

Board Meeting  
November 8, 2017



# Financial Forecast

Pittsburgh Water & Sewer Authority



**2018 – 2020 Rates, 2018 Budget 2018 – 2022 Capital Improvement Plan**



# Development of PWSA Goals

## Goals

### Vision

*PWSA is a highly responsive and trusted public utility, recognized for excellence and valued by our community.*

### Mission

*PWSA support community vitality by protecting public health and the environment through safe, reliable and cost-effective delivery of drinking water, wastewater (and stormwater services).*

Protect Public Health and the Environment

Be an Efficient and Effective Organization

Maximize Customer and Stakeholder Support

Ensure the Reliability of Infrastructure

Maintain a High Performing Workforce

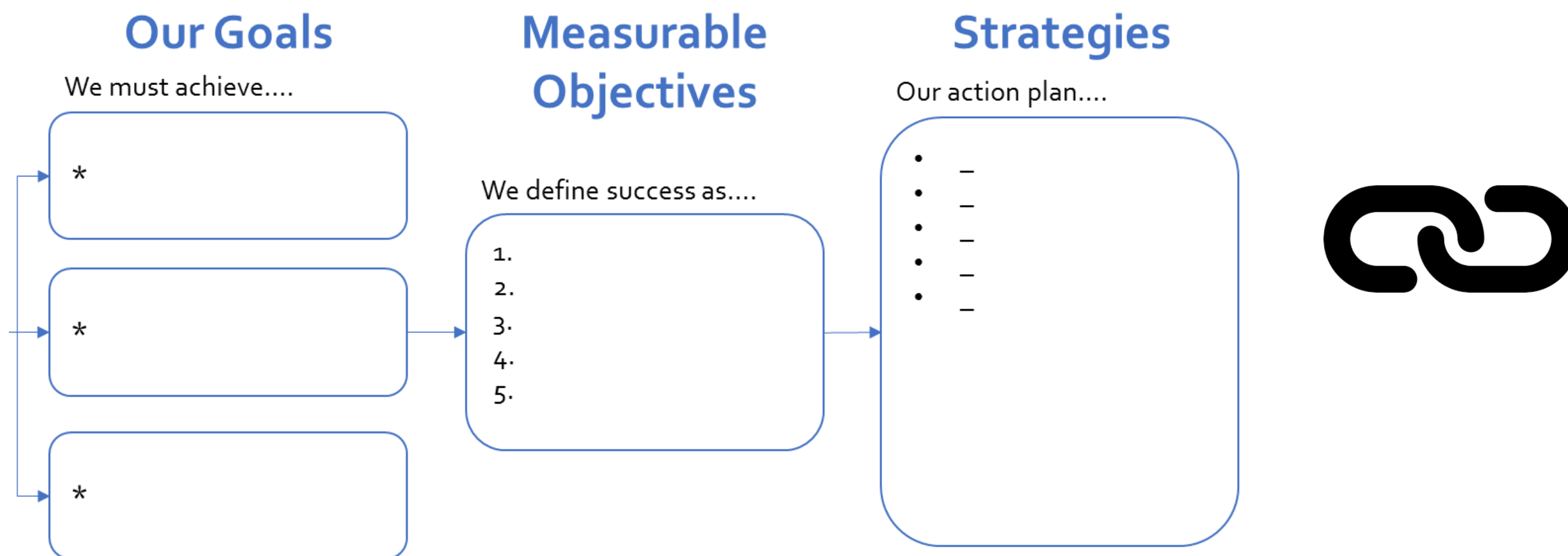
# Capital Plan Links to Goals, Objectives & Strategies

## Strategies

- Install accurate meters on all residential, commercial and public accounts
- Minimize billing steps and streamline process to reduce errors
- Institute additional QA/QC practices for meter readings and billing

## Capital Plan

- Large Meter Replacement (\$34.9M)
- New Billing System (\$1.25M)
- Phone System (\$400K)



	FY 2016	FY 2017
<b>Pittsburgh Water and Sewer Authority</b>		
<i>Comprehensive Financial Planning &amp; Rate Model</i>		
Capital Improvement Plan		
	<b>FY 2016</b>	<b>FY 2017</b>
	<i>5-yr CIP</i>	<i>5-yr CIP</i>
<b>Systemwide CIP</b>		
<u>Water Treatment Plant</u>		
Filter Rehab	\$ 500,000	\$ 120,000
MFP Assessment and Critical Process Improvements	500,000	1,620,000
Highland Park Membrane Filtration Module Replacement Program	1,000,000	60,000
MFP Transformer Repair and UPS Replacement	576,541	115,000
Aspinwall Water Treatment Plant Electrical and Backup Power Improvements	924,681	540,000
Aspinwall Treatment Plant Pretreatment Chemical System and Clarification Imprv.	126,672	
Clearwell Emergency Response Project	-	610,000
Corrosion Control Chemical Storage & Feed Systems		
Aspinwall Water Treatment Plant Calcium Hypochlorite Storage		80,000
Chlorine Booster Station Improvements		70,000
Aspinwall Water Treatment Plant Improvements (Placeholder)		40,000
Clearwell Improvements		
Highland Park Membrane Filtration Floor Drainage Modifications		
Placeholder		
Placeholder		
<u>Water Pumping and Storage</u>		
Bruecken Pump Station Valve Vault	500,000	340,000
Awall and MFP Fiberglass Reinforced Plastic Chemical Tank Inspect. and Repairs/Replacement	1,000,000	
Highland Reservoir Pump Station and Rising Main	120,000	
(New) Highland Pump Station Improvements	211,380	400,000

# Transitioning to a Best-in-Class Utility - Service

- Improvement needed in service levels
  - Water Quality
  - Non-revenue Water
  - System Reliability
  - Fewer Breaks and Disruptions
  - Lead Mitigation
  - Billing Accuracy
  - Customer Service
  - Compliance Documentation
  - Sewer Leakage
  - Sewer Backups
  - CSOs and SSOs
  - Financial Operations
  - Financial Controls
  - Water and Sewer System Mgmt.
  - Collections
- Preliminary metrics have been developed to define and measure success in these areas

# Defining a Best-in-Class Utility

## • Performance Metrics

- Targets are preliminary
- Have to be confirmed against PUC requirements
- Some still need to be defined
- Targets may take time to achieve
- Plans are being established to define compliance timeframe
- Plans will determine capital and operating costs needed

Dept	Metric	PWSA Target
Call Center	Abandonmt Rate (%)	5%
Call Center	Speed of Answer (min)	3
Call Center	One-Call Resolution (# / Total Calls)	80%
Billing	Read-to-Bill Time (# of Hours)	
Billing	Bill Error Rate (Err/10k Acct)	99.9%
Metering	Actual Read Rate (# / Accounts)	99.5%
Metering	Meter Testing (% of System)	10%
Metering	Meter Changes (% of System)	10%
Metering	System Metering (% of System)	100%
Metering	Endpoint Meters (% of Endpoints)	100%
Collections	Collection Rate (\$Recpt/\$Billed)	99%
Collections	% Accts Past Due (#PD/Accounts)	
Water Operations	Disruptions of Service (#/1k Acct)	2.9
Water Operations	Leakage Rate (#/100 mi)	3
Water Operations	Breakage Rate (#/100 mi)	4
Water Operations	Corrective Maint. (Hr/Gal. Sold)	0.5
Water Operations	Corrective Maint. (Hr/100 mi.)	430
Water Operations	Planned Maint. (Hr/Gal. Sold)	2.3
Water Operations	Planned Maint. (Hr/100 mi.)	2112
Water Operations	Non-revenue Water (% of H2O Prod.)	20%
Water Operations	Water Loss (% of H2O Prod.)	15%
Water Operations	Pressure Variance ( )	
Water Operations	Valve Exercise (% of System)	20%
Water Operations	Hydrant Maint. (% of System)	15%
Water Operations	Curb Box Maint. (% of System)	30%
Water Operations	Pump Stn. Inspections (#/stn./yr)	2

Dept	Metric	PWSA Target
Sewer Operations	Disruptions of Service (#/1k Acct)	0.02
Sewer Operations	Leakage Rate (#/100 mi)	1.1
Sewer Operations	Breakage Rate (#/100 mi)	1.1
Sewer Operations	Corrective Maint. (Hr/Gal. Sold)	0.4
Sewer Operations	Corrective Maint. (Hr/100 mi.)	381
Sewer Operations	Planned Maint. (Hr/Gal. Sold)	3.6
Sewer Operations	Planned Maint. (Hr/100 mi.)	3628
Sewer Operations	Combined Overflows (# / 100 mi)	0.6
Sewer Operations	Separated Overflows (# / 100 mi)	0.2
Sewer Operations	Sewer CCTV (% system ft)	15%
Sewer Operations	Catch Basin Insp./Maint. (% of System)	20%
Finance	Days to Payment (#)	5
Finance	Audit Exceptions (#)	0
Finance	Warehouse Loss (% of Inventory\$)	1.5%
Finance	Days to RFP/Bid (#)	8
Finance	Transaction Accuracy (% of Transactn)	99%
Safety	Vehicle Incidents ( )	
Safety	Near Misses ( )	
Safety	Severity Rate ( )	
Water Quality	Turbidity ( )	
Water Quality	TTHM ( )	
Water Quality	pH ( )	
Water Quality	Chlorinatn ( )	
Water Quality	Lead (90 %-ile ppm)	10
HR	Vacancy Fill Time (# of Days)	90
HR	Vacancy Rate (%)	5%

# Transitioning to a Best-in-Class Utility - Initiatives

- Initiatives were identified to address the above

- Business Intelligence
- Accounting System
- Asset Mgmt. System
- GIS System
- SCADA System
- Chemical Trtmt. System
- Clearwell Rehab
- Pump Station Rehab
- Reservoir/Tanks
- System Metering
- Line Replacements
- Curb boxes, valves, hydrants
- Pipe Linings
- Catch Basins
- Sewer separations
- CSO/SSO monitoring
- Green Projects
- Vehicles and equipment
- Proactive maintenance crews
- Compliance Department
- Support staff
- Improved chemical usage
- Inspection crews
- Proactive replacement crews

# Transitioning to a Best-in-Class Utility

## Initiative Mapping

- Shows how initiatives effect service levels
- Includes both operating and capital projects
- Levels of investment determined by the metrics associated with services
- Initiatives do not all start at once – they are phased in over time

	Water Quality	Water Loss	System Reliability	Disruption & Break Minimizing	Lead Mitigation	Customer Service	Accurate Billing	Compliance	Sewer Leakage	Sewer Backups	CSO & SSO	Financial Operations	System Mgmt	Financial Control	Collections
<b>Capital</b>															
Business Intelligence Software	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Accounting System / ERP						X	X	X				X		X	X
Asset Management System / CMMS	X	X	X	X	X			X	X	X	X		X		
Geographical Information System		X	X	X	X			X	X	X	X		X		
Hydraulic Models		X	X	X				X	X	X	X		X		
Telecommunications Systems						X									
SCADA system	X	X	X										X		
Chemical Treatment System Impr.	X		X		X			X							
Clearwell Modernization	X		X					X							
Pump Station Rehabilitation			X					X					X		
Reservoir Rehabilitation	X		X					X					X		
Tank Inspections / Maintenance	X		X					X							
District Metering & Meter Repl.		X	X	X		X	X	X	X		X	X	X		X
Water Main Replacement	X	X	X	X											
Service Line Replacement	X	X	X	X	X										
Curb Box Replacement		X		X									X	X	X
Valve Replacement			X	X											
Water Relay Replacement	X	X	X	X											
Hydrant Replacement			X					X							
Sewer Relay Replacement									X	X					
Sewer Lining									X						
Sewer Main Replacement									X	X	X				
Sewers Under Structures									X						
Sewer Lateral Replacement									X	X					
Catch Basin Replacement									X	X	X				
CSO / SSO Monitoring									X	X	X				
Separation Projects									X	X	X				
Green Projects										X	X				
Vehicles		X	X	X	X				X	X	X		X		
Equipment	X	X	X	X	X		X		X	X	X				X
<b>Operating Expense</b>															
Valve Crews / Contractors			X	X											
Hydrant Crews / Contractors			X					X							
Line and Meter Crews / Materials		X		X											
Catch Basin Crews / Contr / Equip									X	X	X				
CCTV Crews / Contractors / Equip									X	X	X				
Rates Department												X		X	
Engineering Department	X	X	X	X					X	X	X		X		
Performance Management Dept	X	X	X	X		X	X	X	X	X	X	X	X	X	X
Incr. Call Center Staff						X	X						X		
Incr. Billing Staff						X	X								
Incr. AMI Staff						X	X						X		
Incr. Plant Staff	X		X					X							
Pump Maintenance			X												
Incr. Water Ops Staff		X	X	X	X		X								X
Incr. Sewer Ops Staff								X	X	X	X				
Incr. IT Staff			X			X	X					X	X		
Incr. Finance Staff		X	X			X	X	X				X	X	X	X
Incr. Environmental Compl Staff	X				X			X							
New / Improved Chemicals	X				X			X							

# The Cost of Transitioning to a Best-in-Class Utility

## • Compliance Plan

- 2018 is a phase-in year
- Many services provided by contractors
- Hiring staff to replace contractors is intended but will depend on availability
- Compliant with PUC standards
- Included within operating budget and capital budget
- Embedded in rates

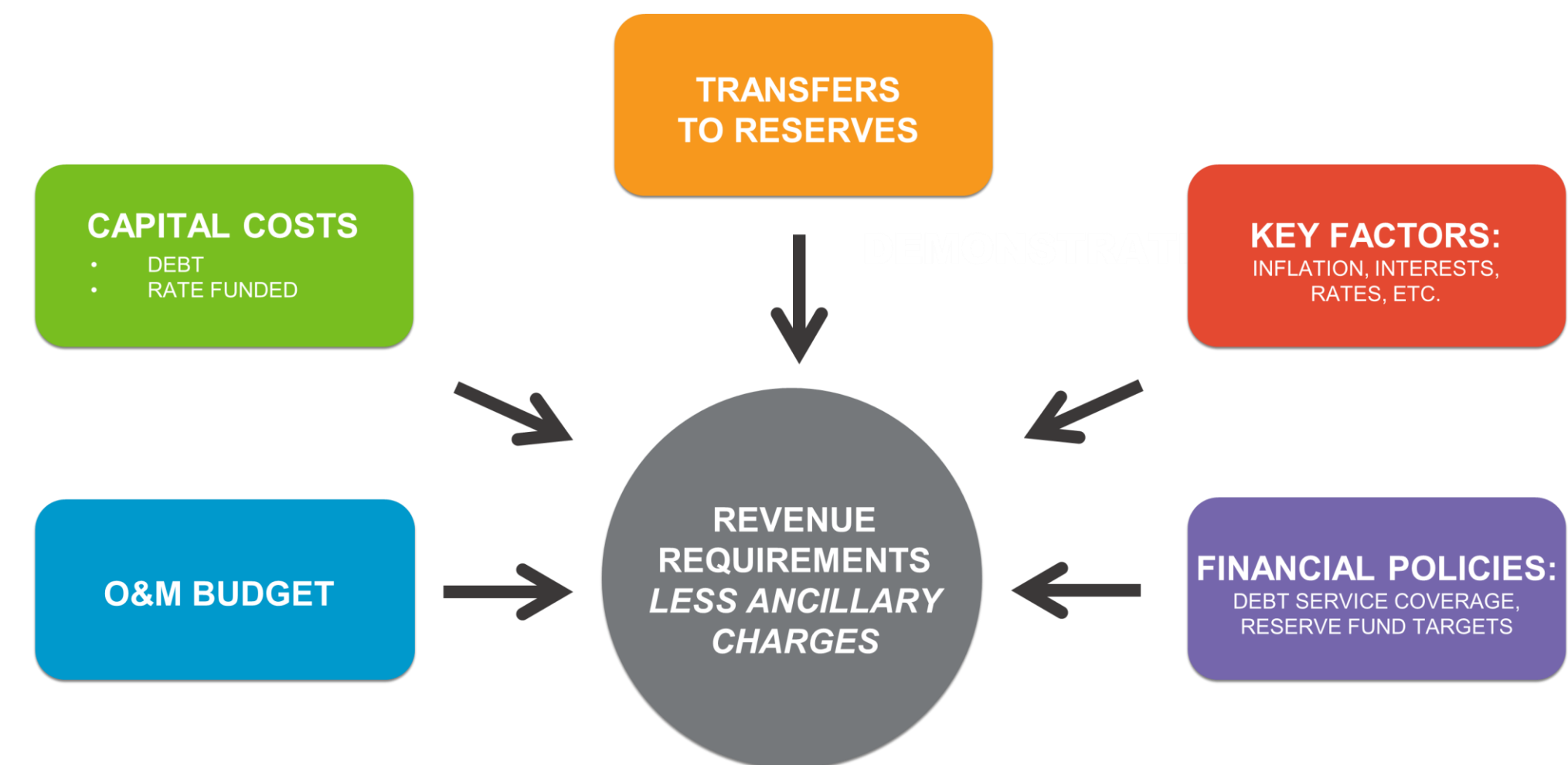
	2018 Spending
<b>Capital</b>	
Business Intelligence Software	300,000
Accounting System / ERP	400,000
Asset Management System / CMMS	250,000
Geographical Information System	100,000
Hydraulic Models	50,000
Telecommunications Systems	150,000
SCADA system	200,000
Chemical Treatment System Impr.	7,374,539
Clearwell Modernization	610,000
Pump Station Rehabilitation	8,072,299
Reservoir Rehabilitation	5,480,000
Tank Inspections / Maintenance	
District Metering & Meter Repl.	899,130
Water Main Replacement	5,629,910
Service Line Replacement	12,352,530
Curb Box Replacement	65,642
Valve Replacement	3,128,310
Water Relay Replacement	1,519,121
Hydrant Replacement	1,138,728
Sewer Relay Replacement	72,432
Sewer Lining	497,014
Sewer Main Replacement	9,440,359
Sewers Under Structures	767,806
Sewer Lateral Replacement	
Catch Basin Replacement	3,243,655
CSO / SSO Monitoring	-
Separation Projects	565,611
Green Projects	11,173,582
Vehicles	1,826,000
Equipment	120,000

	2018 Spending
<b>Operating Expense</b>	
Valve Crews / Contractors	447,549
Hydrant Crews / Contractors	1,421,941
Line and Meter Crews / Materials	3,549,000
Catch Basin Crews / Contr / Equip	6,662,947
CCTV Crews / Contractors / Equip	2,811,191
Rates Department	500,000
Engineering Department	1,094,808
Performance Management Dept	600,000
Incr. Call Center Staff	3,925,926
Incr. Billing Staff	200,000
Incr. AMI Staff	203,673
Incr. Plant Staff	844,907
Pump Maintenance	889,000
Incr. Water Ops Staff	592,554
Incr. Sewer Ops Staff	98,834
Incr. IT Staff	267,616
Incr. Finance Staff	752,606
Incr. Environmental Compl Staff	3,211,000
New / Improved Chemicals	1,517,380
Customer Assistance Program	2,600,000
Total Capital Expenditures	75,426,668
Total Operating Expense	<u>32,190,931</u>
GRAND TOTAL	107,617,599



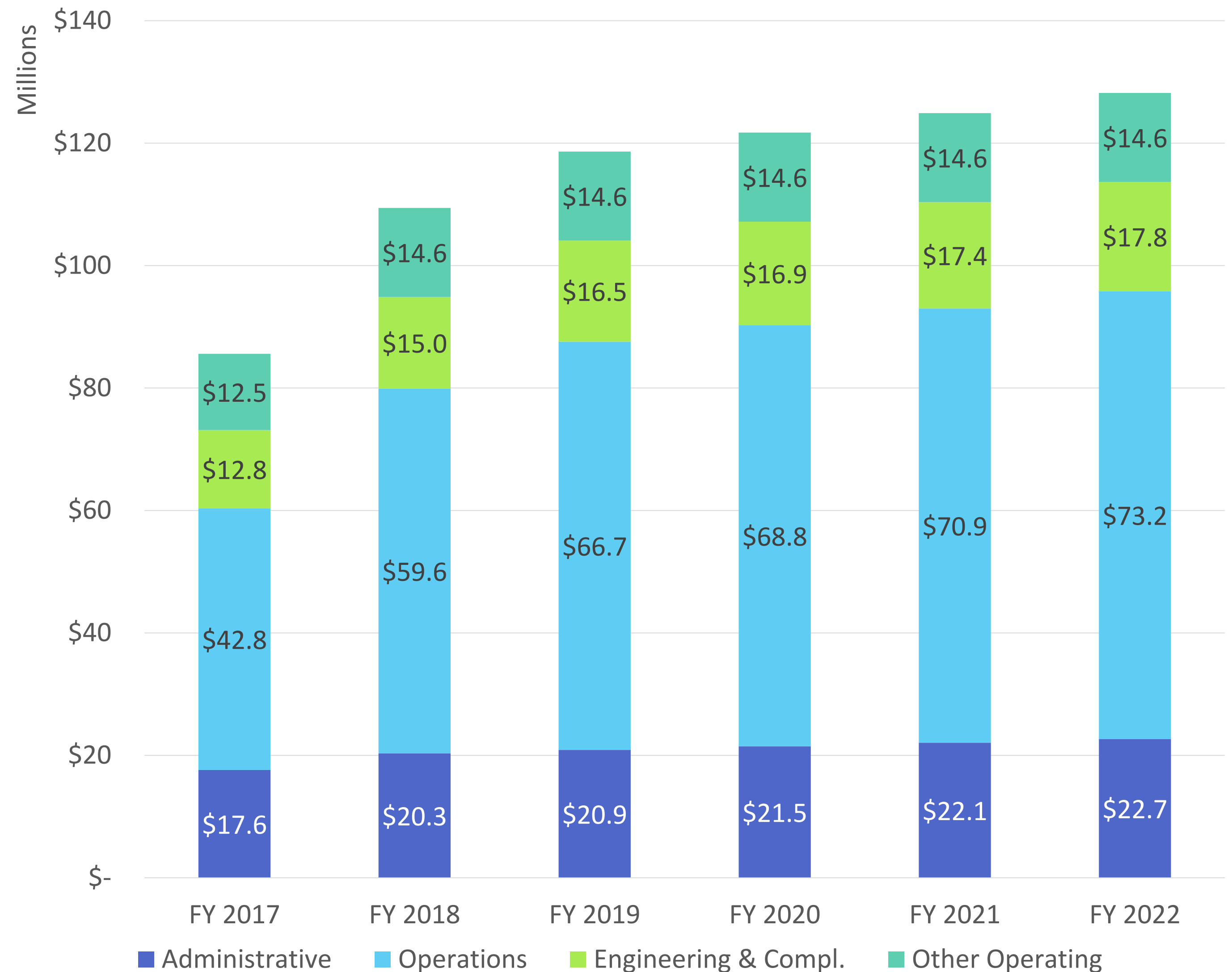
# Best Practices Rate Making

- Rates Determined by “Cost of Service”
  - Cost of Service: the costs incurred by the utility to provide service to its customers
  - Cost of service = operating cost + debt service + capital cost + margin
  - PWSA Cost of Service determined on a cash basis
- Each service provided has a cost associated with it
  - Water service
  - Sewer Conveyance service
  - Storm Water Conveyance service
- Costs are directly assigned where known
  - Water distribution, sewer operations
  - Engineering costs, debt service
- Other costs are allocated
  - Administrative, engineering, debt service



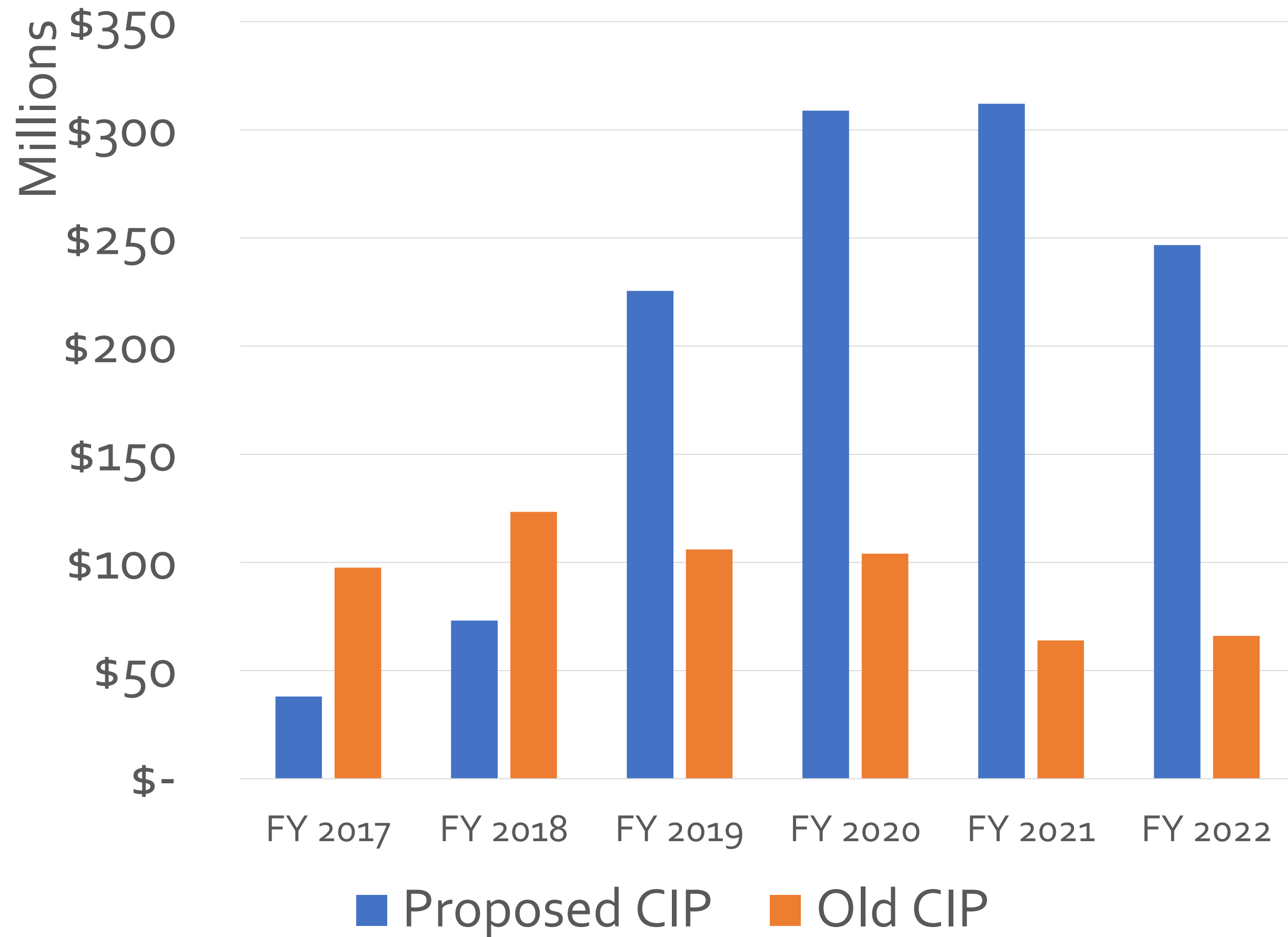
# Operating and Maintenance

- Service levels increase starting in 2018. Drivers:
  - Customer Assistance Prog.
  - Contractors for field work
  - Staff to manage contractors
  - Compliance department
  - Consultants to implement systems
- 2019 completes phase-in
  - System implementations
  - Hiring
  - Projects underway in the field
  - Hiring to replace contractors



# Capital Improvement Plan

Proposed CIP vs. Old CIP



- **Project Categories**

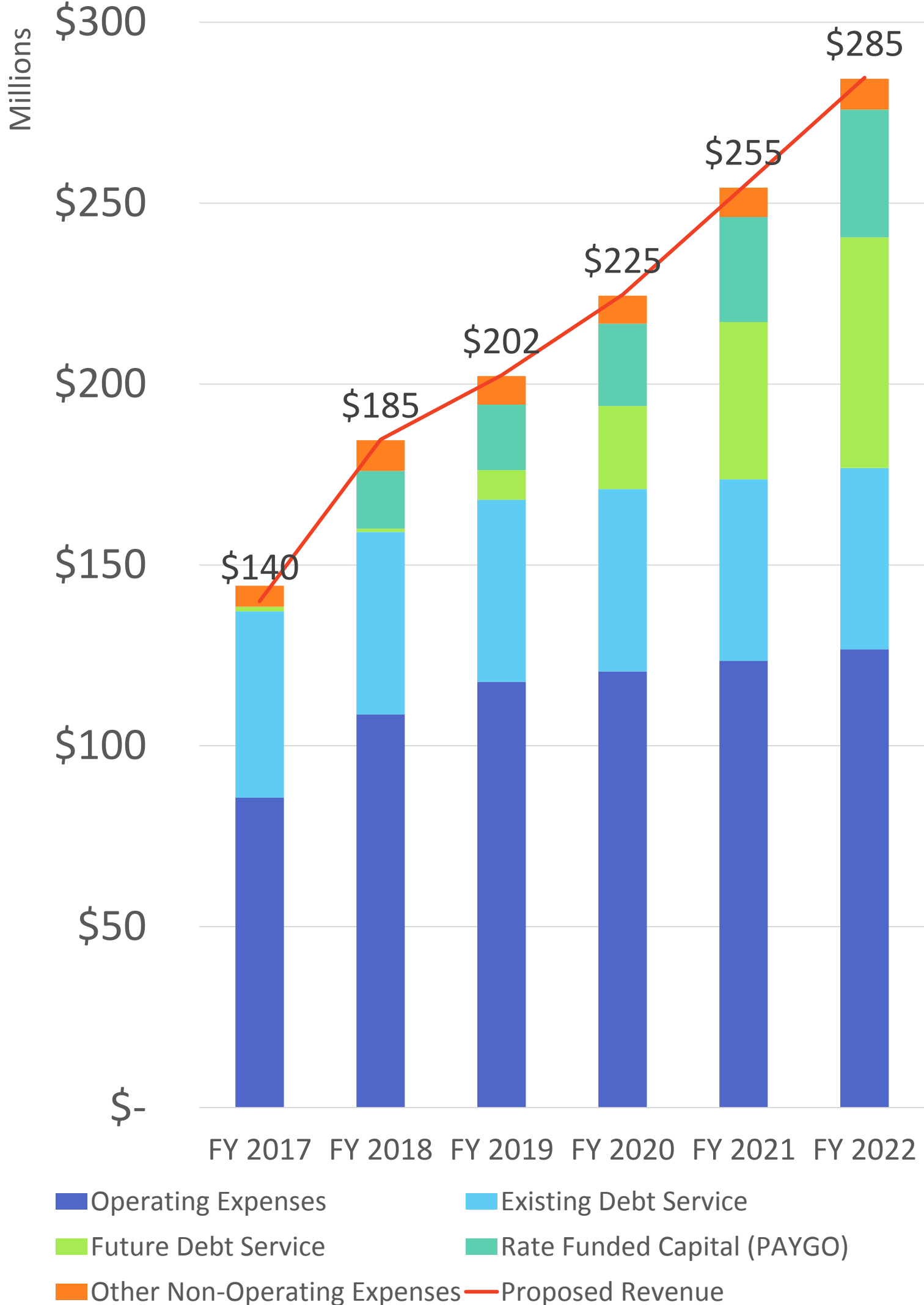
- Water Treatment Plant
- Water Pumping and Storage
- Water Distribution System
- Sanitary Sewer System
- Stormwater System
- Green Infrastructure
- Information Management Systems

# Revenue Requirements

	2017	2018	2019	2020	2021	2022
Operating Expenses	85.7	108.7	117.7	120.6	123.5	126.7
Existing Debt Service	51.4	50.4	50.3	50.4	50.2	50.1
Future Debt Service	1.3	0.9	8.1	23.0	43.5	63.8
Capital Expenditures	-	15.9	18.1	22.7	29.0	35.3
Non-Operating Exp.	5.8	8.5	7.9	7.7	8.1	8.5
<b>Total</b>	<b>144.2</b>	<b>184.5</b>	<b>202.2</b>	<b>224.4</b>	<b>254.3</b>	<b>284.4</b>
<i>% change</i>		<i>27.9%</i>	<i>9.6%</i>	<i>11.0%</i>	<i>13.3%</i>	<i>11.8%</i>

**Excludes ALCOSAN**

- 2018 increase driven by operating activity
- Increases thereafter driven by debt service



# 2018 Proposed Budget

- Staffing and associated costs to provide improved level of service
- Increased proactive maintenance to reduce service interruptions and water loss
- Refurbishment of water production, water distribution and sewer conveyance assets
- Improved customer service
- Includes the cost of a customer assistance program

	2018 Budget	2017 Forecast	2016 Actuals
<b>Receipts</b>			
Water	109,674,239	85,341,299	68,030,331
Sewage Conveyance	67,615,260	45,953,007	36,631,717
DISC	-	549,229	6,939,920
Fees	2,910,369	3,033,208	4,050,478
Miscellaneous Revenue	1,151,229	5,557,978	3,135,542
<b>Total Receipts</b>	<b>181,351,097</b>	<b>140,434,722</b>	<b>118,787,988</b>
<b>Operating Expenses</b>			
Salaries	(21,386,377)	(16,801,156)	(15,556,521)
Benefits	(7,281,447)	(5,437,294)	(5,091,276)
Direct Operating	(34,642,650)	(22,895,521)	(20,153,582)
Inventory	(2,815,278)	(1,749,624)	(908,616)
General & Administrative	(28,745,676)	(23,322,958)	(19,192,018)
Loss on ALCOSAN Charges	(1,421,283)	(5,141,809)	(118,762)
Co-Op Payment	(7,150,000)	(7,150,000)	(7,150,000)
Non-City Subsidy	(4,800,000)	(4,255,579)	(2,169,429)
Customer Assistance Program	(2,600,000)	-	-
<b>Total Operating Expenses</b>	<b>(110,842,710)</b>	<b>(86,753,942)</b>	<b>(70,340,203)</b>
<b>Net Operating Income</b>	<b>70,508,387</b>	<b>53,680,780</b>	<b>48,447,785</b>
<b>Debt Service</b>			
Debt Service - Principal	(20,070,000)	(17,346,740)	(18,855,000)
Debt Service - Interest	(26,382,293)	(30,624,509)	(29,062,173)
Debt Service - Liquidity & Remarketing	(1,406,559)	(1,536,157)	(1,483,083)
Debt Service - Pennvest	(3,906,434)	(3,899,627)	(3,857,178)
Revolver Interest	(560,000)	(691,807)	(94,890)
Pennvest Cash Flows	-	816,622	(809,206)
<b>Total Debt Service</b>	<b>(52,325,286)</b>	<b>(53,282,218)</b>	<b>(54,161,530)</b>
<b>Total Costs</b>	<b>(163,167,996)</b>	<b>(140,036,159)</b>	<b>(124,501,733)</b>
<b>Net Cash Flow</b>	<b>18,183,101</b>	<b>398,562</b>	<b>(5,713,745)</b>

# Rate Model Results – Five Year Forecast

## • 2018

- Avg. 28% increase in receipts
- About \$15/mo incr. in a residential bill
- Includes impact from CAP

## • 2019 and 2020

- 10% increase in 2019
- 11% increase in 2020

## • Other City Water Customers

- PA American requested a 16.4% increase in 2017
- Rate incr. to \$11.88 per 1,000 gal
- Compared to PWSA rate of \$9.41 per 1,000 gal

Rate Summary	Allowance (kgal)	FY 2017 Actual	FY 2018 Forecast	FY 2019 Forecast	FY 2020 Forecast	FY 2021 Forecast	FY 2022 Forecast
<b>Water Rates</b>							
<i>Base Charge</i>							
5/8"	1	\$ 18.42	\$ 23.25	\$ 25.18	\$ 28.91	\$ 34.03	38.98
3/4"	2	29.93	37.83	41.15	47.22	55.53	63.53
1"	5	60.61	76.58	83.67	95.65	111.96	127.56
1 1/2"	10	118.16	149.47	163.56	187.21	219.46	250.30
2"	17	194.88	246.53	269.98	308.89	361.90	412.52
3"	40	432.68	546.96	599.57	684.49	799.95	909.82
4"	70	731.83	924.52	1,013.94	1,155.70	1,348.18	1,530.87
6"	175	1,728.86	2,181.24	2,393.88	2,720.25	3,162.20	3,579.55
8"	325	3,109.25	3,919.64	4,303.36	4,880.87	5,661.50	6,396.33
10" & Above	548	5,087.62	6,408.43	7,038.22	7,967.90	9,222.32	10,399.31
<i>Fire Min. Charge</i>							
1" or Less		\$ 22.48	\$ 26.94	\$ 29.05	\$ 34.91	\$ 43.04	50.70
1 1/2"-3"		59.31	71.02	76.96	93.38	116.19	137.71
4"		126.44	151.40	164.32	199.98	249.56	296.35
6" or Greater		361.76	433.13	470.53	573.65	717.06	852.42
<i>Volume Charge</i>							
Residential		\$ 7.71	\$ 9.41	\$ 10.57	\$ 12.03	\$ 13.97	\$ 15.74
Commercial		7.47	8.93	9.83	10.98	12.50	13.88
Industrial		6.72	7.51	8.20	9.07	10.22	11.28
Health & Education		11.26	12.21	13.07	14.15	15.59	16.90
Fire		6.75	11.50	8.75	9.76	11.12	12.35
<b>Sewer Rates</b>							
<i>Base Charge</i>							
5/8"	1	\$ 6.09	\$ 7.71	\$ 8.08	\$ 8.74	\$ 9.55	\$ 10.36
3/4"	2	11.27	15.62	16.81	18.35	20.33	22.45
1"	5	25.06	37.10	40.61	44.51	49.65	55.35
1 1/2"	10	50.96	76.62	84.26	92.57	103.55	115.79
2"	17	85.47	129.72	142.97	157.18	175.99	197.04
3"	40	192.36	295.88	326.99	359.51	402.76	451.54
4"	70	326.77	506.20	560.12	615.75	689.87	773.85
6"	175	774.46	1,213.27	1,344.92	1,477.78	1,655.45	1,858.31
8"	325	1,394.03	2,197.82	2,438.65	2,678.68	3,000.29	3,369.17
10" & Above	548	2,281.55	3,618.63	4,018.62	4,412.63	4,941.56	5,550.83
<i>Volume Charge</i>							
Residential		\$ 4.09	\$ 6.92	\$ 7.87	\$ 8.73	\$ 9.90	\$ 11.30
Commercial		3.95	6.11	6.81	7.43	8.29	9.30
Industrial		3.68	5.57	6.22	6.81	7.62	8.57
Health & Education		5.78	7.64	8.27	8.85	9.62	10.55
Fire		4.00	9.17	7.07	7.74	8.66	9.74