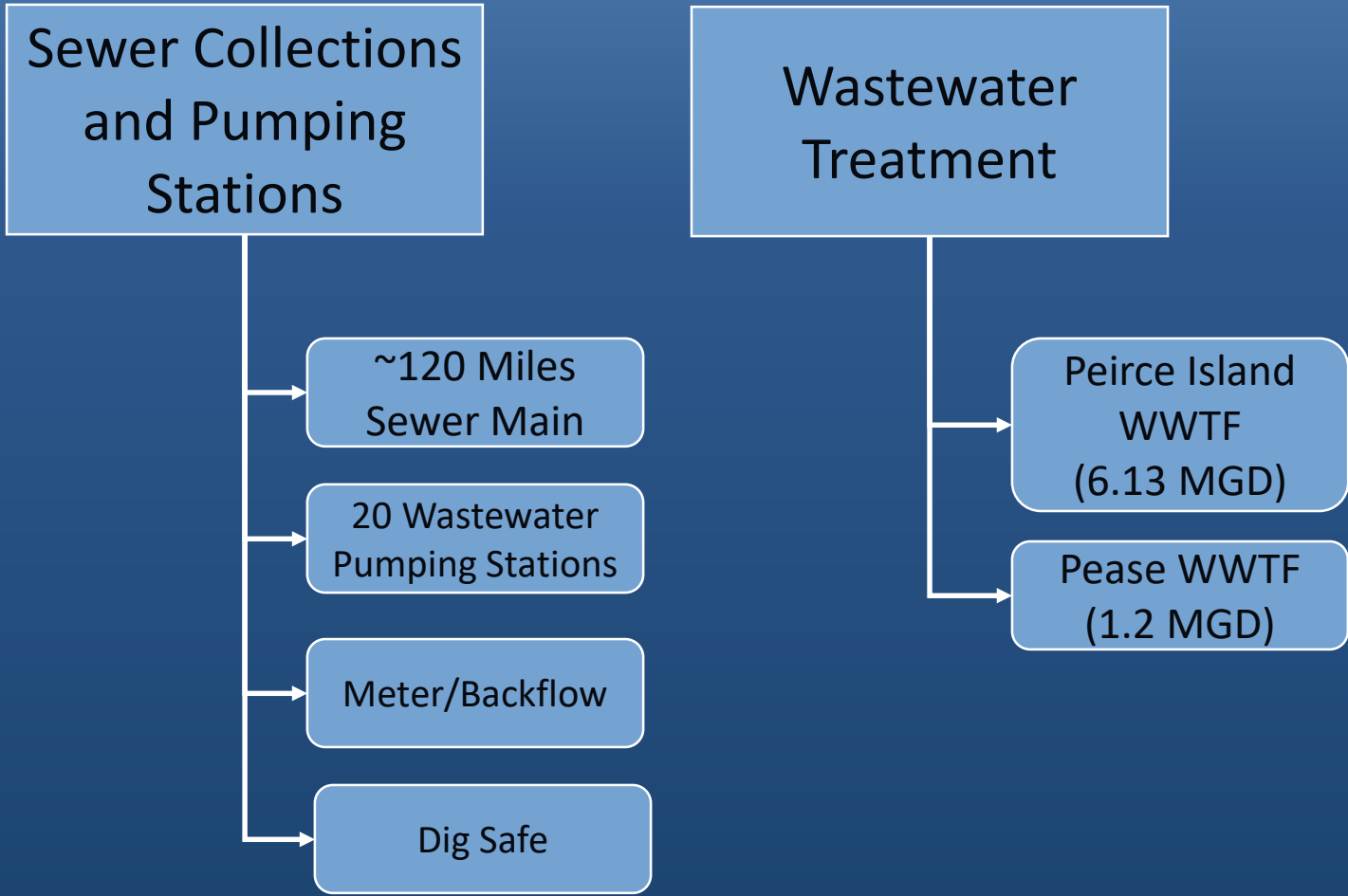
- Safe Water Advisory Group (SWAG)
 - Meets Quarterly
- Seacoast Drinking Water Commission
 - Meets Monthly
- Pease Restoration Advisory Board (RAB)
 - Meets Quarterly
- New Hampshire Drought Management Task Force
 - Meets as Needed

Water Forum - May 3, 2022



https://youtu.be/98ShsRM_UEo

Sewer Division



Sewer Division Highlights

- In Compliance with Treatment and Collection System Regulatory Requirements
- Both Treatment Facilities Receiving Updated Individual NPDES Permits in 2022

REGULATORY REQUIREMENTS

- **NH0100234 Peirce Island WWTF NPDES**
 - Long Term Control Plan for CSO Reduction
- **NH090000 Pease WWTF NPDES**
- **NHG58A000 Great Bay Total Nitrogen General Permit NPDES**
- **Consent Decree**
 - Supplemental Compliance Plan for CSO Reduction
 - Peirce Island Upgrade
 - Sagamore Sewer
 - Regional Stormwater System at DPW
 - Water Quality Monitoring

Sewer Division Highlights

- Peirce Island WWTF
Discharging Significantly
Improved Water Quality
- Long Term Control Plan Sewer
Separation Projects Continue
- Planning for Pease WWTF
Upgrades



Sewer Division Grants

- City Made First Payment for Peirce Island WWTF in April 2022
 - Significant Savings in Construction Financing
 - \$4.1 million Principal Forgiveness
- Recent Grants Received for Projects ~ \$2 million
 - Pease Wastewater Upgrades - \$450,000
 - Fleet street sewer upgrades - \$600,000
 - Sewer System rehabilitations - \$220,500
 - Mechanic Street Pump Station upgrades - \$600,000
 - Wastewater Treatment Asset Management - \$210,000
 - Cybersecurity grant - pending

Core Functions and Services

- EPA Permit Compliance
- 24 Hour Operation and Oversight
- Preventative Maintenance
- Corrective Maintenance
- Facility Improvements
- Programs
 - Industrial Pretreatment Program
 - Fats, Oil and Grease
 - Long Term Control Plan
- Closed Circuit TV Inspection

Buildings, grounds, piping and valves, treatment equipment, continuous monitors, HVAC, electrical equipment

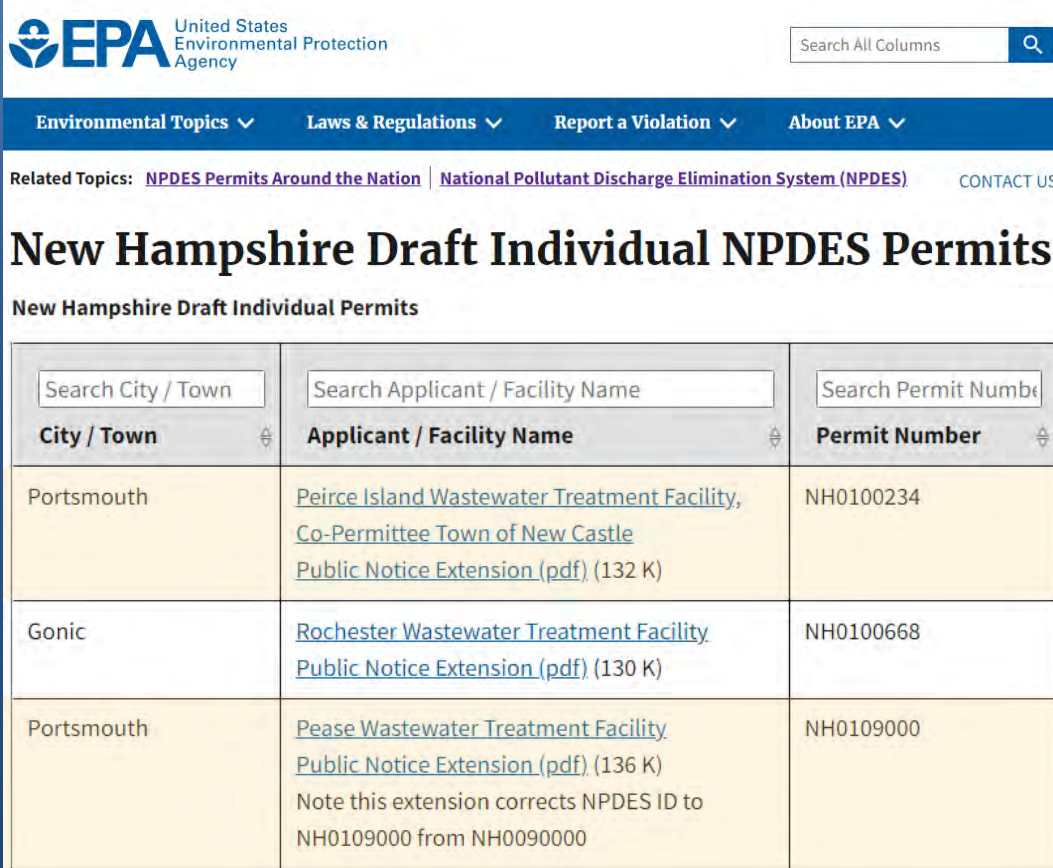


Regulatory Impacts on Budget

- NPDES Permits
 - Great Bay Total Nitrogen General Permit
 - Water quality monitoring
 - Individual NPDES permits
 - Long Term Control Plan (Sewer Separation)
- Changes in Regulatory Landscape
 - Tracking biosolids disposal trends

Updated NPDES Individual Permits

- Separate From Great Bay Total Nitrogen General Permit
- Regulates Conventional Pollutants (BOD, TSS, etc.)
- Draft Permits Issued for Comment: Pease and Peirce Island Facilities
 - Increased volume and frequency of testing
 - Additional time-based deliverables
 - Additional Programs (e.g. Industrial Pretreatment)



The screenshot shows the EPA website's 'New Hampshire Draft Individual NPDES Permits' page. It features a search table with three columns: City / Town, Applicant / Facility Name, and Permit Number. The table lists three draft permits for comment, each with a public notice extension PDF link.

Search City / Town	Search Applicant / Facility Name	Search Permit Number
City / Town	Applicant / Facility Name	Permit Number
Portsmouth	Peirce Island Wastewater Treatment Facility, Co-Permittee Town of New Castle Public Notice Extension (pdf) (132 K)	NH0100234
Gonic	Rochester Wastewater Treatment Facility Public Notice Extension (pdf) (130 K)	NH0100668
Portsmouth	Pease Wastewater Treatment Facility Public Notice Extension (pdf) (136 K) Note this extension corrects NPDES ID to NH0109000 from NH0090000	NH0109000

Projects – Peirce Island WWTF



**National Project Excellence Award
2021**
Water Environment Federation



**Chairman's Award and Excellence
in Construction Award - 2021**
Associated Builders and Contractors
(ABC NH/VT)



**National Excellence in Construction
Pyramid Award - 2021**
Associated Builders and Contractors



**PEIRCE ISLAND
WASTEWATER
TREATMENT FACILITY**

PROJECT AWARDS



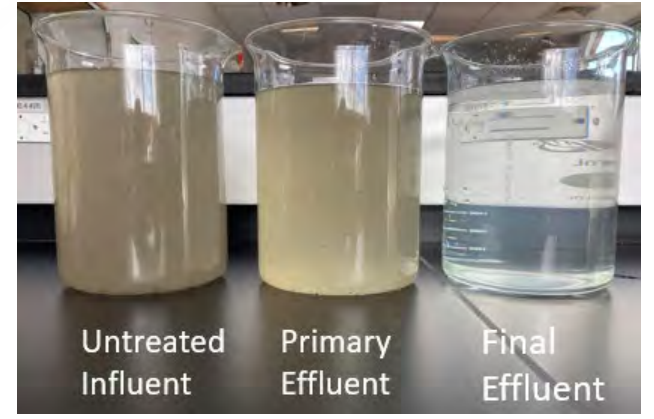
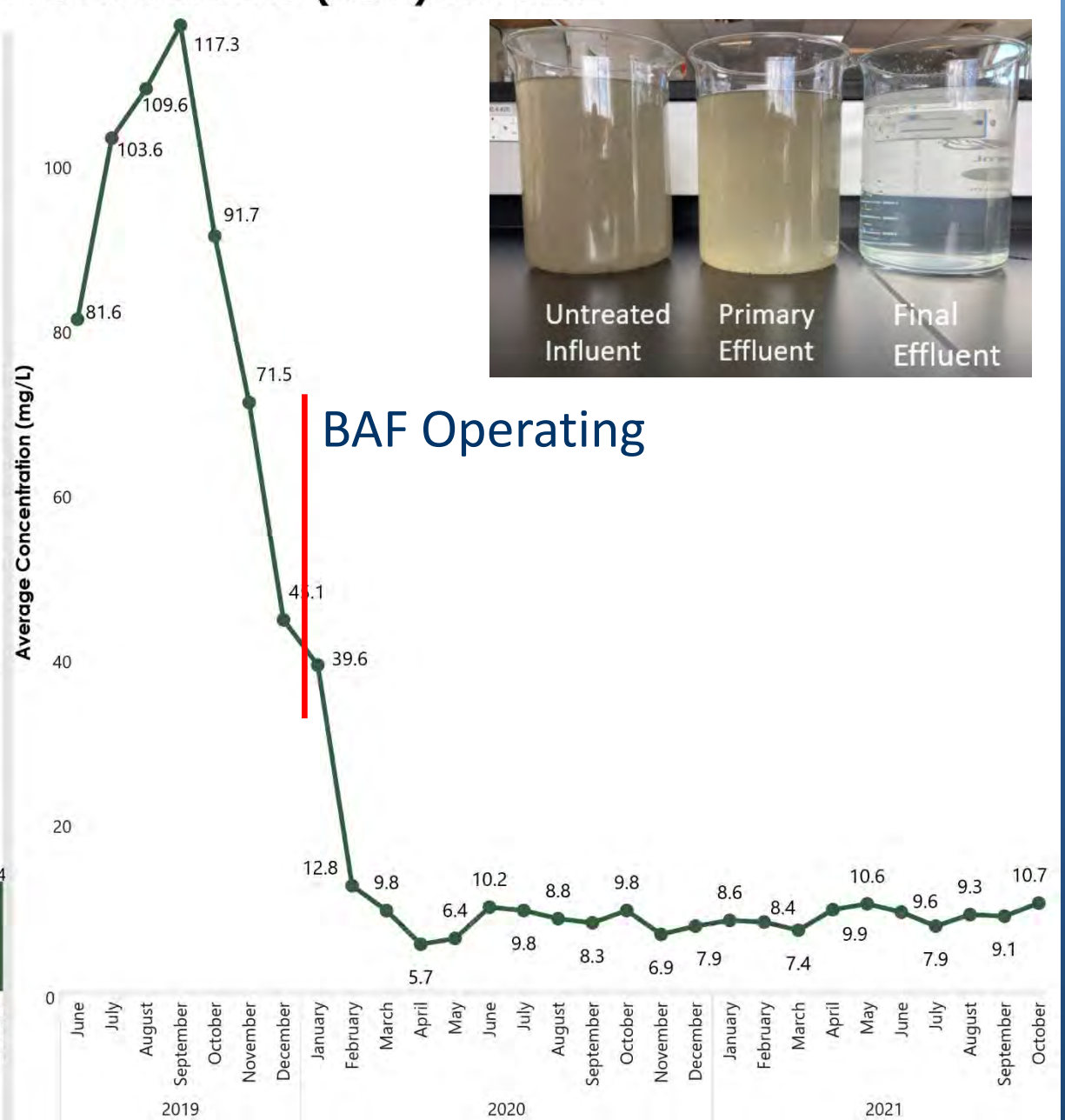
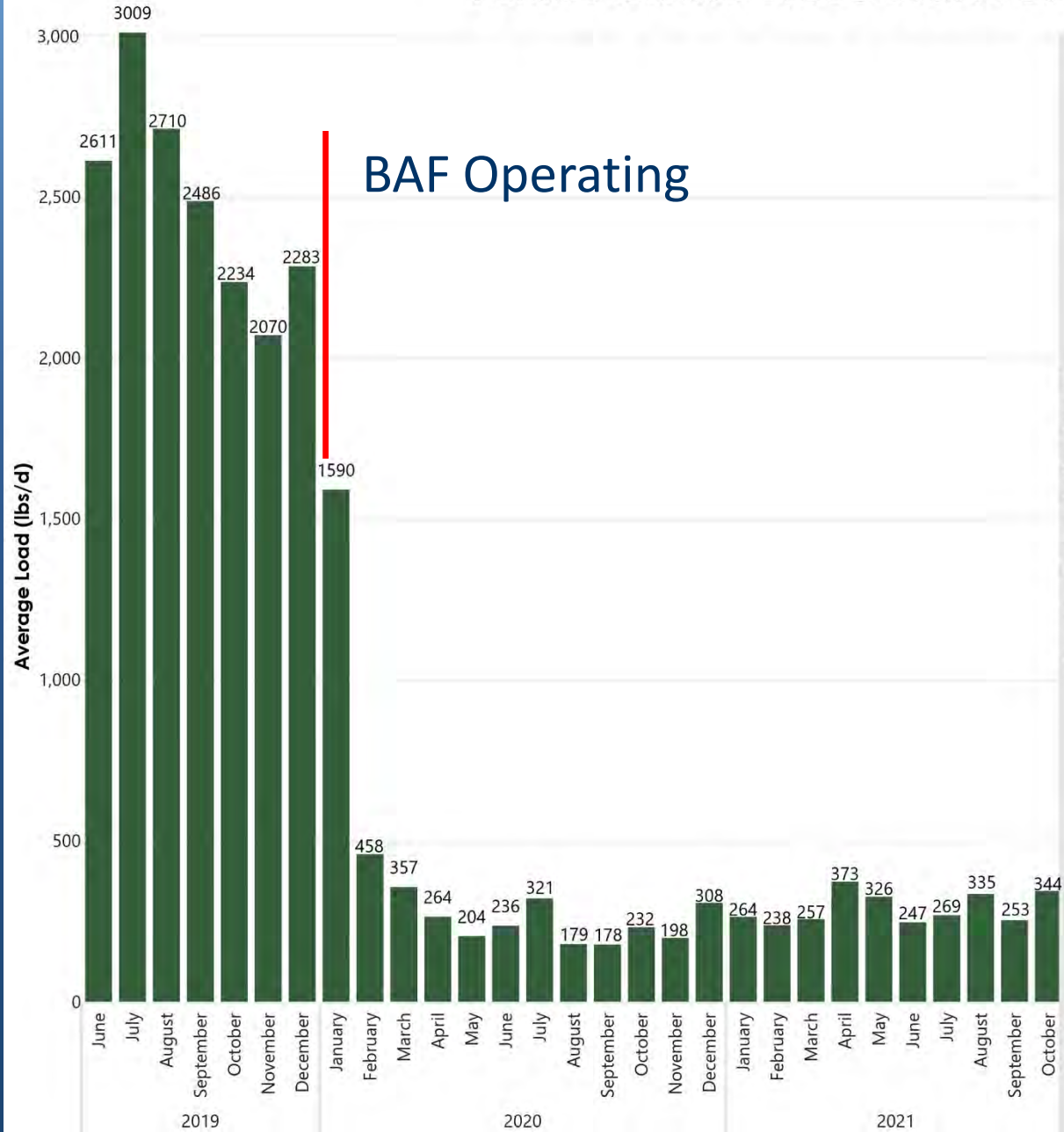
Engineering Excellence Award - 2022
American Council of Engineering Companies
**Project Excellence Award for the Silver Award
2022** ACEC of Massachusetts



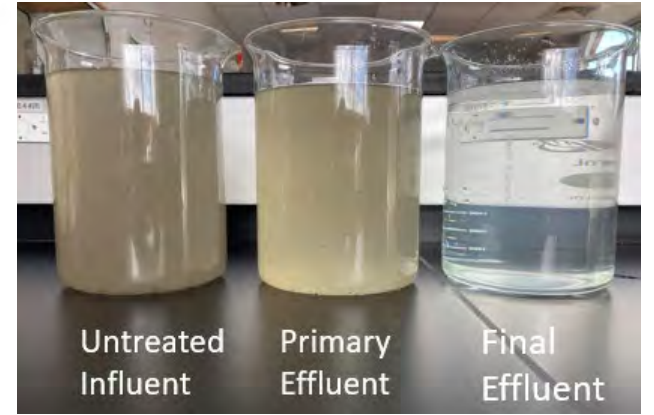
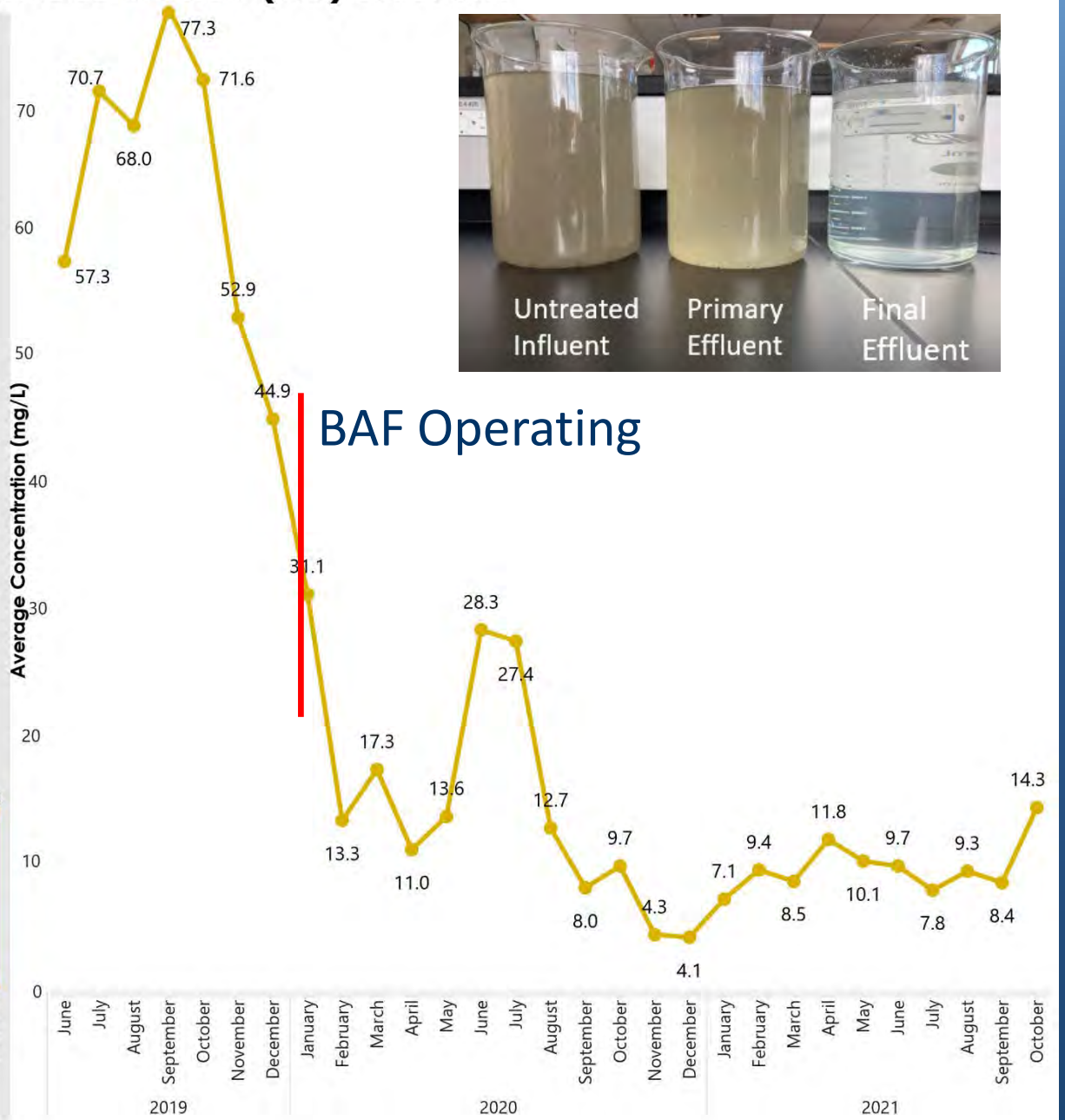
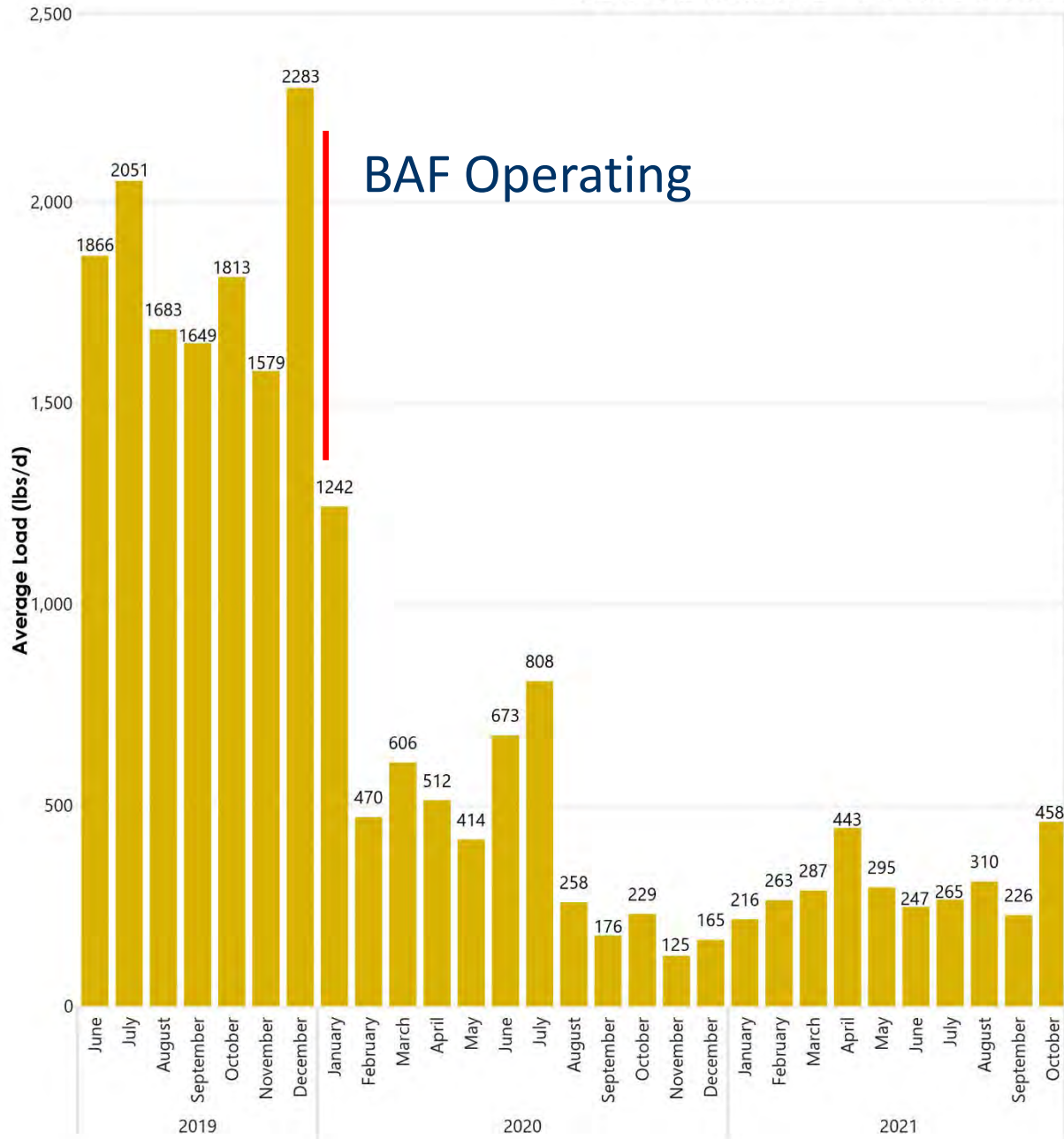
**George F. Ames Performance and Innovation
in the SRF Creating Environmental Success
(PISCES) Award Honorable Mention - 2022**



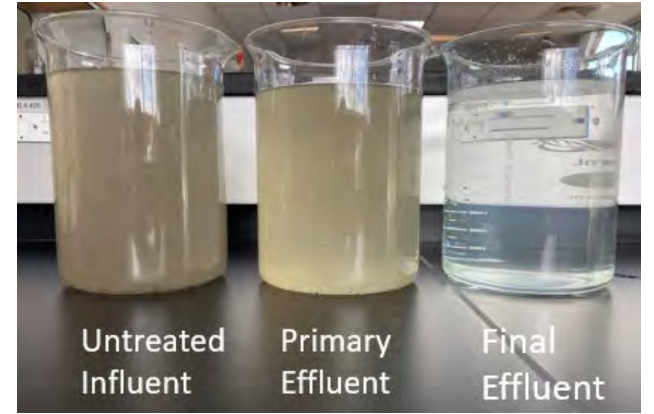
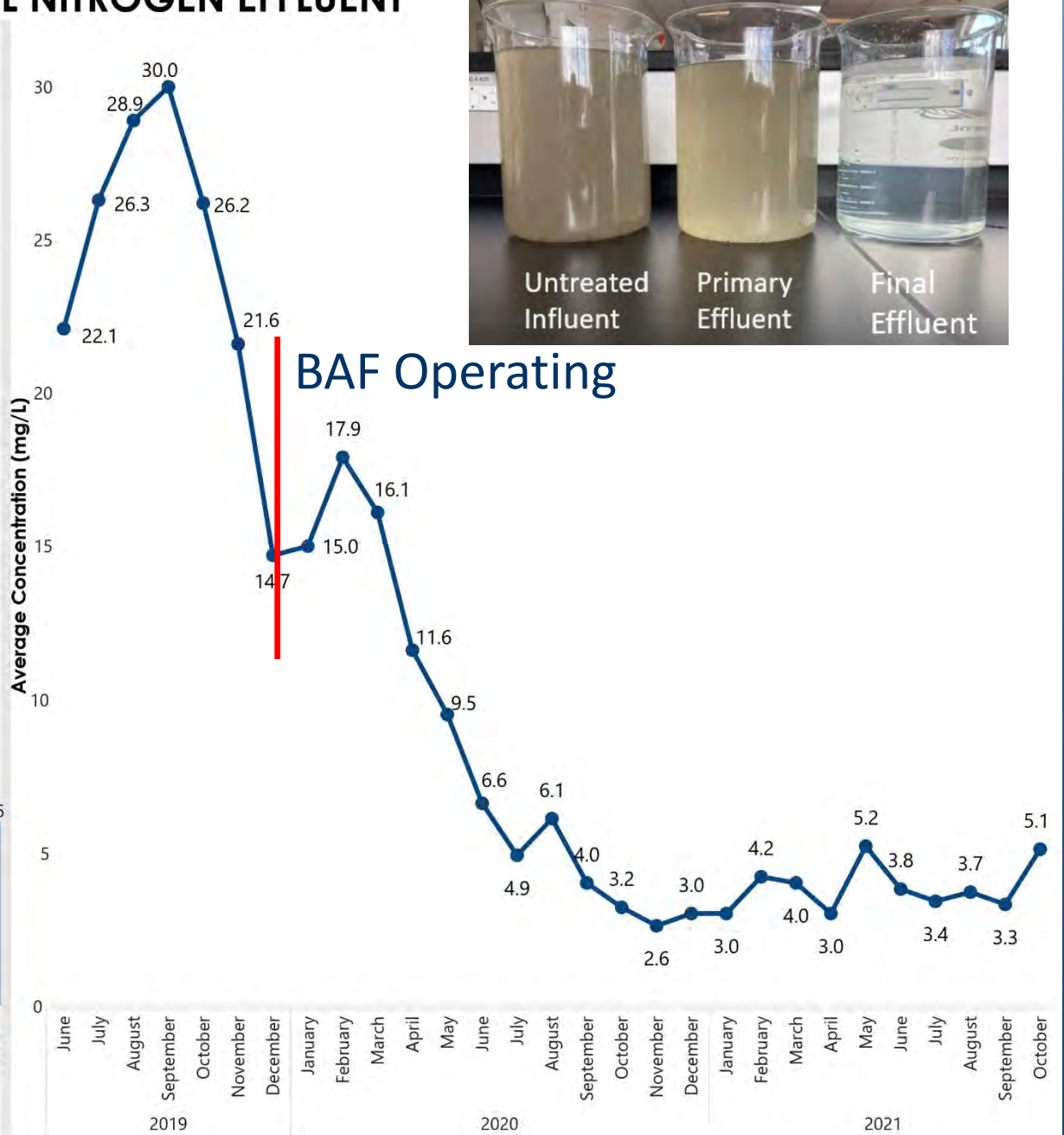
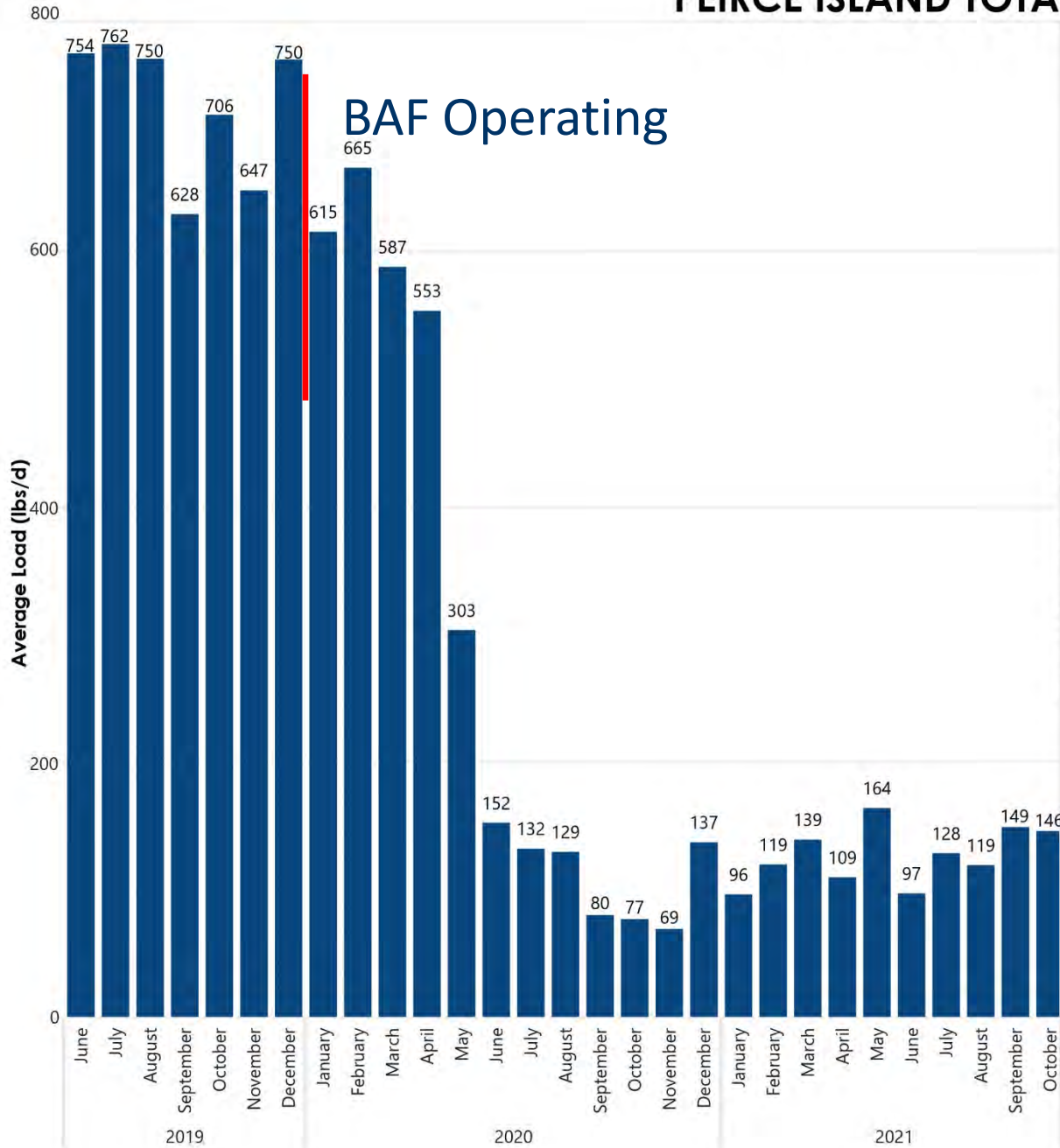
PEIRCE ISLAND BIOLOGICAL OXYGEN DEMAND (BOD) EFFLUENT



PEIRCE ISLAND TOTAL SUSPENDED SOLIDS (TSS) EFFLUENT



PEIRCE ISLAND TOTAL NITROGEN EFFLUENT



Projects - Pease WWTF Upgrades

- Increase Flow 1.2 MGD to 1.77 MGD
- Replace Aged Equipment



Projects – Pump Stations and Force Mains

- Completed

- Mechanic Street Force Mains on Peirce Island

- Upcoming

- Mechanic Street Pump Station
- Other smaller pump stations



Peirce Island
Bridge and Road
– May 17, 2022



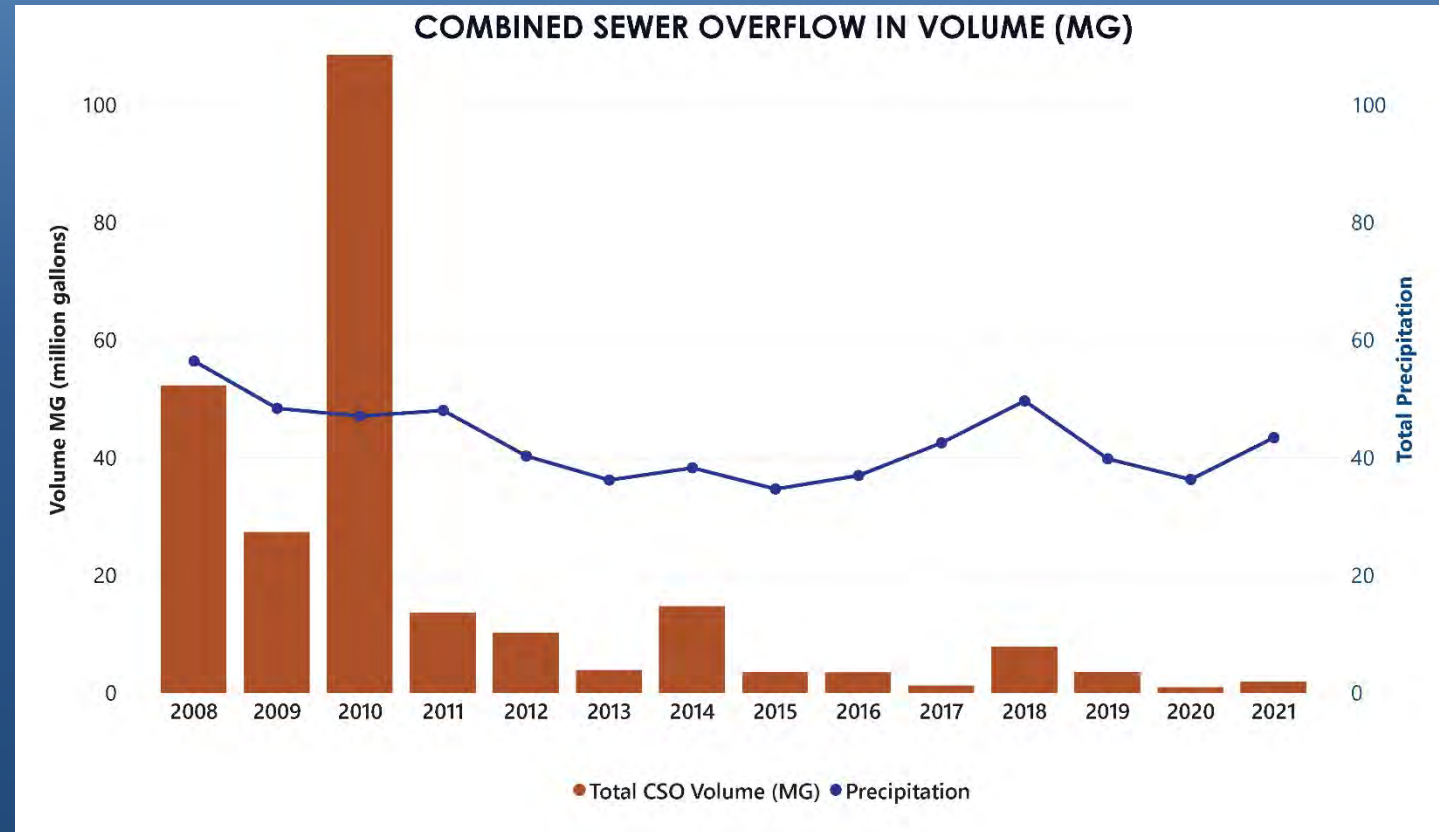
Projects - Sewer Pipelines and Separation

■ Completed

- Congress St Repairs
- Green St
- Islington St Phase 1A/1B
- Maplewood Ave & Sidestreets
- McDonough St Area
- Pleasant St Area

■ Upcoming

- Islington Phase 2
- Fleet Street Area
- Union Street and Willard Ave
- Sagamore Avenue Area Low Pressure

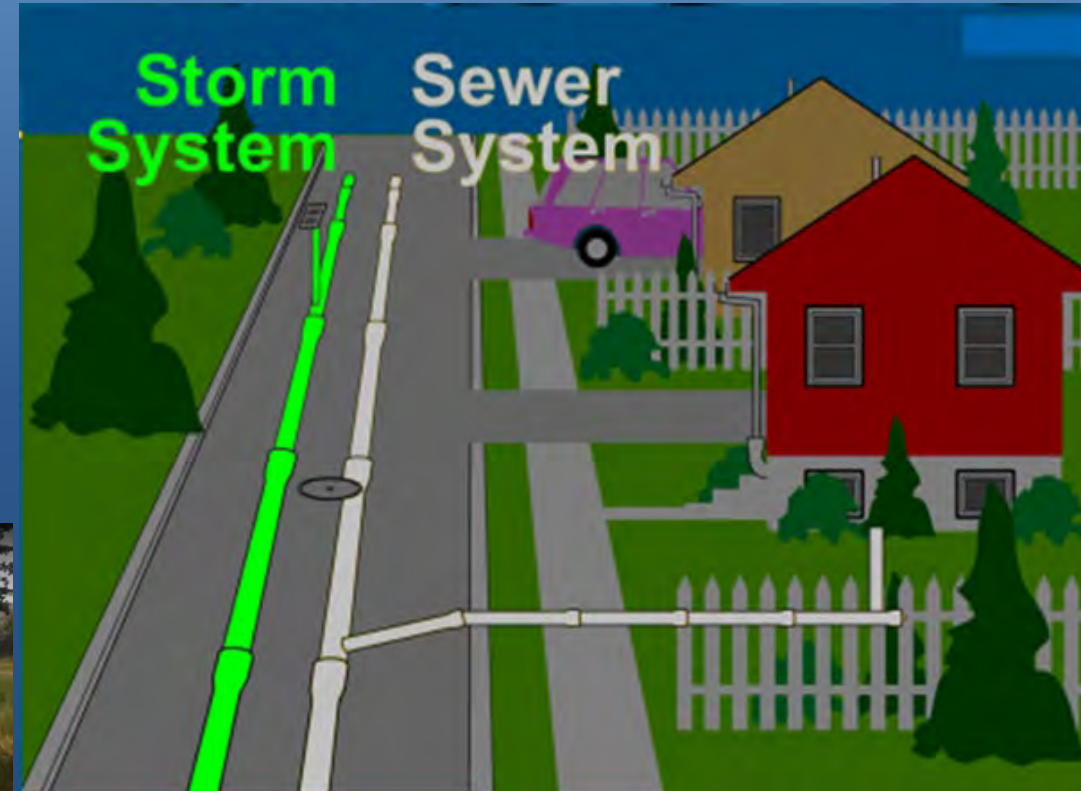


Proposed FY23 Stormwater Special Revenue Fund Budget



Stormwater System Infrastructure

- 76 Miles of piping
- 2716 Catch Basins
- 726 Manholes
- 37 BMP systems (81 Structures)
- 202 MS4 Regulated Outfalls



January 2022

* Not including Pease International Tradeport

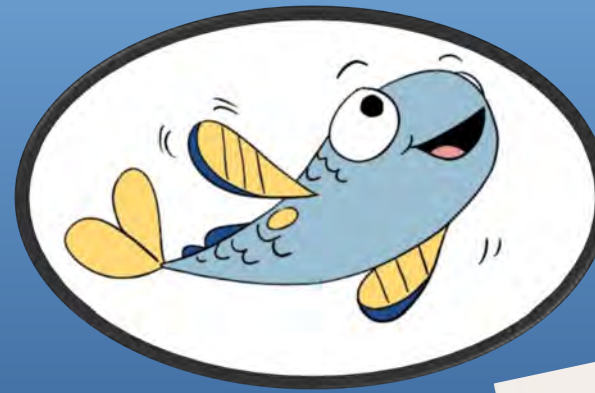
Stormwater Maintenance FY22

Item	Amount
Catch Basins Cleaned	550
Catch Basin Cleaning	115 Tons
Drain Lines Cleaned and Inspected	10,000 Feet
Street Sweeping Material Collected	150 Tons
Leaf Collection	2,211 Tons
Brush Collection	335 Tons



Public Outreach

- Household Hazardous Waste Day Collections (spring, fall)
- Dog License Flyer
 - “Scoop the Poop”
- Mailer to Residents
 - Handling Leaves and Yard Waste
 - Lawn Watering Efficiency
- Mailers to Businesses & Developers
 - Low Impact Development
 - Green SnowPro



Think Blue



Stormwater Treatment Tracking (PTAP)



- Inventory of City Stormwater Treatment Devices and Best Management Practices
- Requirement of Site Plan Review Regulations
- UNH Pollution Tracking & Accounting Program (PTAP)
- Will help with Great Bay Total Nitrogen Permit compliance

Stormwater Program – FY23 Focus

- Continued work and planning to meet new EPA MS4 Stormwater Permit (FY23 = Year 5 of current permit)
- Wet weather outfall screening and sampling
 - 202 MS4 regulated outfalls
 - FY22 Conducted wet weather sampling at ~50 high priority outfalls
 - FY23 Planning to sample 40 - 50 outfalls
 - In-house analysis at Peirce Island Treatment Facility
- Begin catchment investigations of all priority outfalls
- Implementation of Salt Reduction Plan



Regional Efforts: Seacoast Stormwater Coalition and UNH Stormwater Center Pollution Tracking Project

- Long standing membership
- Partners with DES and other NH stormwater coalitions
- Subcommittee participant
 - Education & Outreach
 - Hot Spot GIS Tool
 - Year 4 MS4 requirements
 - NOI template

- Dover
- Durham
- Exeter
- Hampton
- North Hampton
- **Portsmouth**
- Rochester
- Rollinsford
- Rye
- Seabrook
- Somersworth
- UNH
- NDES

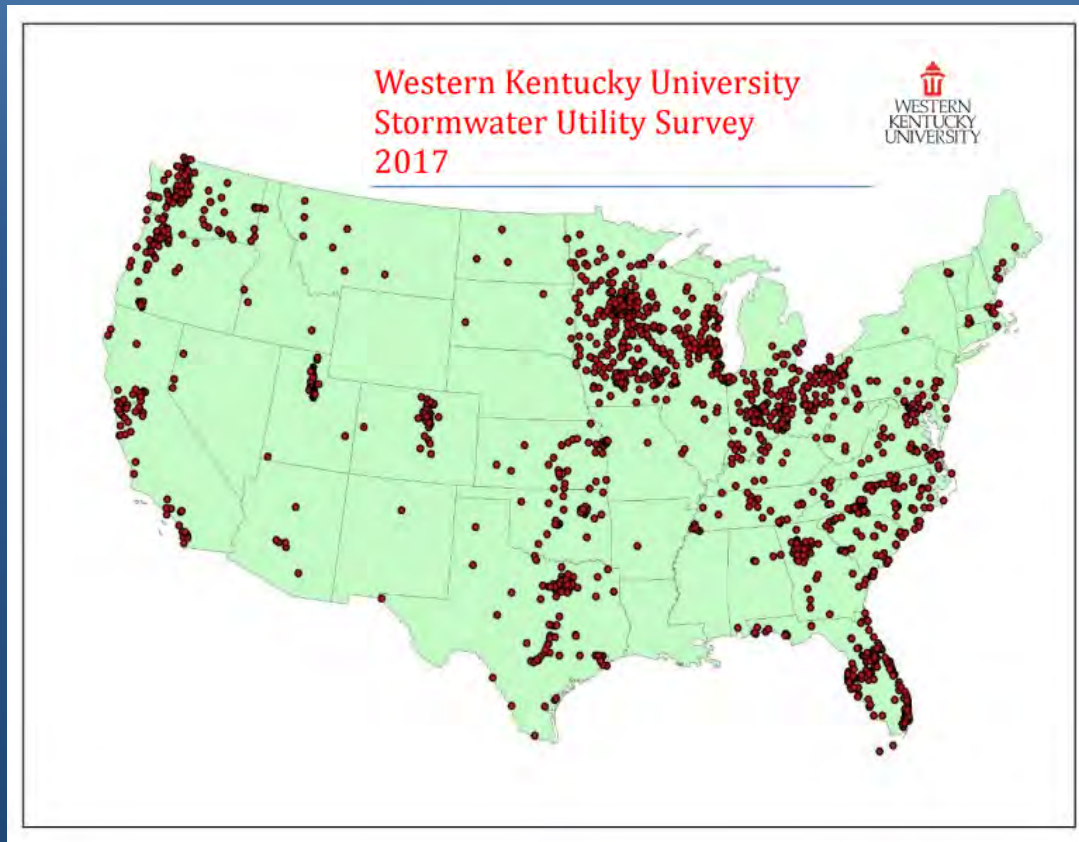


Stormwater Utility Feasibility Study

- VHB
 - Technical Components
- Stantec
 - Rate Model
- Anticipate work sessions with City Council Fall of 2022

- Benefits of a Utility
 - Dedicated Funding Source
 - Current funding is 50% General Fund and 50% Sewer
 - Revenue generated by a stormwater utility based on user fees provides a more sustainable and equitable funding source
 - Improved Watershed Stewardship
 - Through incentive programs that reduce user fees, a stormwater utility encourages better stormwater management, such as the use of low impact development practices
 - Meet Great Bay Total Nitrogen Permit requirements (to explore the feasibility)

Stormwater Utilities in the U.S.



- 1639 stormwater utilities located in 40 states
- None yet in New Hampshire
- A few in New England
 - Examples:
 - Burlington, VT
 - Lewiston, ME
 - Northampton, MA

Water and Sewer
Operating Budgets
Rate Model Approach and
Recommendations

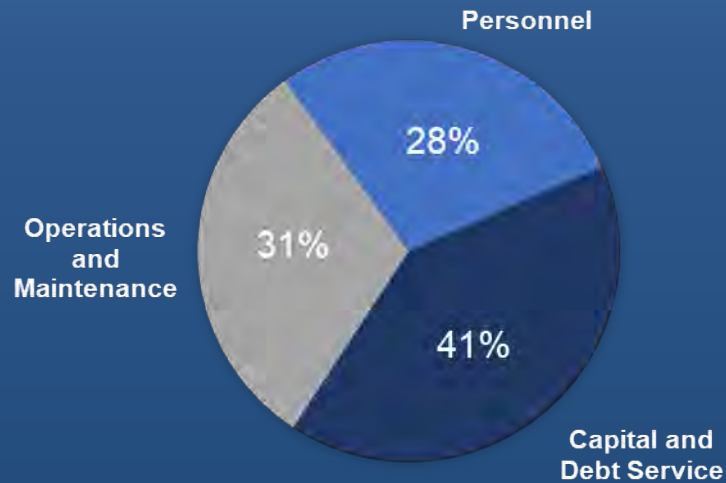
Water and Sewer System Funding: Enterprise Funds

- Enterprise Funds Account for Operations That are Financed and Operated in a Manner Similar to Private Business
- Must have Fees and or Charges Sufficient Enough to Cover the Cost of Providing Goods and Services, Including Capital costs (i.e. System Reinvestment and Debt Service)
- Note: Property Taxes do not Subsidize the Water and Sewer Funds

Water and Sewer Budgets – Cash Funding Components

Water

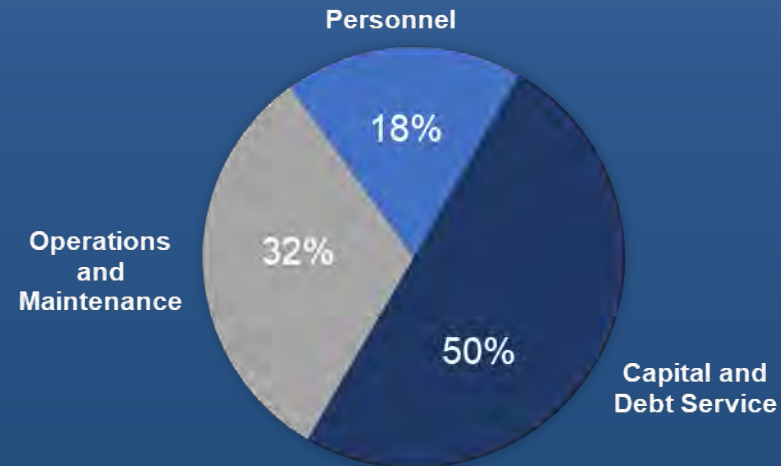
\$12,241,173



- 28% - Personnel salaries and benefits
- 31% - Operations and maintenance
- 41% - Capital funding and debt service

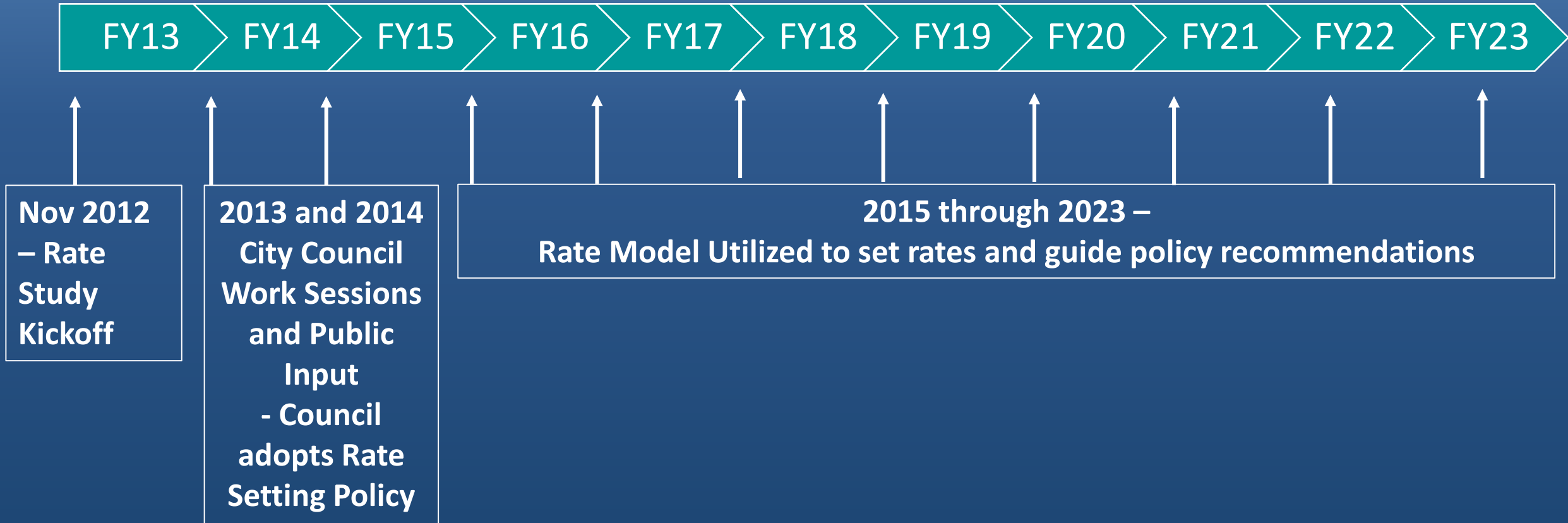
Sewer

\$23,461,898



- 18% - Personnel salaries and benefits
- 32% - Operations and maintenance
- 50% - Capital funding and debt service

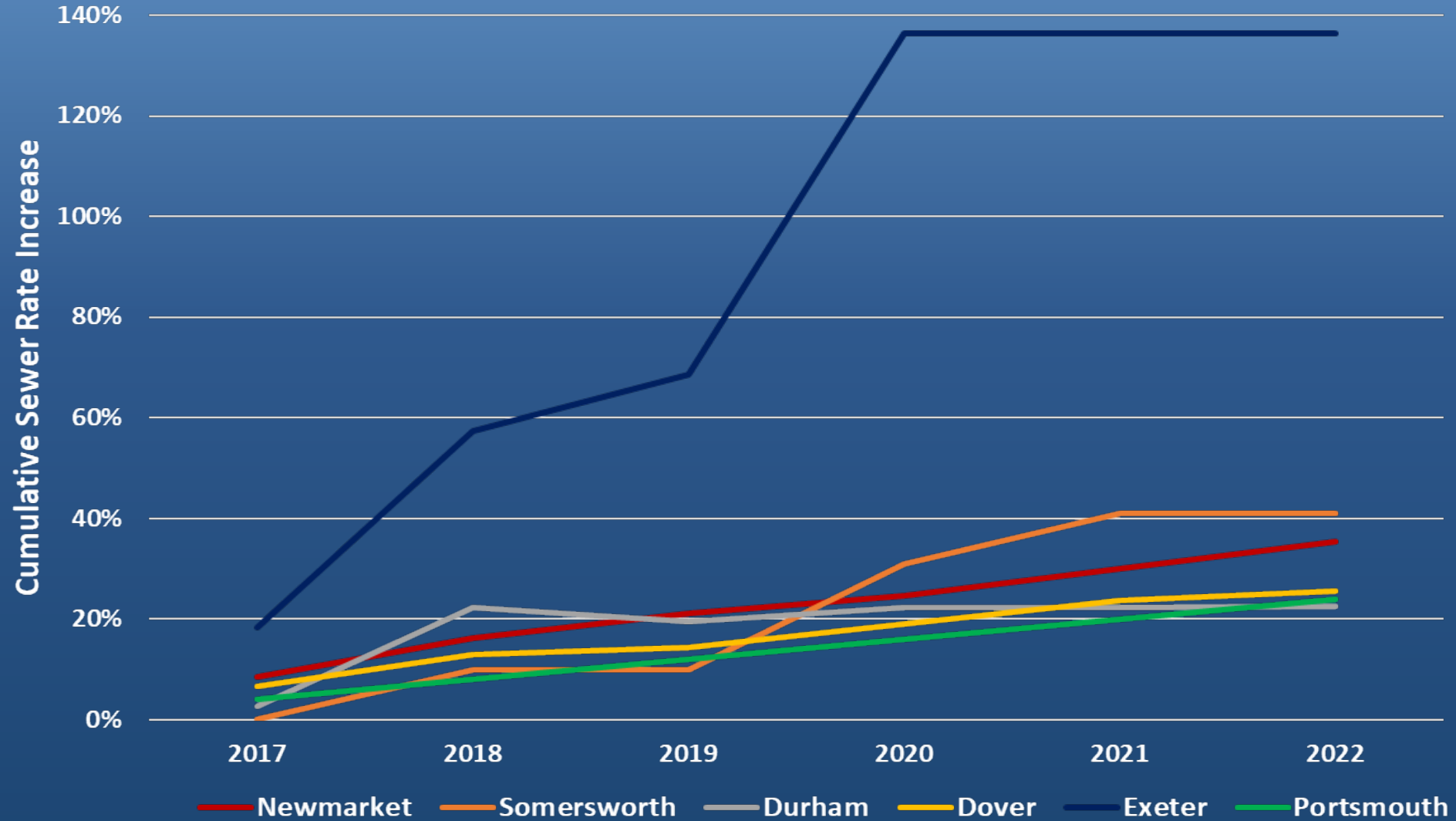
Rate Setting Policy FY13 to FY23



Use of “Glidepath” Approach to Raising Rates in Anticipation of Major Capital Projects



NH Seacoast Community Sewer Rate Trends

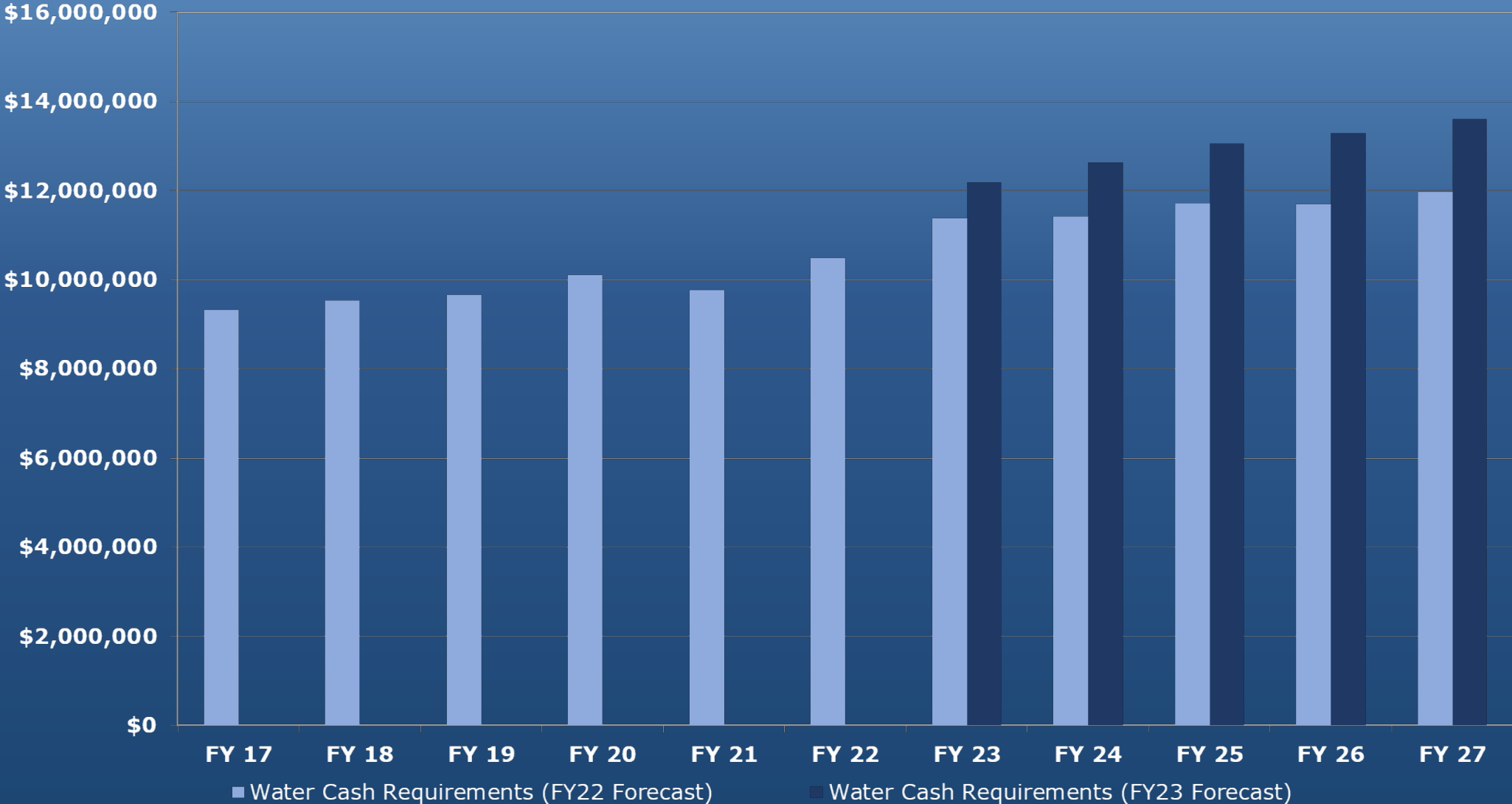


Current Challenges / Drivers

- Economic conditions are impacting current and future utility expenses:
 - Significant increases in chemical costs
 - Substantial increase in borrowing costs
- Increased staffing requirements
- Refinement / addition of future capital improvement projects

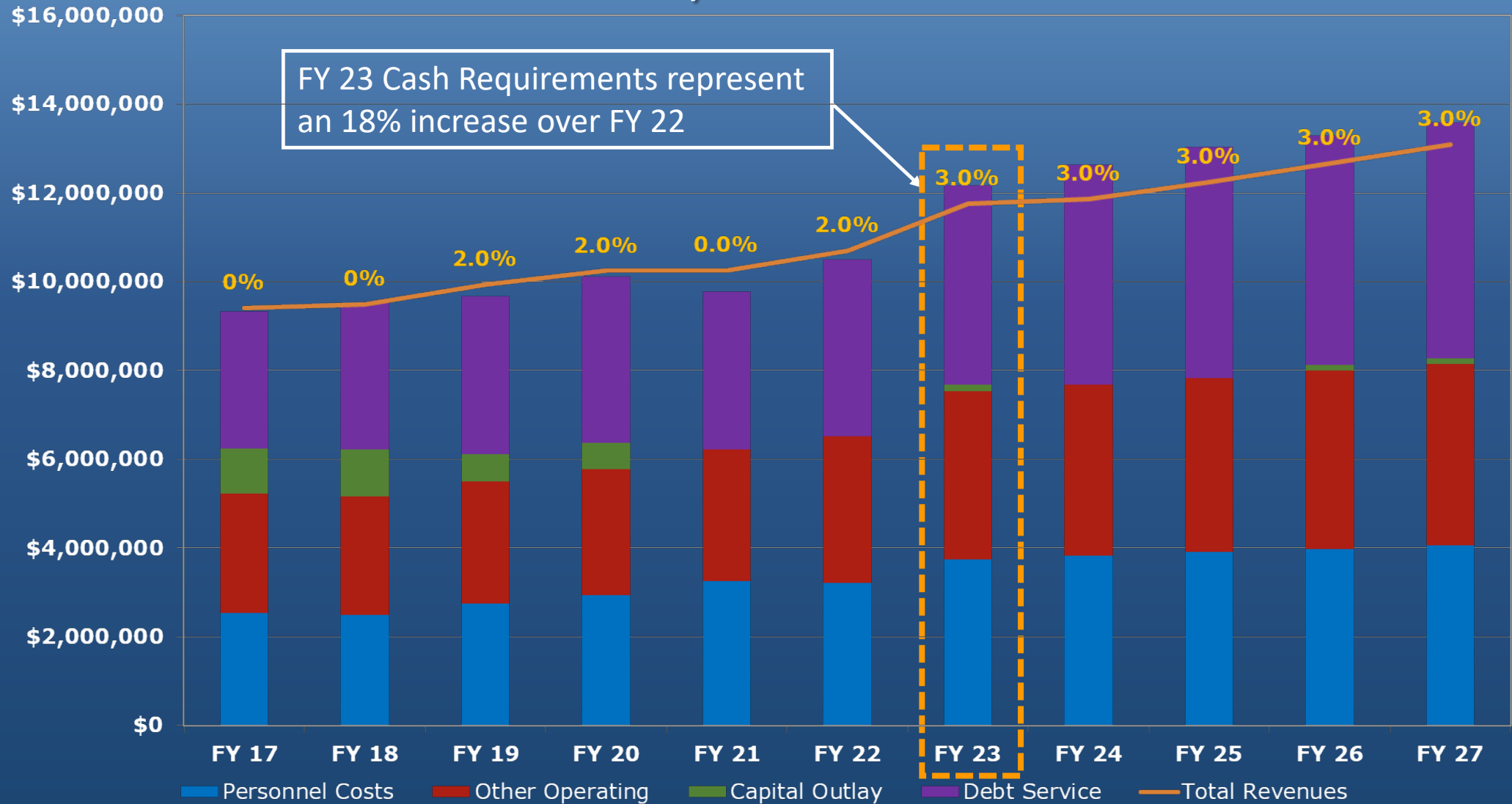
These factors are resulting in cash requirement escalations that exceed prior forecasts

Water Cash Requirement Forecast Comparison



Water Rate History and Projections

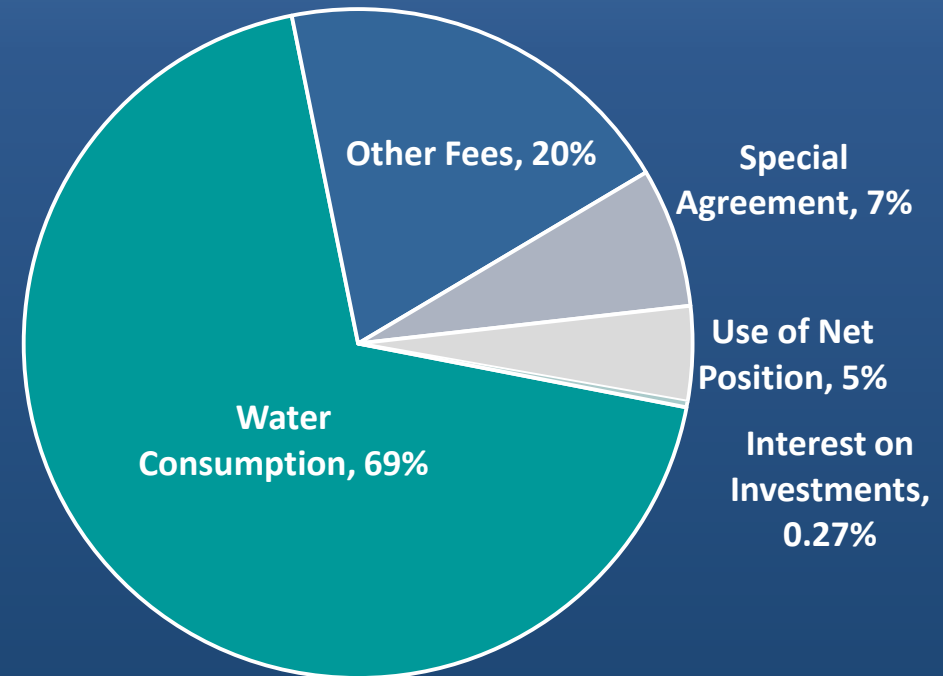
Steady State Plan



FY23 Water Revenue Breakdown

Estimated Revenues
(Based on Cash Requirements)

\$8,417,077 - Water Consumption
2,405,251 - Other Fees
822,729 - Special Agreements
563,116 - Use of Net Position
33,000 - Interest on Investment
\$12,241,173



FY23 Proposed Water Rate

3% Rate Change from FY 22

	FY 23 Proposed (per unit)
First Tier Rate (10 units or less per month)	
Capital Related rate, per unit billed	\$3.15
First 10 units billed per month	\$1.39
Total First Tier Rate	\$4.54
Second Tier Rate (over 10 units per month)	
Capital Related rate, per unit billed	\$3.15
Over 10 units billed per month	\$2.31
Total Second Tier Rate	\$5.46

1 unit = 748 gallons of water

FY23 Proposed Irrigation Rates

3% Rate Change from FY 22

	FY 23 Proposed (per unit)
First Tier Rate (0 to 10 units per month)	
Capital Related rate, per unit billed	\$3.15
First 10 units billed per month	\$2.31
Total First Tier Rate	\$5.46
Second Tier Rate (11 to 20 units per month)	
Capital Related rate, per unit billed	\$3.15
11 to 20 units billed per month	\$7.15
Total Second Tier Rate	\$10.30
Third Tier Rate (all units over 20 per month)	
Capital Related rate, per unit billed	\$3.15
All units billed per month	\$9.57
Total Third Tier Rate	\$12.71

1 unit = 748 gallons of water

FY23 Proposed Water Rate Average Residential Customer Bill

FY 23 Water Rate
Average Residential Customer Bill
Monthly Consumption in units
(1 unit = 100 cf = 748 gallons)

	Rate	Billed Units	Monthly Charge
Capital Related Rate, per unit	\$3.15	5	\$15.75
1 st Tier water service rates	\$1.39	5	\$6.95
Minimum Charge (5/8" meter)	\$4.95	n/a	\$4.95
Total Monthly Charge			\$27.65
Total Annual Charge			\$331.80

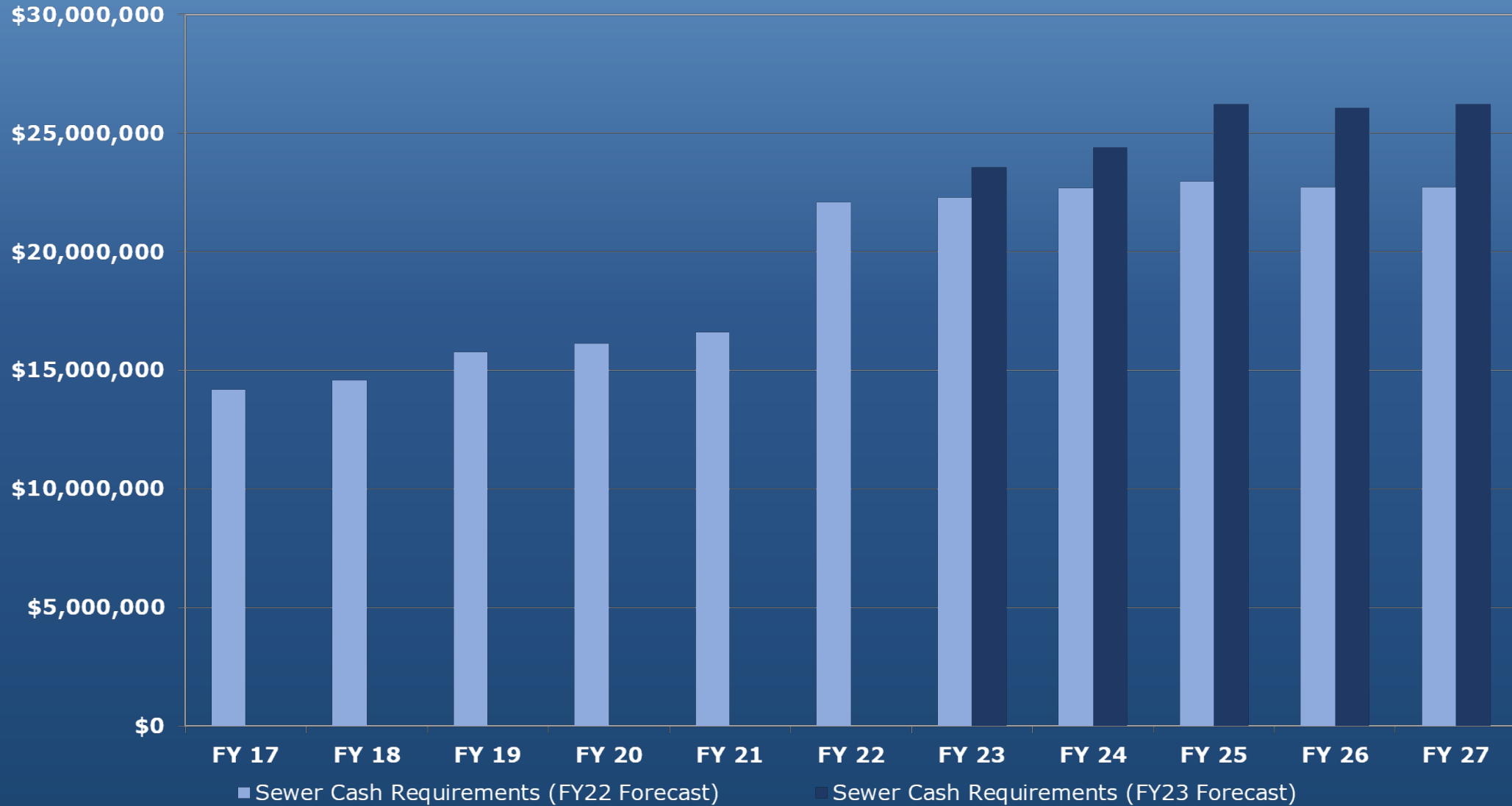
Average Daily Cost for Single Family Residential Water Customer = \$0.91

FY23 Increases Average Customer Water Bill: \$0.70 per month / \$0.02 per day

Air Force Agreements

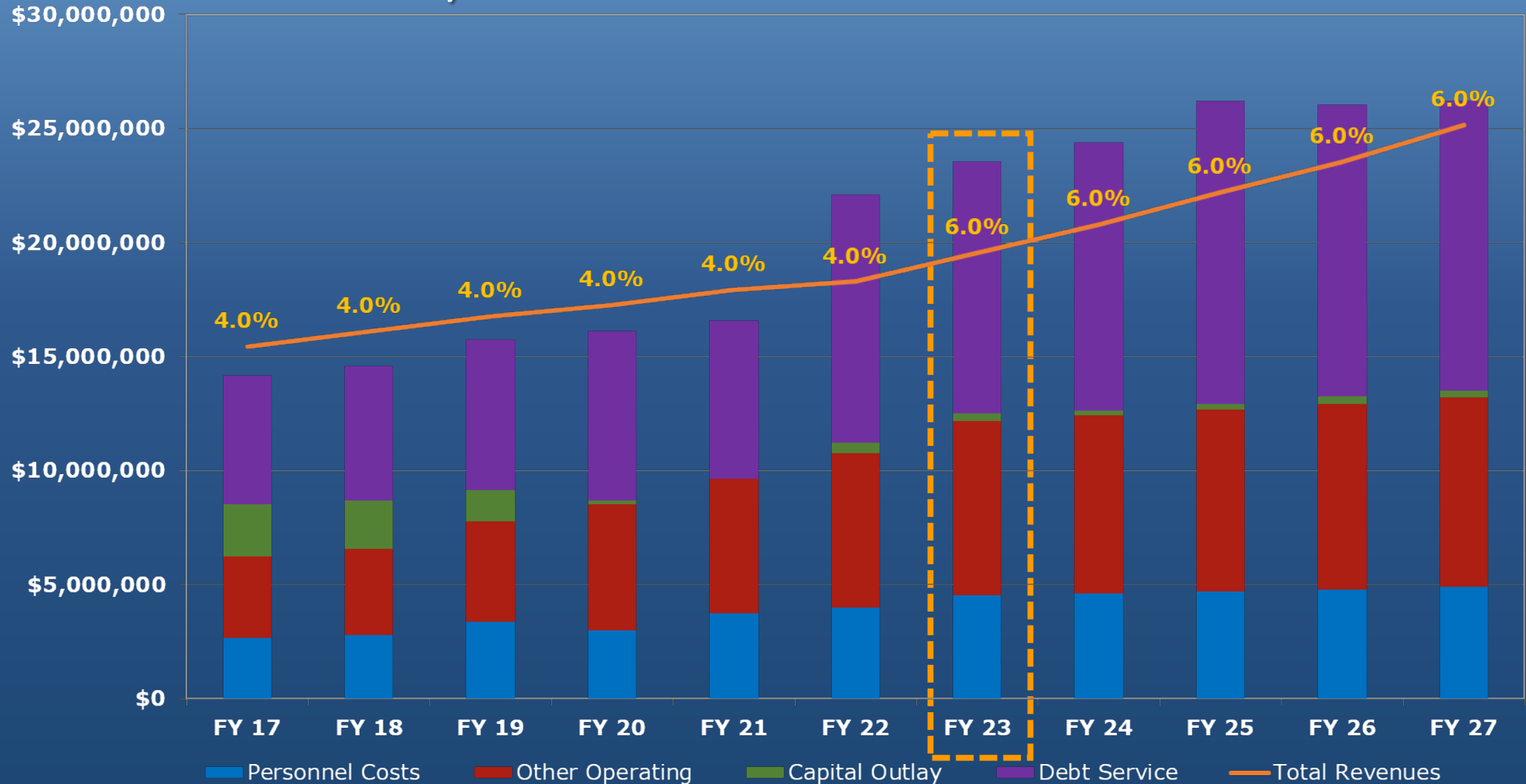
- Agreements totaling over \$17 million in Reimbursable Expenses plus contributions toward operating costs
- City funding of these would have required a water rate increase of approximately 17%
- \$780,729 in reimbursable operating costs in FY23 budget

Sewer Cash Requirement Forecast Comparison



Sewer Rate History and Projections

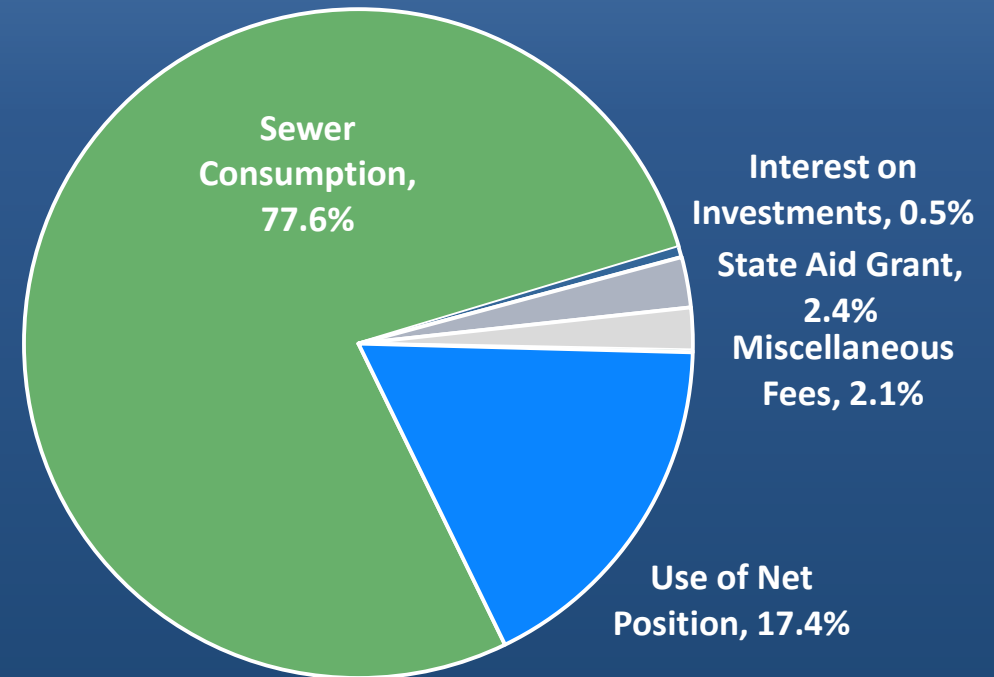
Steady State Plan Annual Increases



FY23 Sewer Revenue Breakdown

\$18,197,169 - Sewer Consumption
4,073,212 - Use of Net Position
570,780 - State Aid Grant
481,500 - Miscellaneous Fees
115,000 - Interest on Investments
24,237 - Special Agreements
\$23,461,898

Estimated Revenues
(Based on Cash Requirements)



FY23 Proposed Sewer Rate

6% Rate Change from FY 22

	FY 23 Proposed (per unit)
First Tier Rate (10 units or less per month)	
Capital Related rate, per unit billed	\$10.36
First 10 units billed per month	\$5.42
Total First Tier Rate	\$15.78
Second Tier Rate (over 10 units per month)	
Capital Related rate, per unit billed	\$10.36
Over 10 units billed per month	\$7.00
Total Second Tier Rate	\$17.36

1 unit = 748 gallons of water

FY23 Proposed Sewer Rate

Average Residential Customer Bill

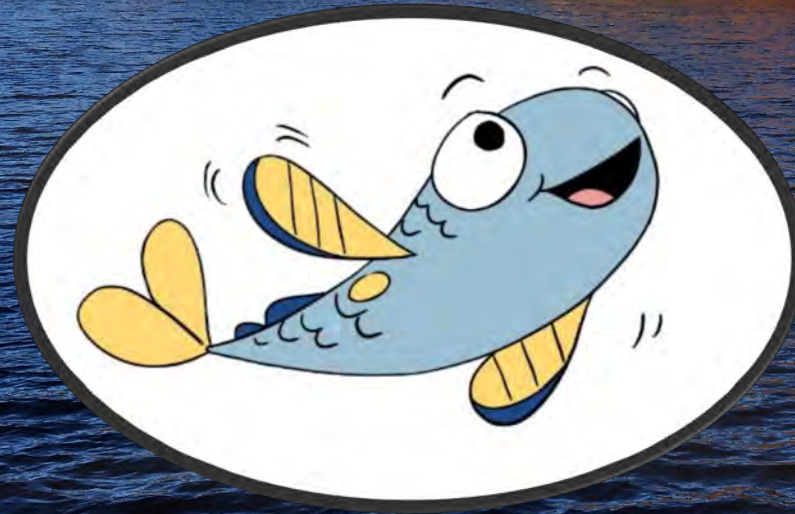
FY 23 Sewer Rate
 Average Residential Customer Bill
 Monthly Consumption in units
 (1 unit = 100 cf = 748 gallons)

	Rate	Billed Units	Monthly Charge
Capital Related Rate, per unit	\$10.36	5	\$51.80
1 st Tier water service rates	\$5.42	5	\$27.10
Minimum Charge (5/8" meter)	\$0.00	n/a	\$0.00
Total Monthly Charge			\$78.90
Total Annual Charge			\$946.80

Average Daily Cost for Single Family Residential Sewer Customer = \$2.59

FY23 Increases Average Customer Sewer Bill: \$4.45 per month / \$0.15 per day

Discussion



Think Blue