Great Lakes Water Authority

Key Performance Indicators and
Effective Utility Management (EUM) Metrics
February 13, 2019

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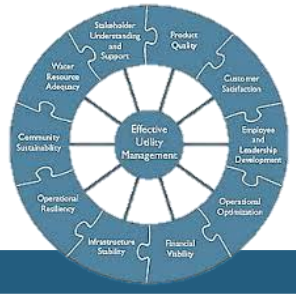
Ten Attributes of Effectively Managed Water Sector Utilities (EUM)



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.

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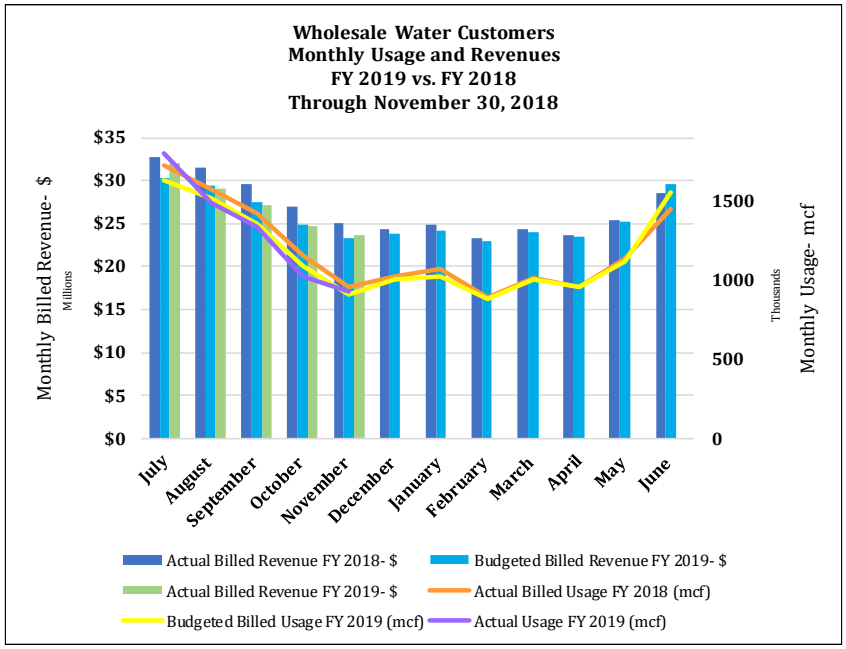
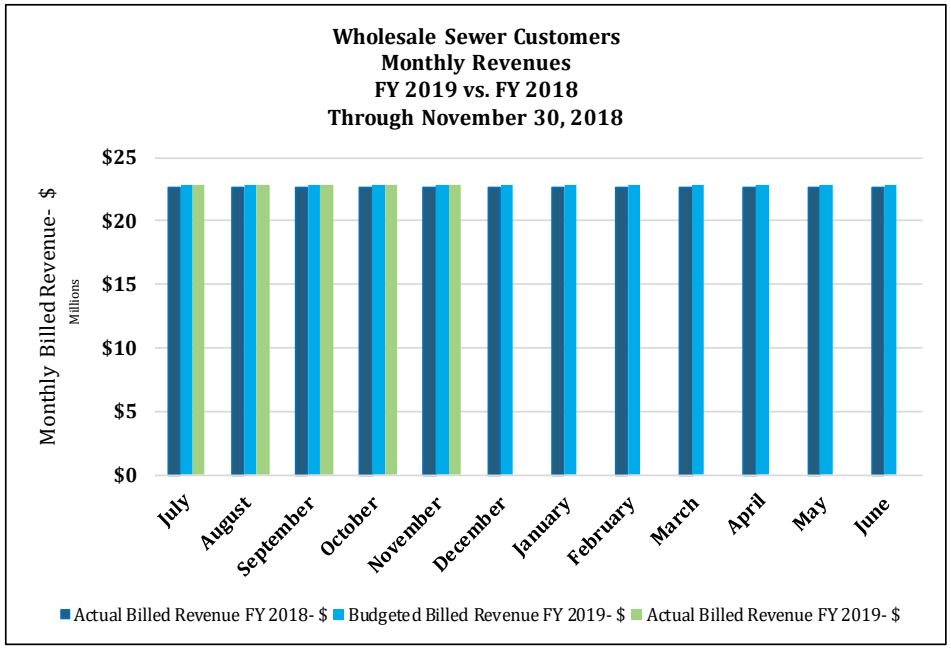
EUM Attribute:

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 101.2% of budget and actual usage at 101.1% of budget through November 2018. Billed revenue for FY 2019 is 6.5% lower compared to the same period in FY 2018 due mainly to a known reduction due to the new agreement with Genesee County Drain Commissions and city of Flint.

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 November 2018. Billed revenue for FY 2019 was 1.3% higher compared to the same period in FY 2018.

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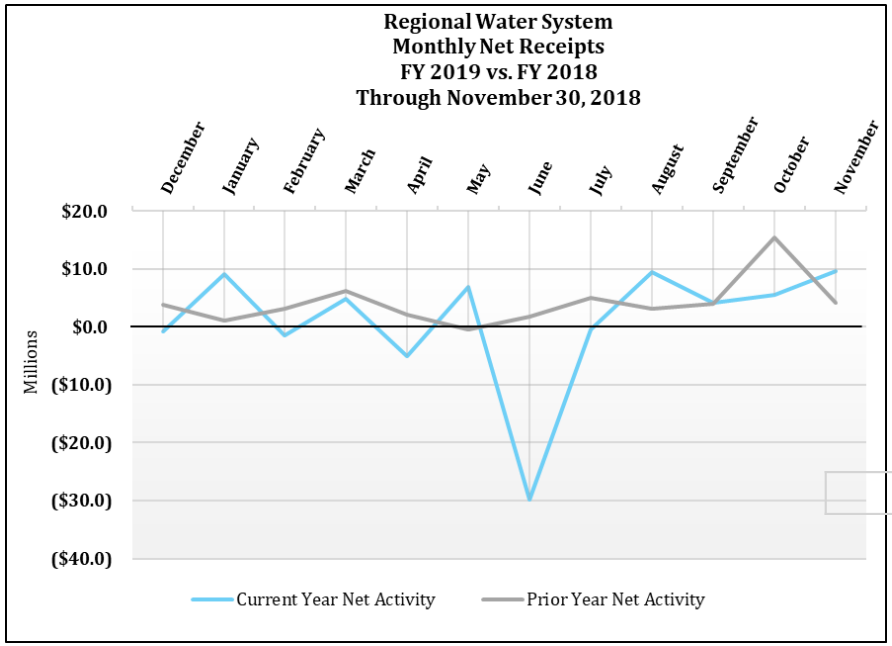
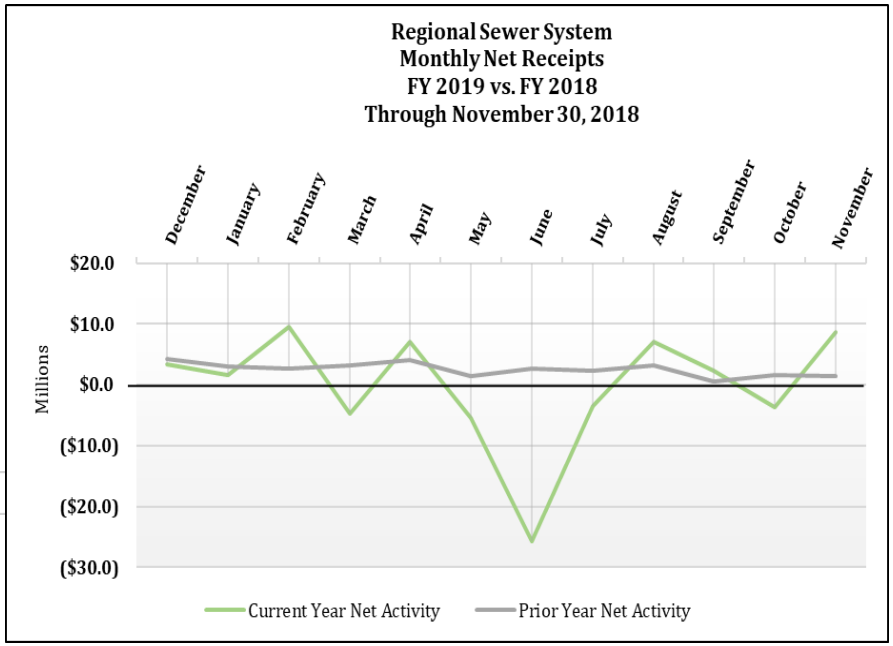
Financial Viability – GLWA Regional System Net Receipts





Regional Water System net receipts for November 30, 2018 exceeded MBO disbursements by $9.69 million resulting in a year-to-date net receipts over disbursements ratio of 24% for FY 2019. This metric does vary monthly based on collection activity. The life-to-date metric for net receipts over disbursements for the regional water system is 13%.

Regional Sewer System net receipts for November 30, 2018 exceeded MBO disbursements by $8.67 million resulting in a year-to-date net receipts over disbursements ratio of 6% for FY 2019. This metric does vary monthly based on collection activity. The life-to-date metric for net receipts over disbursements for the regional sewer system is 4%.

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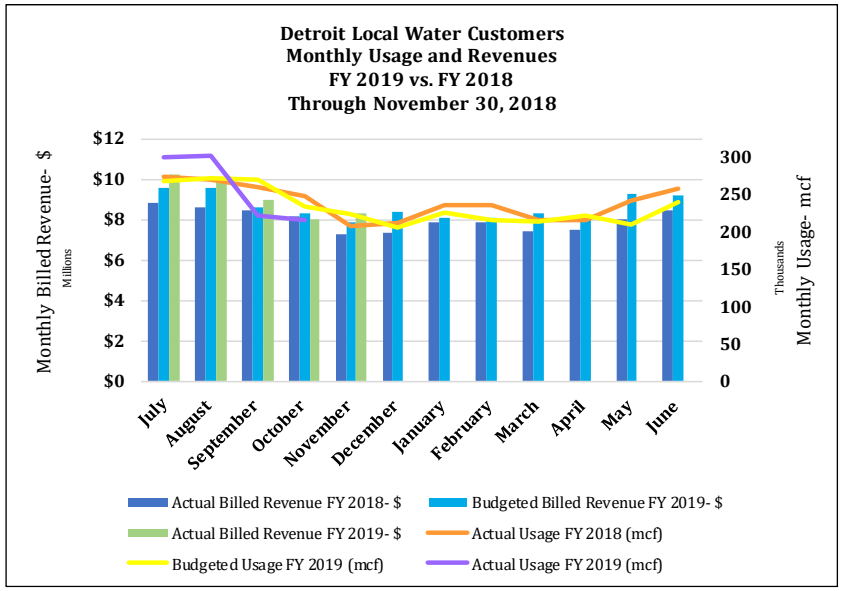
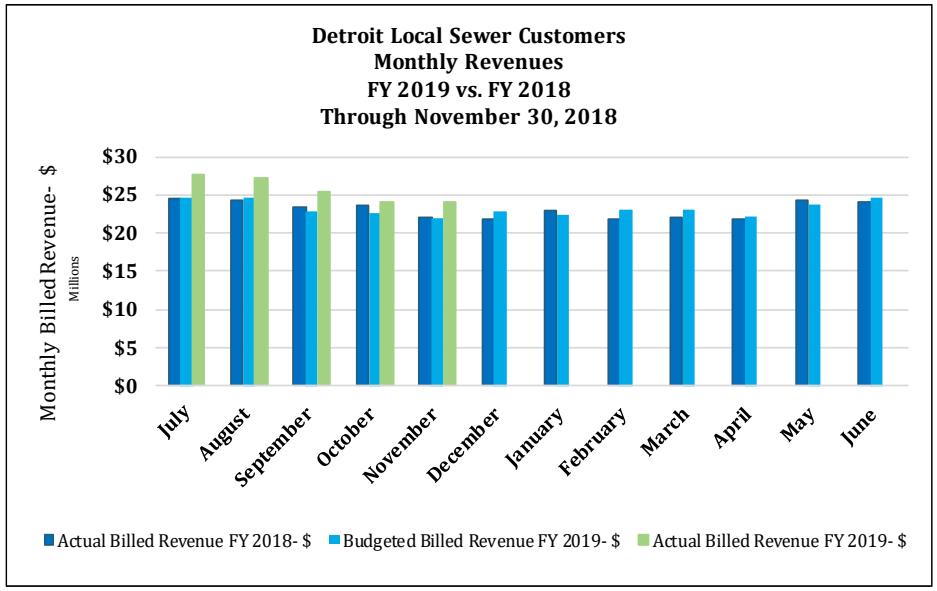
For the purposes of this reporting, ***Net Receipts equals actual cash collections for the period less Master Bond Ordinance (MBO) disbursements****. The black line in the charts above at the zero highlights the minimum goal for net receipts.*

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 105% of budget and actual usage at 100.1% of budget through November 2018. Billed revenue for FY 2019 was 9.7% higher compared to the same period in FY 2018.

Detroit Local Sewer System billed revenues for FY 2019 are stable with actual billings at 99.7% of budget and actual usage at 103.1% of budget through November 2018. Billed revenue for FY 2019 was 8.9% higher compared to the same period in FY 2018.

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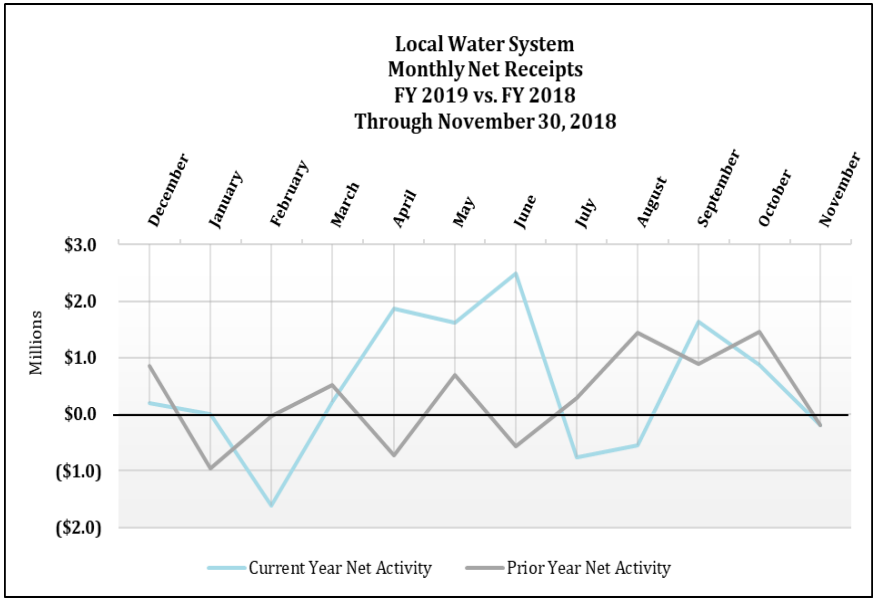
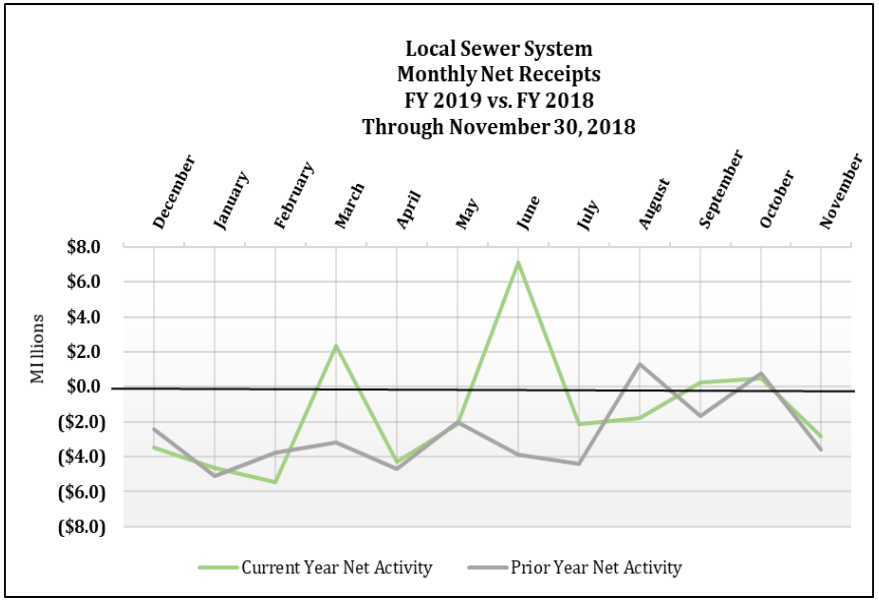
Financial Viability – DWSD Local System Net Receipts





Local Water System net receipts for November 30, 2018 fell slightly short of MBO disbursements by $0.19 million resulting in a year-to-date net receipts over disbursements ratio of 5% for FY 2019. This metric does vary monthly based on collection activity. The life-to-date net receipts over disbursements ratio for the local water system is 4%.

Local Sewer System net receipts for November 30, 2018 fell short of MBO disbursements by $2.86 million resulting in a year-to-date net receipts over disbursements ratio of -5%. This metric does vary monthly based on collection activity. The life-to-date metric for net receipts over disbursements for the local water system is -7%. DWSD has proposed a long-term plan to address this structural shortfall.

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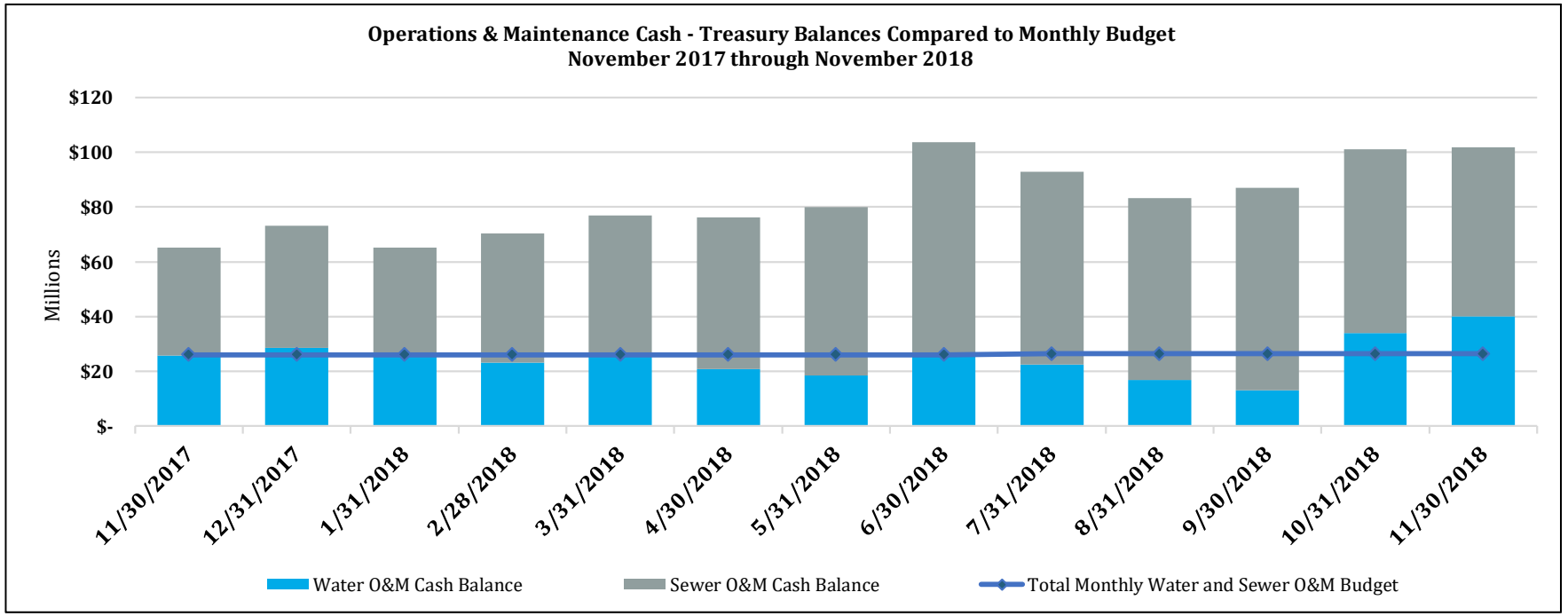
For the purposes of this reporting, ***Net Receipts equals actual cash collections for the period less Master Bond Ordinance (MBO) disbursements****. The black line in the charts above at the zero highlights the minimum goal for net receipts.*

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 2.41x for water and 3.63x 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 July 2018 – November 2018 is due to interfund receivables/payables that have not yet been settled.

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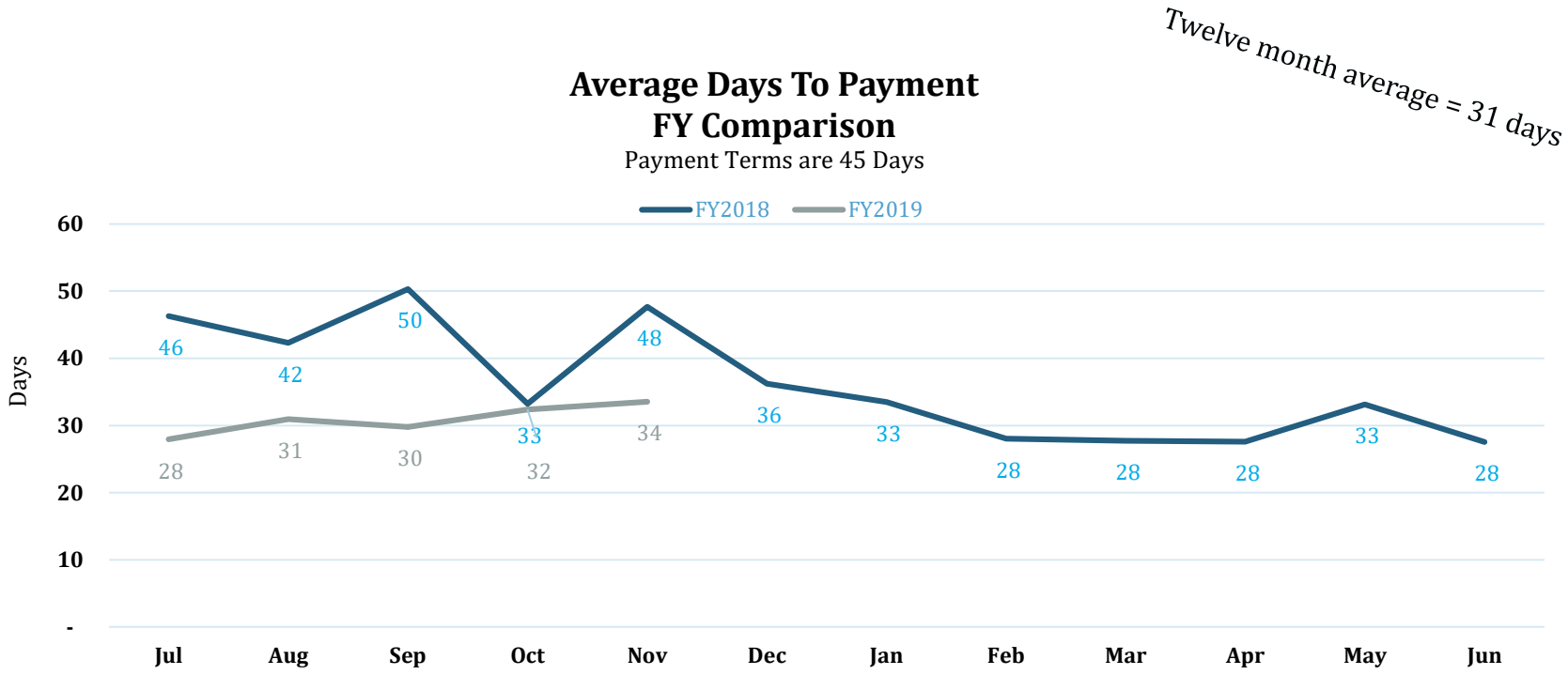
Financial Viability – Days to Pay an Invoice



Timely vendor payment supports supplier relations and operations. It also can be a means to leverage early payment discounts, timely financial reporting, and cashflow projections. It is the outcome of a collaborative workflow from requisition to payment. The goal is a twelve month average of < 30 days to support vendor relations and expand the early payment discount program. The number of days is calculated as the days between invoice and payment date.

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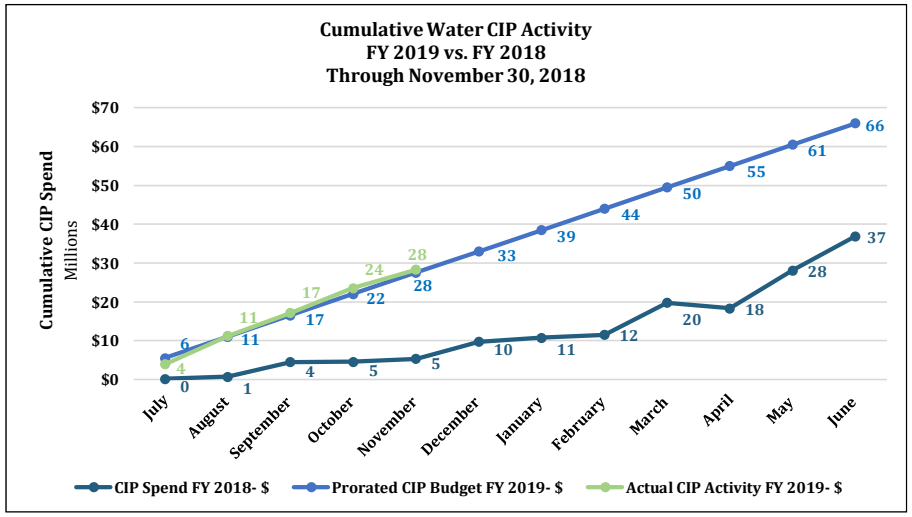
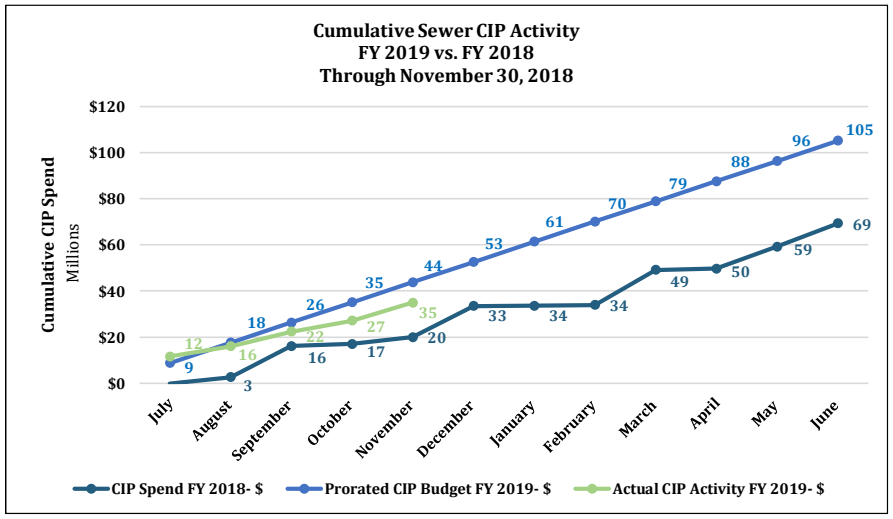
Financial Viability- FY 2019 Total CIP Spend





Water System Capital Improvement Plan Spend: As of November 2018, the Water system incurred nearly $28.3 million of construction costs to date. This is 102.8% of the total prorated, monthly, budgeted spend and a steady increase over the prior period.

Sewer System Capital Improvement Plan Spend: As of November 2018, the Sewer system incurred nearly $35 million of construction costs to date. This is 79.8% of the total prorated, monthly, budgeted spend and a steady increase over the prior period.

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Prorated Budget: *Calculated by dividing the total FY 2019 board-approved Capital Improvement Plan by twelve equal months.*

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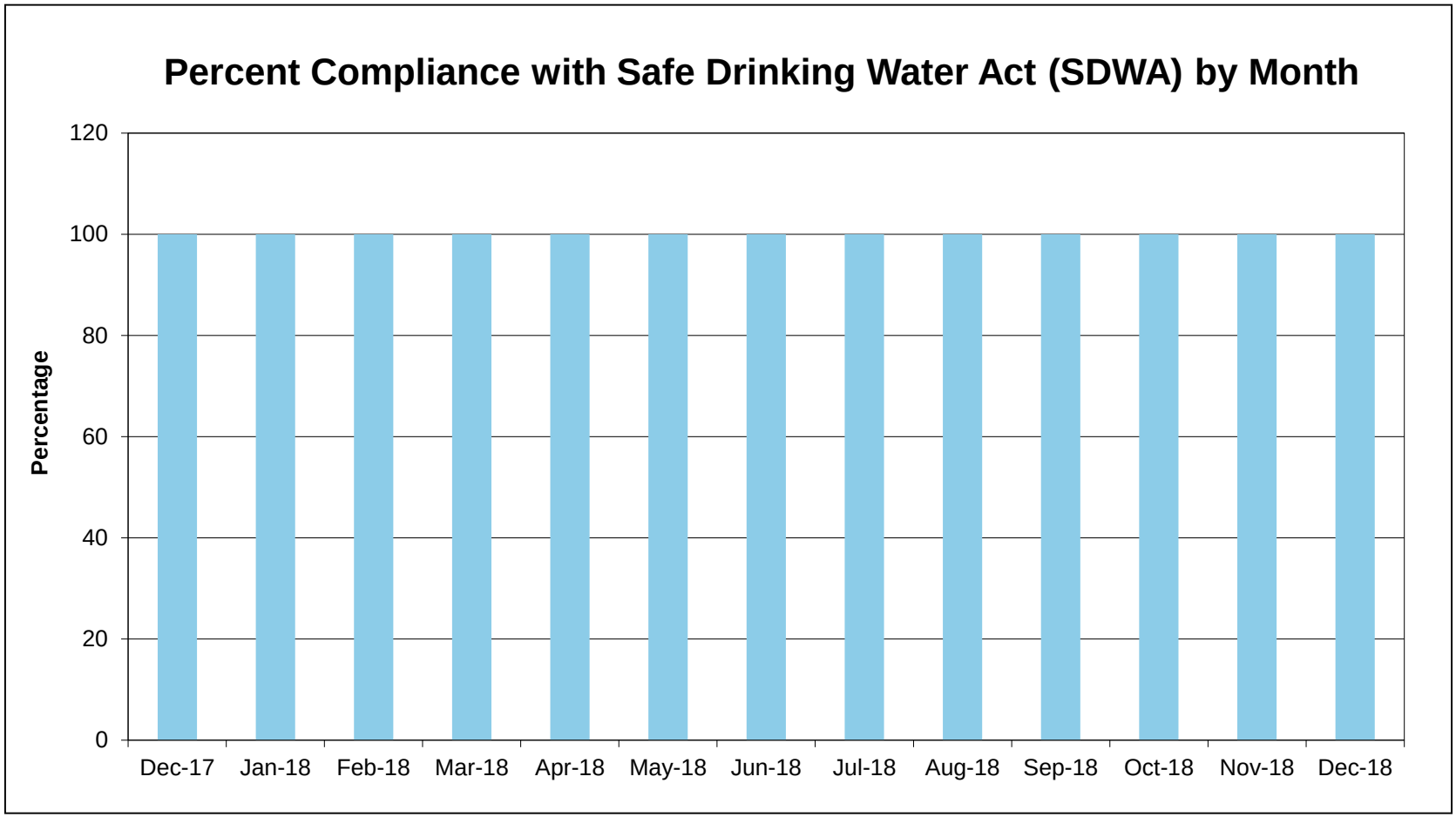
EUM Attribute:

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.

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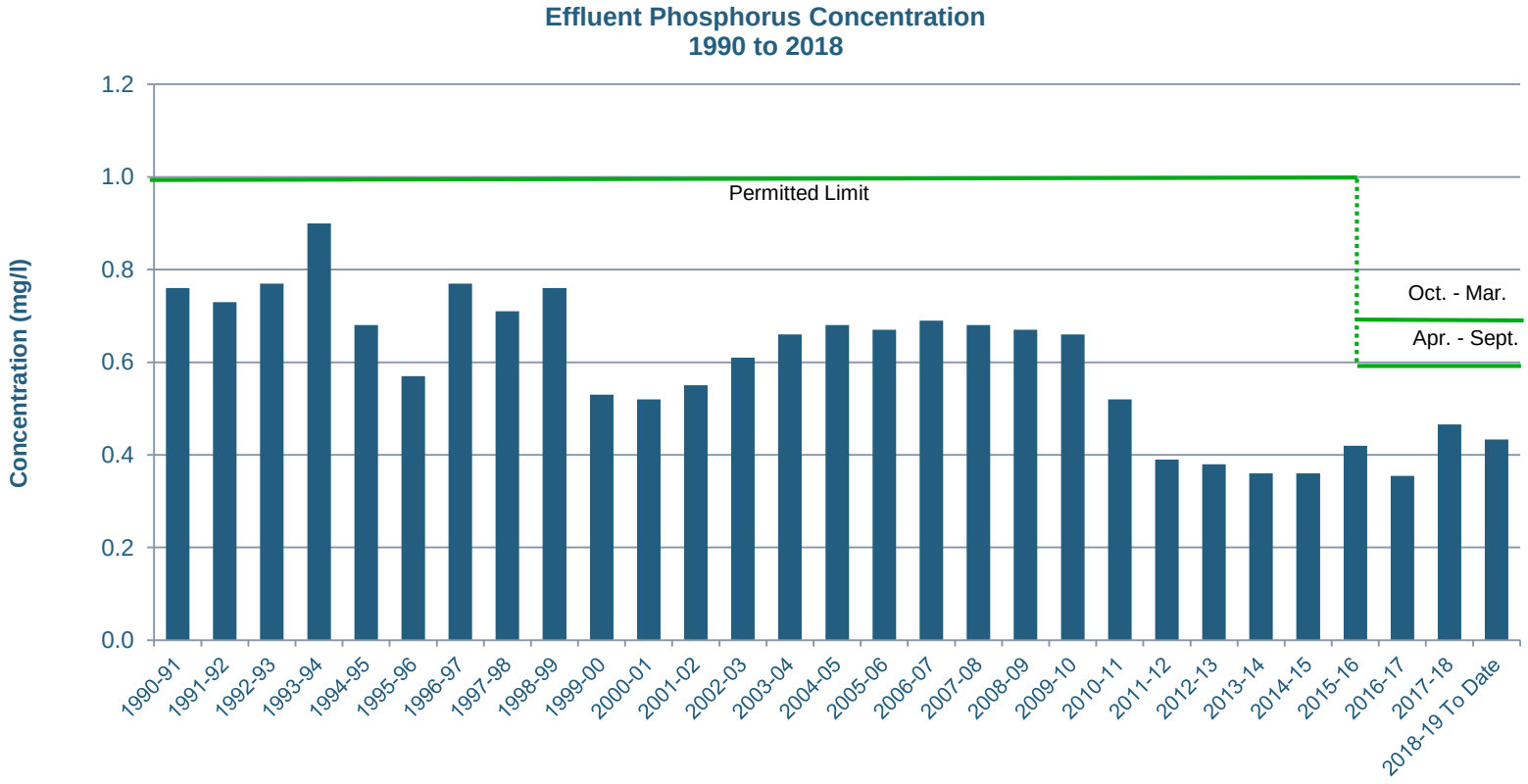
Product Quality
Regulatory Compliance – Effluent Phosphorous Concentration

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



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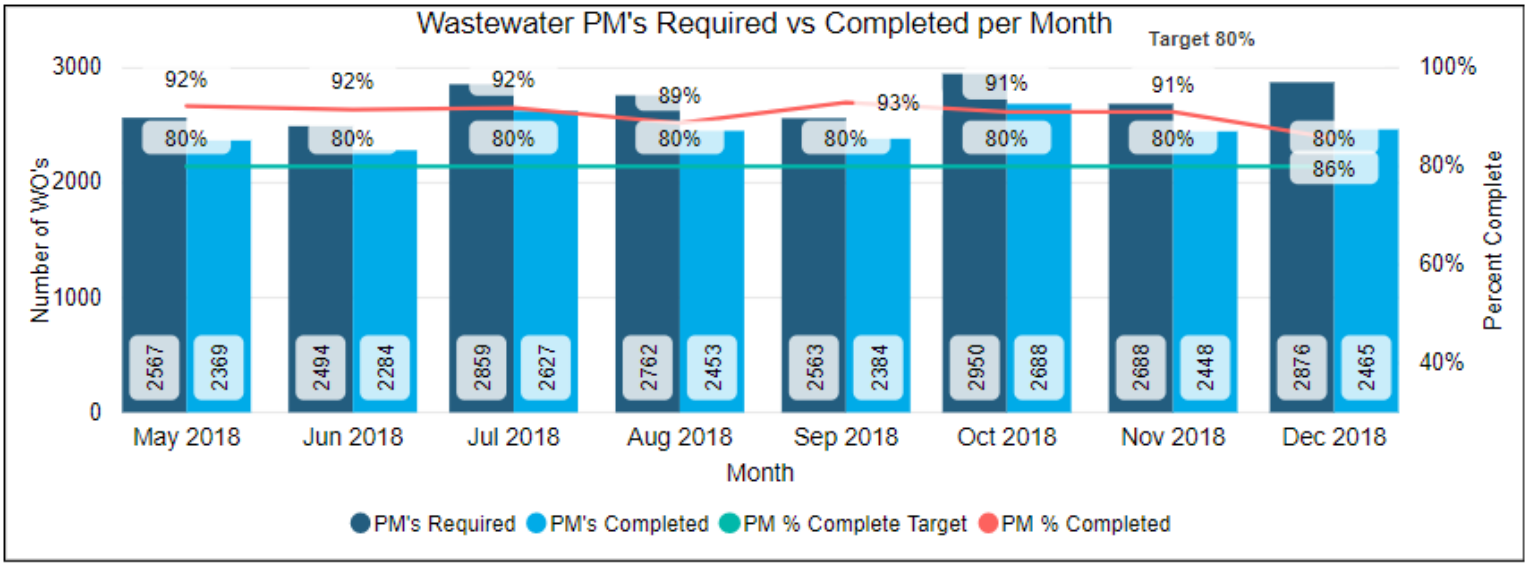
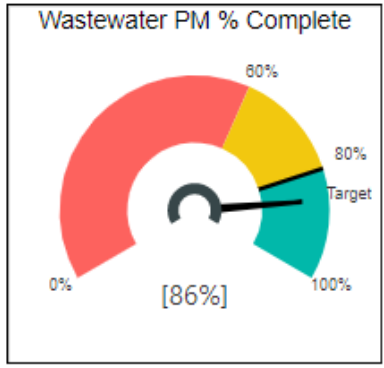
EUM Attribute:

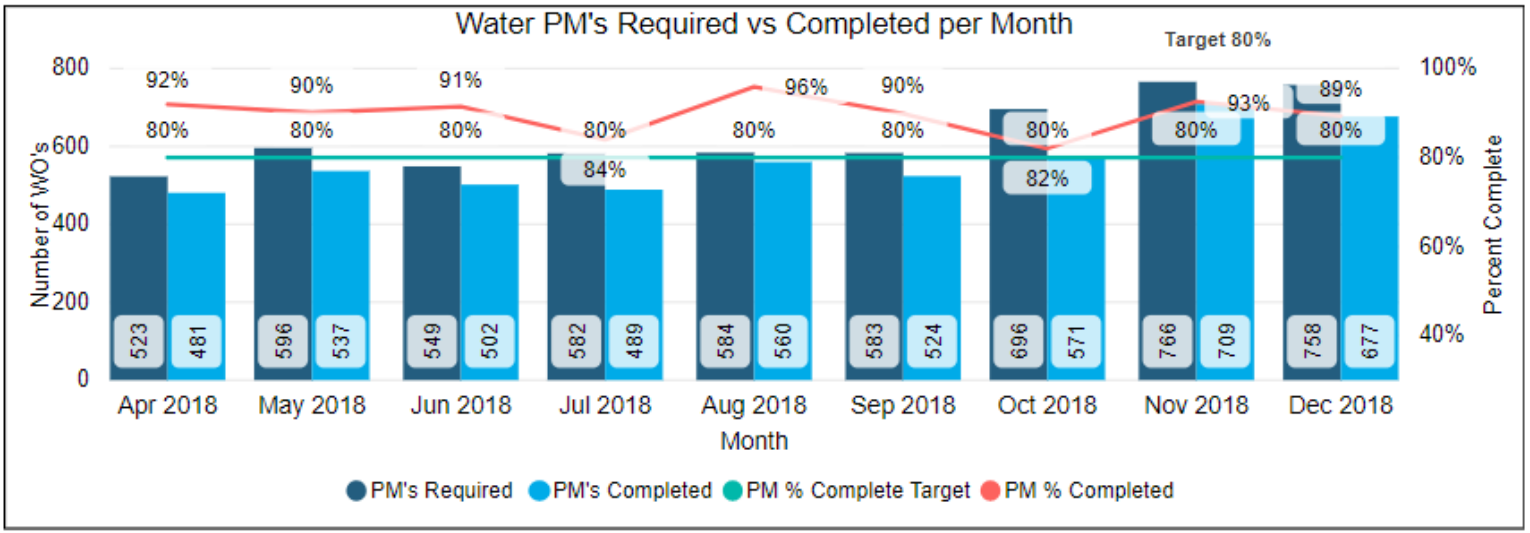
Infrastructure Strategy and Performance

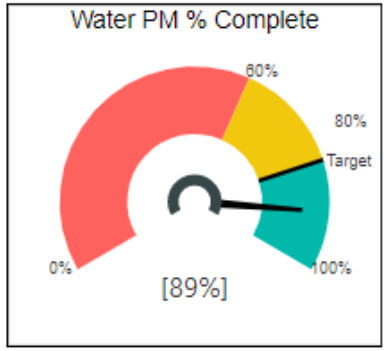
Infrastructure Strategy and Performance – Wastewater and Water Preventative Maintenance (PM) Management

December 2018









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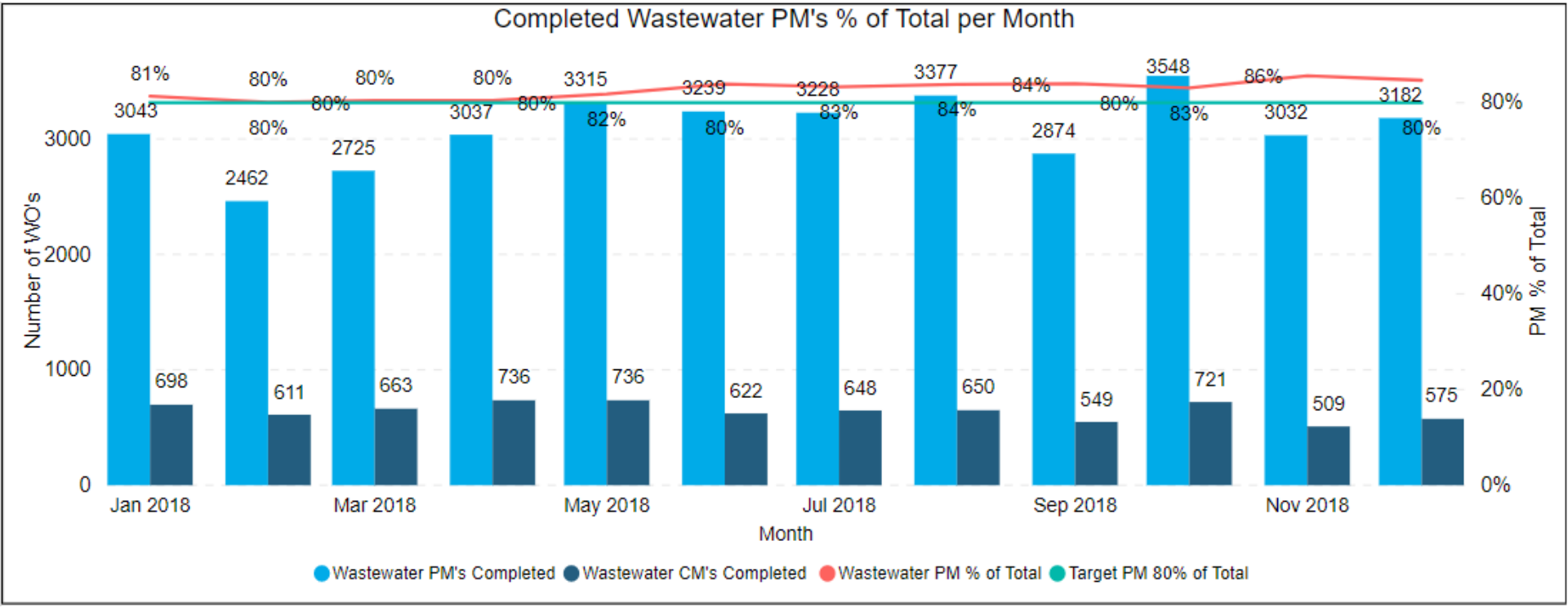
*Timely preventative maintenance extends asset useful life and minimizes unplanned downtime.

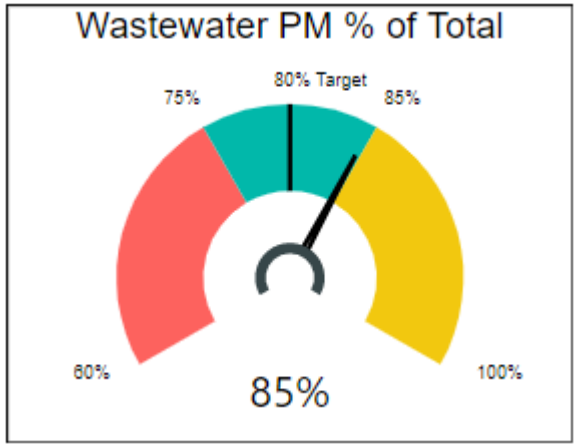
*Unplanned downtime can lead to permit non-compliance and negative environmental impacts.

Infrastructure Strategy and Performance – Wastewater Preventative & Corrective Maintenance Management

December 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

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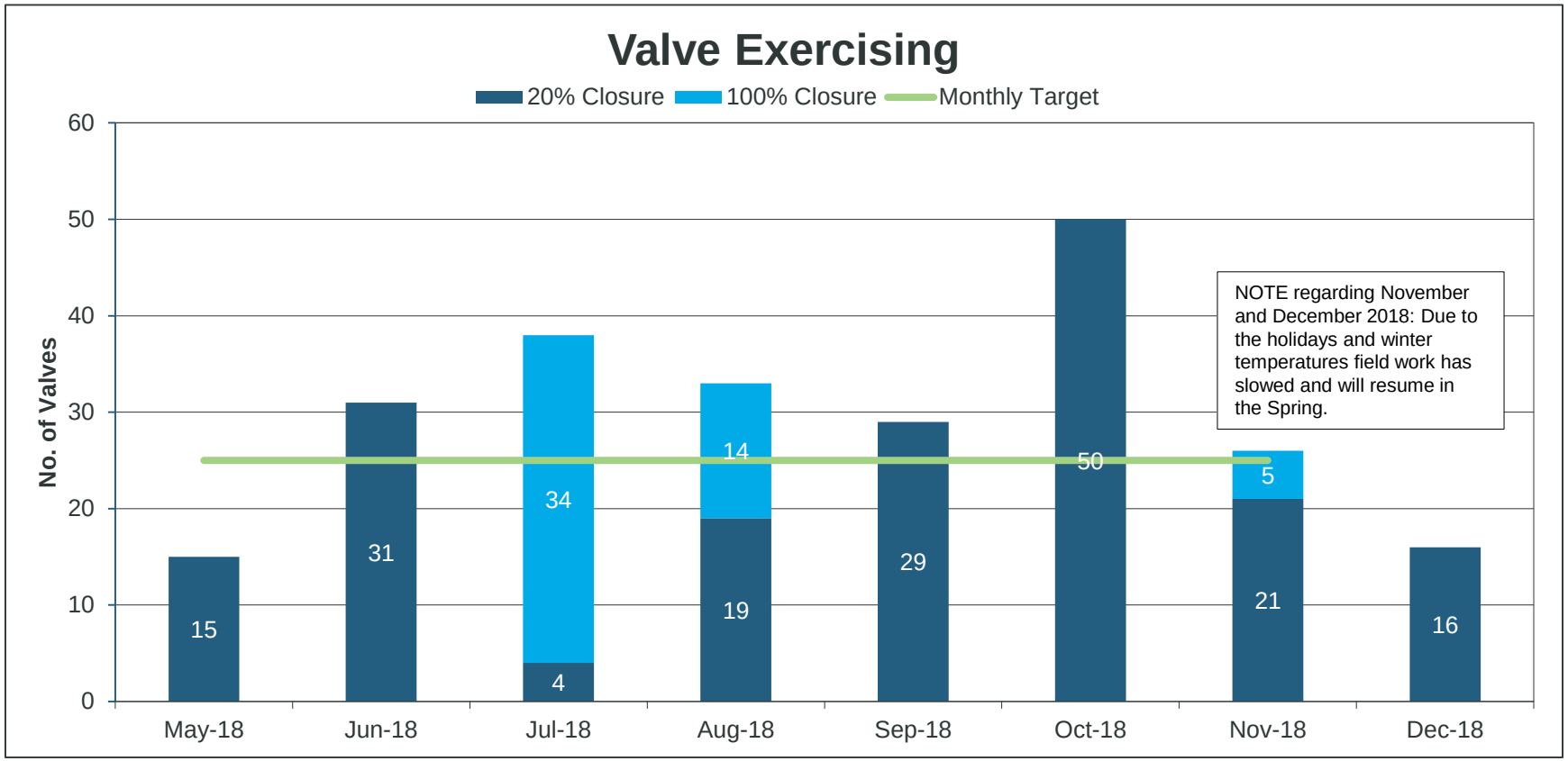
Infrastructure Strategy and Performance – Water and Field Services Valve Exercising



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.

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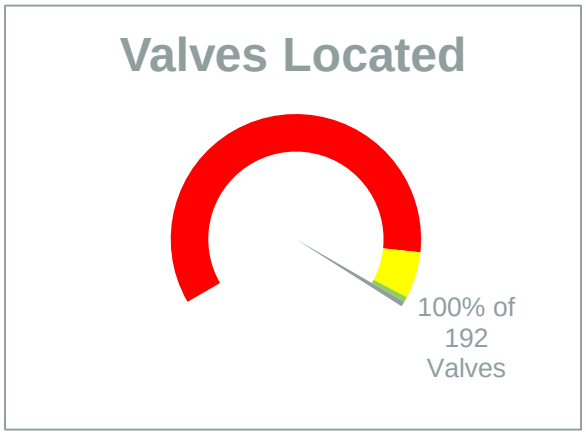
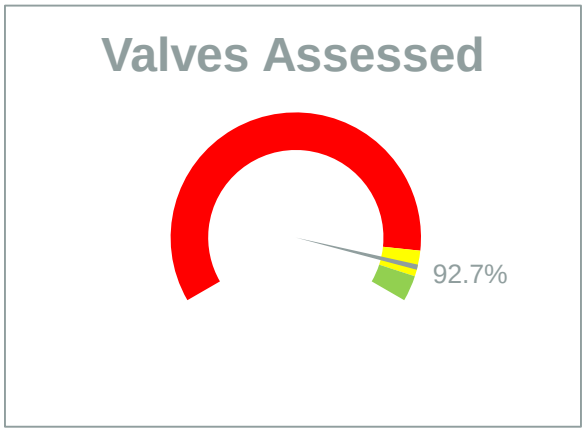
Infrastructure Strategy and Performance – Water and Field Services Valve Exercising

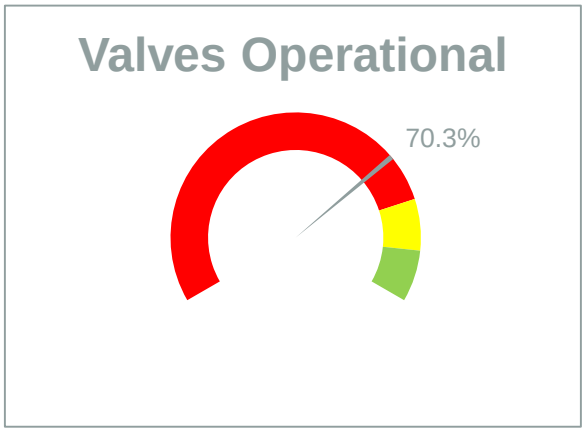
December 2018



Red = <90%, Yellow = 90 to 99.5%, Green = >99.5%



Red = <90%, Yellow = 90 to 95%, Green = >95%



Red = <80%, Yellow = 80 to 90%, Green = >90%

Reason for the yellow on the Valves Assessed: This month we encountered valves that were considered inoperable and we had access issues due to vaults being filled with debris, valves being paved over, valves being capped and sealed, damaged gears etc... These valves have been noted for repair.

Reason for red on the Valves Operational: 29.7% are currently defined in one of three categories – minor repair, rehabilitation or replacement. Where the valve ultimately ends up is determined at the end of the contract which means that a valve can go from minor repair to rehab during the course of the contract.

Infrastructure Strategy and Performance: GLWA's ultimate goal is 100% operational valves. We are in a transitional phase moving towards that goal and will reassess the red, yellow, green targets on July 1, 2019 and annually thereafter for the next 3 years.

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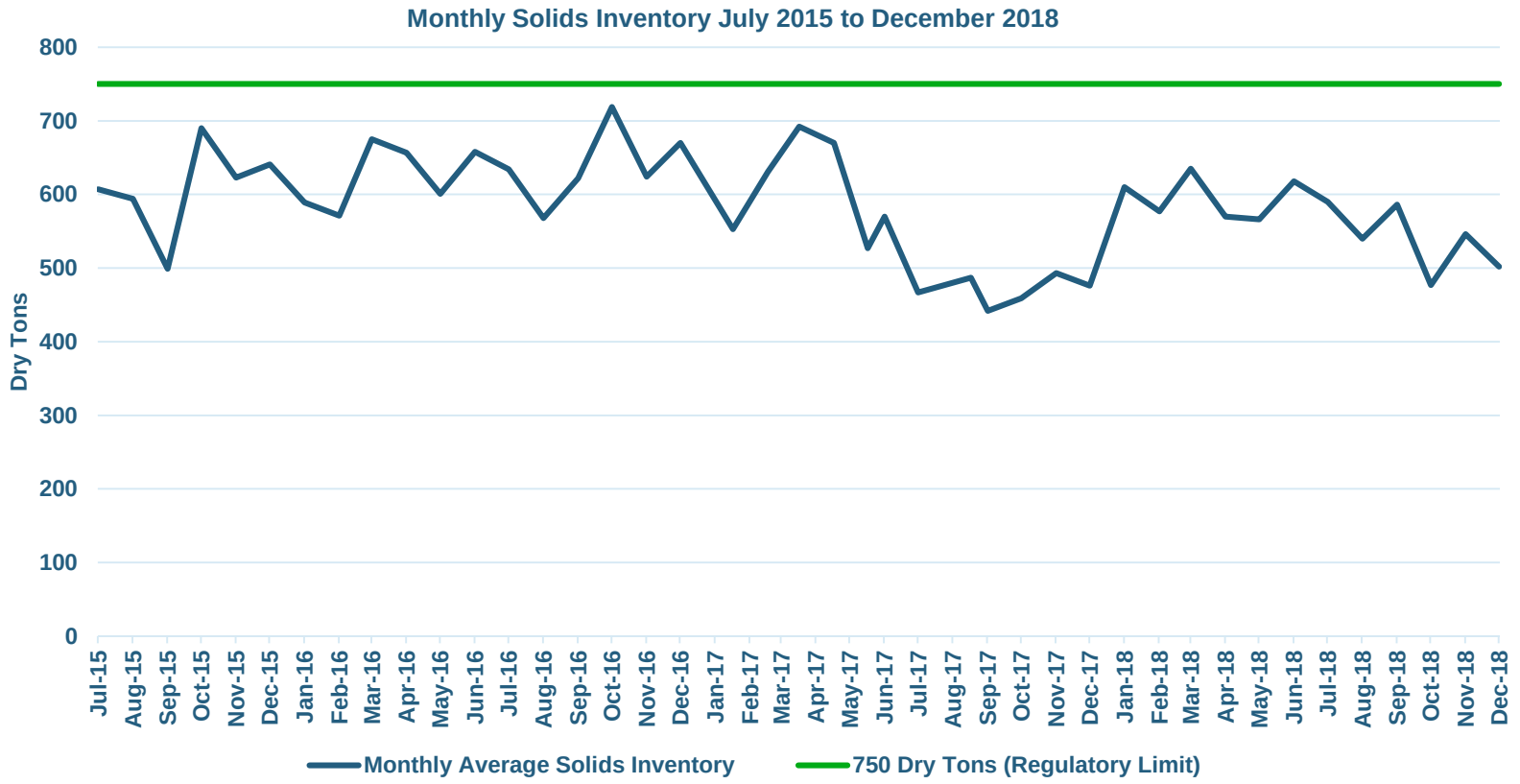
EUM Attribute:

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.



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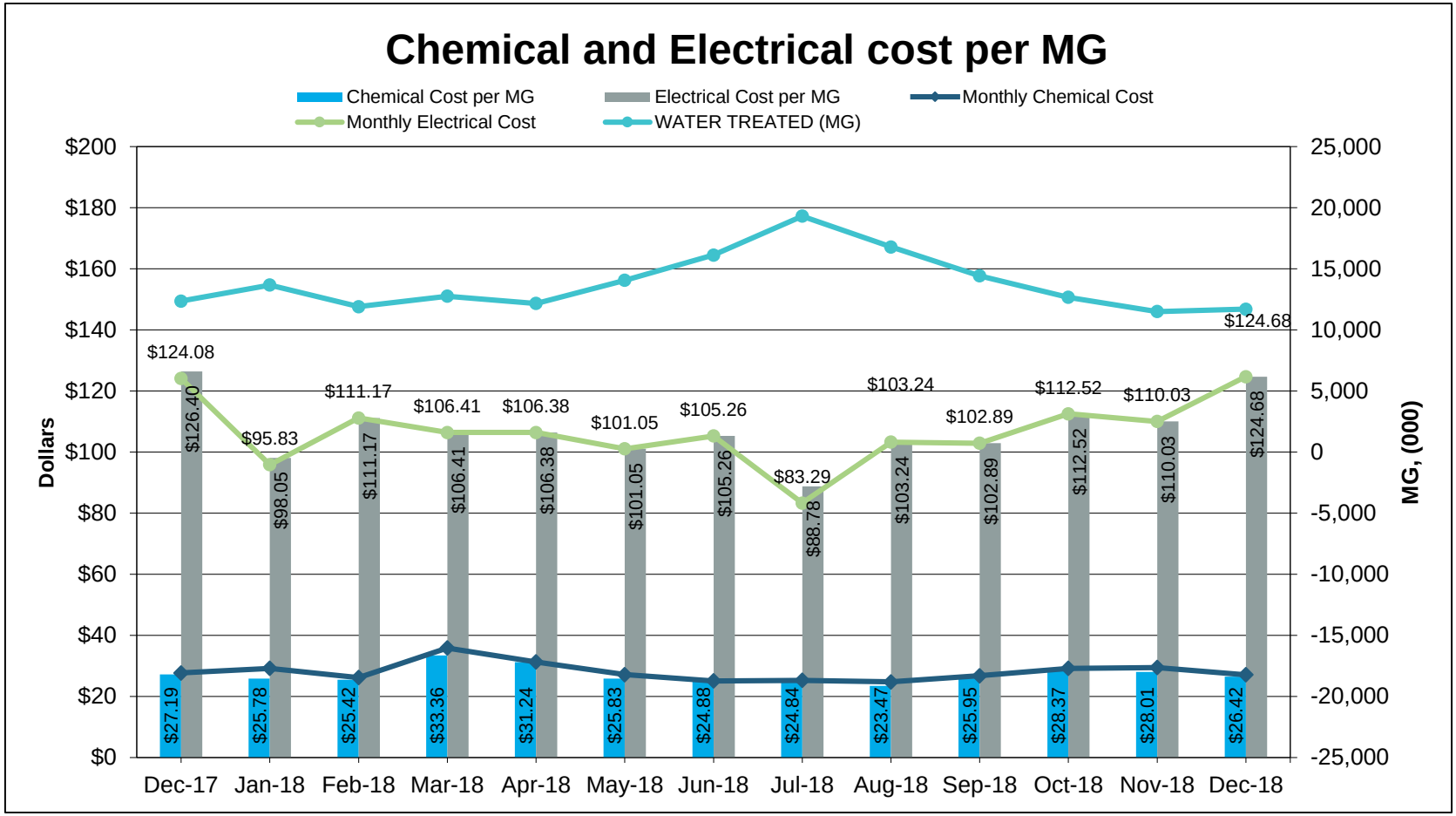
Operational Optimization
Chemical & Electrical Costs



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.

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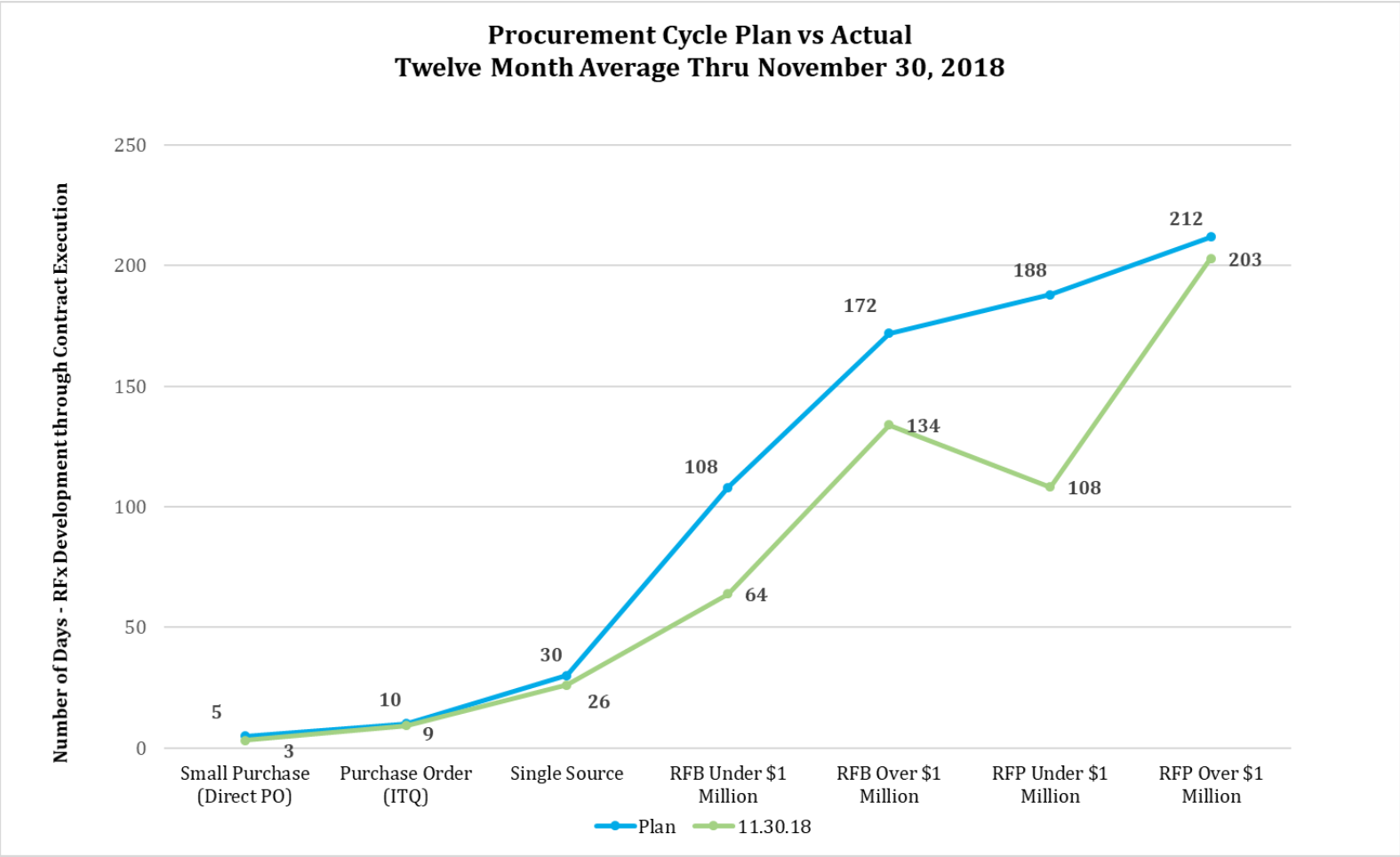
EUM Attribute:

Enterprise Resiliency

Enterprise Resiliency - Procurement Cycle Plan vs. Actual Timeline



For the twelve-month period ending November 30, 2018, the execution goals exceeded the target for all seven project categories. Within the next 90 days, the Procurement Group is rolling out a training program available to all GLWA team members to further increase production and efficiency.

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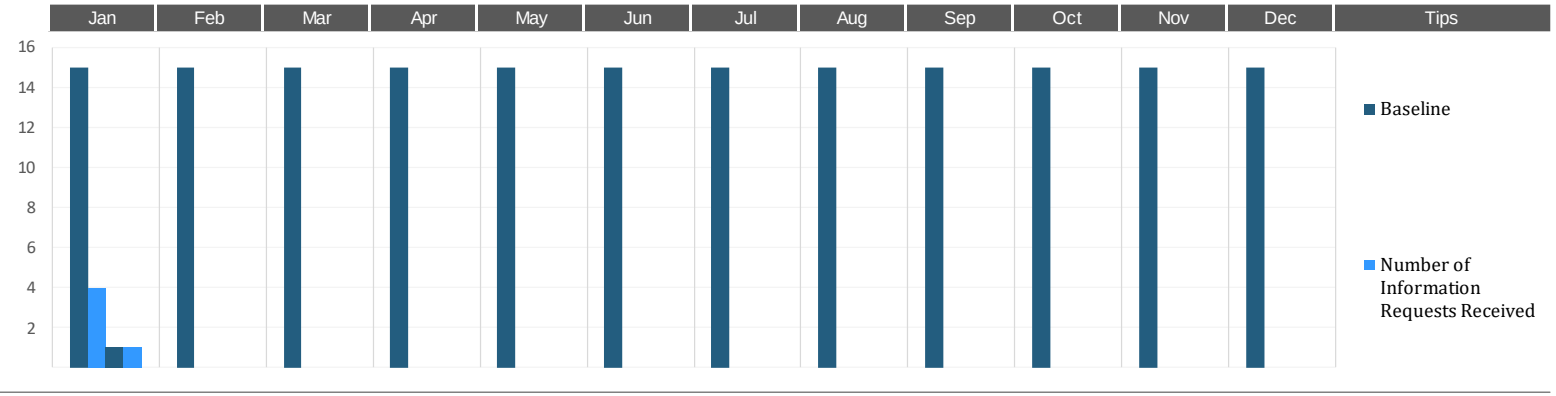
***ITQ** – Invitation to Quote **RFP** – Request for Proposal **RFB** – Request for Bid*
***Small Purchase** – A purchase that constitutes a dollar threshold of < $10k*

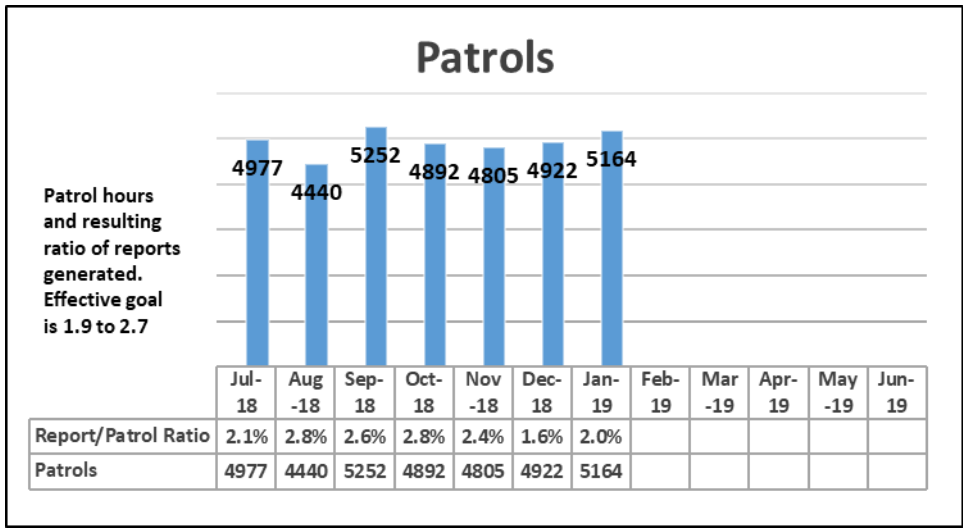
Enterprise Resiliency – General Counsel Information Requests Received



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	4.00												4.00	

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.

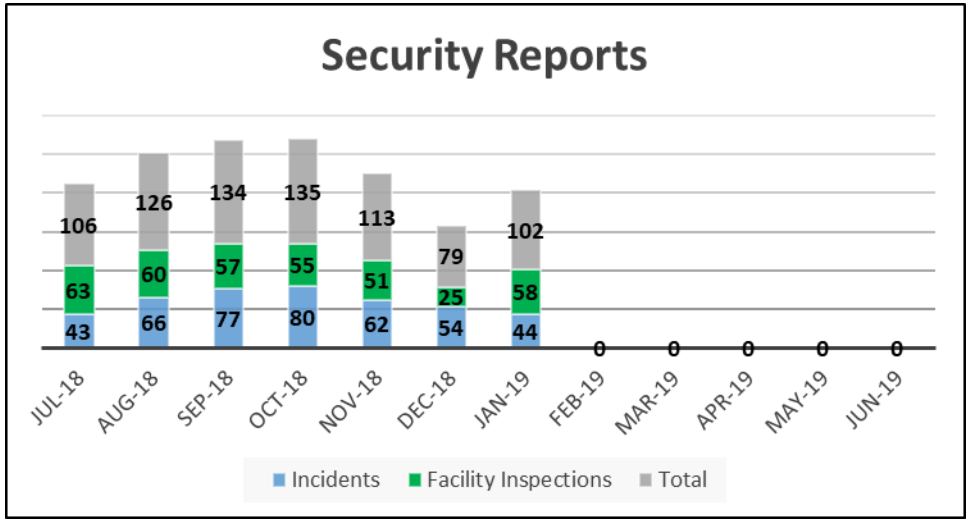
Enterprise Resiliency – Security & Integrity



	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19
Report/Patrol Ratio	2.1%	2.8%	2.6%	2.8%	2.4%	1.6%	2.0%					
Patrols	4977	4440	5252	4892	4805	4922	5164					

- 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).



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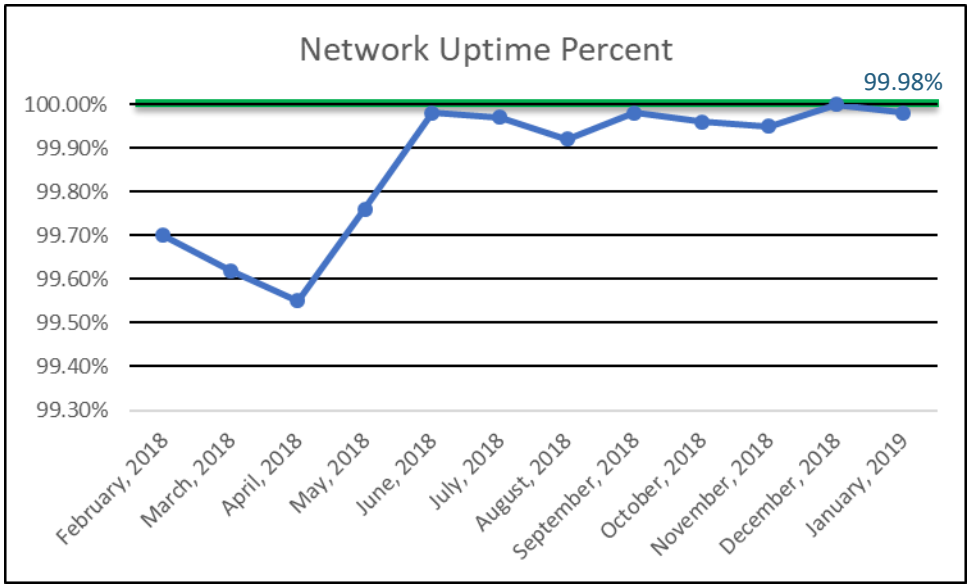
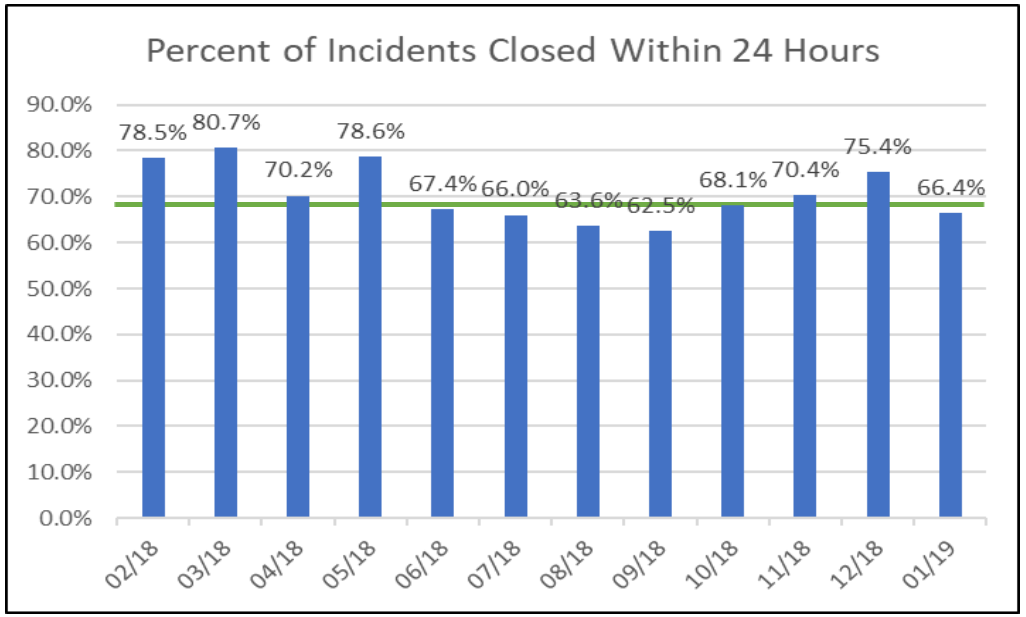
Enterprise Resiliency – Information Technology



- 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%



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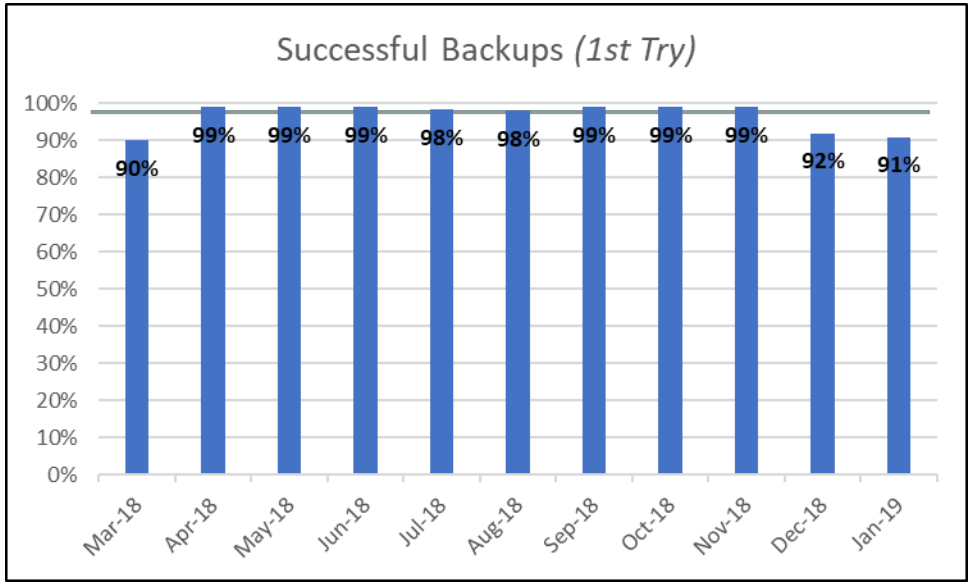
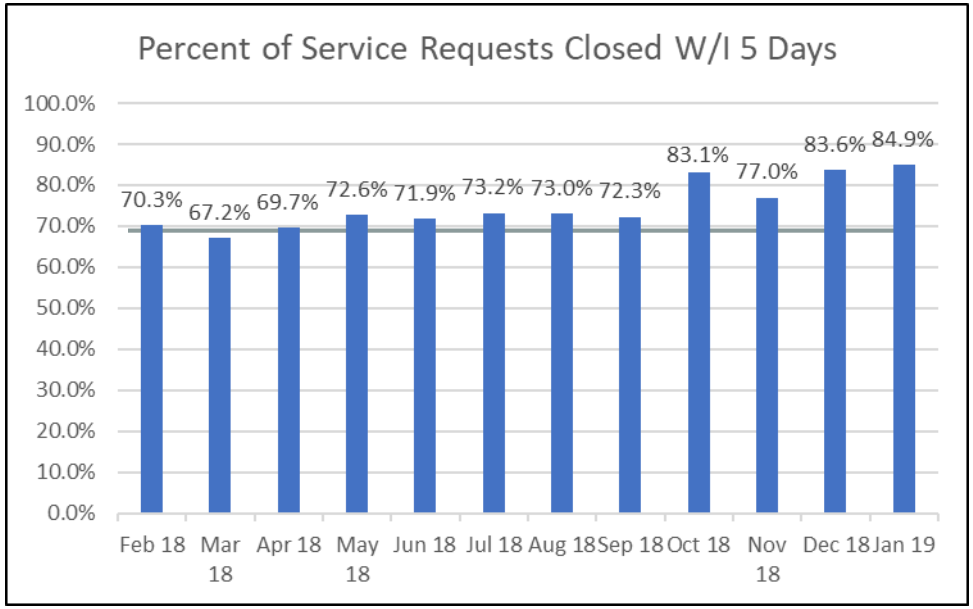
Enterprise Resiliency – Information Technology



- 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.



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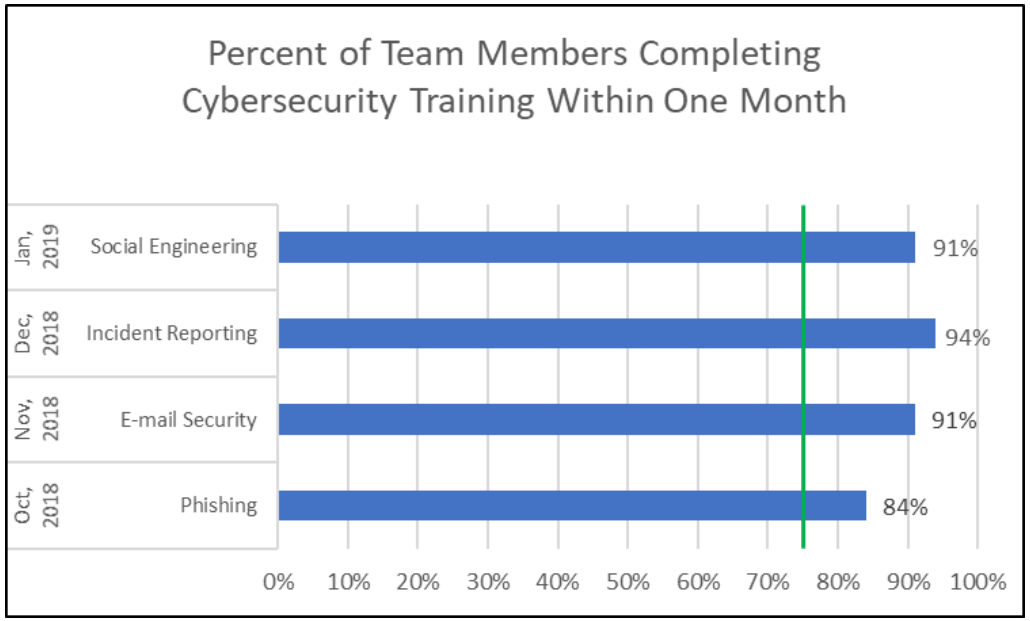
Enterprise Resiliency – Information Technology



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

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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)

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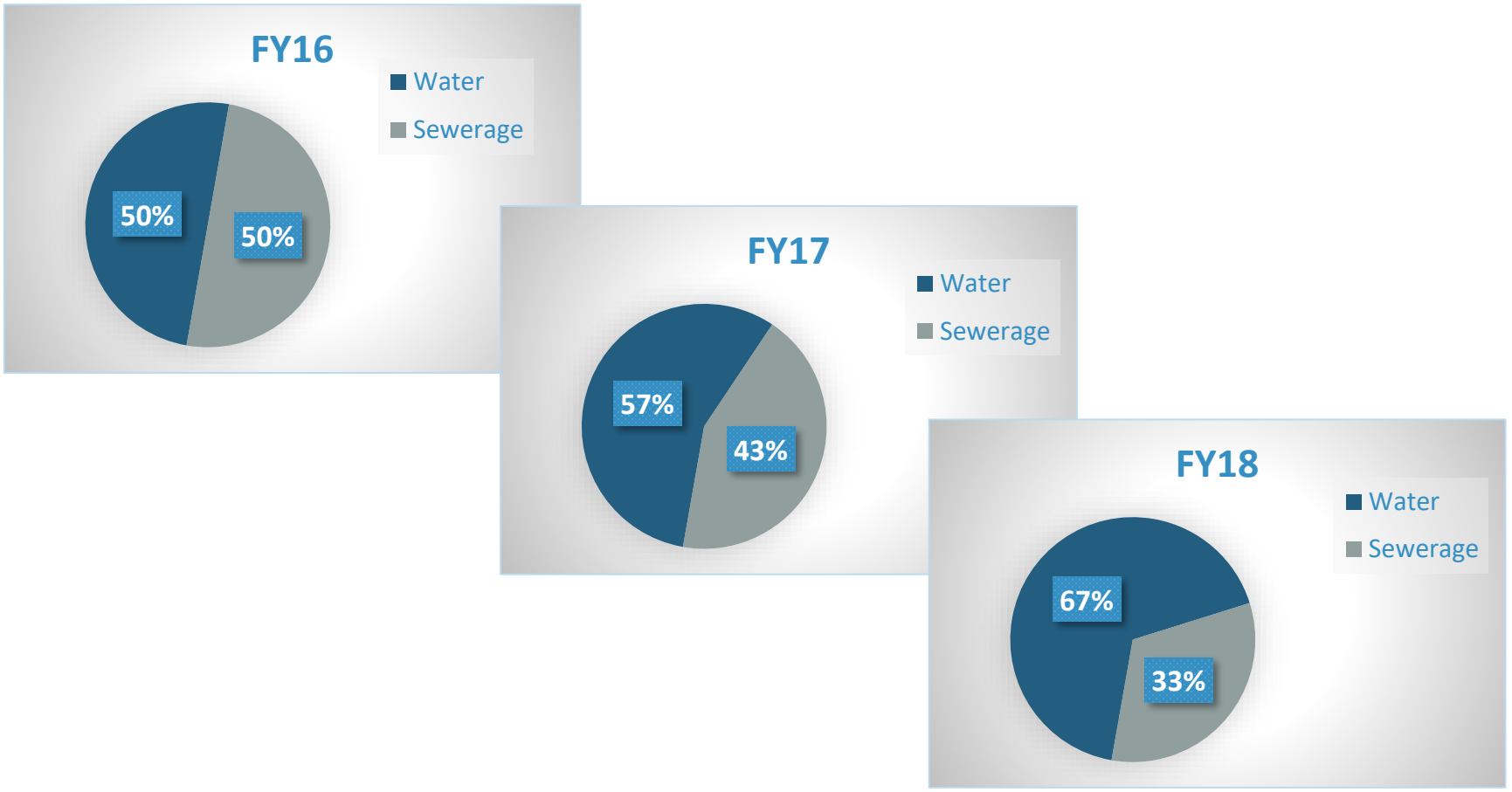
This is an annual metric that will be updated again in July 2019.

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



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This is an annual metric that will be updated again in July 2019.

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 *Application for Mediation* to be withdrawn by WC Agency (failure to pursue)

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This is an annual metric that will be updated again in July 2019.

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

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This is an annual metric that will be updated again in July 2019.

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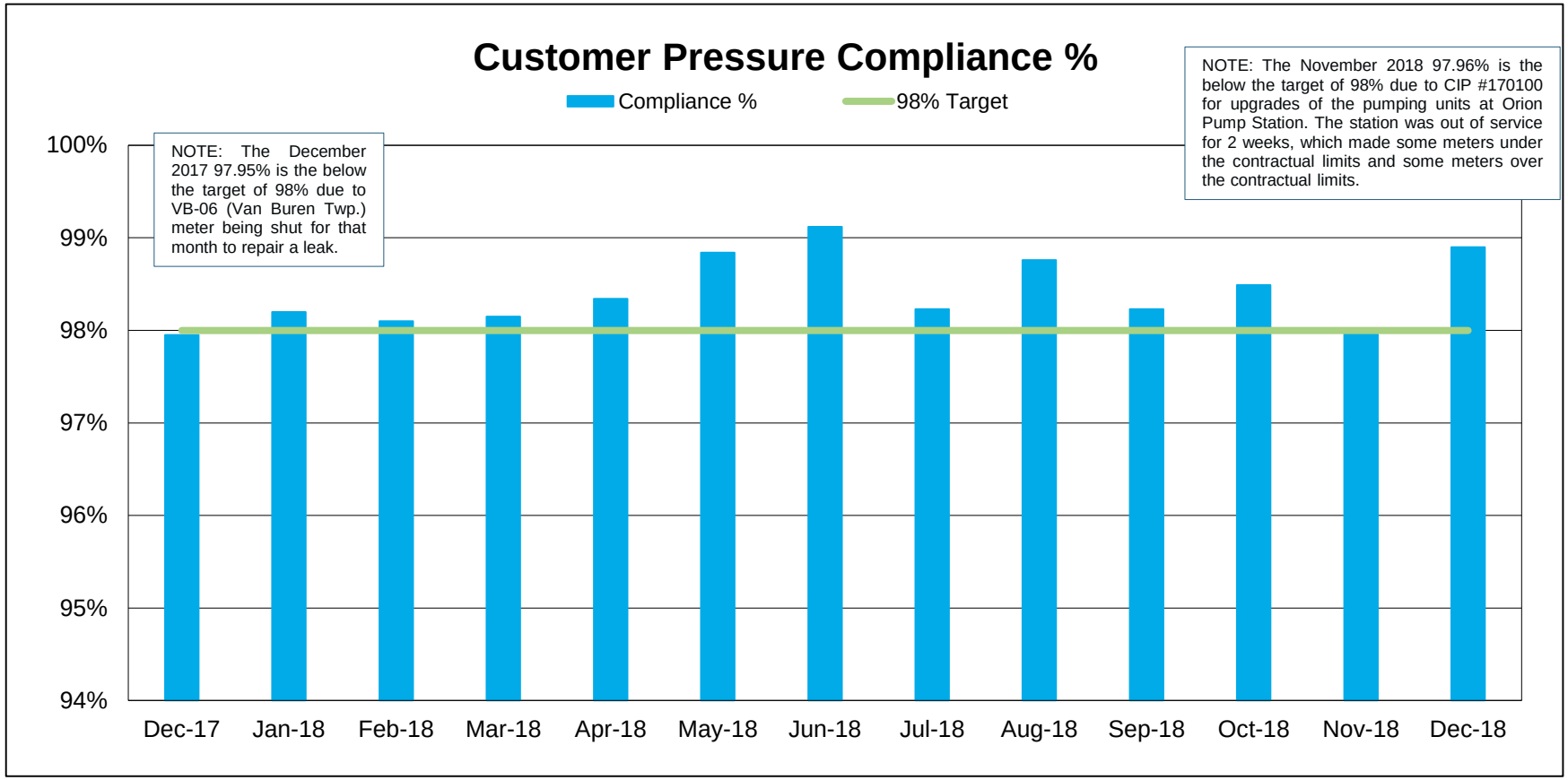
EUM Attribute:

Customer Satisfaction

Customer Satisfaction - Water & Field Services



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

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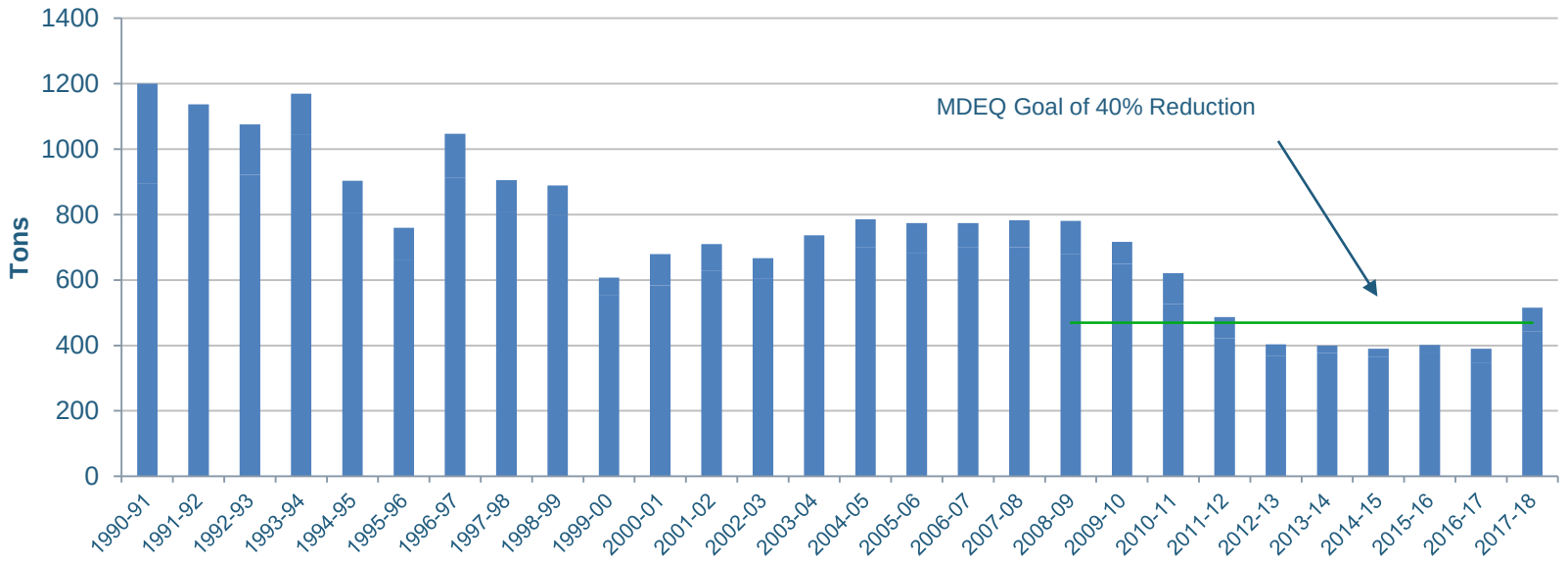
EUM Attribute:

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 June 1990 to July 2018



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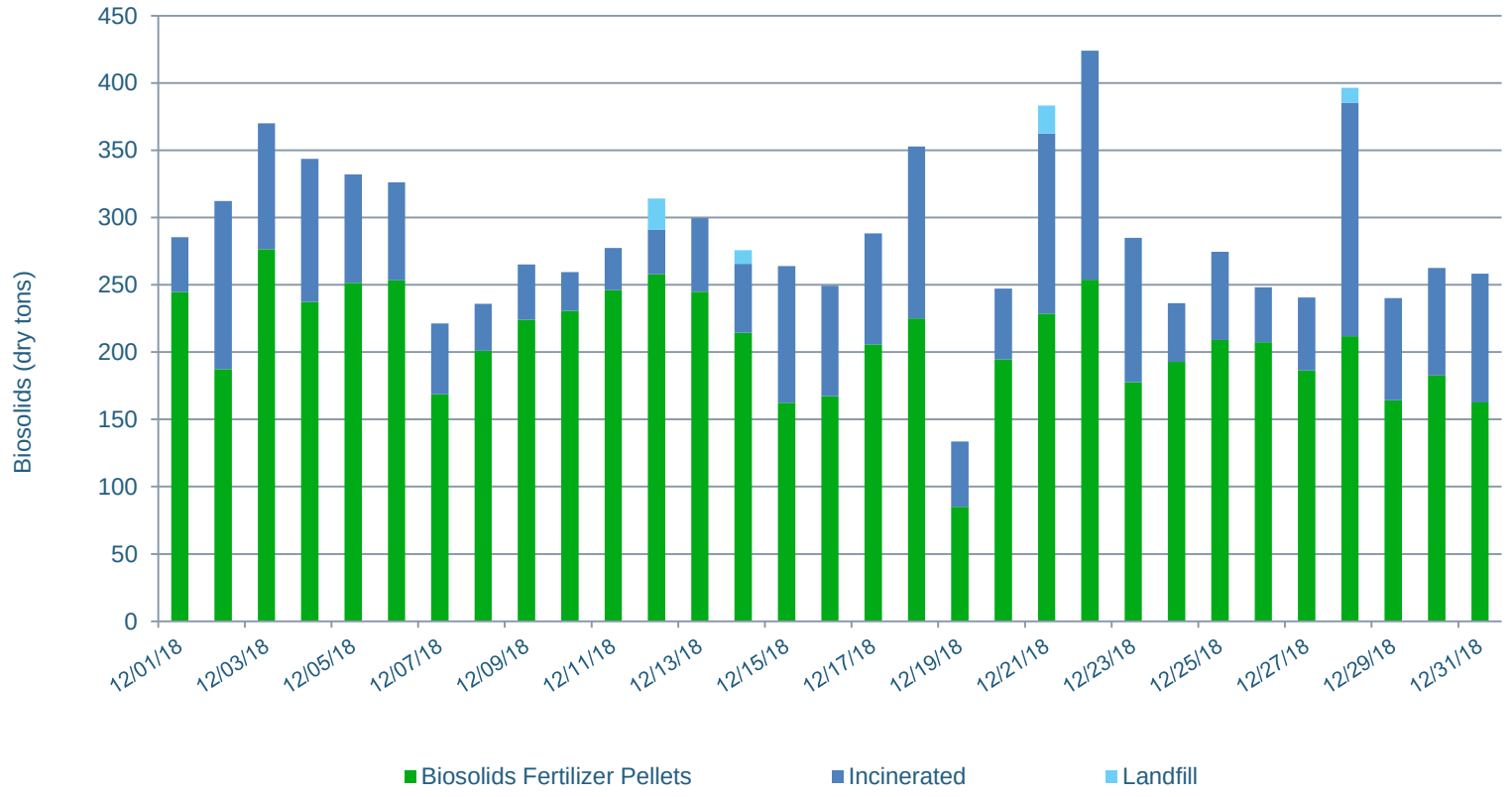
EUM Attribute:

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.



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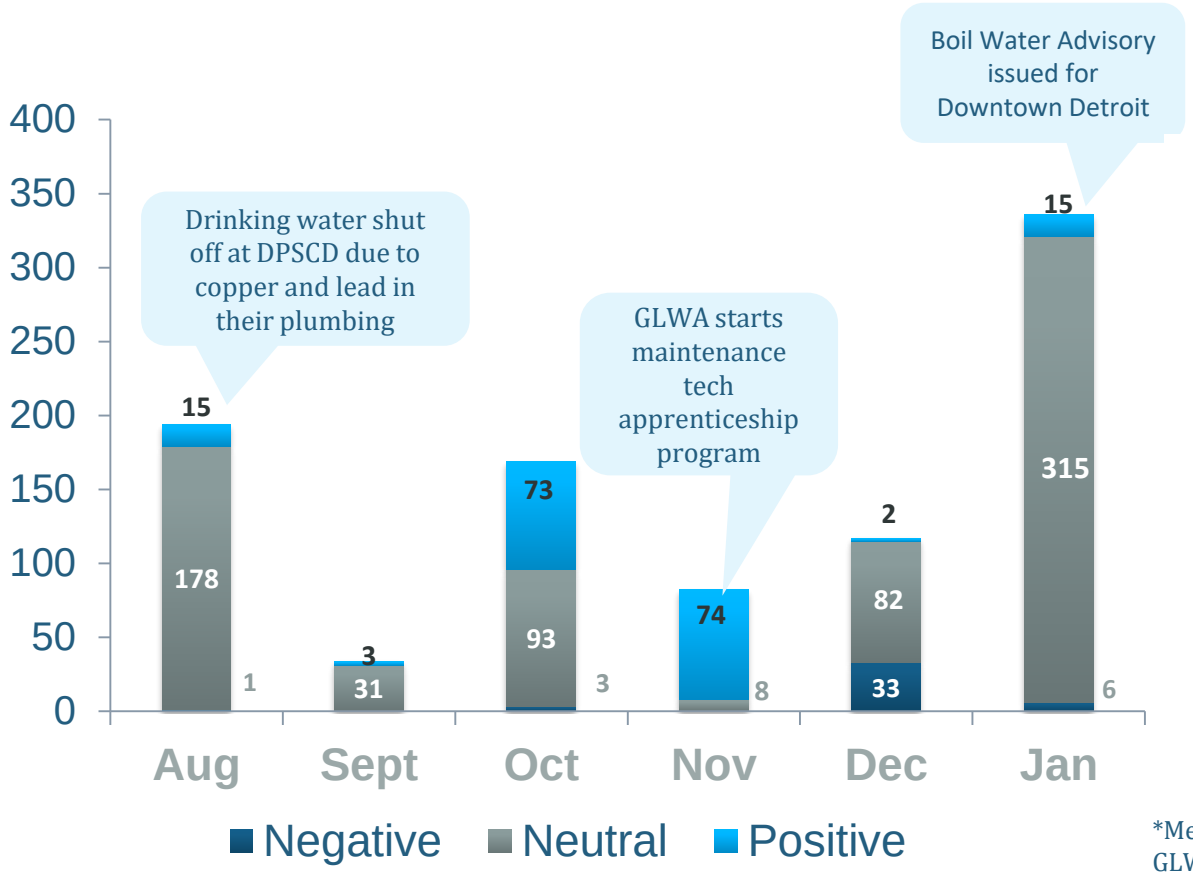
EUM Attribute:

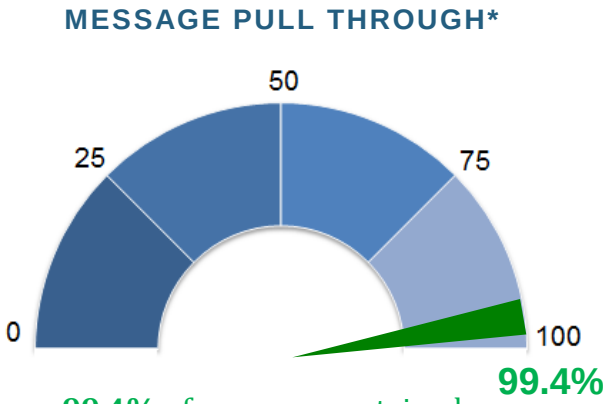
Stakeholder Understanding and Support

Traditional Media Summary

Relevant news coverage for the Great Lakes Water Authority (GLWA) in January focused mainly on GLWA issuing and then lifting a boil water advisory for Downtown Detroit and the AWWA Board of Directors electing Cheryl Porter as the Director-at-Large.

Overall in January, GLWA saw a **127 percent increase in mentions compared to December**. This increase was due to the boil water advisory that was issued to all of downtown Detroit, as well as the AWWA Board of Directors election. Nearly **94 percent of the articles were neutral** with 4 percent being positive and 2 percent being negative. Positive coverage was attributed to the AWWA Board of Directors news. The negative coverage was attributed to stories about the former GLWA team member filing a lawsuit against the Authority.





99.4% of coverage contained a GLWA message **(GOAL = 75%)**

MEDIA VOLUME: 336

CURSORY OR FLINT MENTIONS: 158

CONTAINED GLWA MESSAGE: 178

*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.

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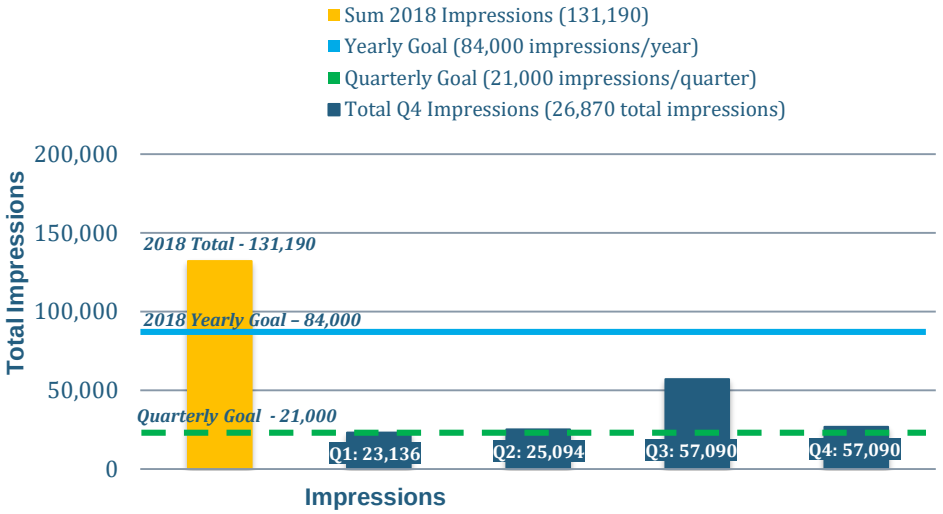
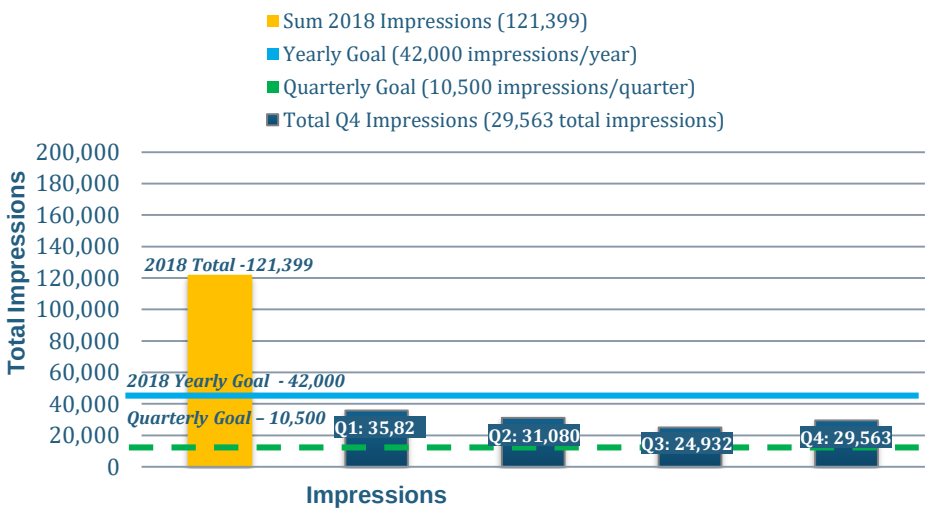
Facebook & Twitter Quarterly Review

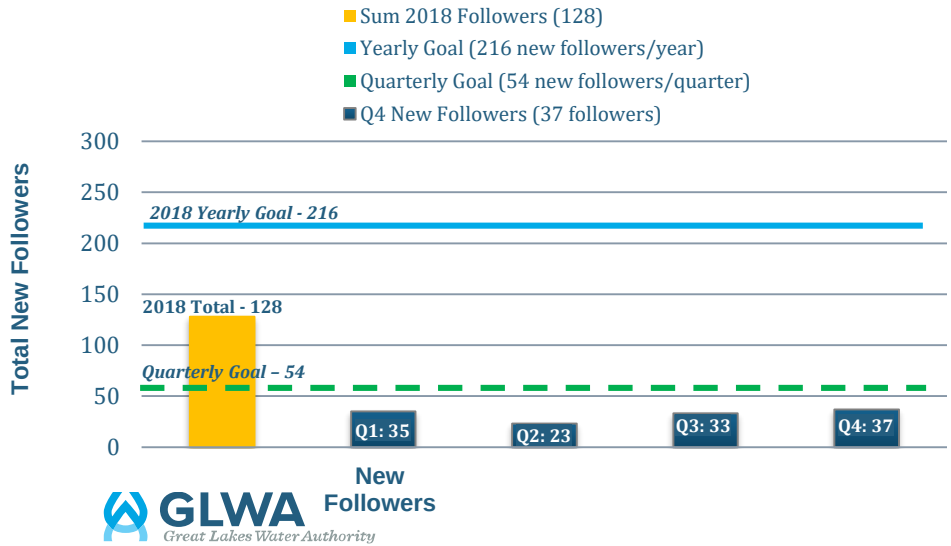
Facebook - Total Impressions **Q4 2018**



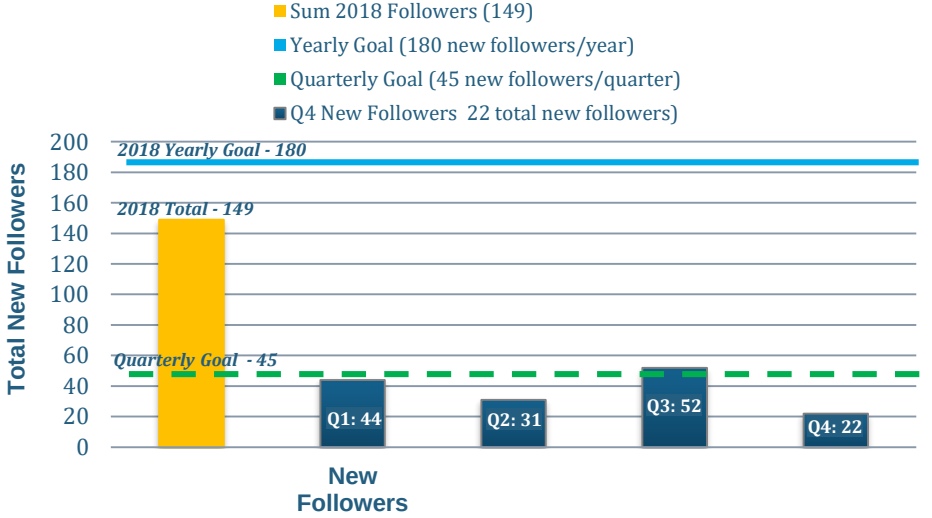
Twitter - Total Impressions by **Q4 2018**



Facebook - Total New Followers **Q4 2018**



Twitter - Total New Followers **Q4 2018**



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- Q1: January 2018 – March 2018

This is a quarterly metric that will be updated again in April 2019.

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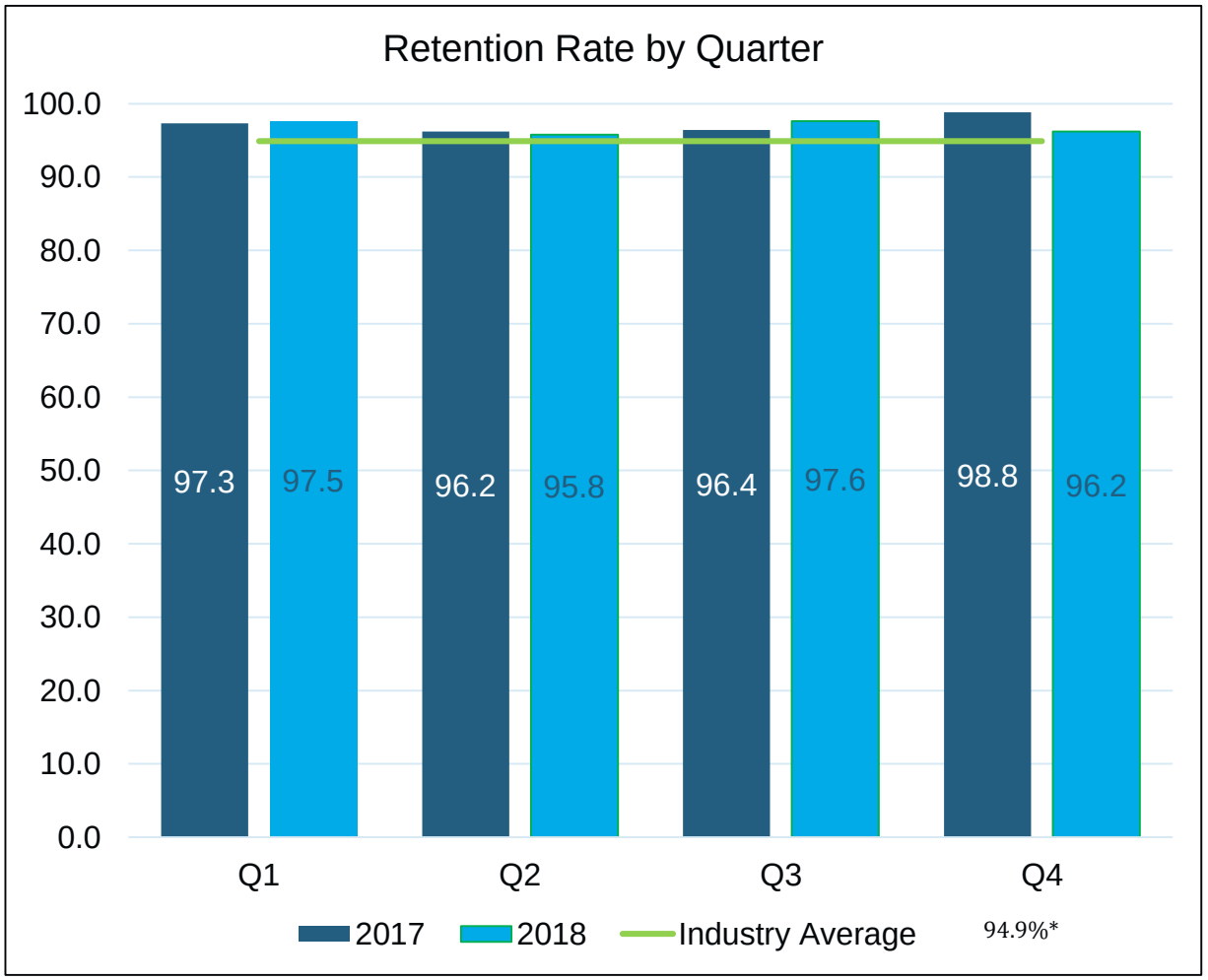
EUM Attribute:

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."

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Updated: 1/22/19