

Great Lakes Water Authority

*Key Performance Indicators and
Effective Utility Management (EUM) Metrics
November 14, 2018*



Ten Attributes of Effectively Managed Water Sector Utilities (EUM)



Attribute	Attribute Components
Employee and Leadership Development	Recruits and retains a workforce that is competent, motivated, adaptive, and safety-focused. Establishes a participatory, collaborative organization dedicated to continual learning, improvement, and innovation. Ensures employee institutional knowledge is retained, transferred, and improved upon over time. Provides a focus on and emphasizes opportunities for professional and leadership development, taking into account the differing needs and expectations of a multi-generational workforce and for resource recovery facilities. Establishes an integrated and well-coordinated senior leadership team.
Operational Optimization	Ensures ongoing, timely, cost-effective, reliable, and sustainable performance improvements in all facets of its operations in service to public health and environmental protection. Makes effective use of data from automated and smart systems, and learns from performance monitoring. Minimizes resource use, loss, and impacts from day-to-day operations, and reduces all forms of waste. Maintains awareness of information and operational technology developments to anticipate and support timely adoption of improvements.
Financial Viability	Understands the full life-cycle cost of utility operations and value of water resources. Establishes and maintains an effective balance between long-term debt, asset values, operations and maintenance expenditures, and operating revenues. Establishes predictable rates—consistent with community expectations and acceptability—adequate to recover costs, provide for reserves, maintain support from bond rating agencies, plan and invest for future needs, and taking into account the needs of disadvantaged households. Implements sound strategies for collecting customer payments. Understands the opportunities available to diversify revenues and raise capital through adoption of new business models.
Infrastructure Strategy and Performance	Understands the condition of and costs associated with critical infrastructure assets. Plans infrastructure investments consistent with anticipated growth, system reliability goals, and relevant community priorities, building in flexibility for evolution in technology and materials, and uncertainty in the overall future operating context (e.g., climate impacts, customer base). Maintains and enhances the condition of all assets over the long-term at the lowest possible life-cycle cost and acceptable risk consistent with customer, community, and regulator-supported service levels. Assures asset repair, rehabilitation, and replacement efforts are coordinated within the community to minimize disruptions and other negative consequences.
Enterprise Resiliency	Ensures utility leadership and staff work together internally, and with external partners, to anticipate, respond to, and avoid problems. Proactively identifies, assesses, establishes tolerance levels for, and effectively manages a full range of business risks (including interdependencies with other services and utilities, legal, regulatory, financial, environmental, safety, physical and cyber security, knowledge loss, and natural disaster-related) in a proactive way consistent with industry trends and system reliability goals.

Ten Attributes of Effectively Managed Water Sector Utilities (EUM)



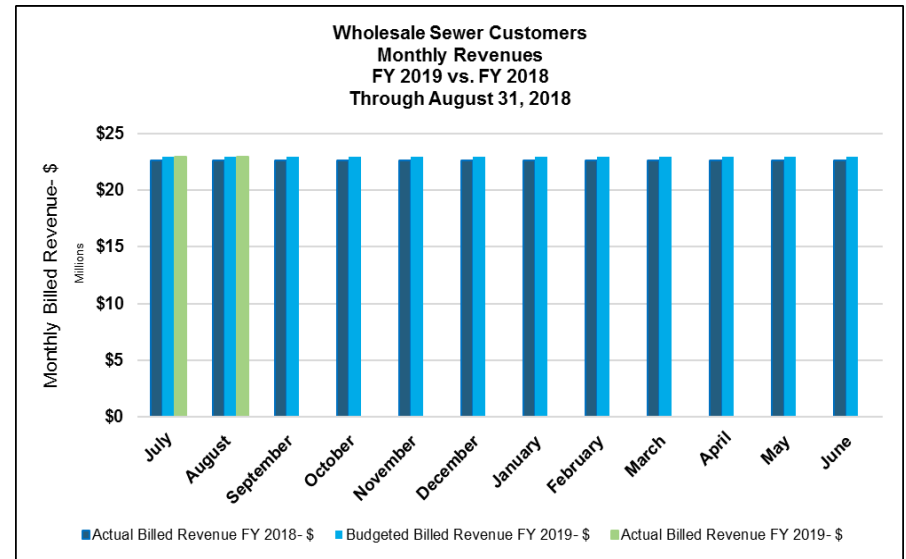
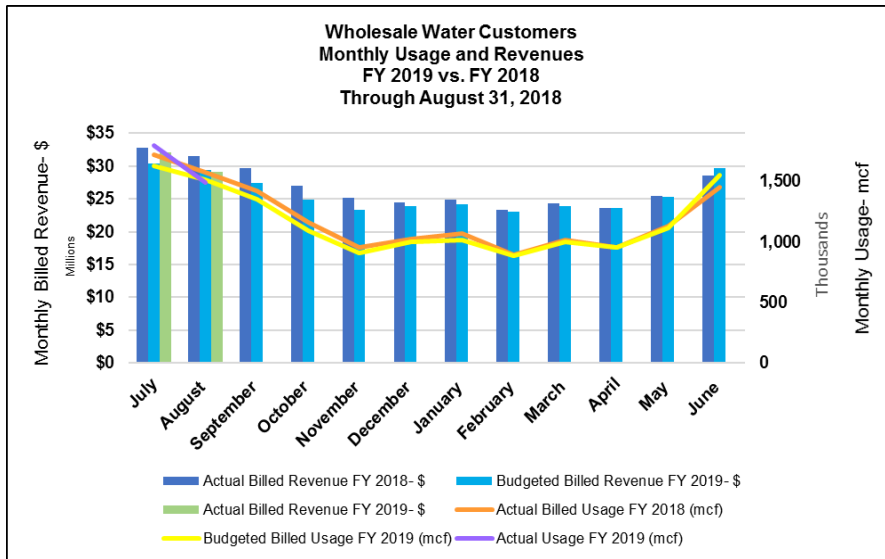
Attribute	Attribute Components
Product Quality	Produces “fit for purpose” water that meets or exceeds full compliance with regulatory and reliability requirements and consistent with customer, public health, ecological, and economic needs. Products include treated drinking water, treated wastewater effluent, recycled water, stormwater discharge, and recovered resources.
Customer Satisfaction	Provides reliable, responsive, and affordable services in line with explicit, customer-derived service levels. Utilizes a mix of evolving communication technologies to understand and respond to customer needs and expectations, including receiving timely customer feedback and communicating during emergencies. Provides tailored customer service and outreach to traditional residential, commercial, and industrial customers, and understands and exercises as appropriate the opportunities presented by emergent customer groups (e.g., high strength waste producers, power companies).
Community Sustainability	Takes an active leadership role in promoting and organizing community sustainability improvements through collaboration with local partners (e.g., transportation departments, electrical utilities, planning departments, economic development organizations, watershed and source water protection groups). Manages operations, infrastructure, and investments to support the economic, environmental, and social health of its community. Integrates water resource management with other critical community infrastructure, social, and economic development planning to support community-wide resilience, sustainability, and livability to enhance overall water resource sustainability.
Water Resource Sustainability	Ensures the availability and sustainable management of water for its community and watershed, including water resource recovery. Understands its role in the complete water cycle, understands fit for purpose water reuse options, and integrates utility objectives and activities with other watershed managers and partners. Understands and plans for the potential for water resource variability (e.g., extreme events, such as drought and flooding), and utilizes as appropriate a full range of watershed investment and engagement strategies (e.g., Integrated Planning). Engages in long-term integrated water resource management, and ensures that current and future customer, community, and ecological water-related needs are met.
Stakeholder Understanding and Support	Engenders understanding and support from stakeholders (anyone who can affect or be affected by the utility), including customers, oversight bodies, community and watershed interests, and regulatory bodies for service levels, rate structures, operating budgets, capital improvement programs, and risk management decisions. Actively promotes an appreciation of the true value of water and water services, and water’s role in the social, economic, public, and environmental health of the community. Involves stakeholders in the decisions that will affect them, understands what it takes to operate as a “good neighbor,” and positions the utility as a critical asset to the community.



EUM Attribute:

Financial Viability

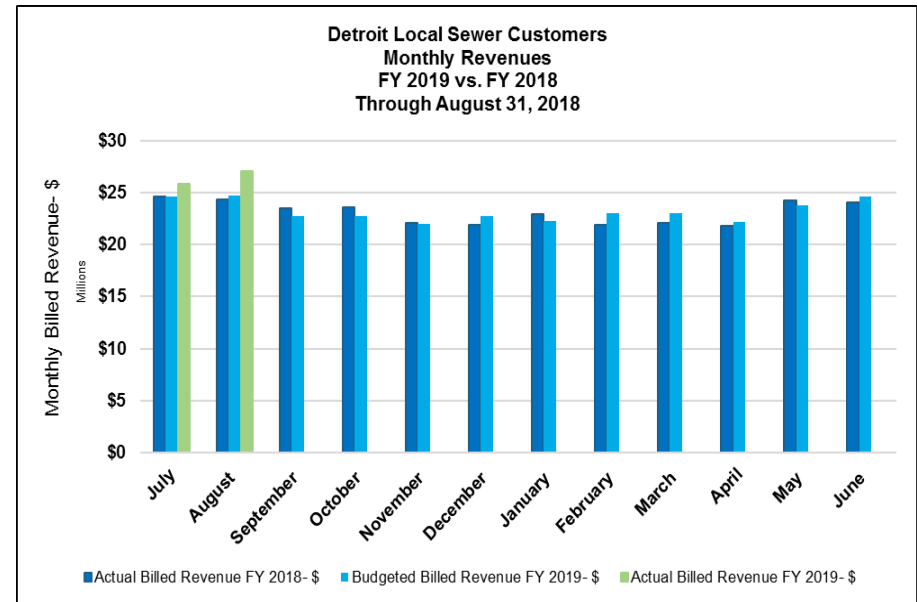
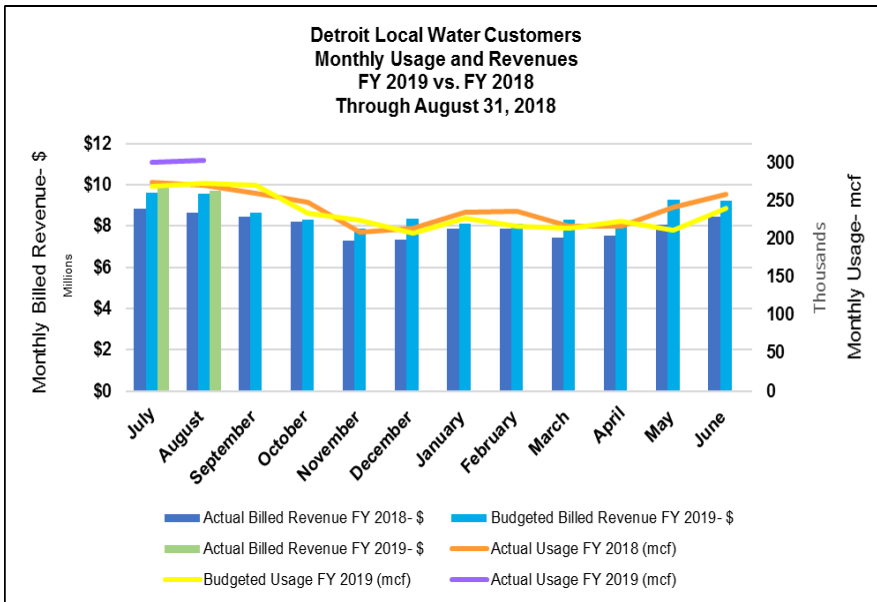
Financial Viability – Reliability of Wholesale Water and Sewer Revenue Projections



Wholesale Water System billed revenues for FY 2019 are stable with actual billings at 102.5% of budget and actual usage at 104.5% of budget through August 2018. Billed revenue for FY 2019 was 4.8% lower compared to the same period in FY 2018.

Wholesale Sewer System billed revenues for FY 2019 are stable with actual billings at 100% of budget (based on the full fixed monthly charge) through August 2018. Billed revenue for FY 2019 was 1.3% higher compared to the same period in FY 2018.

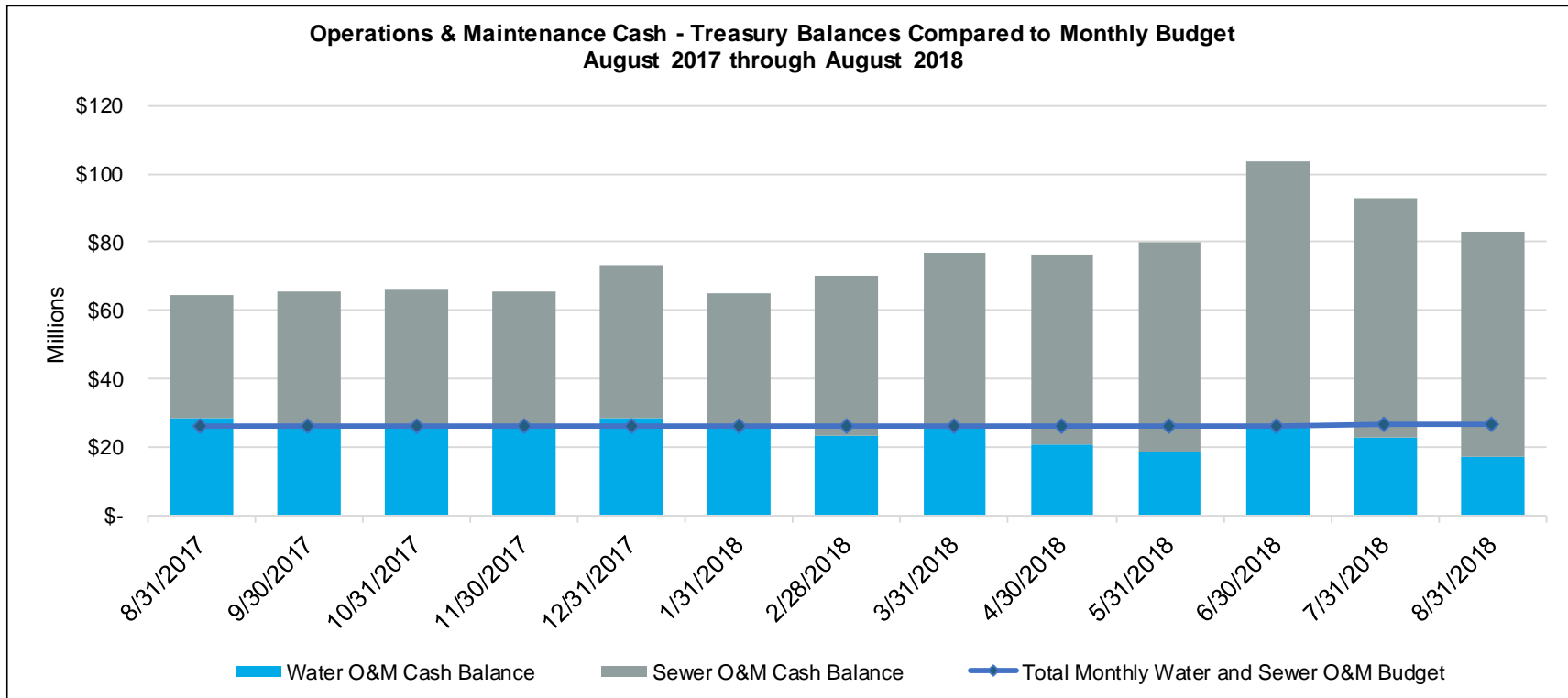
Financial Viability – Reliability of Detroit Local Water and Sewer Revenue Projections



Detroit Local Water System billed revenues for FY 2019 are stable with actual billings at 103.7% of budget and actual usage at 111.3% of budget through August 2018. Billed revenue for FY 2019 was 13.7% higher compared to the same period in FY 2018.

Detroit Local Sewer System billed revenues for FY 2019 are stable with actual billings at 107.1% of budget and actual usage at 110.3% of budget through August 2018. Billed revenue for FY 2019 was 7.9% higher compared to the same period in FY 2018.

Financial Viability – Revenue Stability and Appropriate O&M Cash Reserves



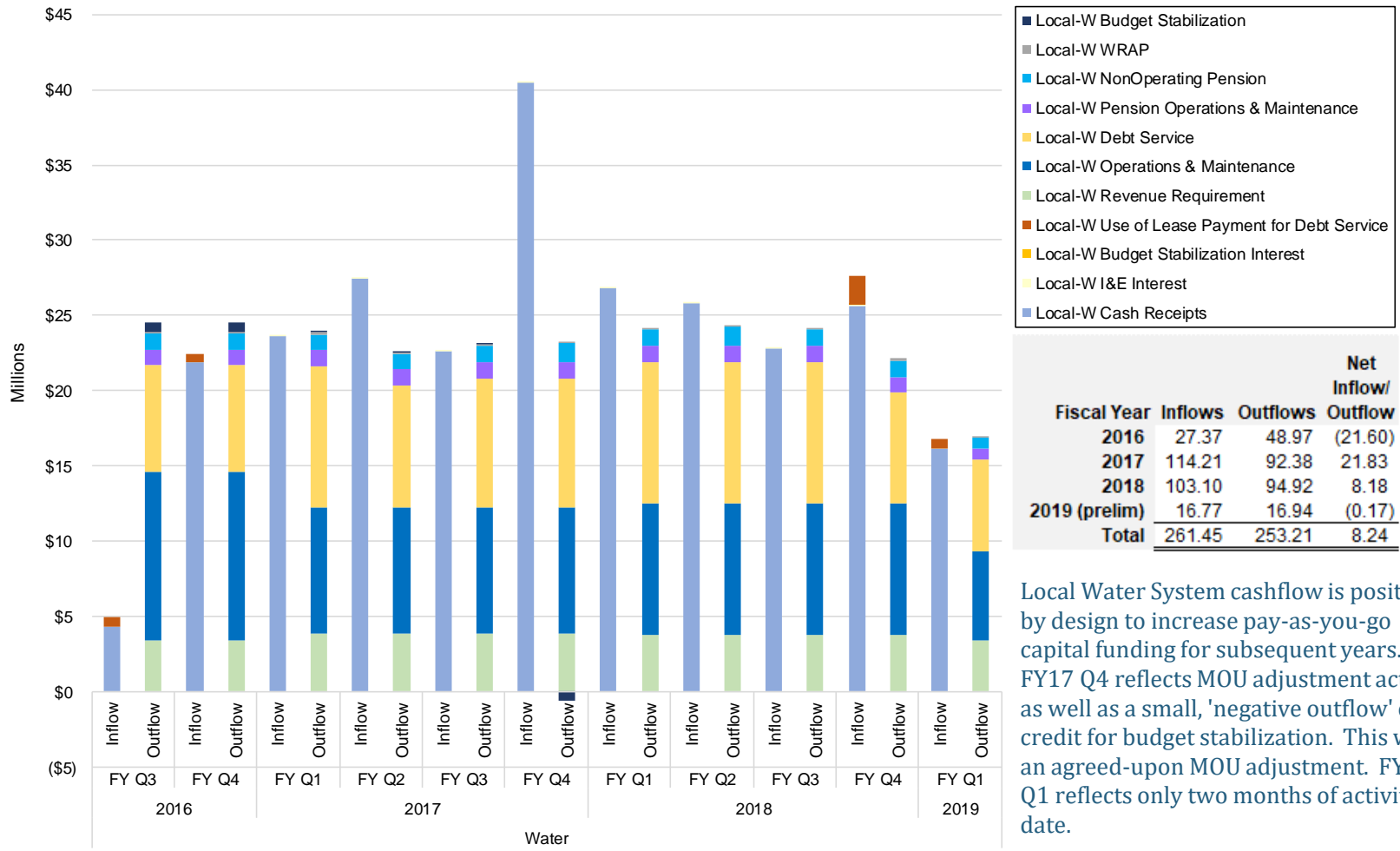
- Cash balances are appropriate to fund monthly budgeted Operations & Maintenance (O&M) with an average ratio of O&M cash to budget of 2.37x for water and 3.23x for sewer.
- Variability in cash balances for April and May 2018 was due to settlement of interfund receivables/payables for FY 2017 that were on hold awaiting the approval of the Memorandum of Understanding Term Sheet and effect on final FY 2017 audited financial report completion. These transfers were completed by June 30, 2018.
- Variability in cash balances for July and August 2018 is due to interfund receivables/payables for FY 2019 that have not been settled.

Financial Viability – DWSD Water System Cashflow

Local Water System (DWSD)

Master Bond Ordinance Inflows and Outflows

MOU: Memorandum of Understanding between GLWA and DWSD



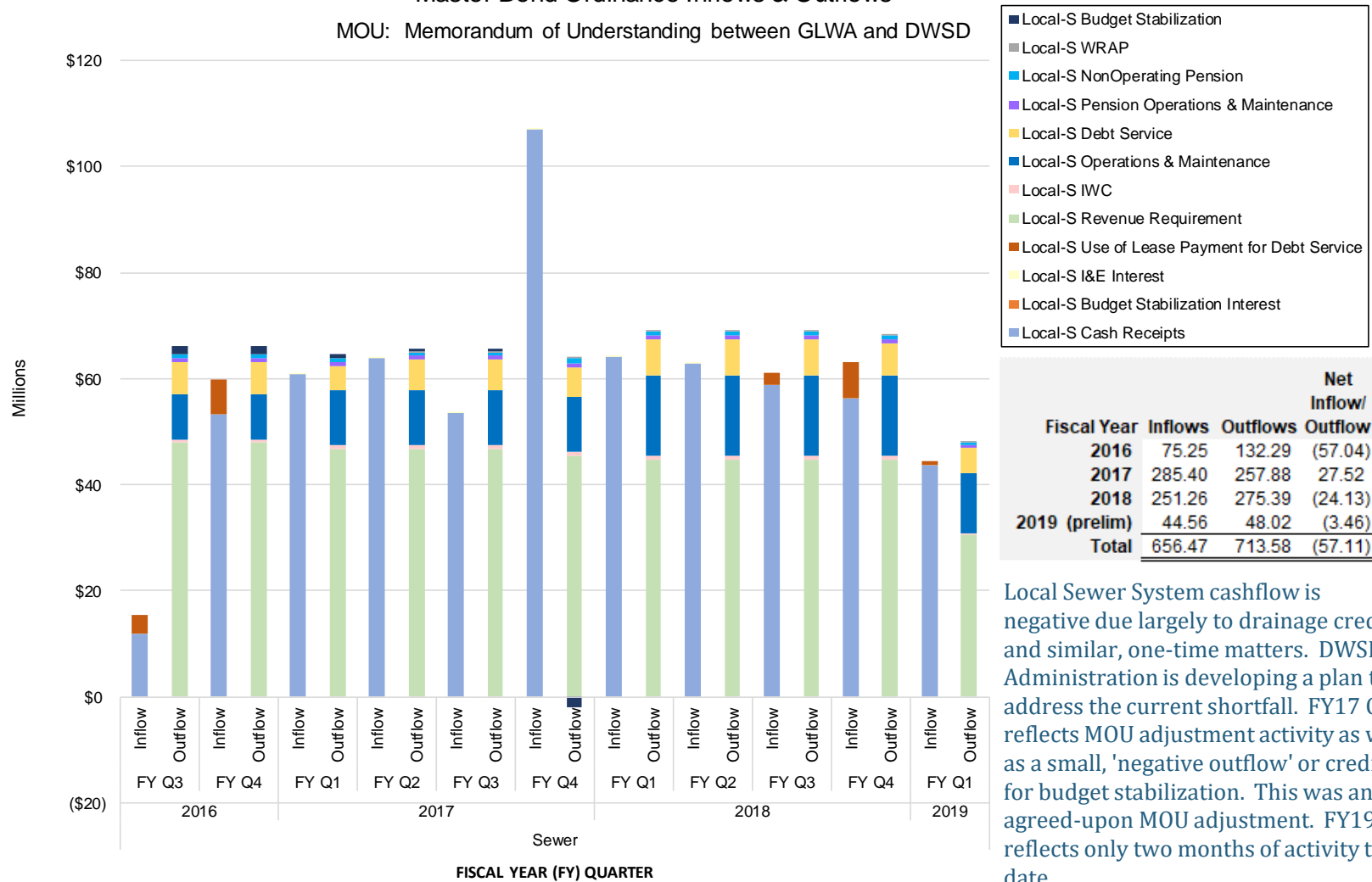
Fiscal Year	Inflows	Outflows	Net Inflow/ Outflow
2016	27.37	48.97	(21.60)
2017	114.21	92.38	21.83
2018	103.10	94.92	8.18
2019 (prelim)	16.77	16.94	(0.17)
Total	261.45	253.21	8.24

Local Water System cashflow is positive by design to increase pay-as-you-go capital funding for subsequent years. FY17 Q4 reflects MOU adjustment activity as well as a small, 'negative outflow' or credit for budget stabilization. This was an agreed-upon MOU adjustment. FY19 Q1 reflects only two months of activity to date.

Financial Viability – DWSD Sewer System Cashflow

Local Sewer System (DWSD) Master Bond Ordinance Inflows & Outflows

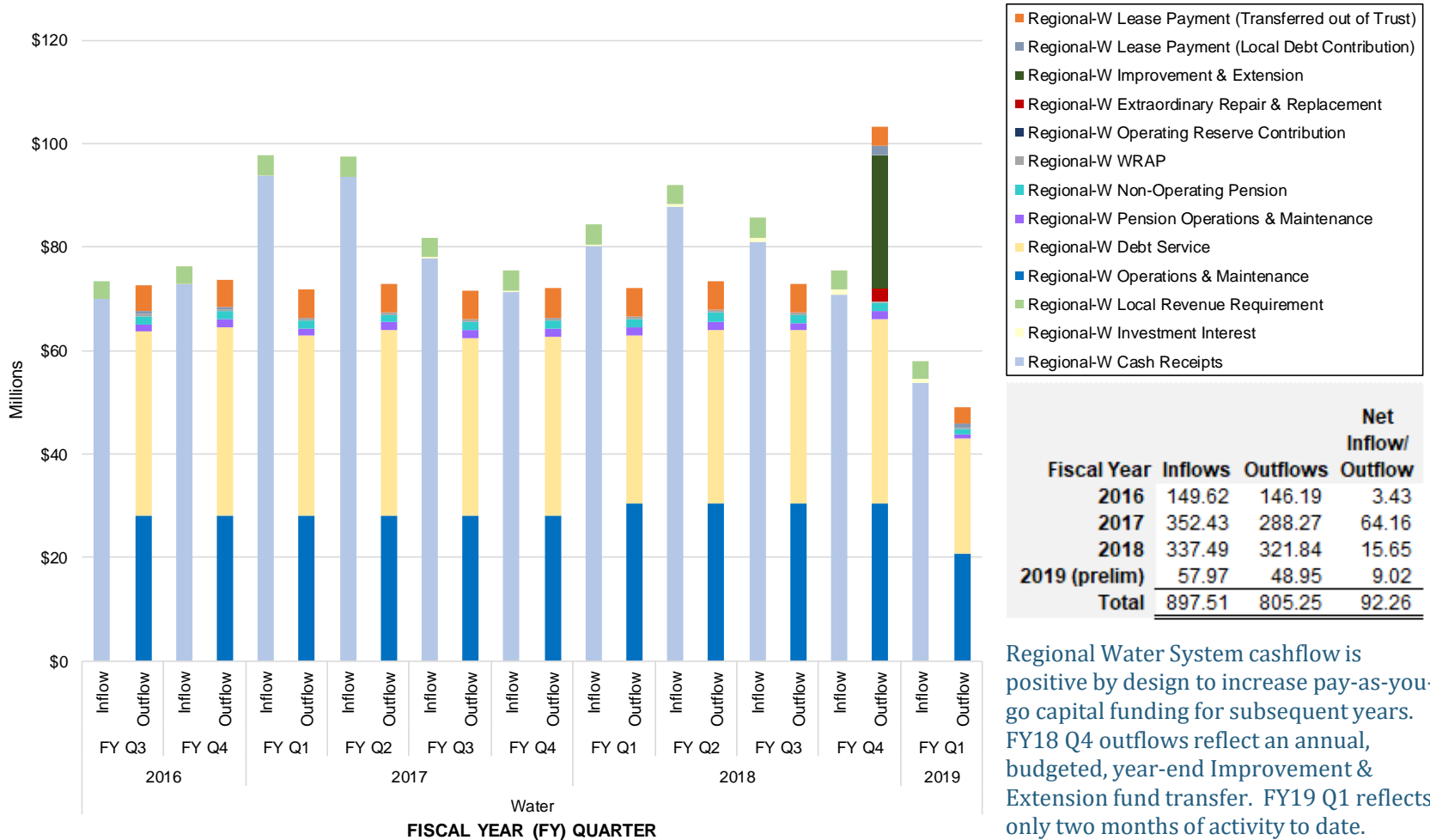
MOU: Memorandum of Understanding between GLWA and DWSD



Local Sewer System cashflow is negative due largely to drainage credits and similar, one-time matters. DWSD Administration is developing a plan to address the current shortfall. FY17 Q4 reflects MOU adjustment activity as well as a small, 'negative outflow' or credit for budget stabilization. This was an agreed-upon MOU adjustment. FY19 Q1 reflects only two months of activity to date.

Financial Viability – GLWA Water System Cashflow

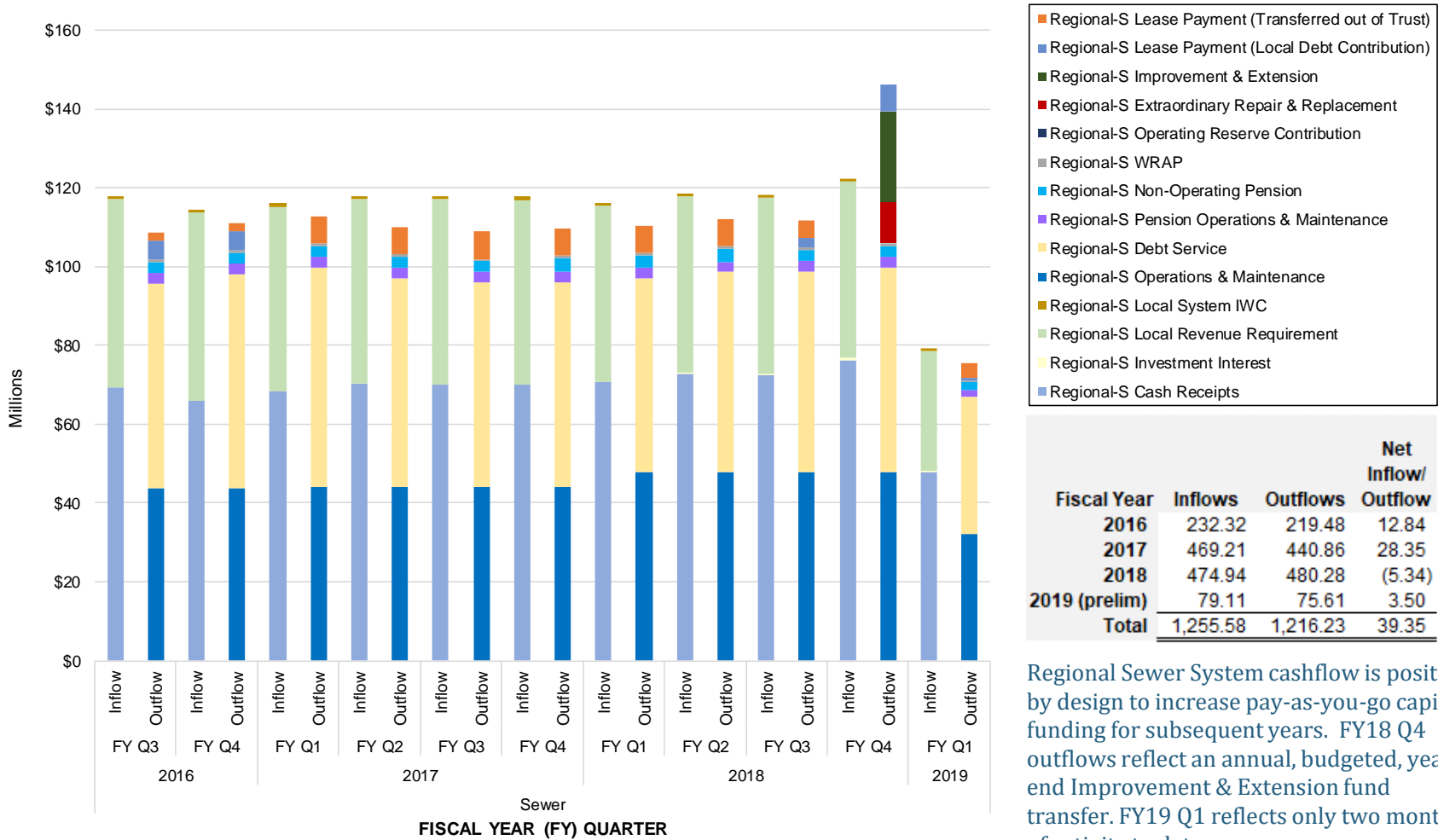
Regional Water System Master Bond Ordinance Inflows and Outflows



Regional Water System cashflow is positive by design to increase pay-as-you-go capital funding for subsequent years. FY18 Q4 outflows reflect an annual, budgeted, year-end Improvement & Extension fund transfer. FY19 Q1 reflects only two months of activity to date.

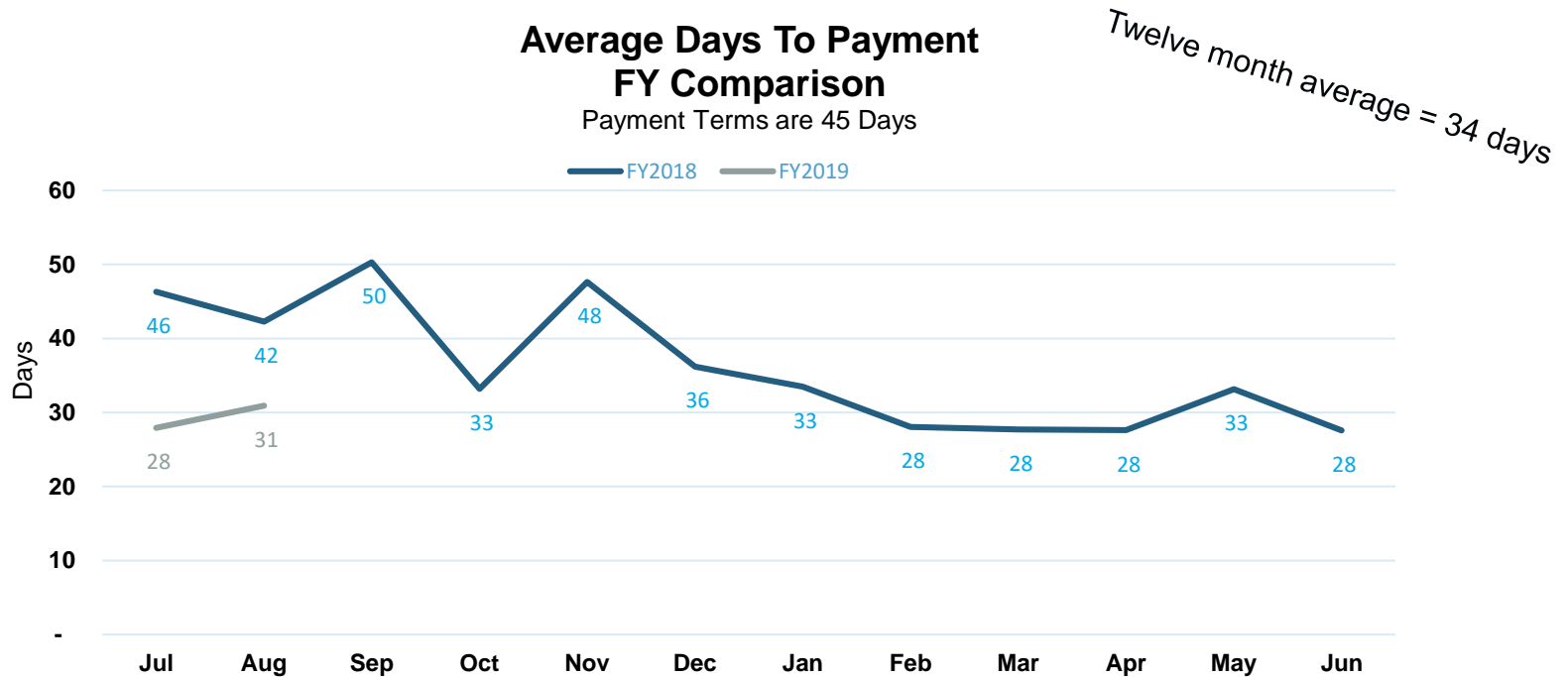
Financial Viability – GLWA Sewer System Cashflow

Regional Sewer System Master Bond Ordinance Inflows & Outflows



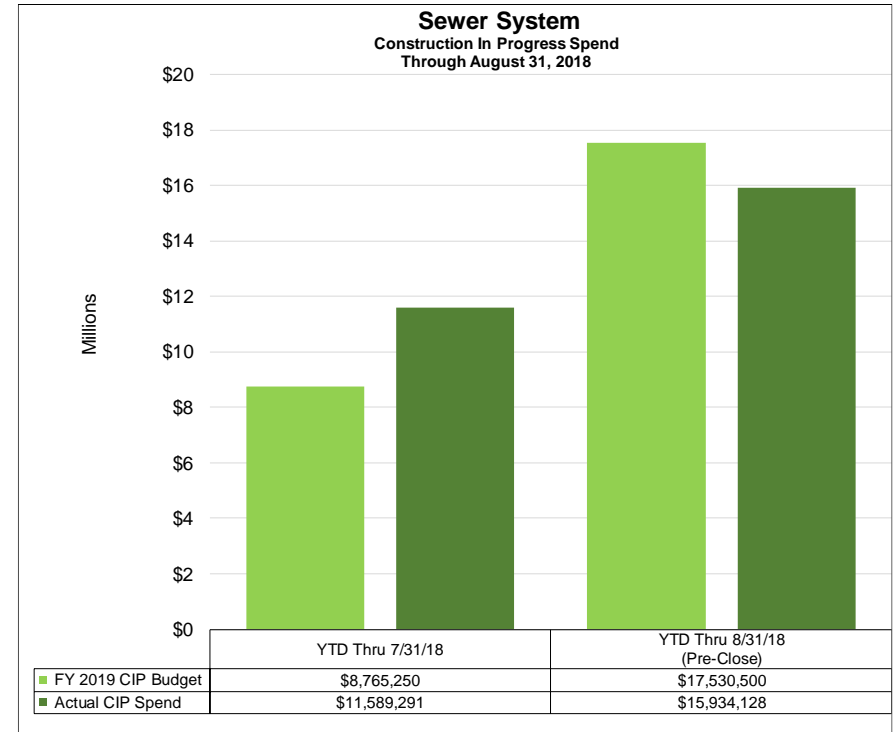
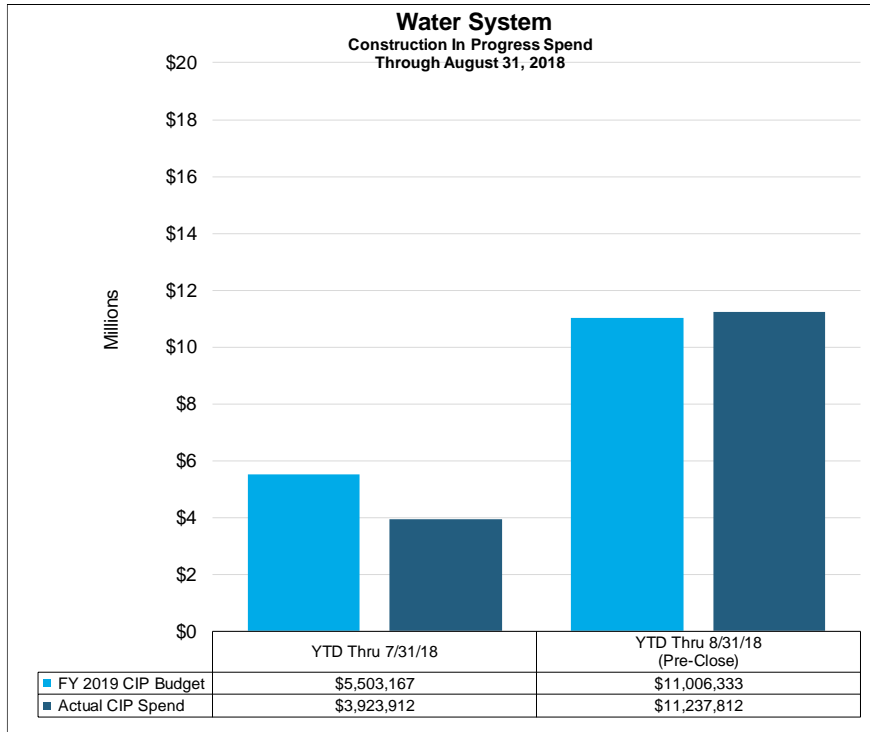
Regional Sewer System cashflow is positive by design to increase pay-as-you-go capital funding for subsequent years. FY18 Q4 outflows reflect an annual, budgeted, year-end Improvement & Extension fund transfer. FY19 Q1 reflects only two months of activity to date.

Financial Viability – Days to Pay an Invoice



- Timely vendor payments support supplier relations and is the outcome of a collaborative workflow from requisition to payment. It also serves as a means to leverage early payment discounts, provide timely financial reporting, and improve cashflow projections.
- GLWA’s vendor payment timing goal is a twelve month average of < 30 days from invoice receipt to payment date. This goal is fifteen days earlier than GLWA’s established vendor terms. As of August 2018 the twelve month average is 34 days, continuing a steady improvement trend.

Financial Viability- FY 2019 Total CIP Spend



Water System CIP Spend: As of August 2018, the Water system incurred \$11,237,812 of CIP costs to date. This is 102% of the total prorated spend and more than twice the spend of \$3,923,912 in the prior period.

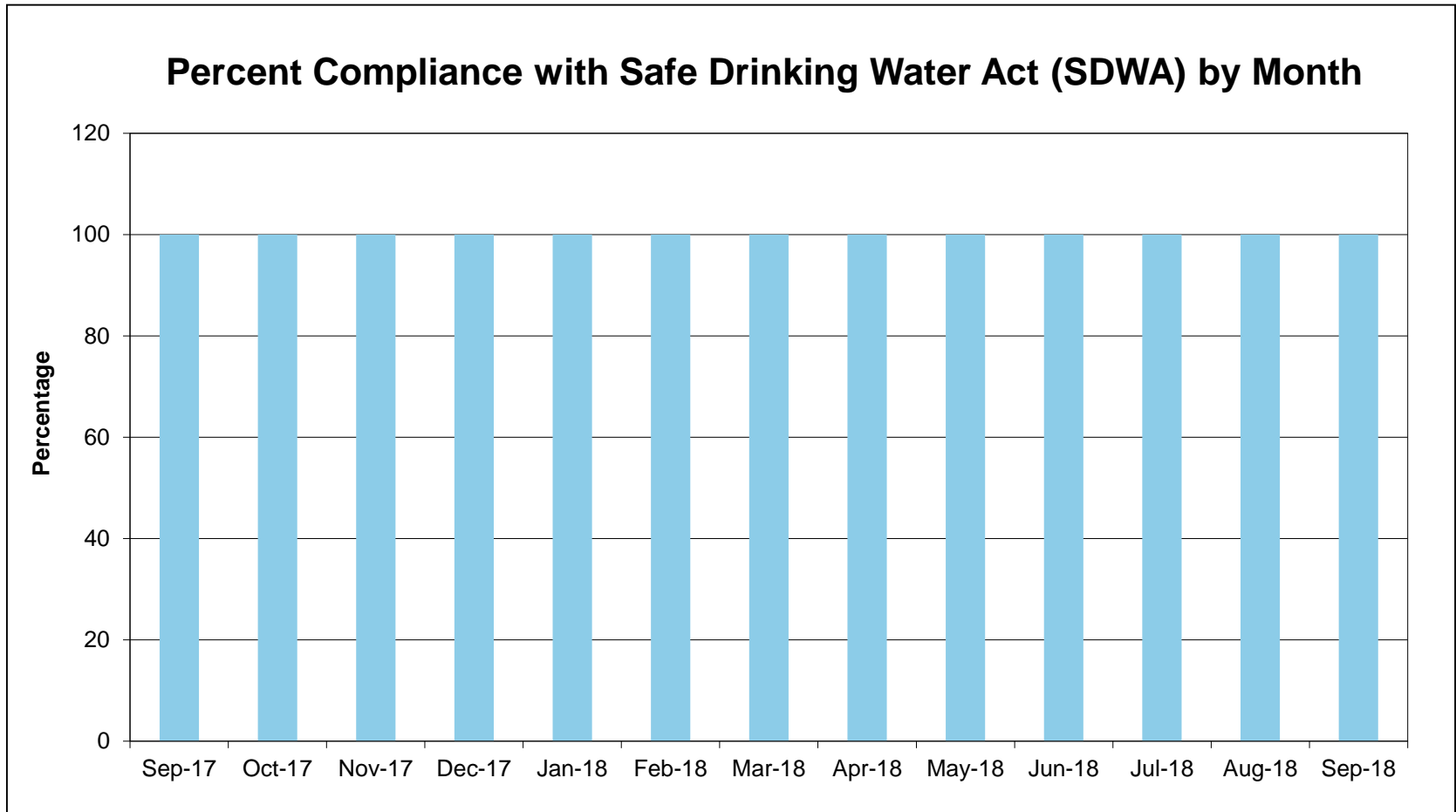
Sewer System CIP Spend: As of August 2018, the Sewer system incurred \$15,934,128 of CIP costs to date. This is 91% of the total prorated spend and a steady increase over the prior period.



EUM Attribute:

Product Quality

Product Quality – SDWA Compliance

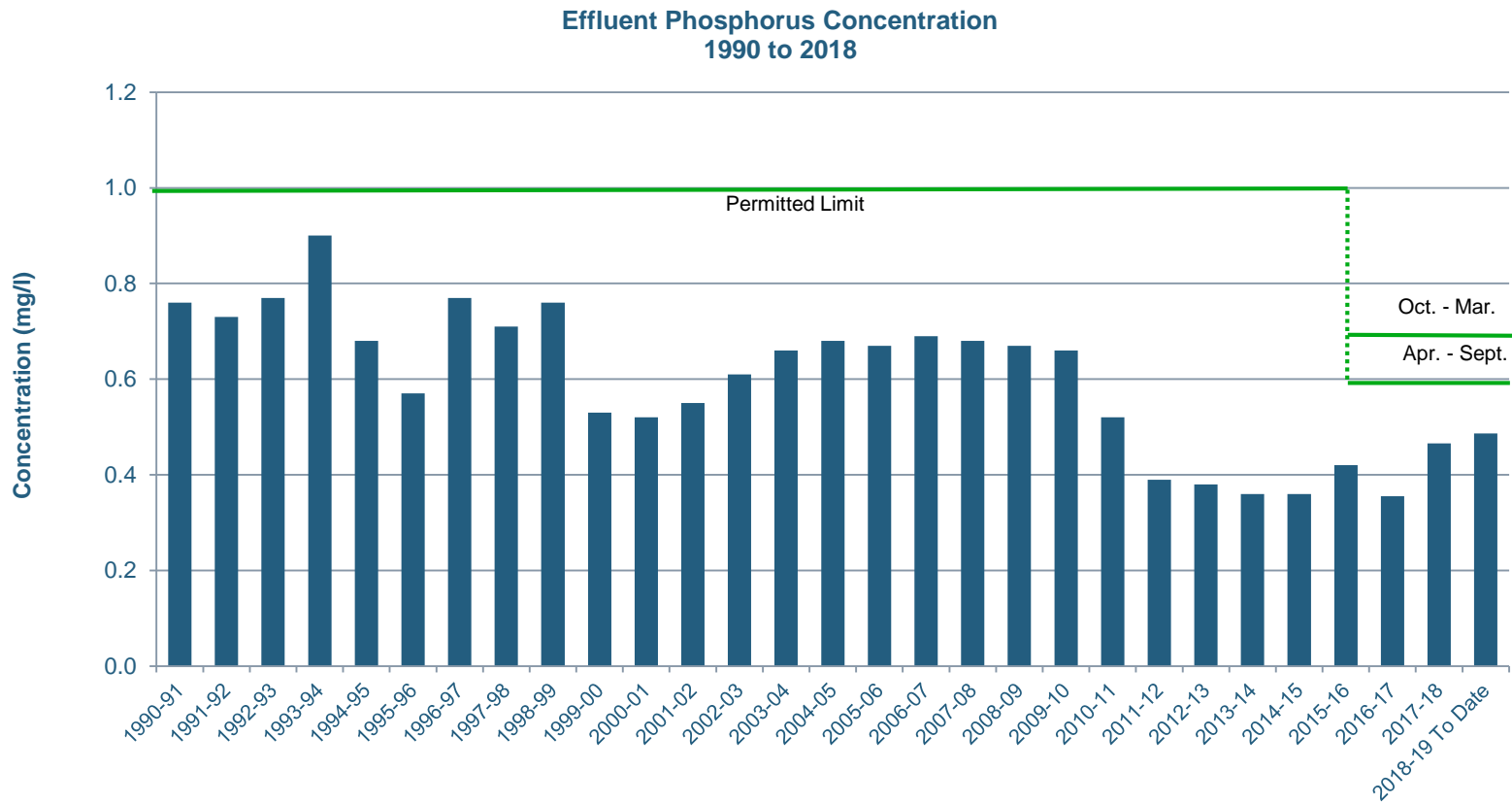


Product Quality: GLWA's goal is to surpass Safe Drinking Water Act requirements and this slide indicates compliance for the month.

Product Quality

Regulatory Compliance – Effluent Phosphorous Concentration

- Significant progress has been made in the reduction of effluent phosphorus.
- GLWA strives to surpass Federal and State requirements.

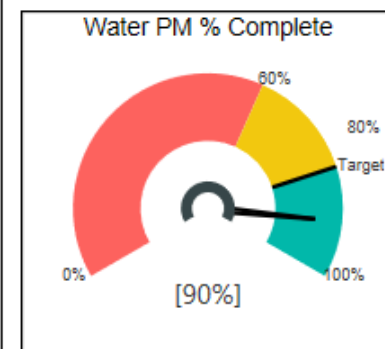
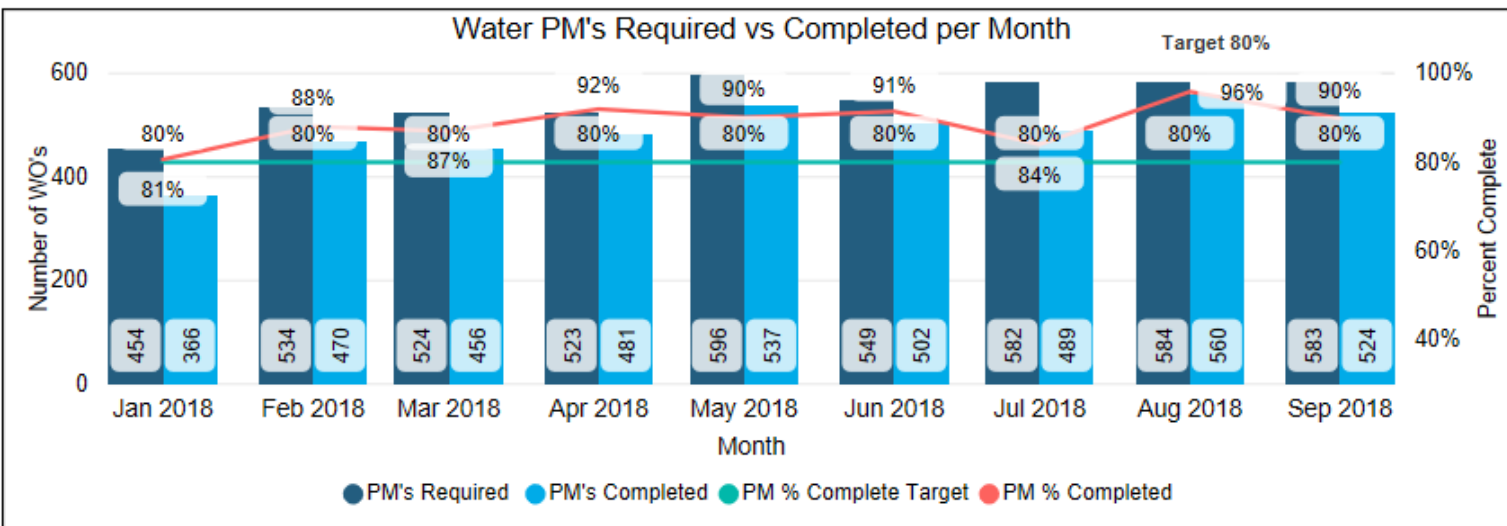
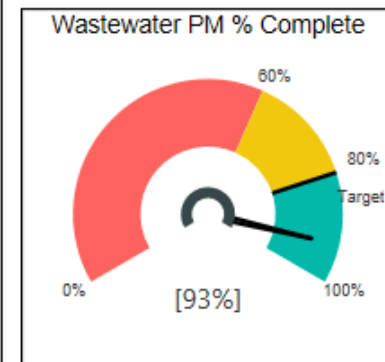
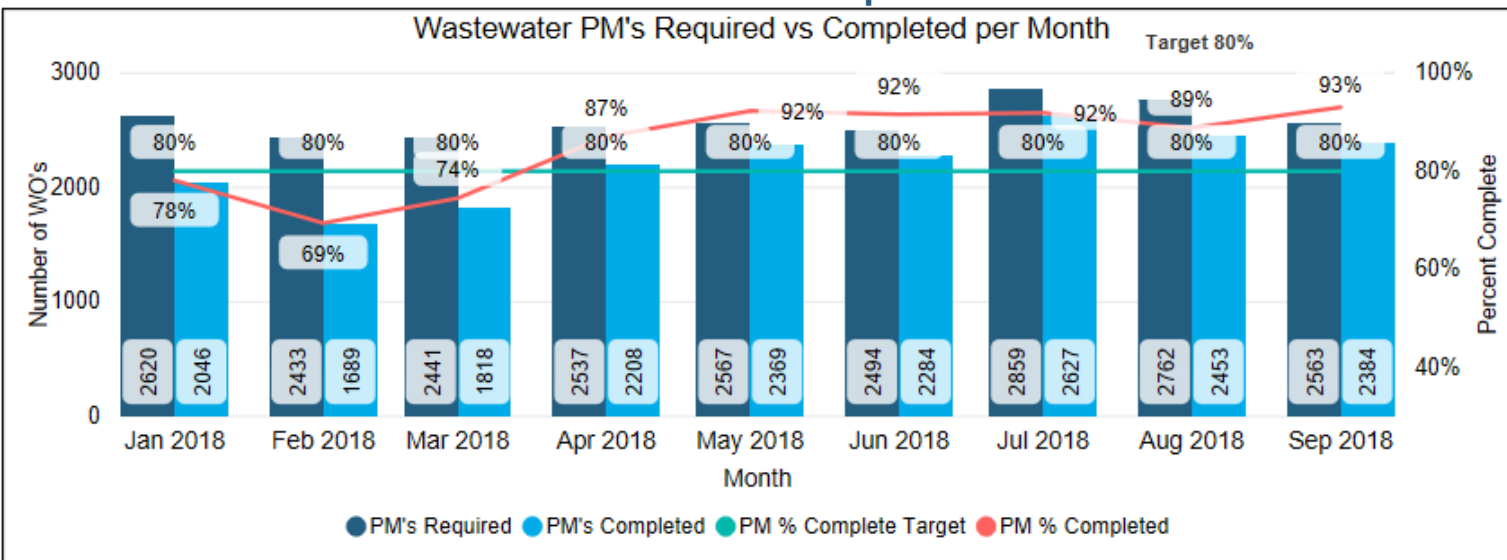




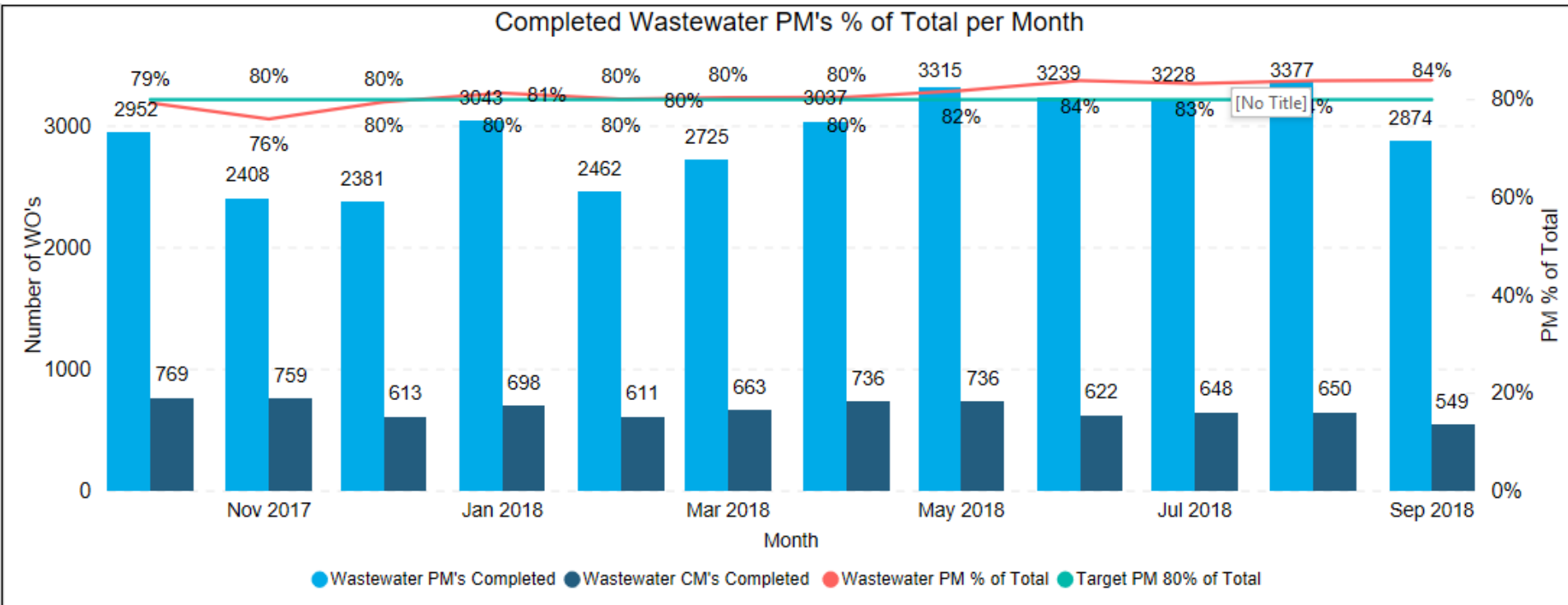
EUM Attribute:

**Infrastructure
Strategy and
Performance**

Infrastructure Strategy and Performance – Wastewater and Water Preventative Maintenance (PM) Management September 2018

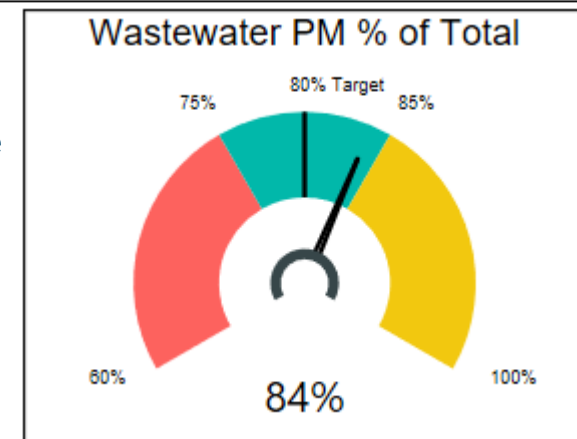


Infrastructure Strategy and Performance – Wastewater Preventative & Corrective Maintenance Management September 2018

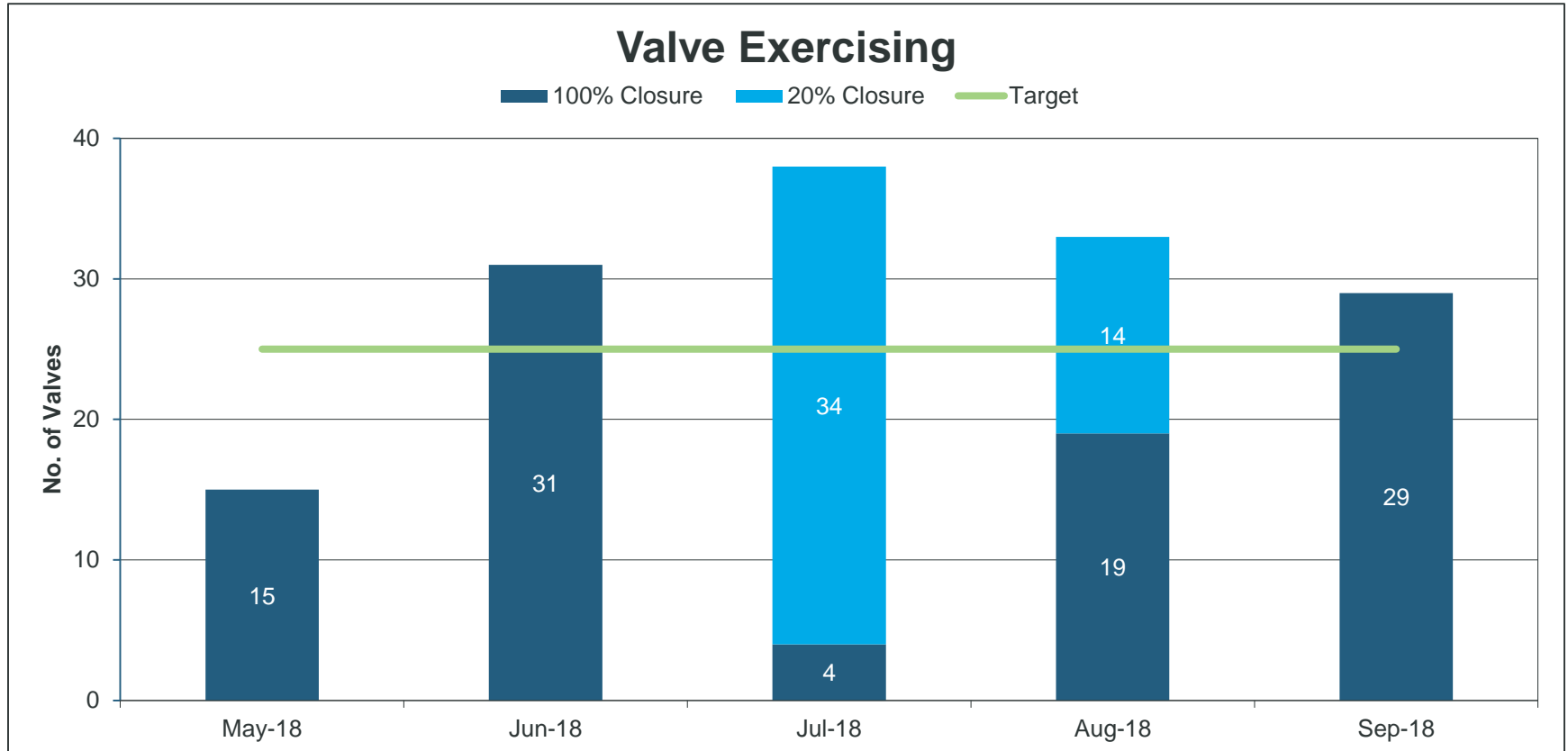


*The Target is derived from the 2017 American Water Works Association Utility Benchmarking program that indicates that an appropriate level of PM activities can be identified by the PM percentage of total maintenance work performed. If the percentage is significantly lower than the target (red) it is a warning of possible increase in unplanned, emergency type work (CM). If the percentage is significantly higher than the target (yellow) it is a warning that PMs can be reduced and resources can be better directed to other system needs.

PM = Preventative Maintenance
CM = Corrective Maintenance



Infrastructure Strategy and Performance – Water and Field Services Valve Exercising



Valves cycled 20% on the initial visit/attempt • Valves cycled 100% on the second visit/attempt • Target to exercise 25 valves per month

Infrastructure Strategy and Performance: GLWA's goal is to determine the status of system valves and prioritize necessary repairs. 450 valves will be evaluated and will be operated from open position to close and back open two times at a minimum.



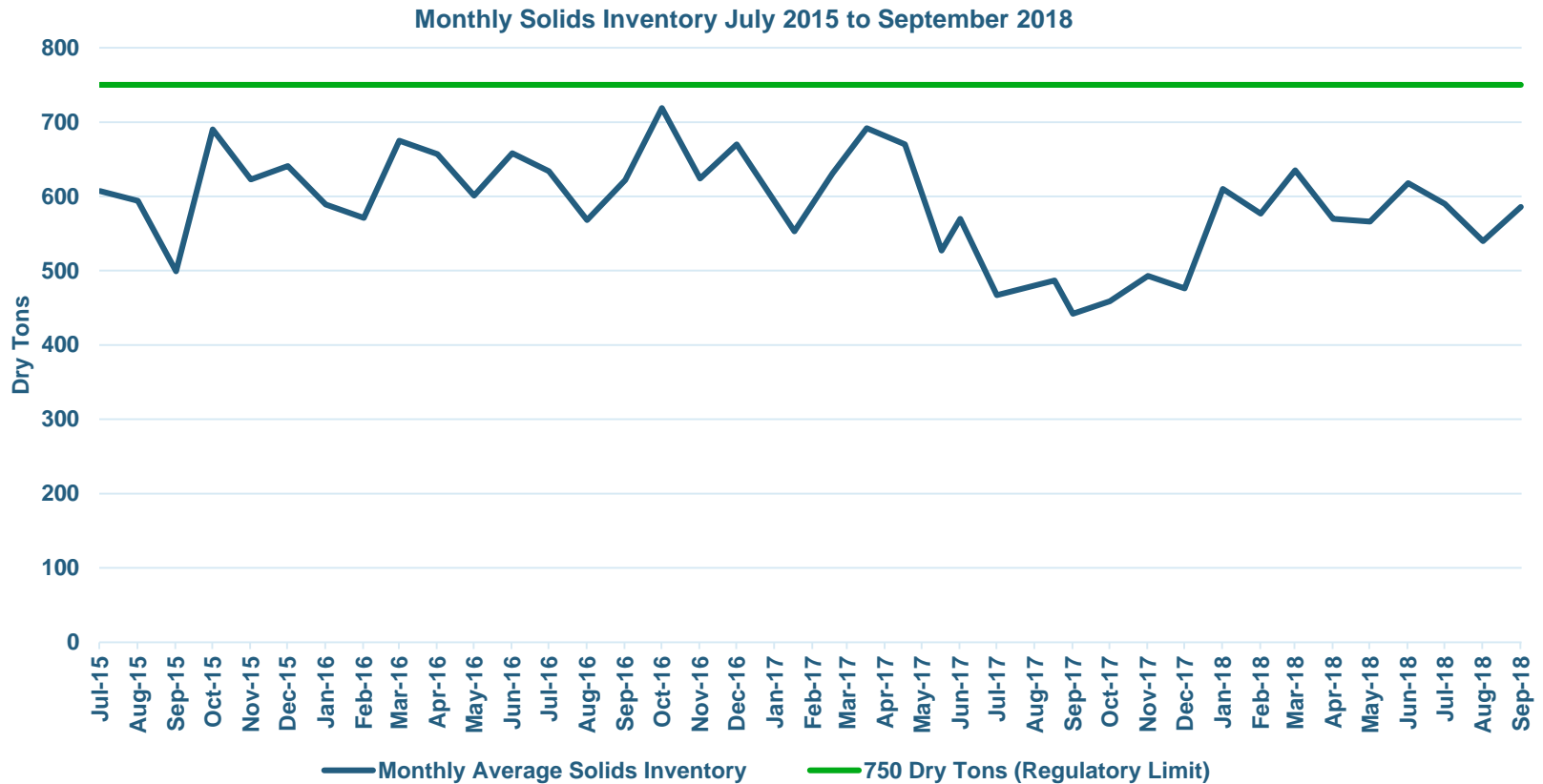
EUM Attribute:

**Operational
Optimization**

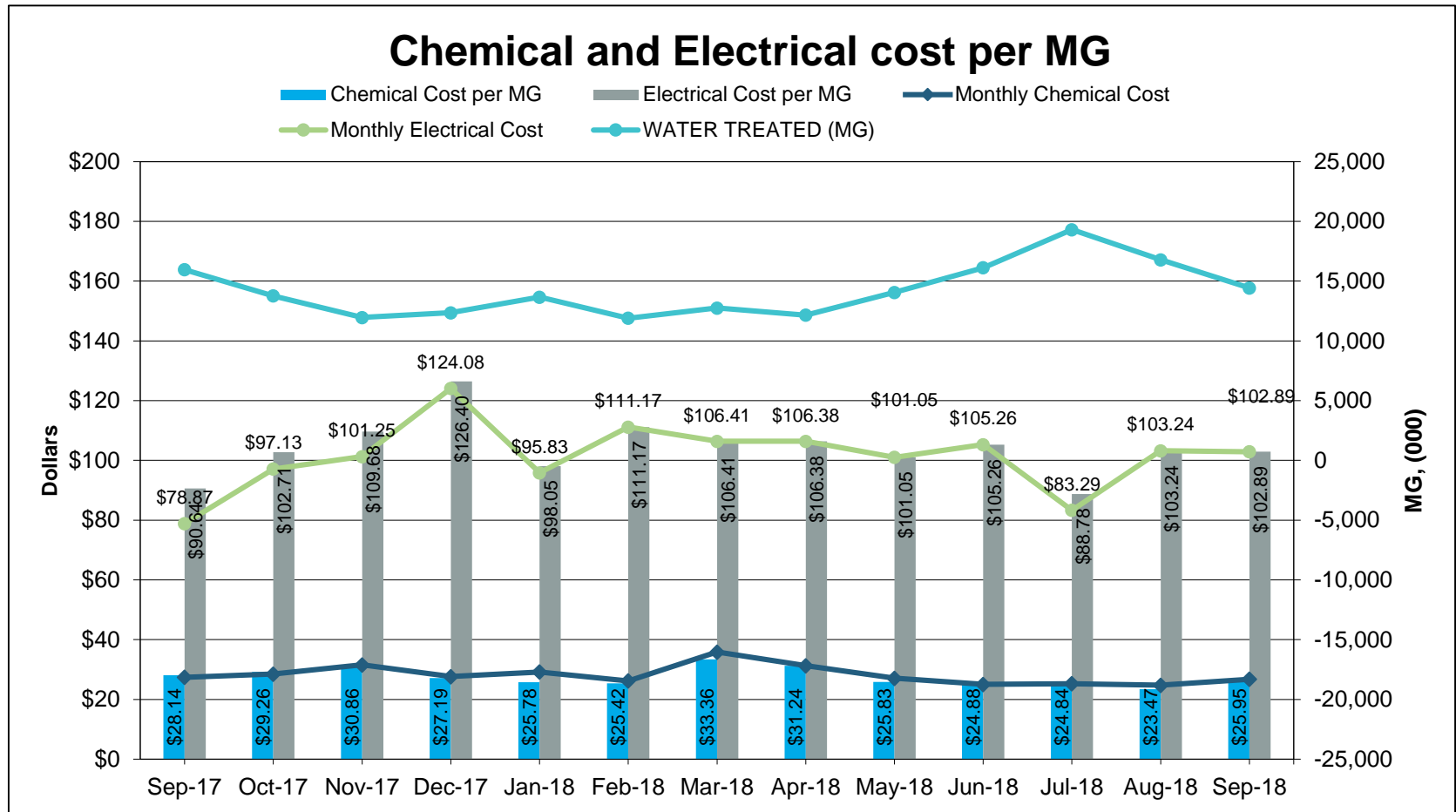
Operational Optimization

Regulatory Compliance – Monthly Solids Inventory

- Solids inventory is a measure of process performance and is regulated by the State.
- Having consistently tracked below 750 dry tons since Oct. 2014 is noteworthy.



Operational Optimization Chemical & Electrical Cost



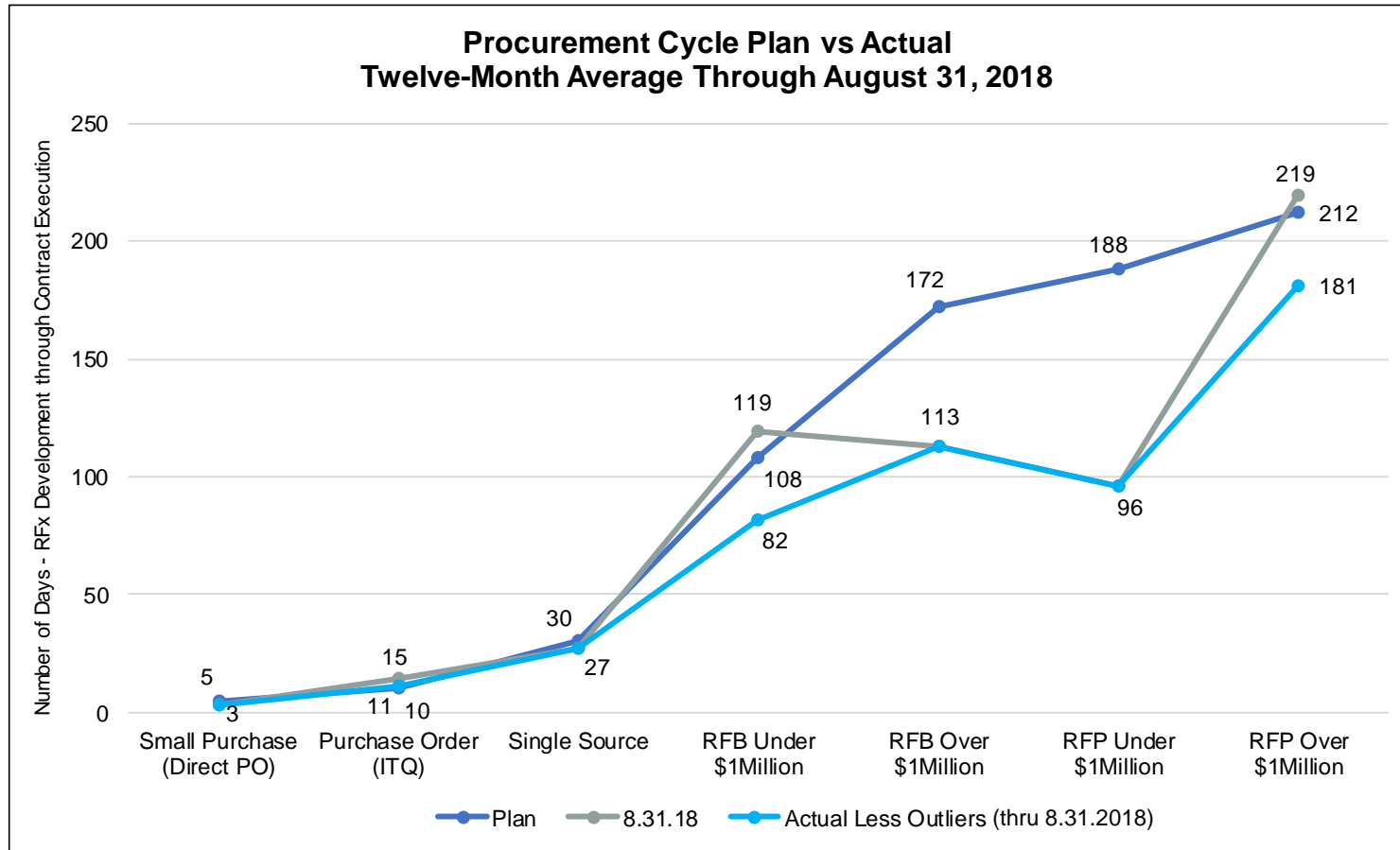
Operational Optimization: Being able to identify ongoing performance improvements for chemical and electrical usage per MG of water pumped is a key metric in managing operational cost. This slide is under development to include tracking of total costs per MG.



EUM Attribute:

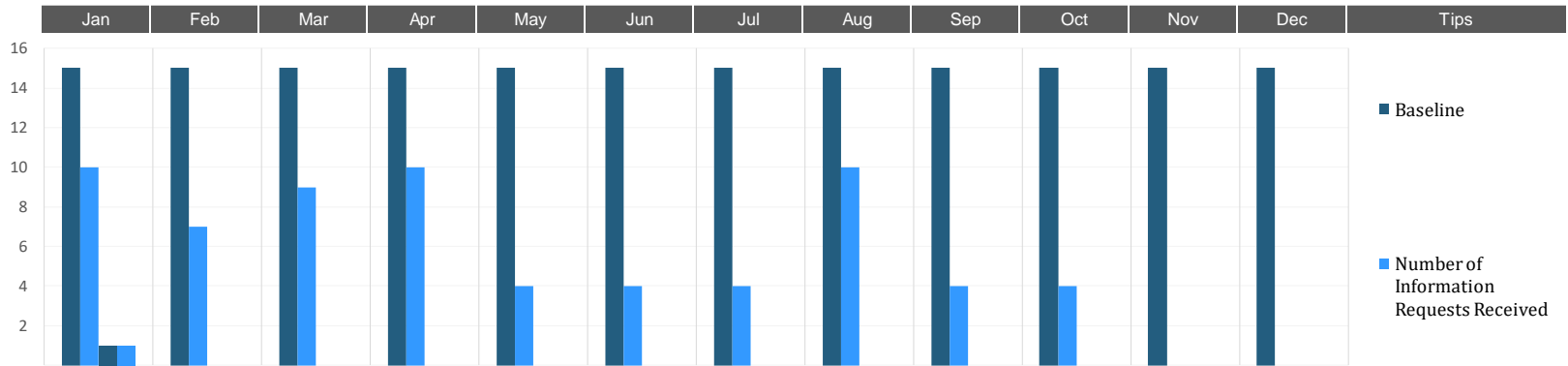
**Enterprise
Resiliency**

Enterprise Resiliency - Procurement Cycle Plan vs. Actual Timeline



- The Procurement team tracks the number of days required to move a project from the point of having a finalized scope to having an executed contract. This is tracked across seven different project execution categories ranging from small, direct purchases to large requests for proposals.
- For the twelve-month period ended August 31, 2018 GLWA Procurement is meeting or slightly exceeding execution goals for five of the seven project categories. Efforts are underway to improve the timing of RFB's over \$1 million and RFP's under \$1 million which are currently lagging.

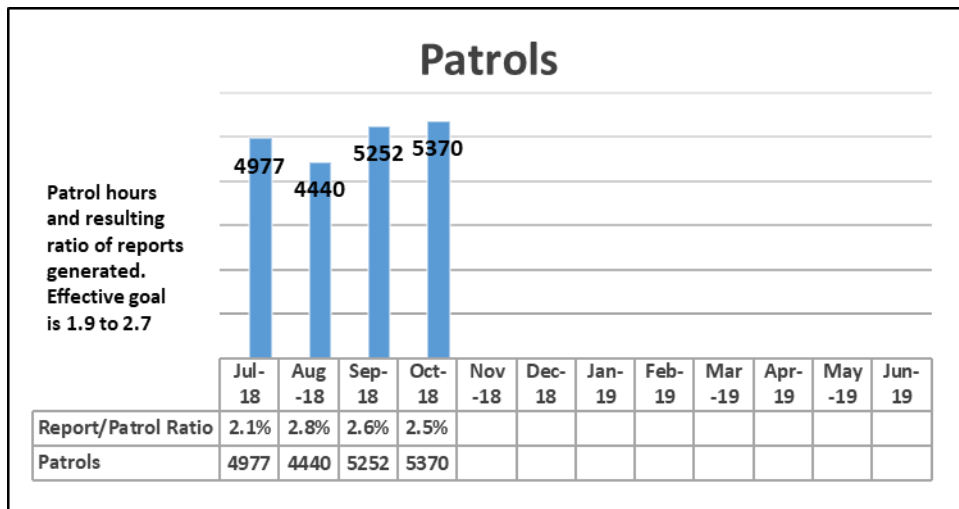
Enterprise Resiliency – General Counsel Information Requests Received



Expenses	Jan	Feb	Mar	Apr	May	Jun*	Jul	Aug	Sep	Oct	Nov	Dec	Total	Trend
Baseline	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	180.00	
Number of Information Requests Received	10.00	7.00	9.00	10.00	4.00	4.00	4.00	10.00	4.00	4.00			66.00	

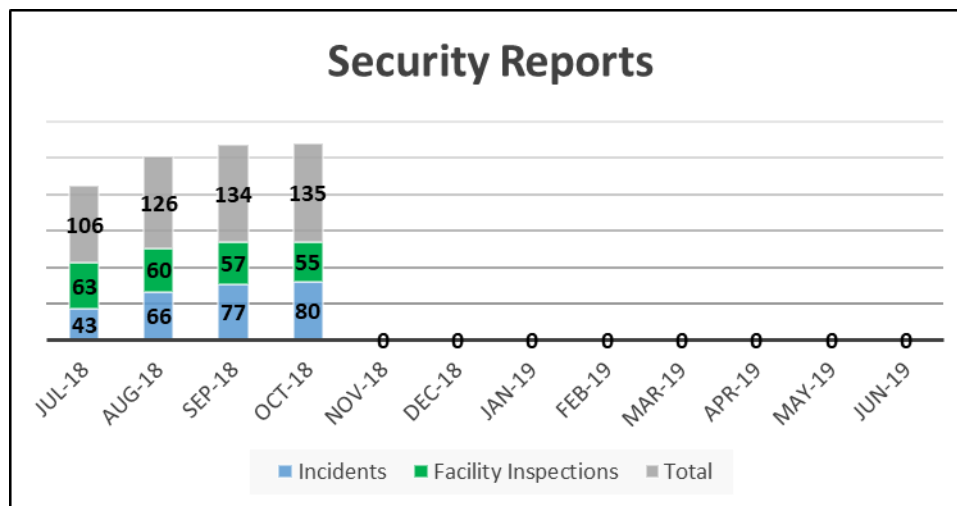
One of the measures of organizational transparency is access to information. GLWA maintains many avenues of informal information access, including through its website. To the extent the information is readily available, the Office of the General Counsel should receive fewer FOIA requests over time.

Enterprise Resiliency – Security & Integrity

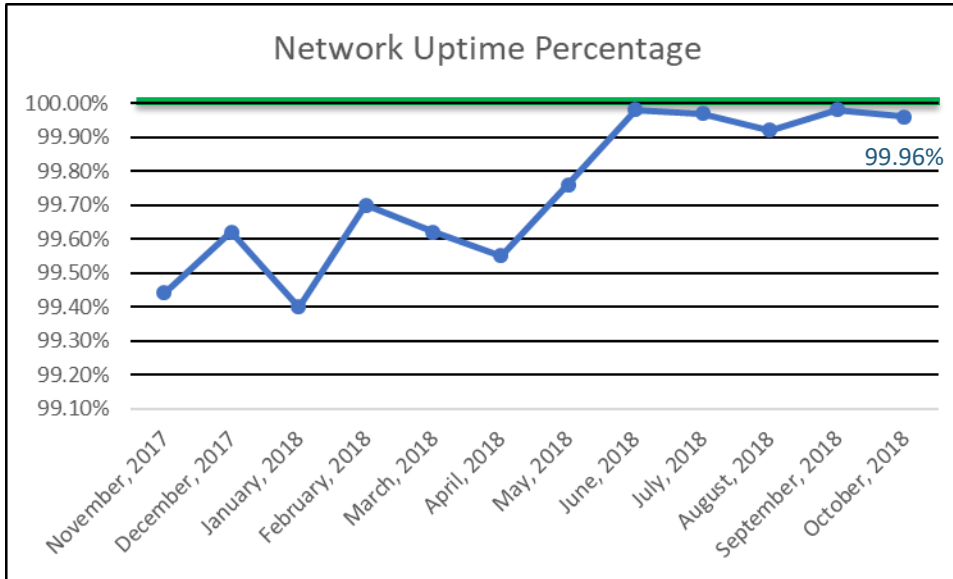


- Patrols are an indication of the level of services rendered by the staff of the Security & Integrity Group.

- Security reports are an indication of the effectiveness of security programs (less is better).

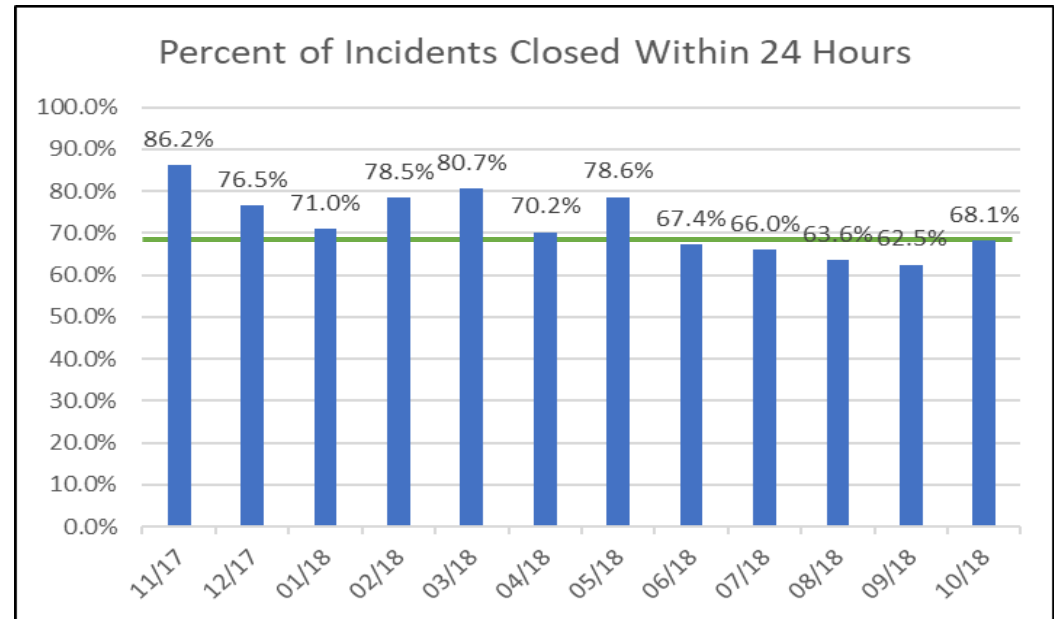


Enterprise Resiliency – Information Technology

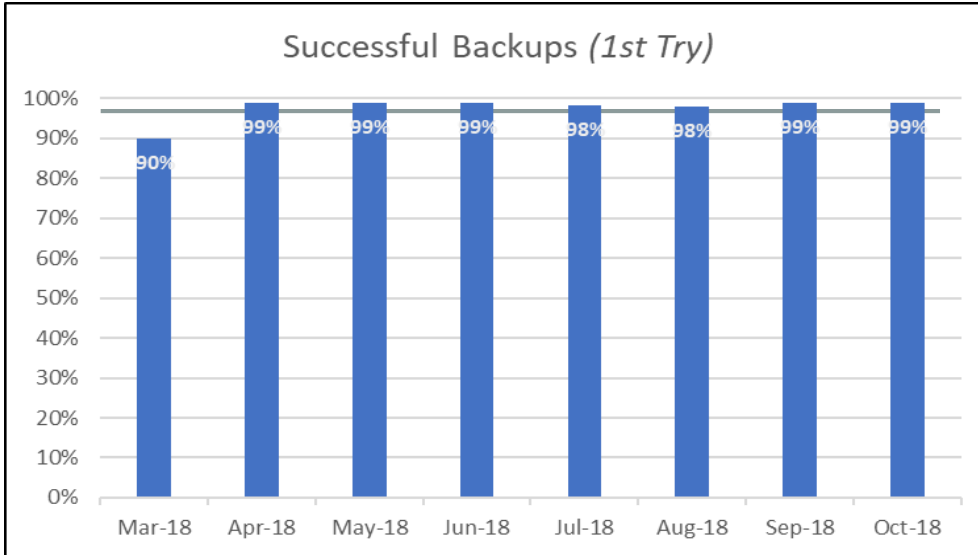


- GLWA has 59 network-connected sites, including offices, plants, pump stations, and other facilities.
- Network connectivity allows employees to access the applications needed to do their work and connects plants and pump stations to the intranet to report operational data

- An Incident is a technology issue that is preventing an employee from performing some part of their job duties
- Quick resolution of incidents increases employee productivity.
- The industry standard for 24-hour resolution is 68%

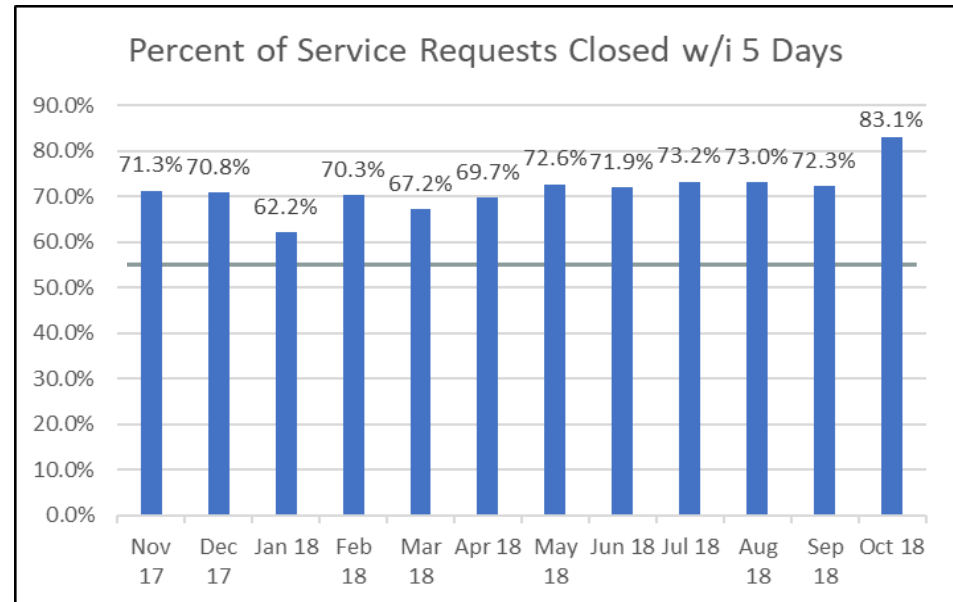


Enterprise Resiliency – Information Technology

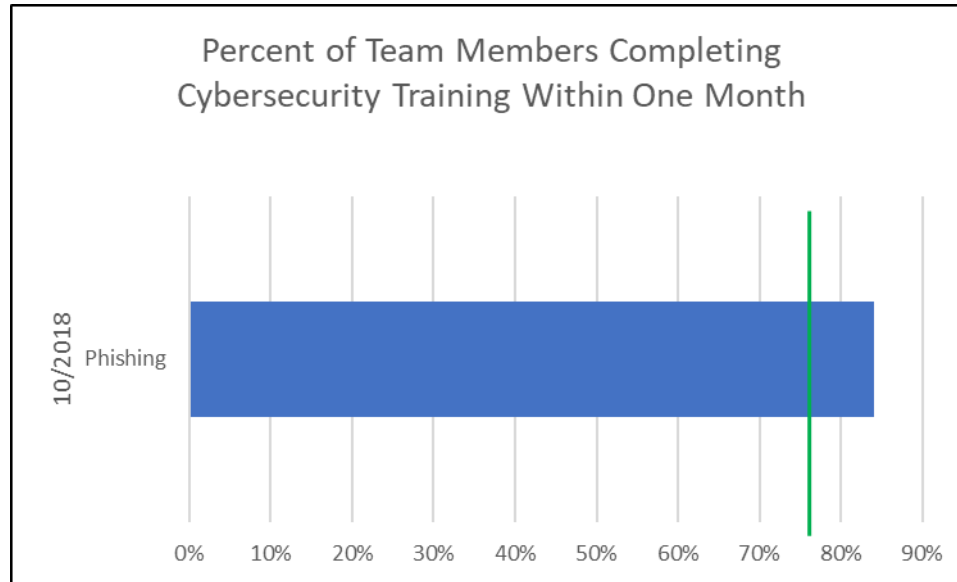


- Backups ensure that GLWA's information is safe in case of unexpected disruptions.
- Successfully backing up on the first try streamlines operations and frees up resources for other tasks.

- A service request is a request for IT work that is not preventing an employee from performing their work.
- Timely fulfilment of service requests ensure that employees have the technology resources needed to do their jobs, and increases job satisfaction.



Enterprise Resiliency – Information Technology



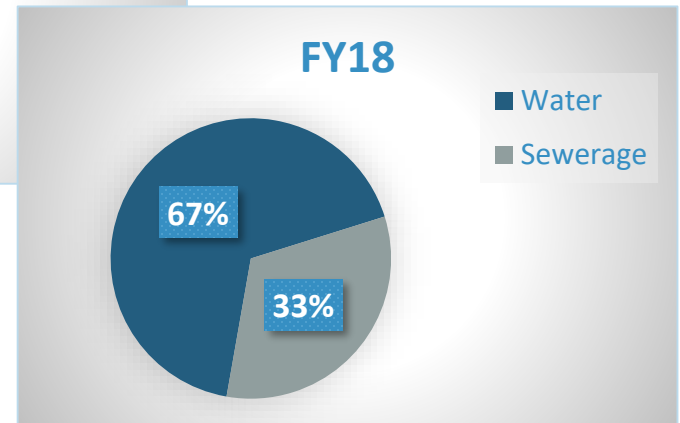
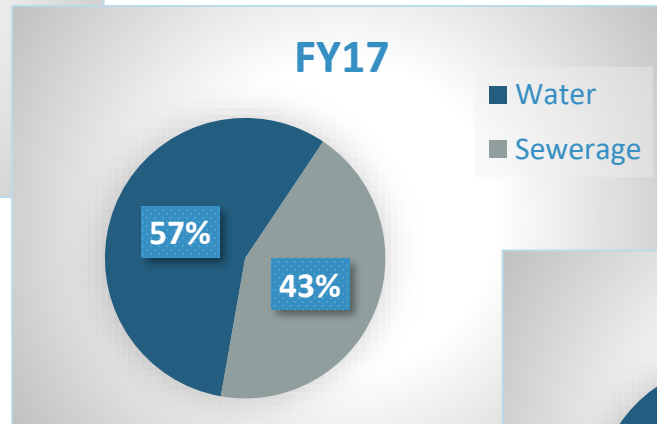
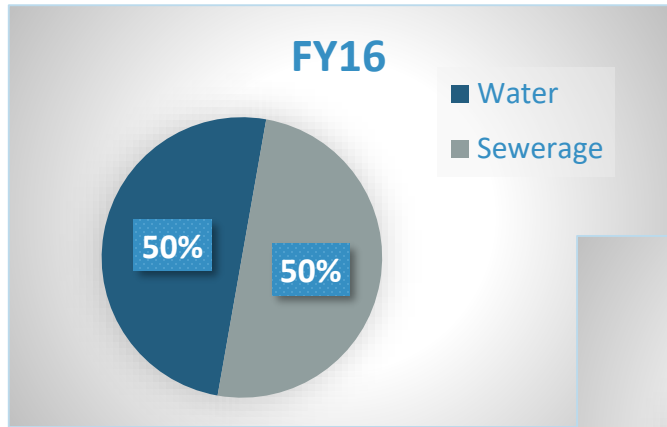
- End users are responsible for 80% of cybersecurity breaches.
- Well trained users are less likely to take action that could cause a breach

Enterprise Resiliency – Key Workers’ Compensation Comparative Metrics Valued as of June 30, 2018

Fiscal Year Ending	Claim Count	Incurred	Paid	Average Paid Cost per Claim	Other Metrics		
					# of Litigated Claims	# of Open Claims	% Medical Only
06.30.2016	30*	\$46,720	\$46,720	\$1,557	-0-	-0-	77%
06.30.2017	53	\$189,301	\$189,301	\$3,572	-0-	-0-	74%
06.30.2018	50	\$341,249	\$142,086	\$2,841	2	13	55%

*Represents 6 months of losses (January 1, 2016 – June 30, 2016)

Enterprise Resiliency – Workers' Compensation Claims by System As of June 30, 2018



Enterprise Resiliency – All Litigated Workers’ Compensation Claims As of June 30, 2018

Total number of litigated files = 1.5% of all reported claims since January 1, 2016

Date of Loss / Injury Description	Claim Status	Total Incurred	Total Paid	Expected Outcome
October 4, 2017 Right Rotator Cuff	Pending	\$72,440	\$34,828	“Take nothing” re: additional wage loss following termination for cause
October 29, 2017 Motor Vehicle Accident – Alleged Lower Back	Pending	\$9,000	\$9.80	Claimant’s <i>Application for Mediation</i> to be withdrawn by WC Agency (failure to pursue)

Enterprise Resiliency – General Liability and Auto Liability Claims

As of June 30, 2018
(all claims are closed)

Fiscal Year Ending	General Liability		Auto Liability	
	# of Claims	Total Paid	# of Claims	Total Paid
06.30.2016	1	\$405	1	\$1,000
06.30.2017	3	\$246,034*	3	\$2,649
06.30.2018	0	\$ -0-	1	\$ -0-

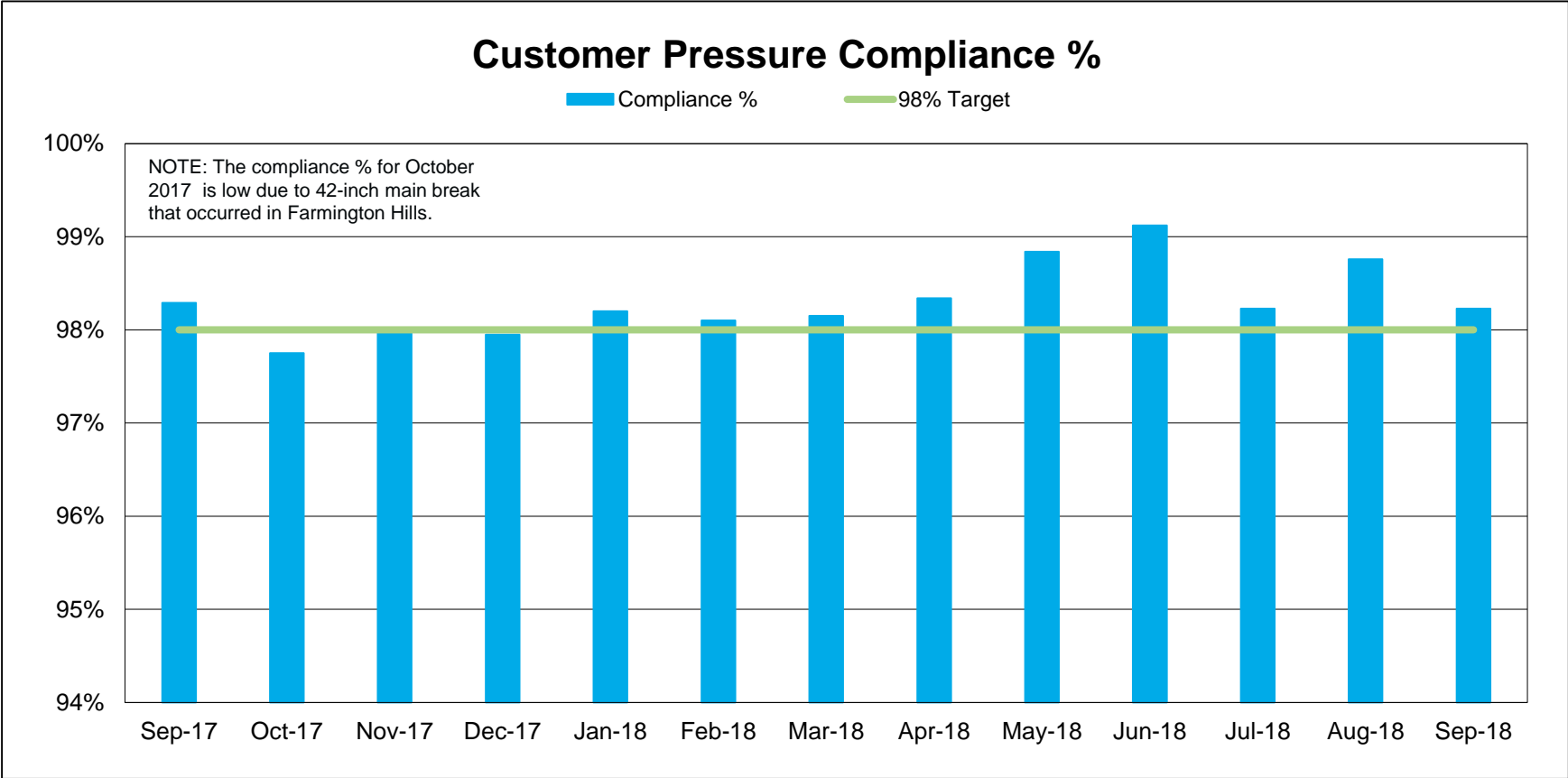
* \$244,923 (99.6%) of the total is related to *Beasley vs. GLWA* matter



EUM Attribute:

**Customer
Satisfaction**

Customer Satisfaction – Water & Field Services



Operational Resiliency: To exceed customer compliance by being greater than 98% of contractual pressures.



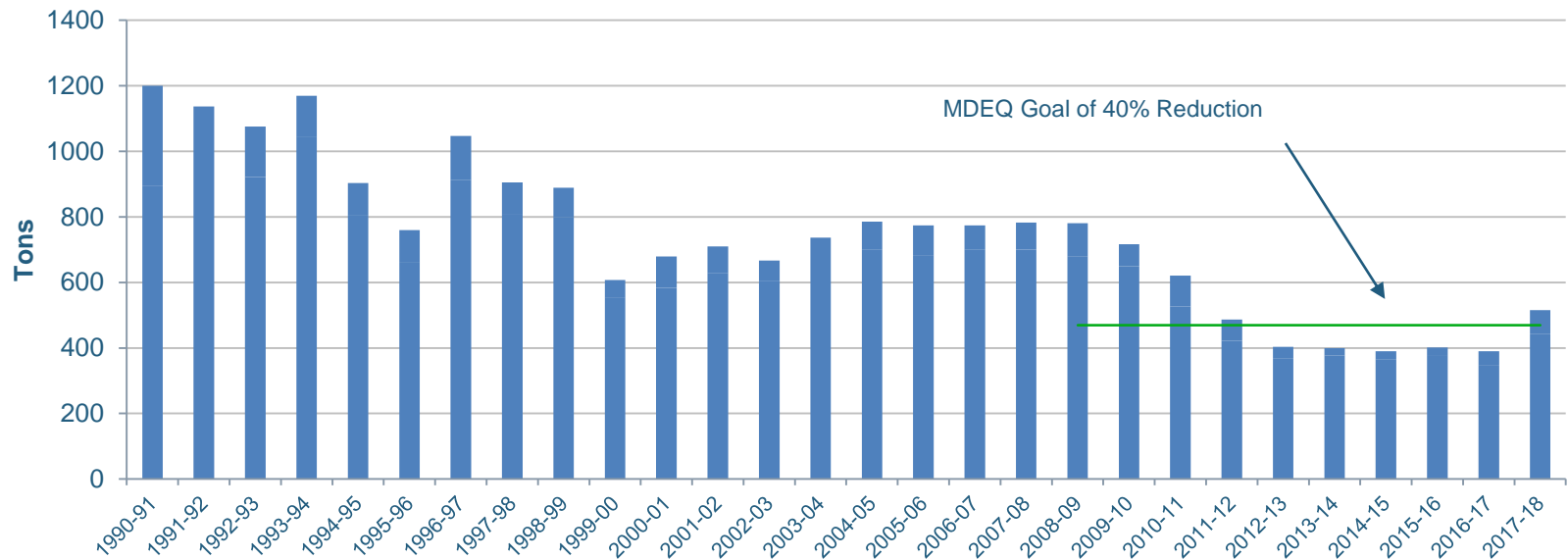
EUM Attribute:

**Community
Sustainability**

Community Sustainability – Watershed Health

- The State and Federal regulators have a goal of 40% reduction in phosphorus loading in the Western Lake Erie Basin.
- GLWA has surpassed the State and Federal goal.

Effluent Phosphorus Loading 1990 to 2018



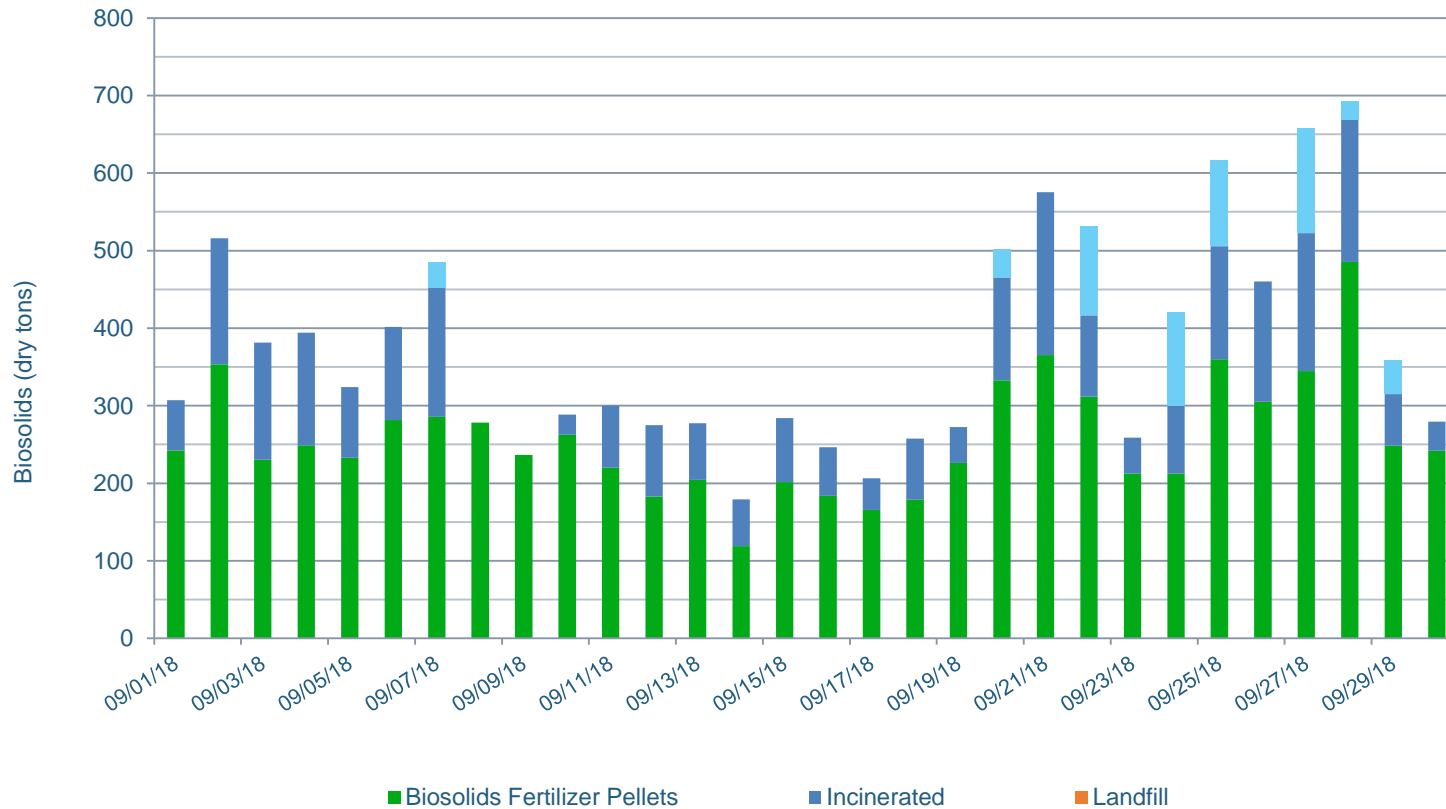


EUM Attribute:

**Water Resource
Sustainability**

Water Resource Sustainability – Biosolids Handling by Method

- GLWA strives to increase nutrient recovery and beneficial reuse of biosolids.
- Use of the biosolids dryer facility for solids handling is preferred because it uses biosolids for the production of fertilizer pellets.





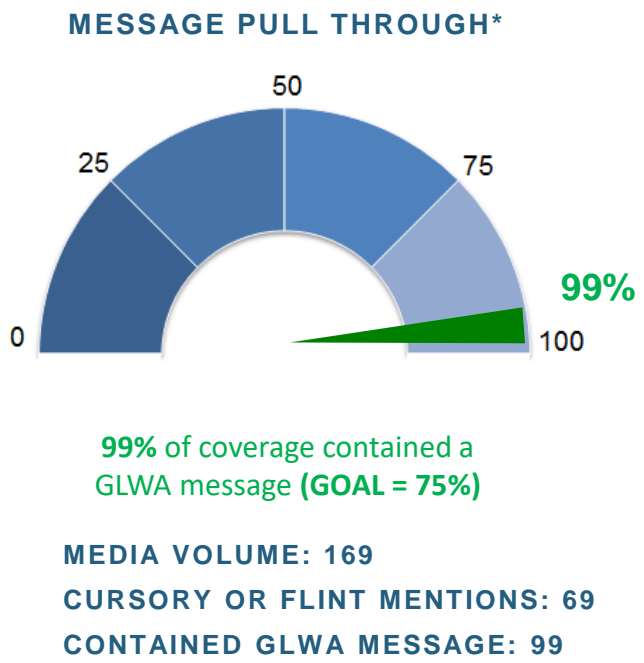
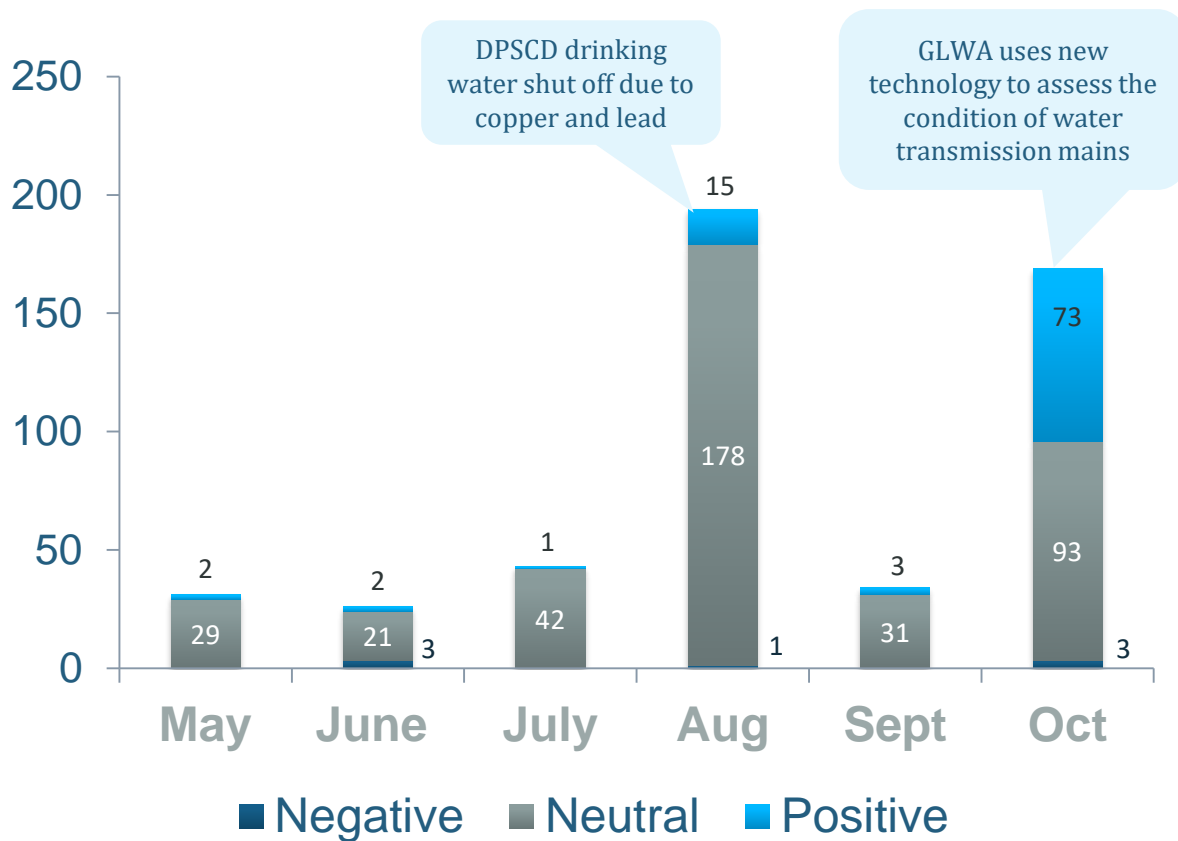
EUM Attribute:

**Stakeholder
Understanding and
Support**

Traditional Media Summary

Relevant news coverage for The Great Lakes Water Authority (GLWA) in October focused mainly on its **piloting a new technology to proactively assess the condition of water mains, which accounted for nearly 80 percent of news coverage for the month**. The majority of the remaining coverage highlighted the rescue of a GLWA employee from a confined space, and Michigan awarding \$80M for improving water, sewer systems.

Overall in October, GLWA saw nearly a **4X increase in mentions compared to September**. Articles were largely neutral although a **substantial amount of coverage was positive (43 percent)**. Message pull through remained strong in October, at **99 percent of non-cursory mentions**.

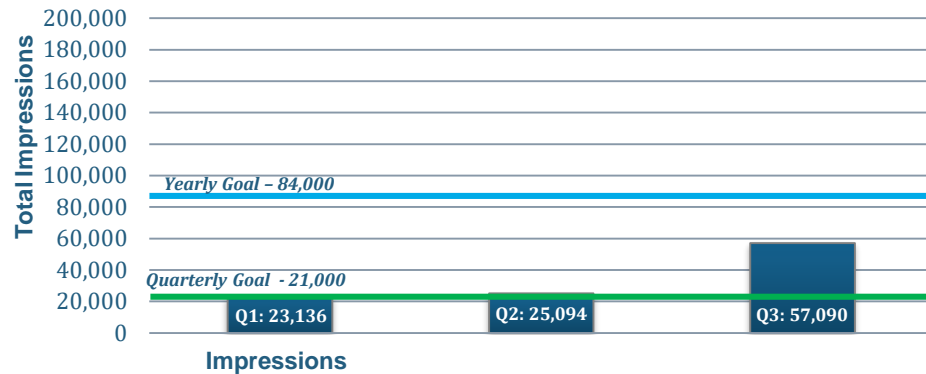


*Message pull through includes quotes or comments from a GLWA spokesperson, a quote from a GLWA press release or underlying theme of GLWA providing safe and clean water.

Facebook and Twitter Quarterly Overview

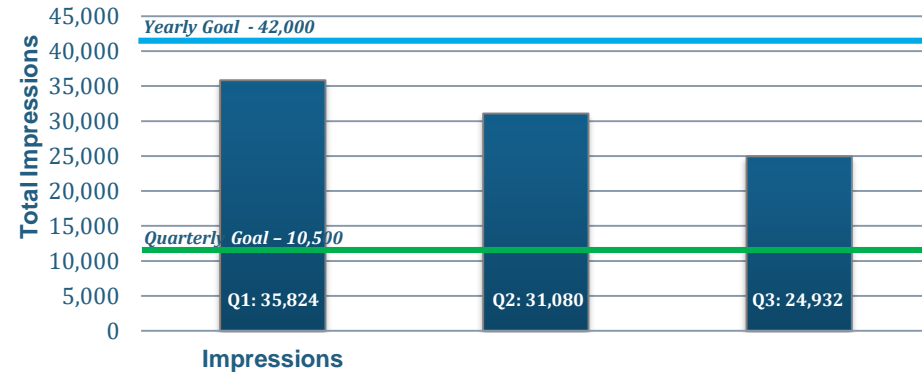
Facebook - Total Impressions Q3 2018

- Yearly Goal (84,000 impressions/year)
- Quarterly Goal (21,000 impressions/quarter)
- Total Q3 Impressions (57,090 total impressions)



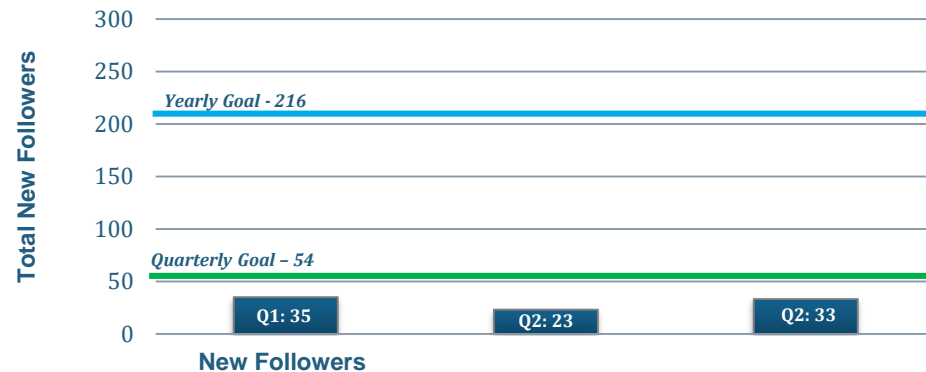
Twitter - Total Impressions by Q3 2018

- Yearly Goal (42,000 impressions/year)
- Quarterly Goal (10,500 impressions/quarter)
- Total Q2 Impressions (24,932 total impressions)



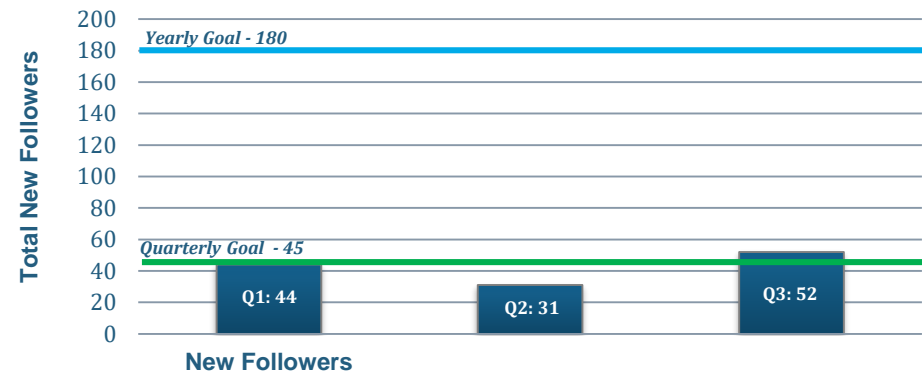
Facebook - Total New Followers Q3 2018

- Yearly Goal (216 new followers/year)
- Quarterly Goal (54 new followers/quarter)
- Q2 New Followers (33 followers)



Twitter - Total New Followers Q3 2018

- Yearly Goal (180 new followers/year)
- Quarterly Goal (45 new followers/quarter)
- Q2 New Followers 52 total new followers)

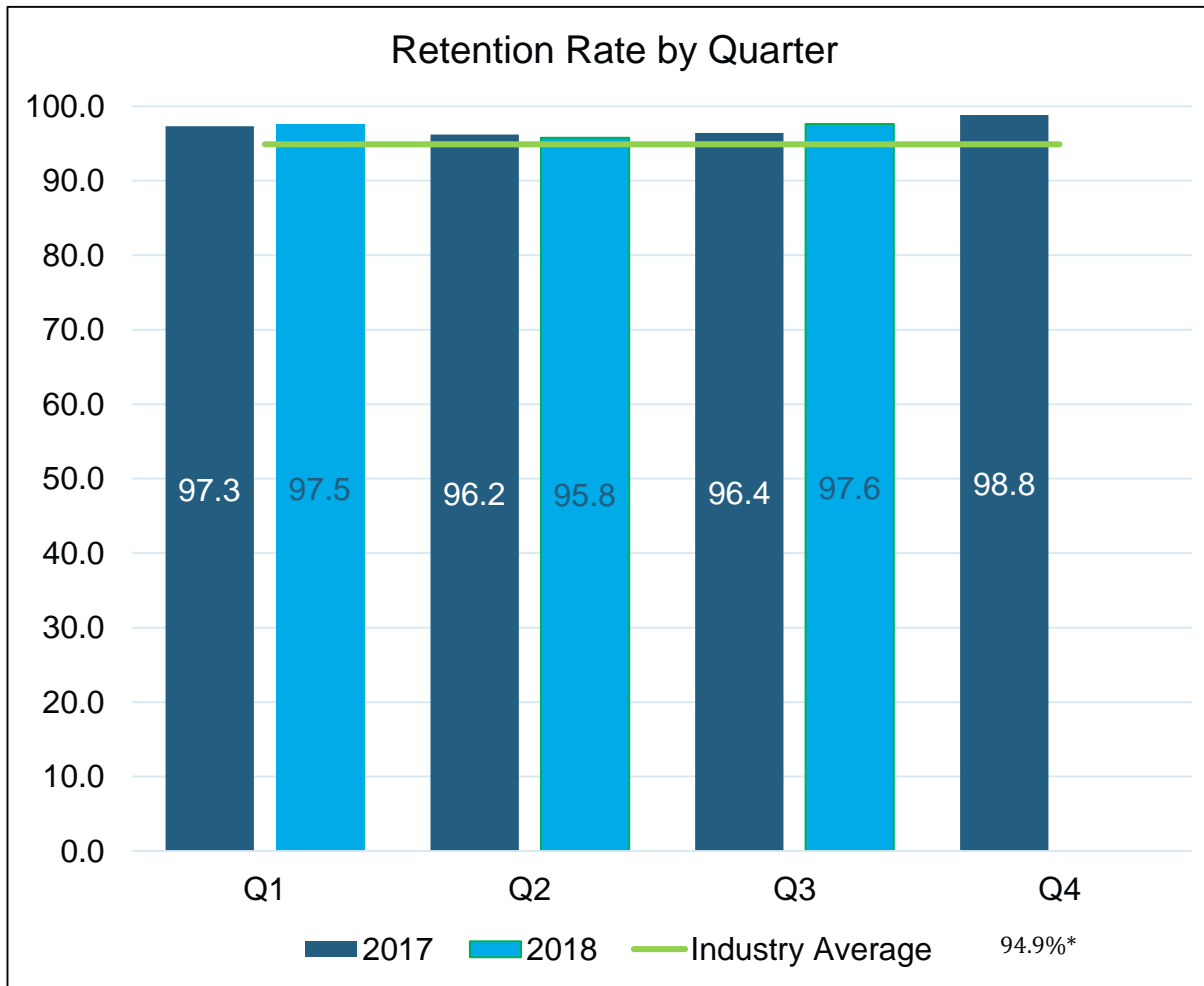




EUM Attribute:

**Employee and
Leadership
Development**

Organizational Development



Above retention rates are reflected in percentages

- Retention leads to decreased training costs, increased productivity, and cross training and development.

*From the U.S. Bureau of Labor Statistics 10-Oct-2016 report for the sector "State and Local Government, Excluding Education."