

# Great Lakes Water Authority

*Key Performance Indicators and  
Effective Utility Management (EUM) Metrics  
May 8, 2019*



# Ten Attributes of Effectively Managed Water Sector Utilities (EUM)



| Attribute                                      | Attribute Components  |
|--|---|
| <b>Employee and Leadership Development</b>     | 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.  |
| <b>Operational Optimization</b>                | 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.   |
| <b>Financial Viability</b>                     | 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.  |
| <b>Infrastructure Strategy and Performance</b> | 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. |
| <b>Enterprise Resiliency</b>                   | 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)



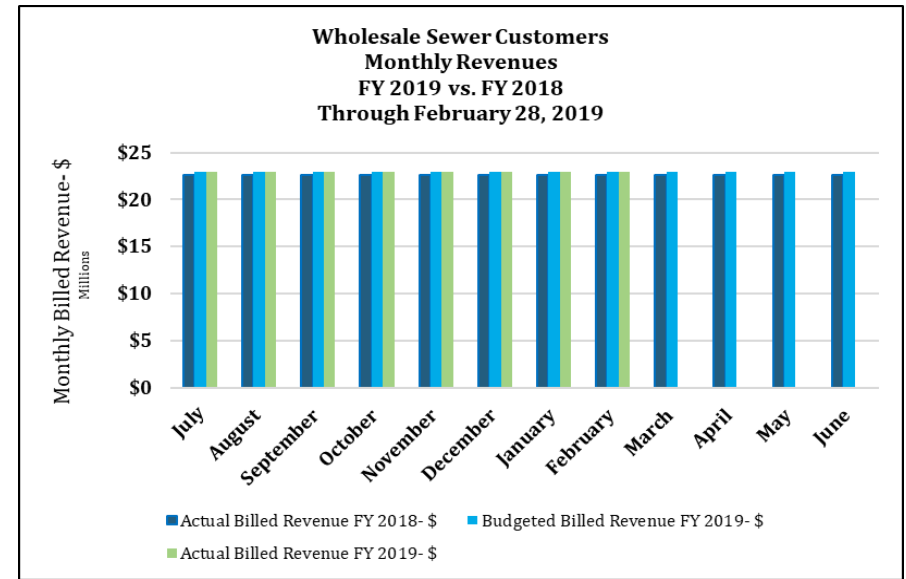
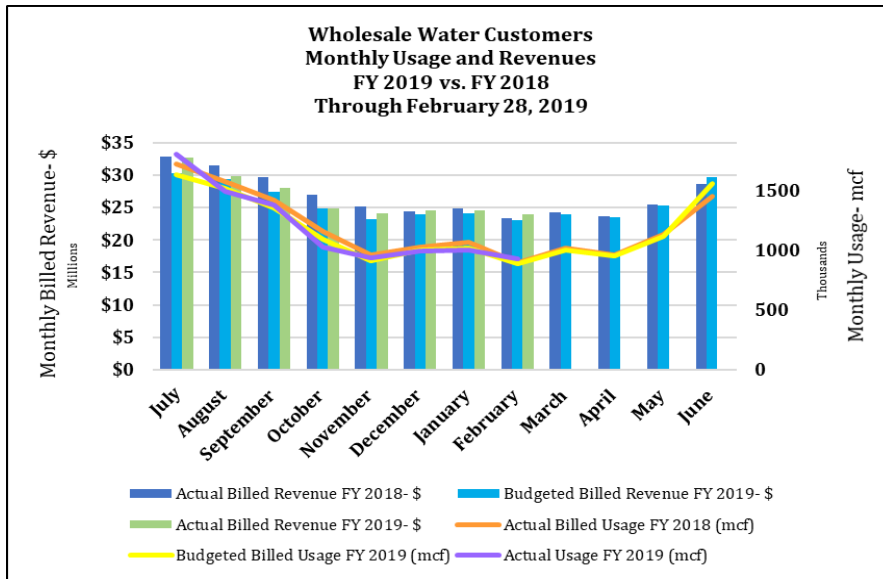
| Attribute                                    | Attribute Components  |
|--|---|
| <b>Product Quality</b>                       | Produces “fit for purpose” water that meets or exceeds full compliance with regulatory and reliability requirements and consistent with customer, public health, ecological, and economic needs. Products include treated drinking water, treated wastewater effluent, recycled water, stormwater discharge, and recovered resources.   |
| <b>Customer Satisfaction</b>                 | 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).  |
| <b>Community Sustainability</b>              | 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.   |
| <b>Water Resource Sustainability</b>         | 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. |
| <b>Stakeholder Understanding and Support</b> | 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**

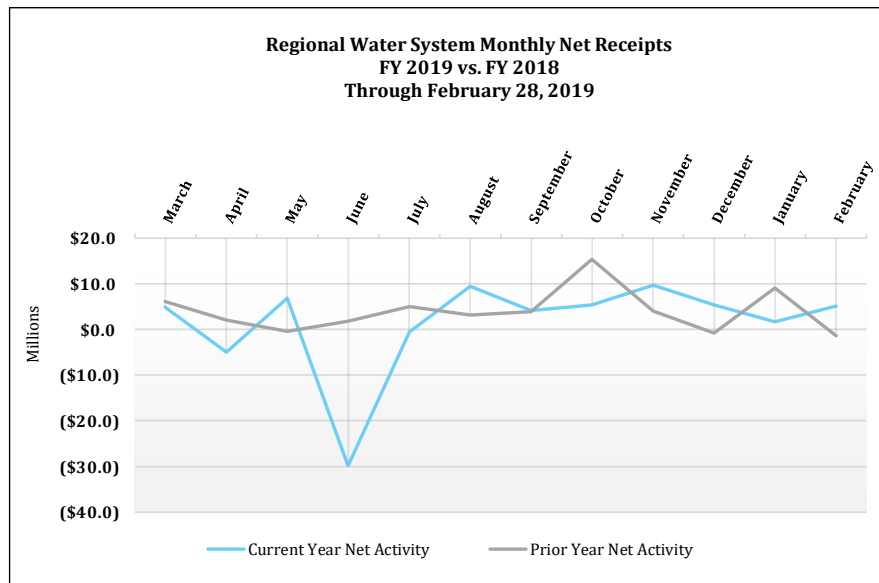
# Financial Viability – Reliability of Wholesale Water and Sewer Revenue Projections



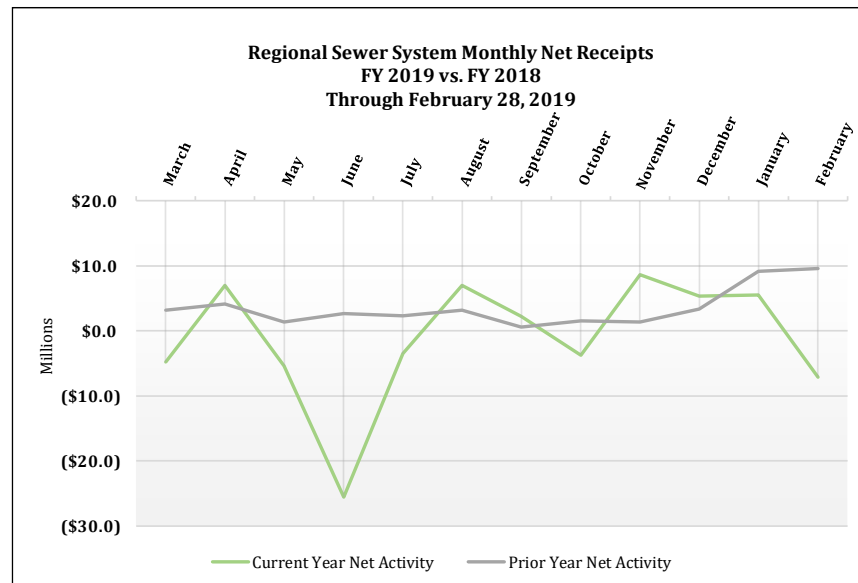
Wholesale Water System billed revenues for FY 2019 are stable with actual billings at 103.1% of budget and actual usage at 101.6% of budget through February 2019. Billed revenue for FY 2019 was 2.7% lower compared to the same period in FY 2018.

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

# Financial Viability – GLWA Regional System Net Receipts



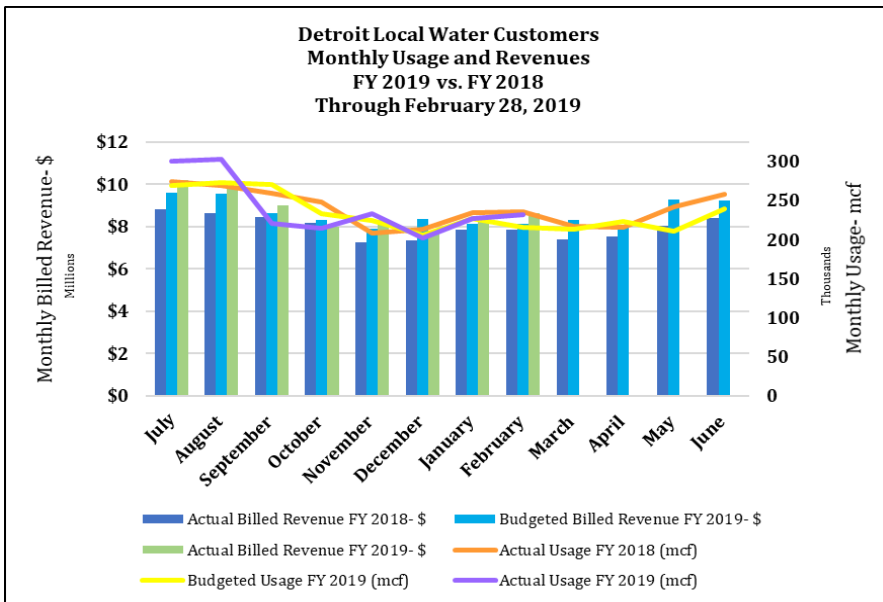
Regional Water System net receipts for the month of February 2019 exceeded MBO disbursements by \$5.2 million resulting in a year-to-date net receipts over disbursements ratio of 21% for FY 2019 which supports reduced future capital borrowings. This metric does vary monthly based on collection activity.



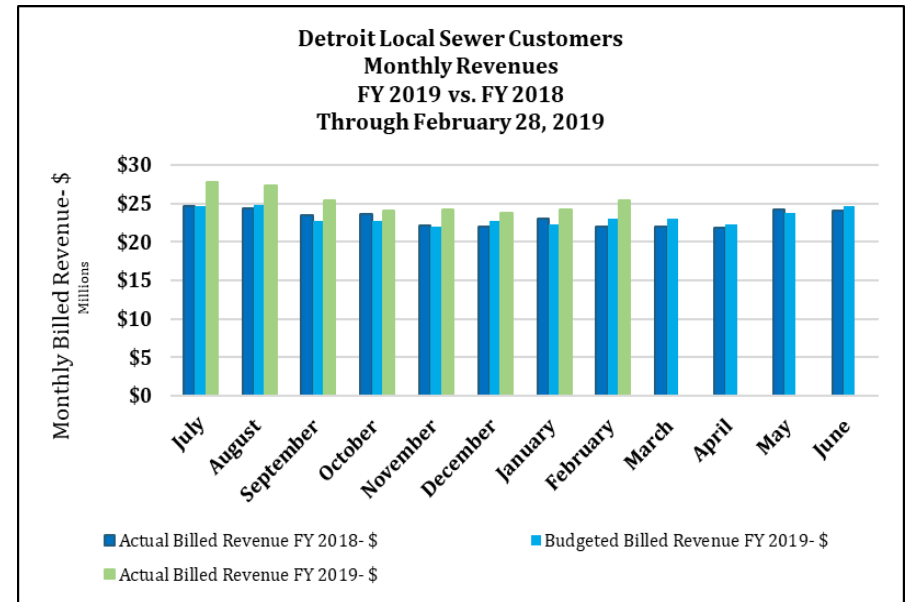
Regional Sewer System net receipts for the month of February 2019 fell short of MBO disbursements by \$7.2 million resulting in a year-to-date net receipts over disbursements ratio of 5% for FY 2019 which supports reduced future capital borrowings. This metric does vary monthly based on collection activity and is expected to recover in March.

*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

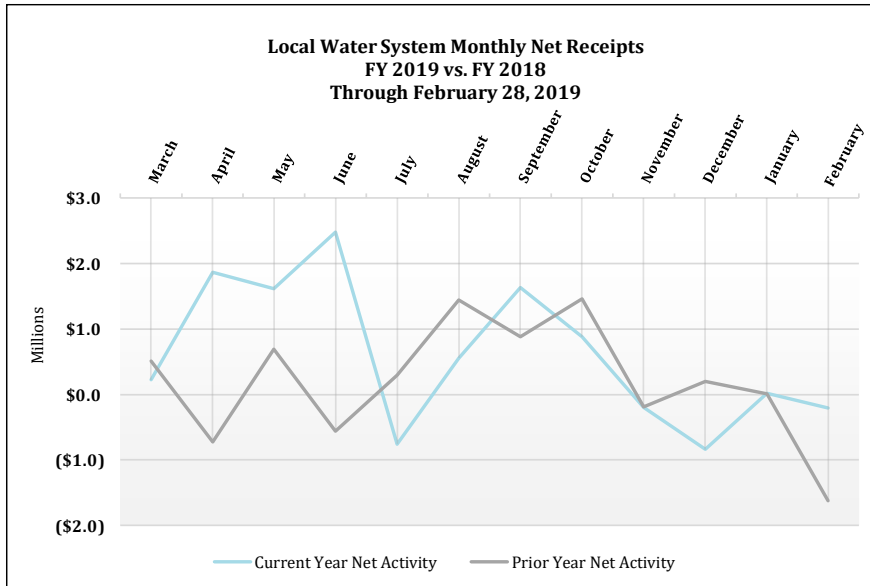


Detroit Local Water System billed revenues for FY 2019 are stable with actual billings at 103.8% of budget and actual usage at 100.8% of budget through February 2019. Billed revenue for FY 2019 was 8.5% higher compared to the same period in FY 2018.

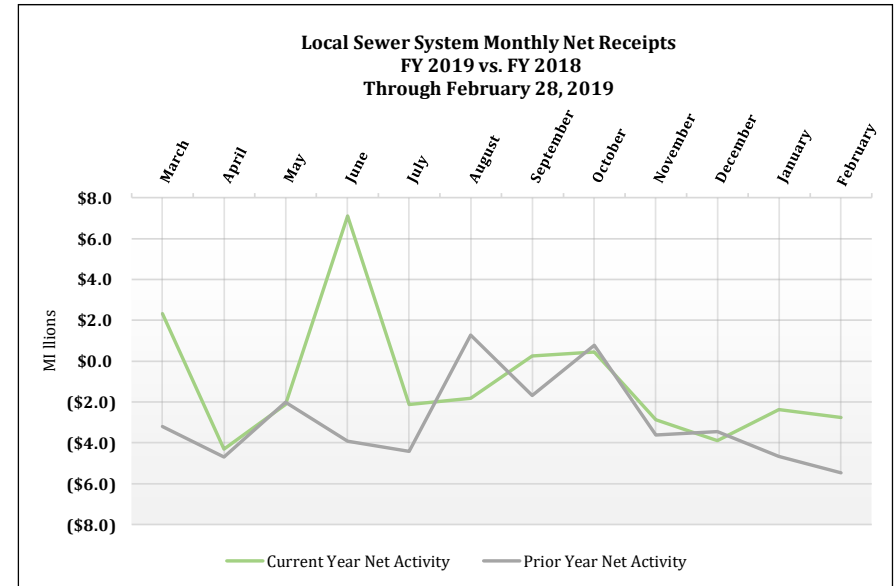


Detroit Local Sewer System billed revenues for FY 2019 are stable with actual billings at 98.9% of budget and actual usage at 104.5% of budget through February 2019. Billed revenue for FY 2019 was 9.31% higher compared to the same period in FY 2018.

# Financial Viability – DWSD Local System Net Receipts



Local Water System net receipts for the month of February 2019 fell slightly short of MBO disbursements by \$209 thousand resulting in a year-to-date net receipts over disbursements ratio of 2% for FY 2019. This metric does vary monthly based on collection activity.

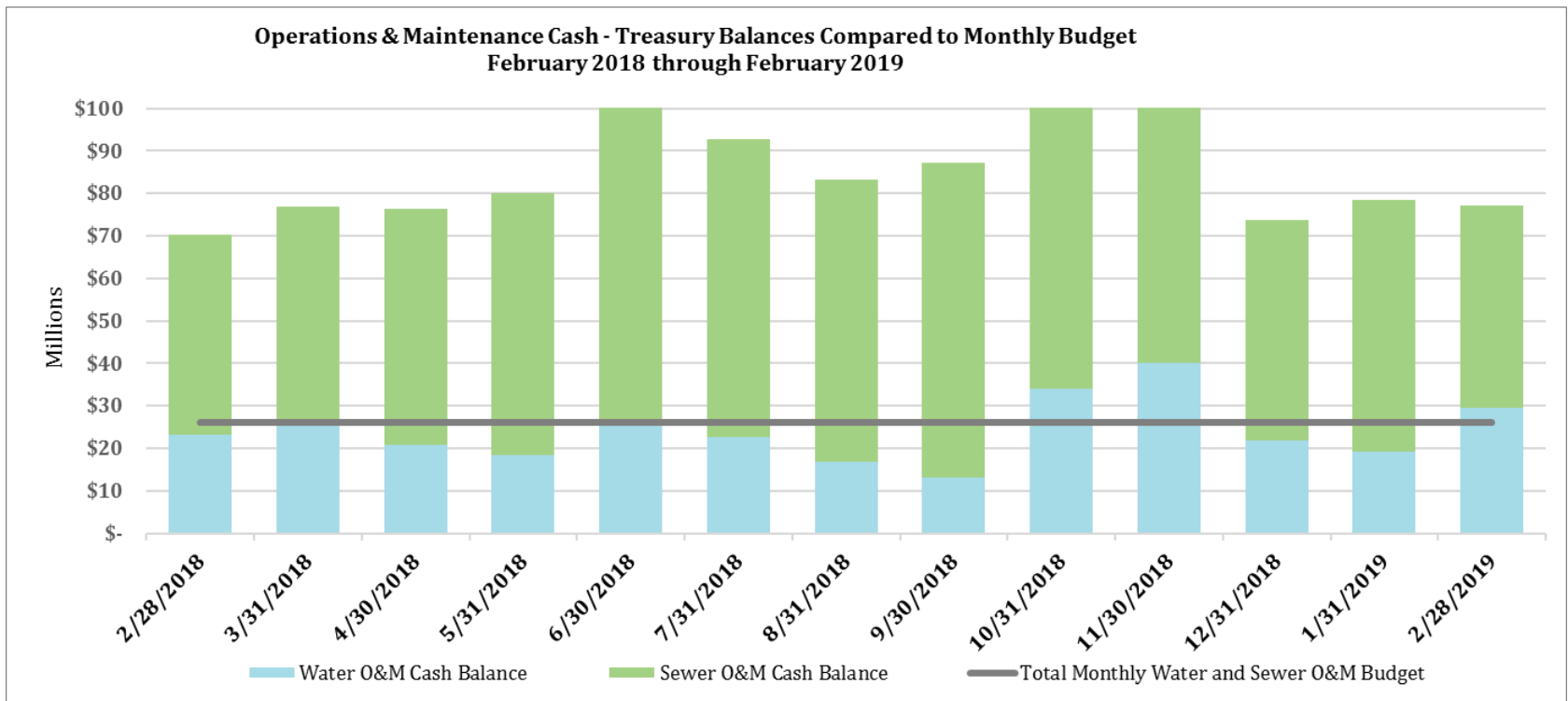


Local Sewer System net receipts for the month of February 2019 fell short of MBO disbursements by \$2.8 million resulting in a year-to-date net receipts over disbursements ratio of -5%. This metric does vary monthly based on collection activity. DWSD has proposed a long-term plan to address this structural shortfall which will be presented to the Reconciliation Committee at their next meeting.

*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.*

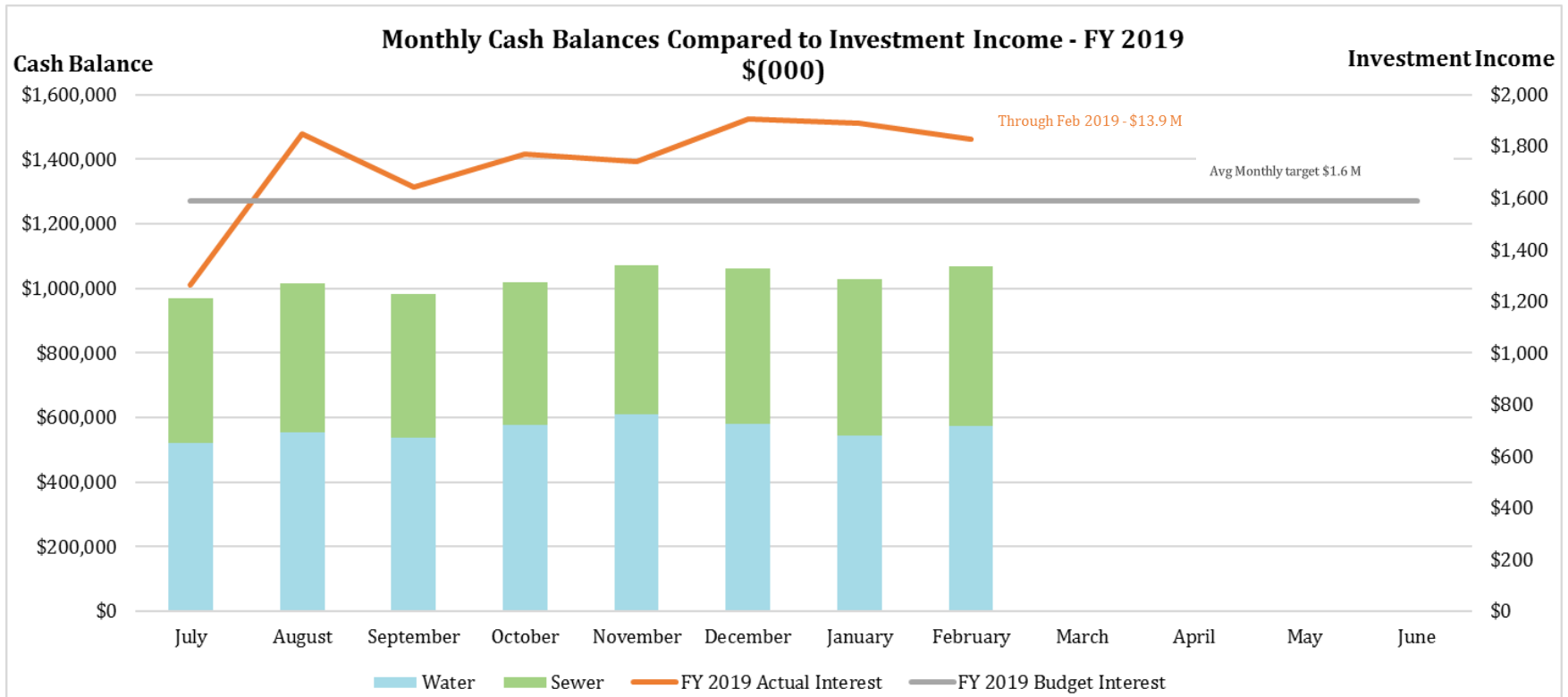


# Financial Viability – Revenue Stability and Appropriate O&M Cash Reserves



- Cash balances are appropriate to fund monthly budgeted Operations & Maintenance (O&M) with an average ratio of O&M cash to budget of 2.37x for water and 3.82x 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 FY2019 cash balances are due to timing differences related to interfund transfers settled in the following month.

# Financial Viability – Optimizing Cash Balances



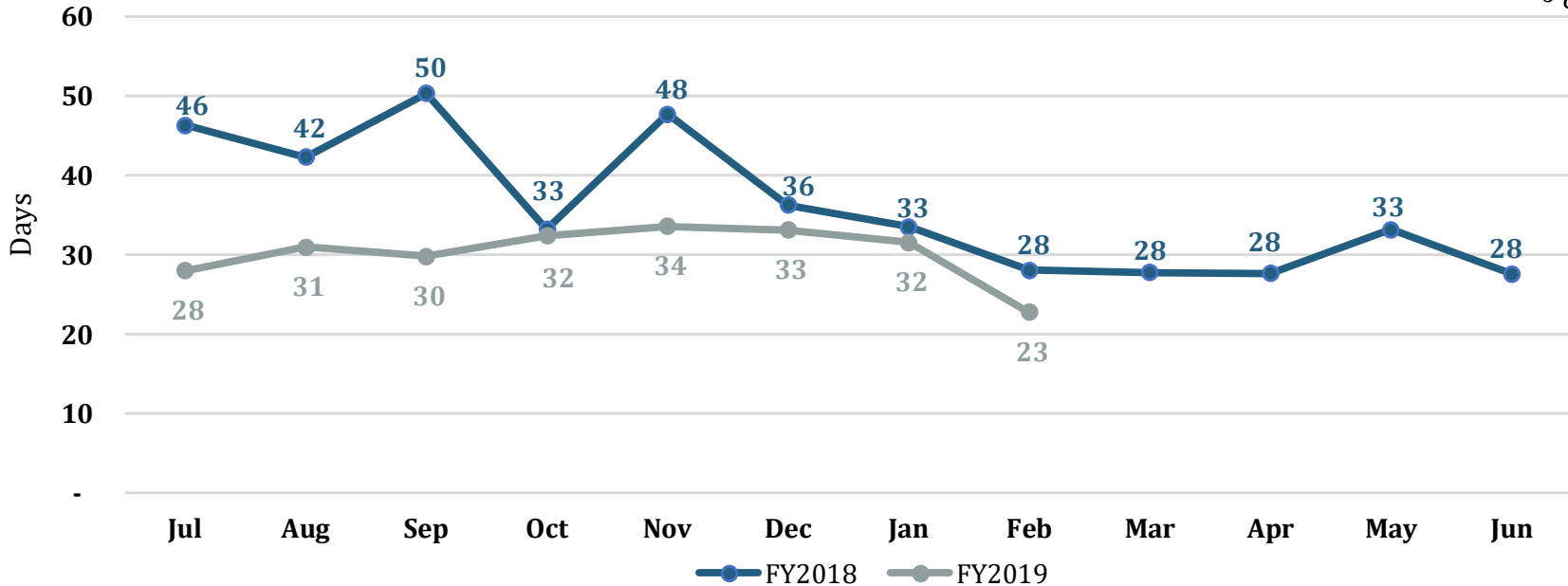
- Cash & investment balances for the water & sewer funds change each month based on Master Bond Ordinance funding, operational requirements, capital funding, and debt payments.
- Investment income fluctuates monthly with the cash & investment balances as well as market conditions and investment strategy.
- GLWA continues to refine cash flows and work with its investment advisor to identify strategies to maximize future investment income while meeting the objectives of safety and liquidity.
- The cumulative investment earnings through February 2019 of \$13.9 million is 73% of the FY 2019 Budget and on target to meet the projection of \$19.0 million for the fiscal year.

# Financial Viability – Days to Pay an Invoice

## Average Days To Payment FY Comparison

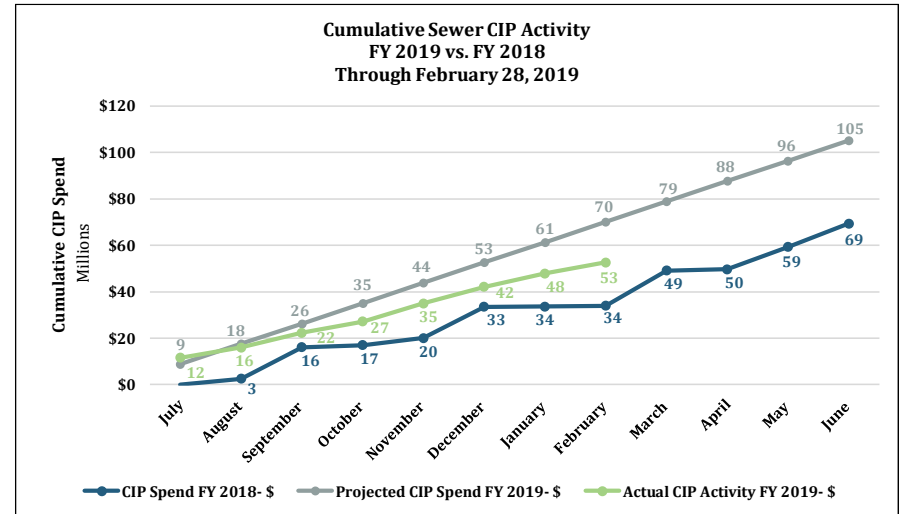
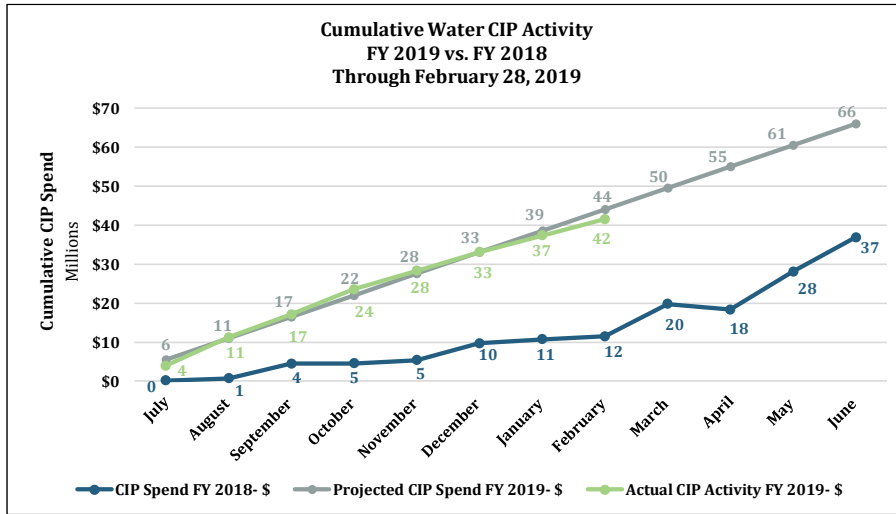
Payment Terms are 45 Days

*Twelve month average = 30 days*



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.

# Financial Viability- FY 2019 Total CIP Spend



Water System Capital Improvement Plan Spend: As of February 2019, the Water system incurred nearly \$42 million of CIP costs to date. This is 94% of the total prorated, monthly projected spend and continues to trend on target.

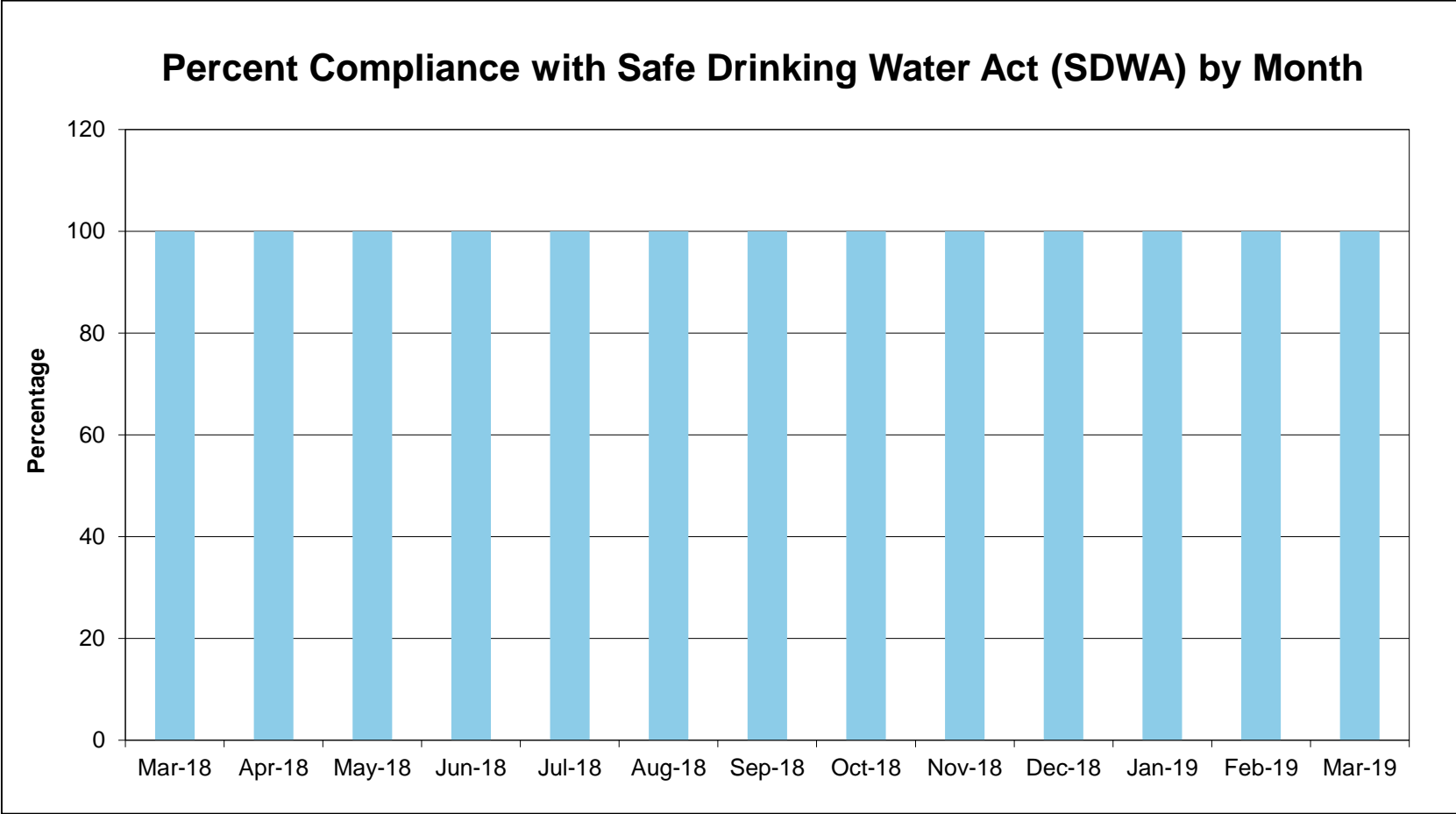
Sewer System Capital Improvement Plan Spend: As of February 2019, the Sewer system incurred nearly \$53 million of construction costs to date. This is 75% of the total prorated, monthly, projected spend and continues at a steady pace.



**EUM Attribute:**

**Product Quality**

# Product Quality – SDWA Compliance



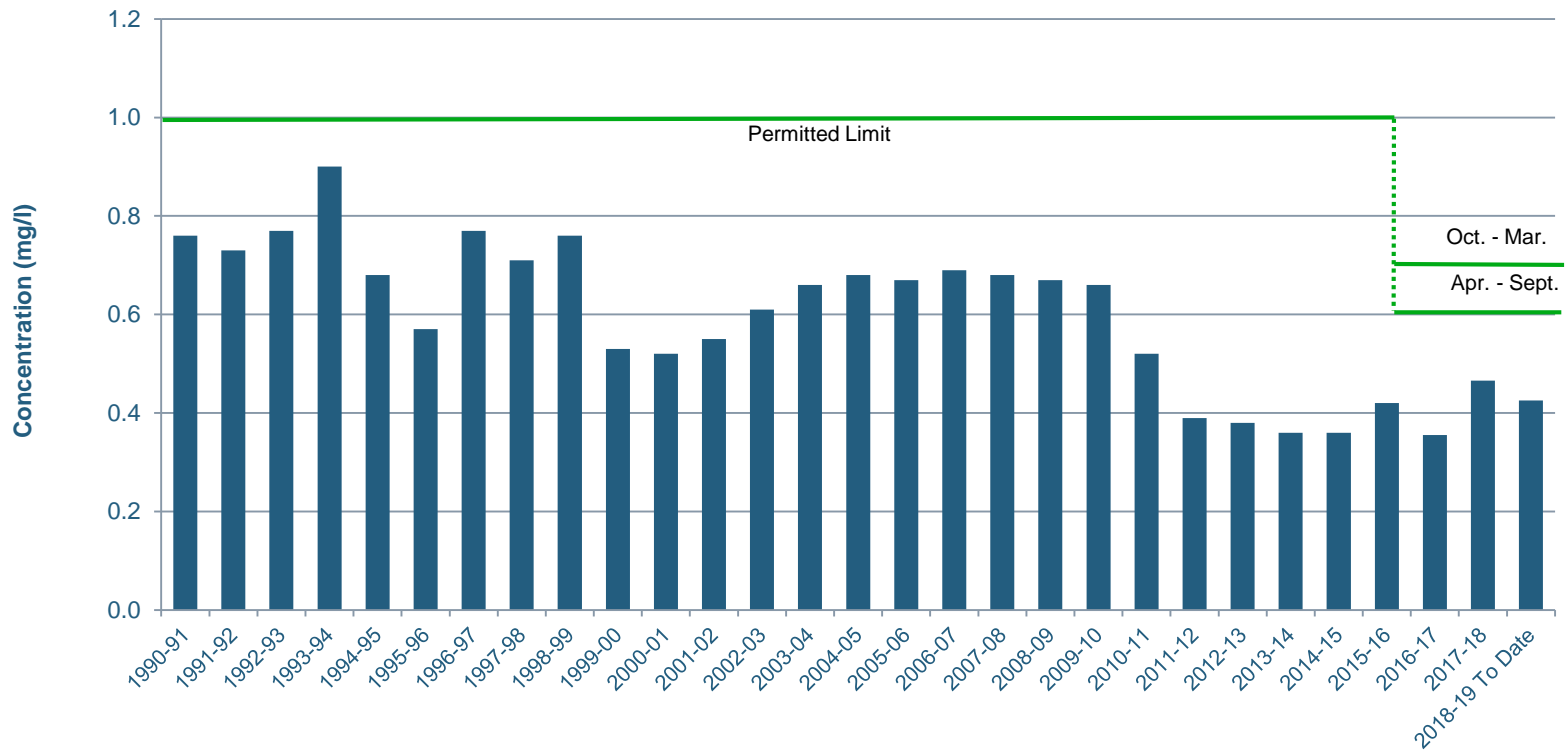
**Product Quality:** GLWA’s goal is to surpass Safe Drinking Water Act requirements and this slide indicates compliance for the month.

# 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.

Effluent Phosphorus Concentration  
1990 to 2019



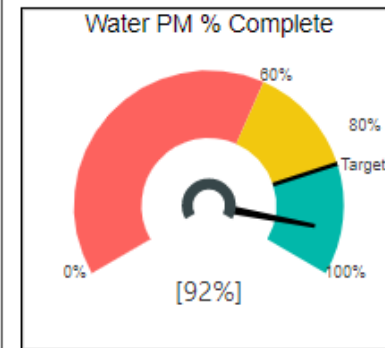
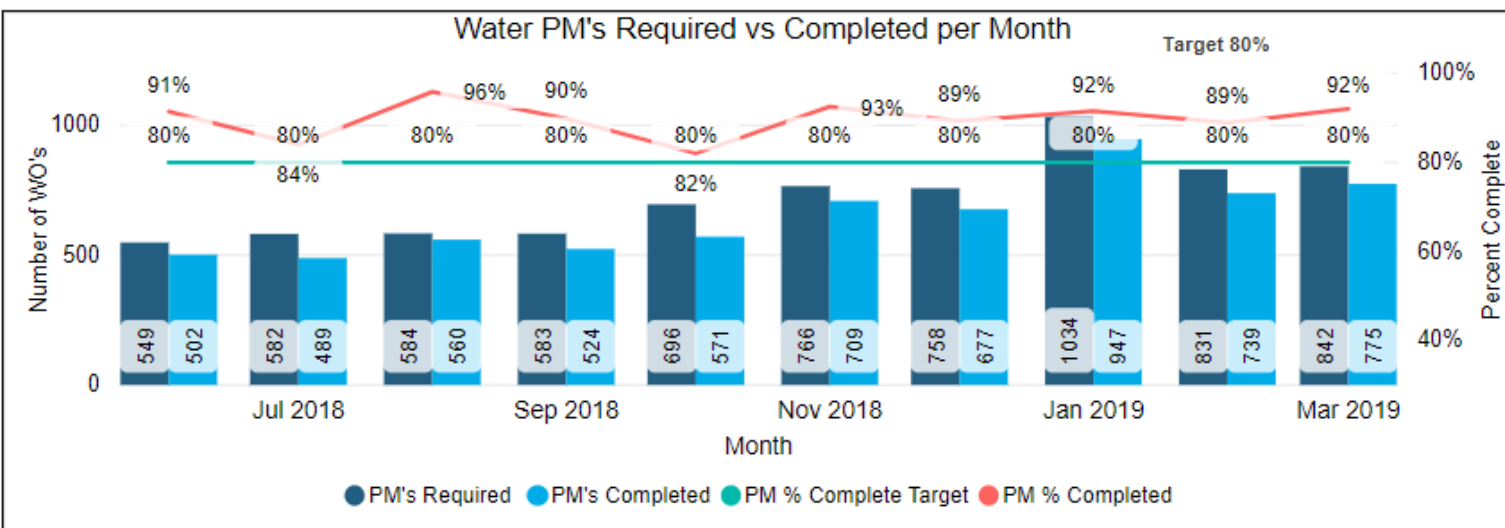
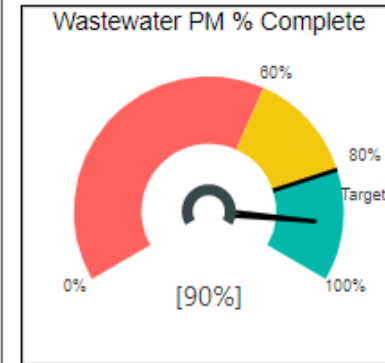
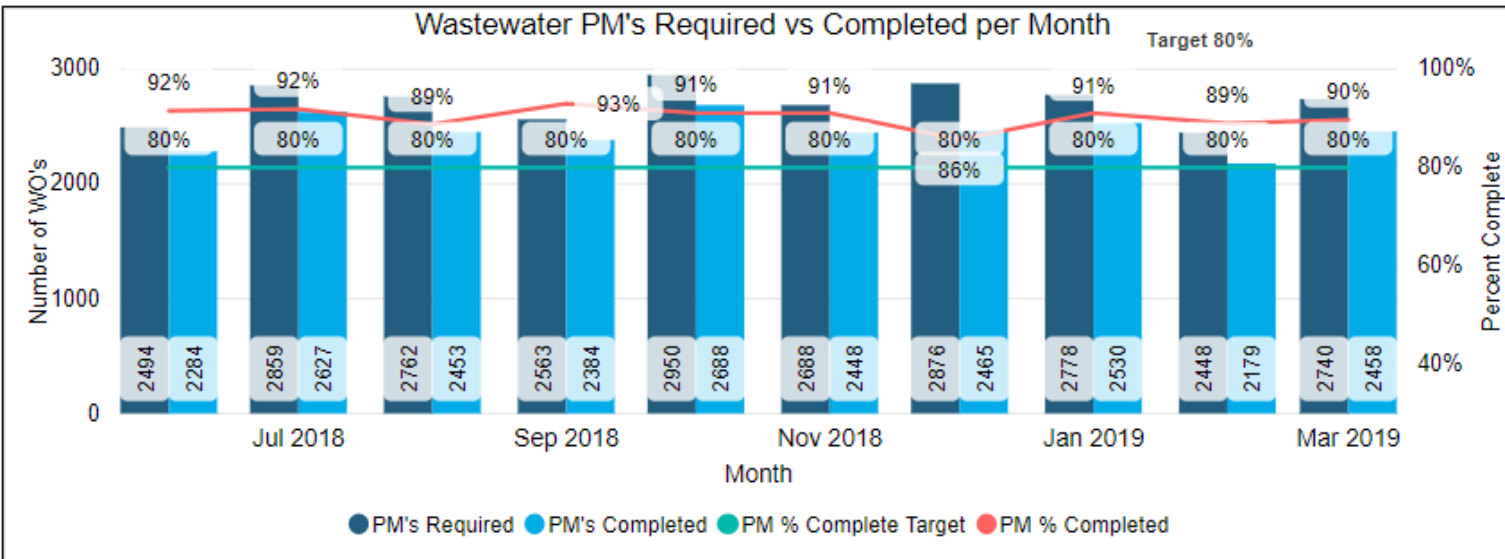


**EUM Attribute:**

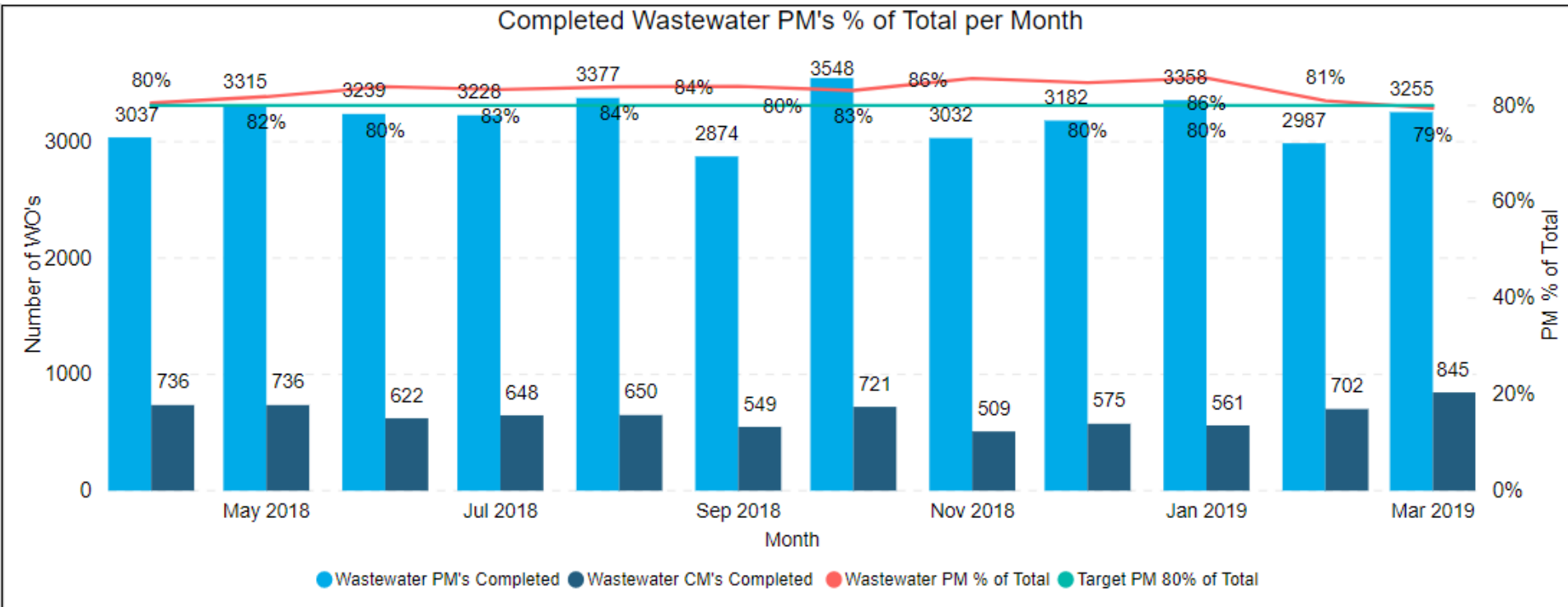
**Infrastructure  
Strategy and  
Performance**



# Infrastructure Strategy and Performance – Wastewater and Water Preventative Maintenance (PM) Management March 2019

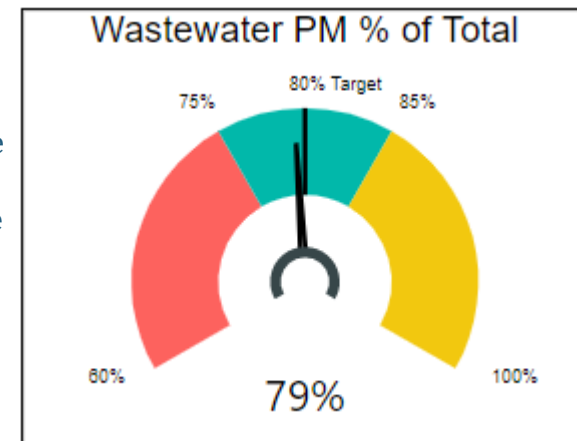


# Infrastructure Strategy and Performance – Wastewater Preventative & Corrective Maintenance Management March 2019

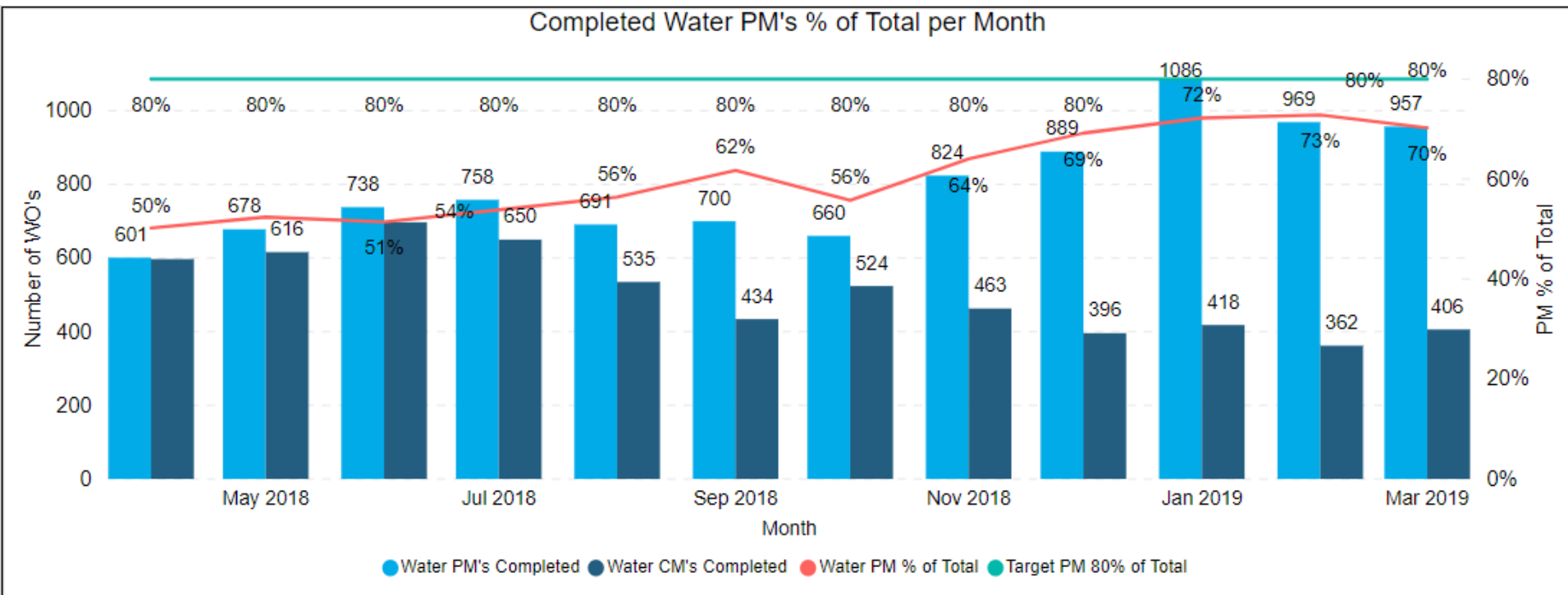


\*The Target is derived from the 2017 American Water Works Association Utility Benchmarking program that indicates that an appropriate level of PM activities can be identified by the PM percentage of total maintenance work performed. If the percentage is significantly lower than the target (red) it is 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.

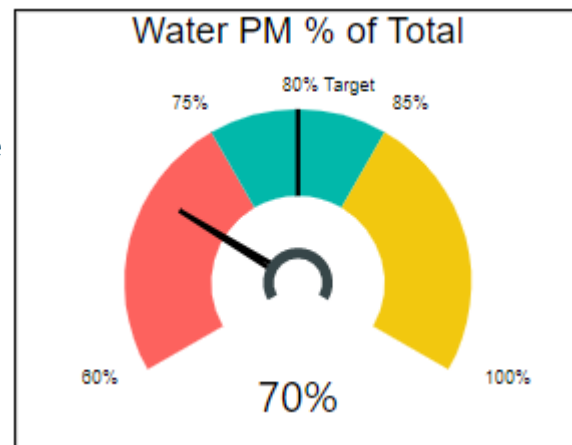
PM = Preventative Maintenance  
CM = Corrective Maintenance



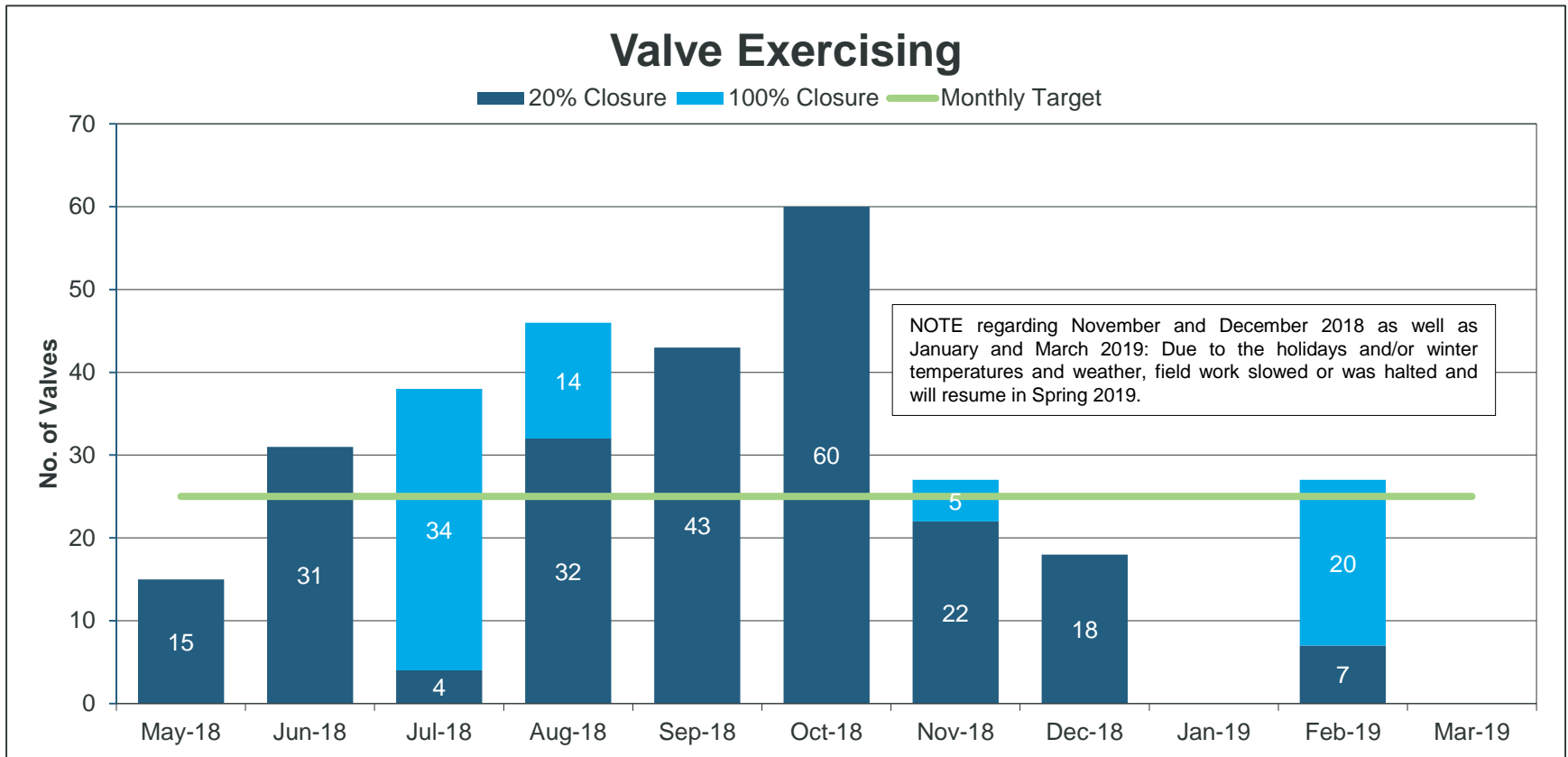
# Infrastructure Strategy and Performance – Water Preventative & Corrective Maintenance Management March 2019



\*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.



# Infrastructure Strategy and Performance – Water and Field Services Valve Exercising

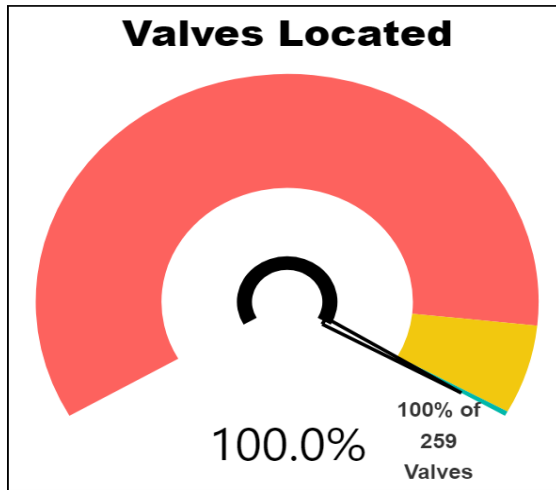


Valves cycled 20% on the initial visit/attempt • Valves cycled 100% on the initial visit/attempt • Target to exercise 25 valves per month

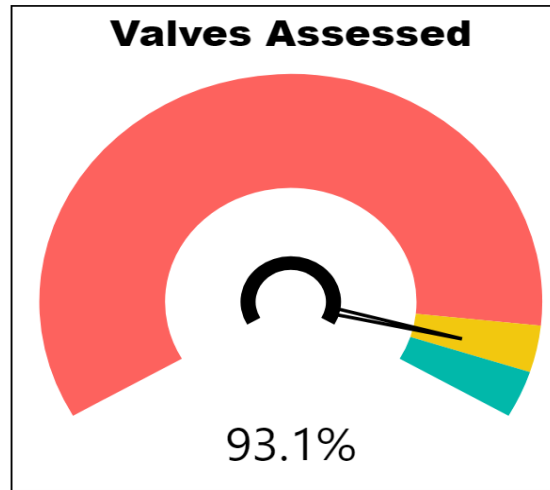
**Infrastructure Strategy and Performance:** GLWA's goal is to determine the status of system valves and prioritize necessary repairs. 450 valves will be evaluated and will be operated from open position to close and back open two times at a minimum.

# Infrastructure Strategy and Performance – Water and Field Services Valve Exercising

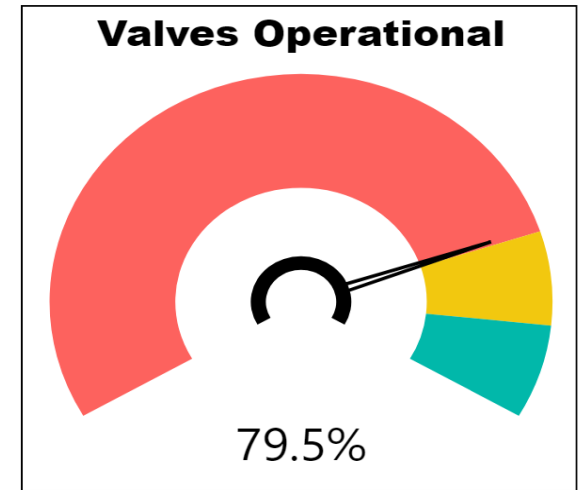
## March 2019 KPIs



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 (93.1%) and red on the Valves Operational (79.5%):** Program is still within the first year of starting, problems are being identified and worked through while making adjustments due to weather that are reflective in the KPIs shown below target.

**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.



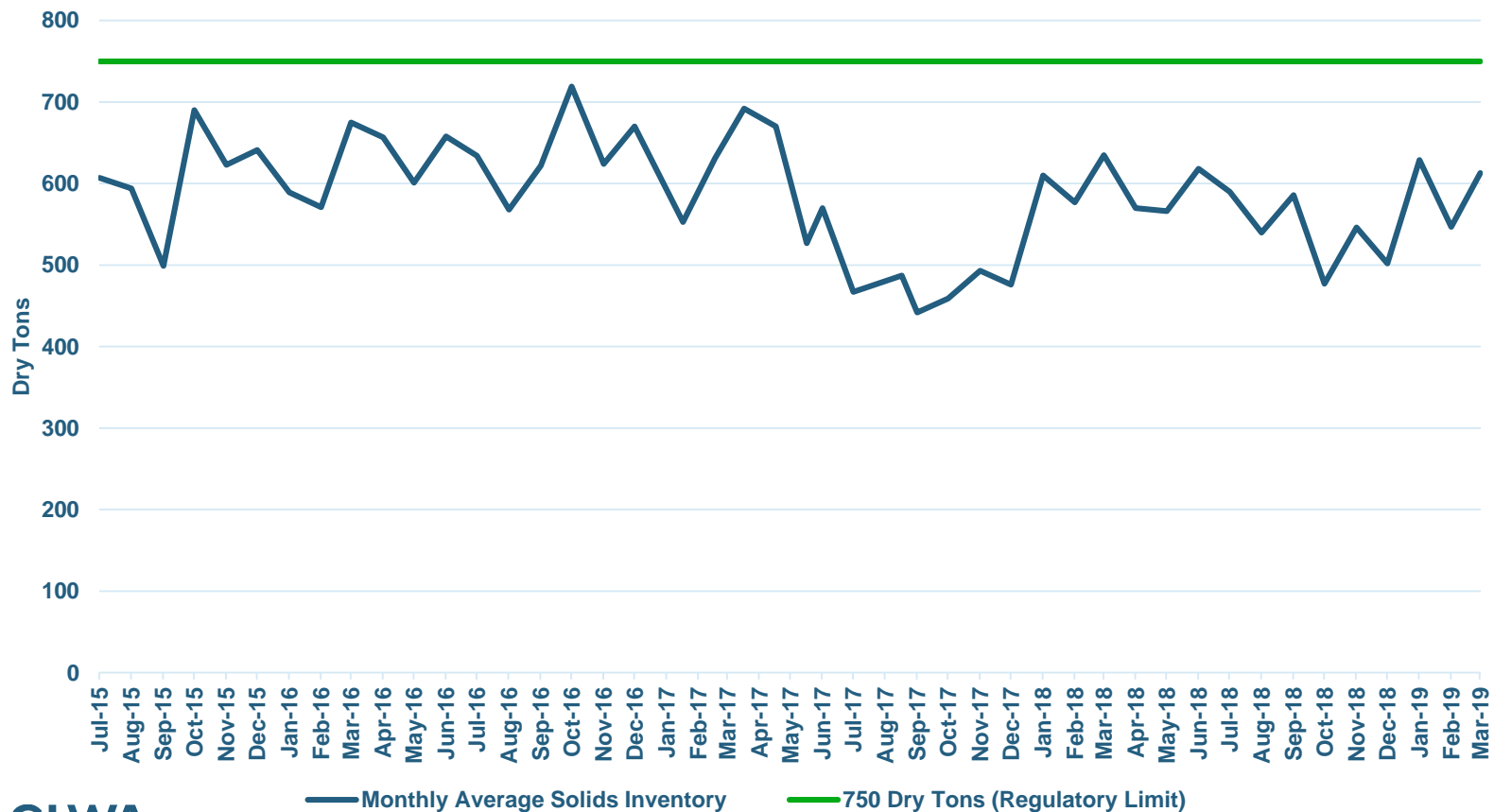
**EUM Attribute:**

**Operational  
Optimization**

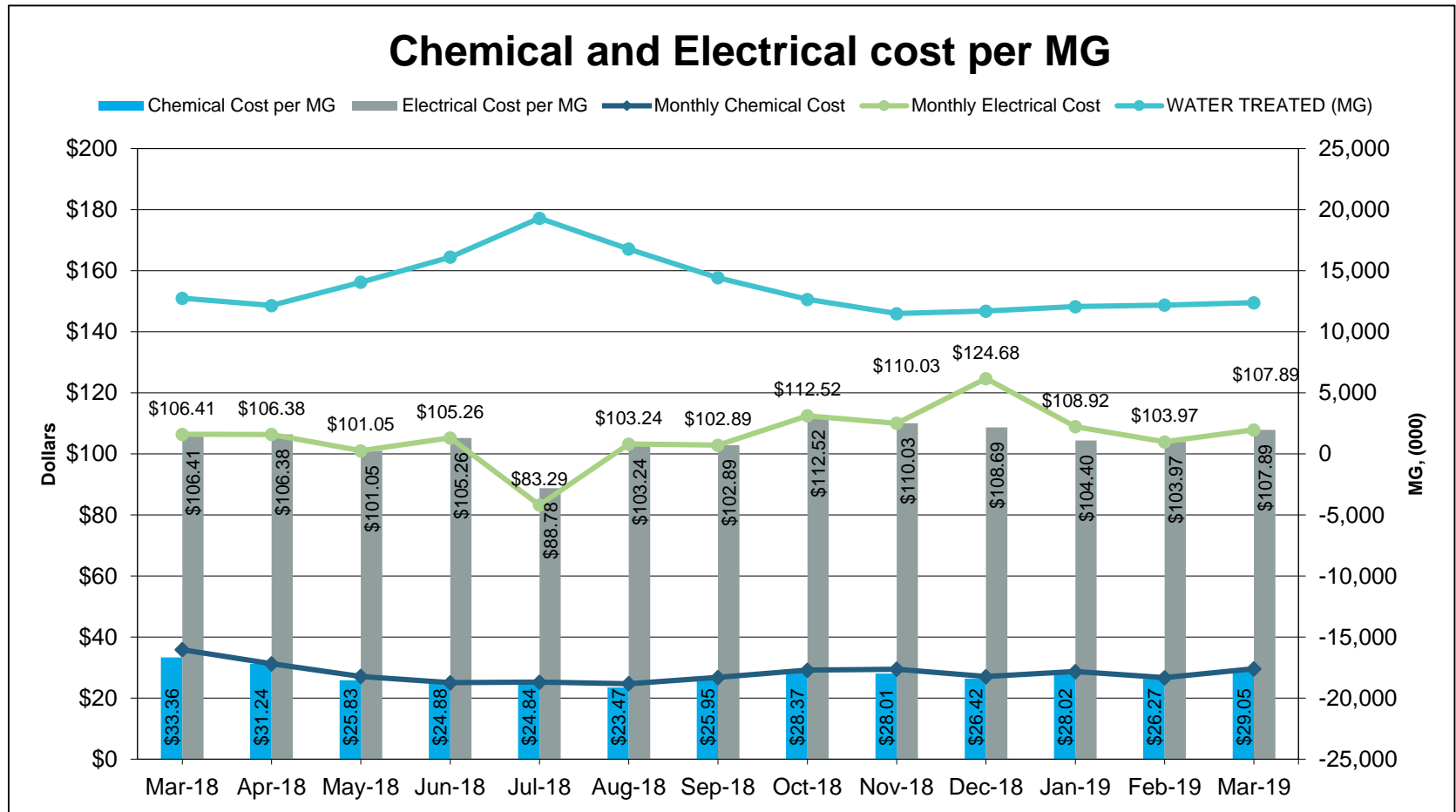
# Operational Optimization Regulatory Compliance – Monthly Solids Inventory

- 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.

Monthly Solids Inventory July 2015 to March 2019



# 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.

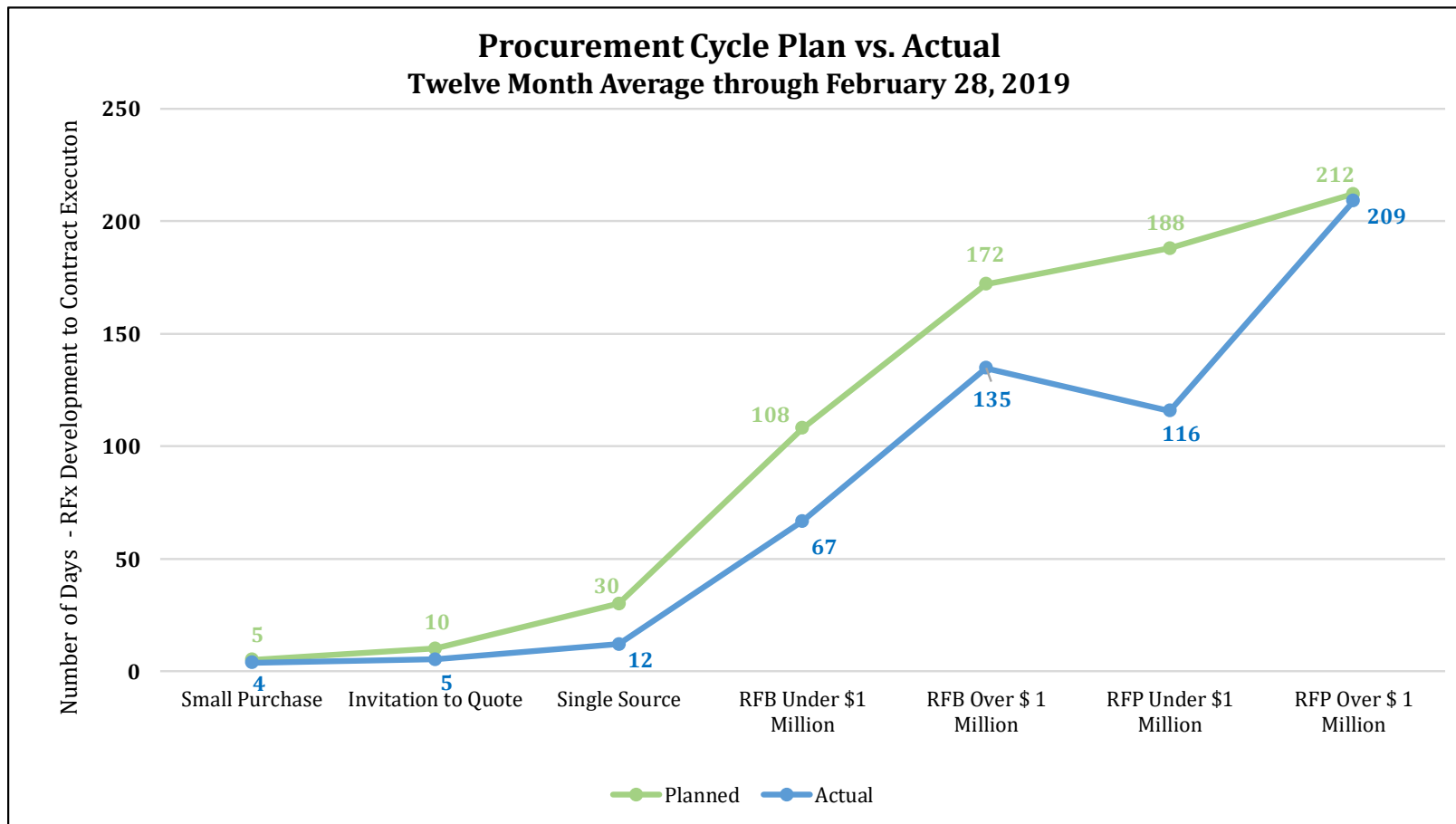




**EUM Attribute:**

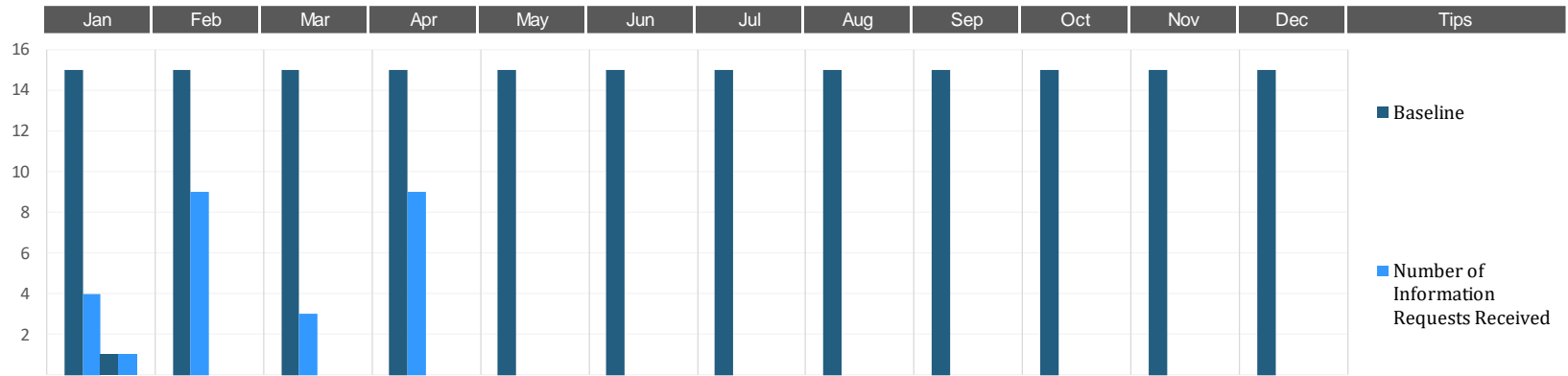
**Enterprise  
Resiliency**

# Enterprise Resiliency - Procurement Cycle Plan vs. Actual Timeline



- For the twelve-month period ending February 28, 2019, GLWA exceeded goals for all project types.
- *The Procurement Pipeline* was first released in February 2019. It will now be released monthly to inform the vendor community of upcoming procurement projects based upon scope development commitments from operations and engineering team members.

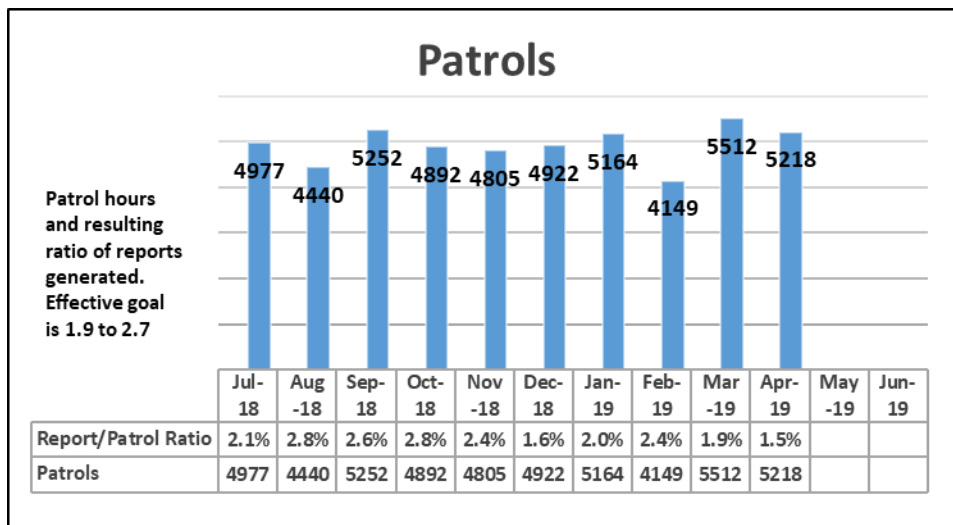
# Enterprise Resiliency – General Counsel Information Requests Received



| 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  | 9.00  | 3.00  | 9.00  |       |       |       |       |       |       |       |       | 25.00  |       |

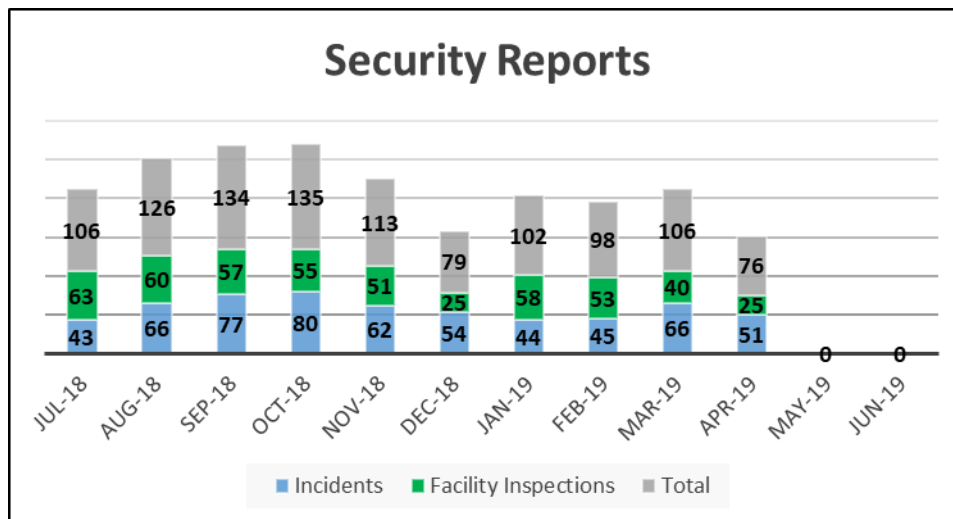
One of the measures of organizational transparency is access to information. GLWA maintains many avenues of informal information access, including through its website. To the extent the information is readily available, the Office of the General Counsel should receive fewer FOIA requests over time.

# Enterprise Resiliency – Security & Integrity

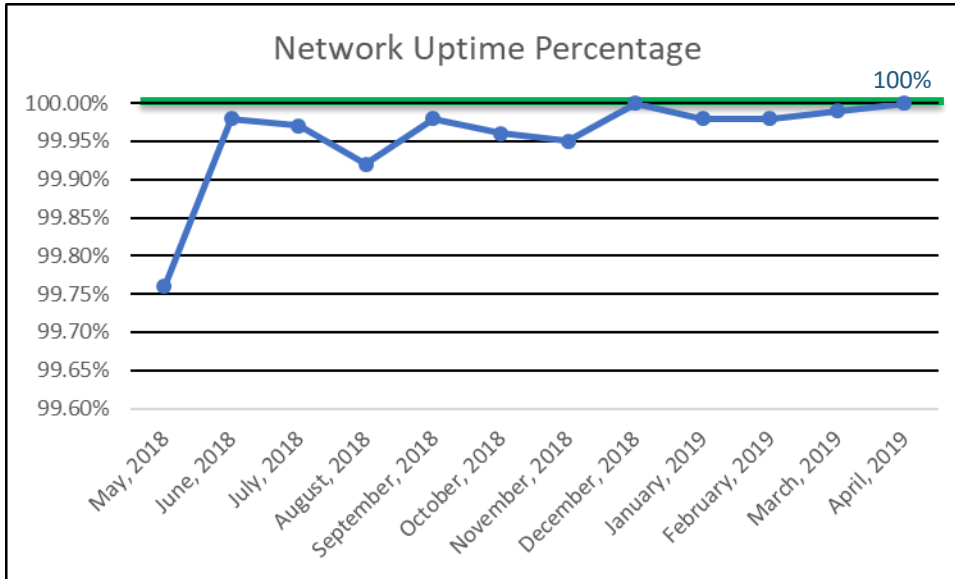


- Patrols are an indication of the level of services rendered by the staff of the Security & Integrity Group.

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

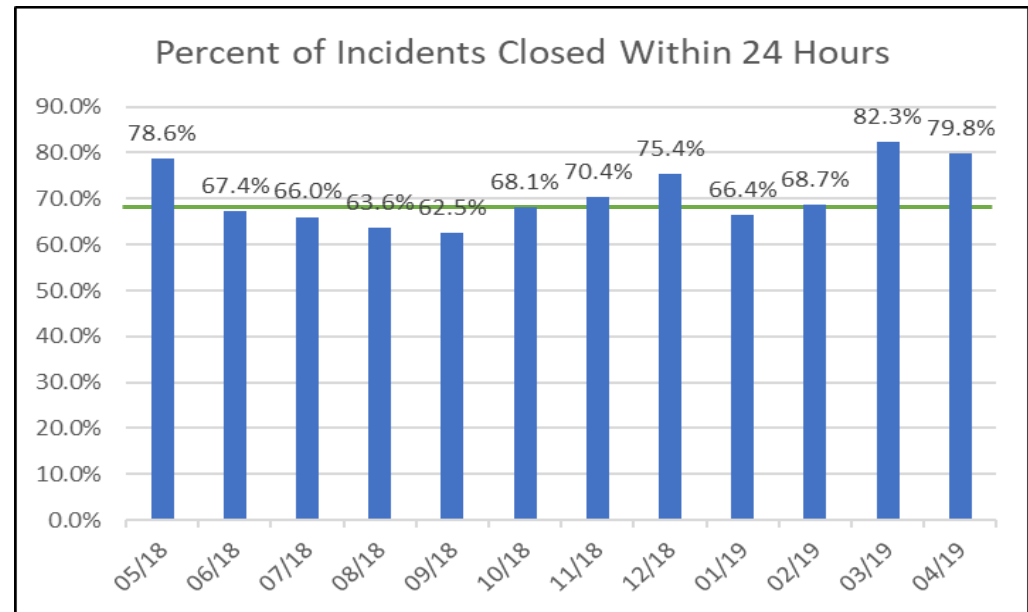


# Enterprise Resiliency – Information Technology

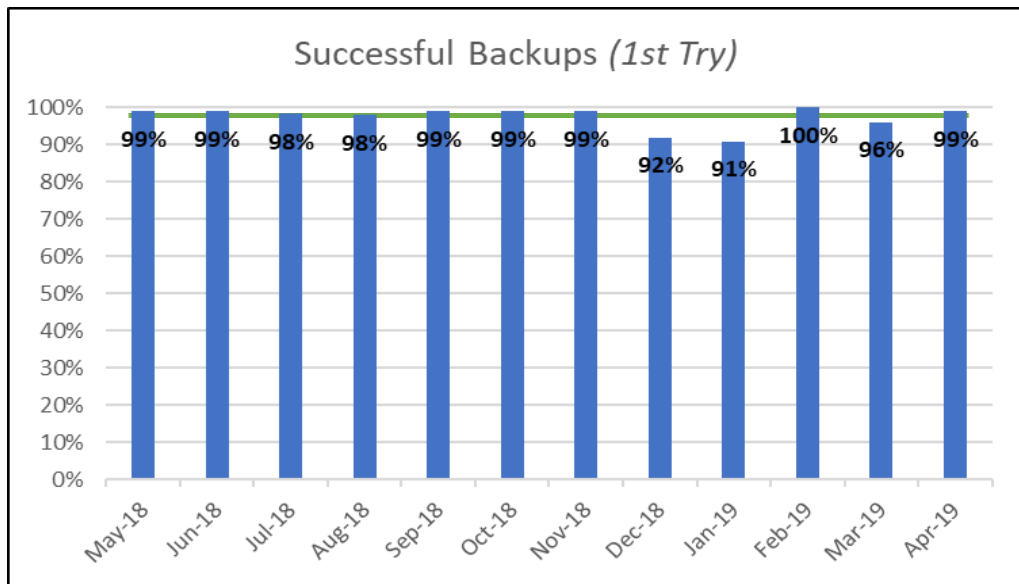


- GLWA has 59 network-connected sites, including offices, plants, pump stations, and other facilities.
- Network connectivity allows employees to access the applications needed to do their work and connects plants and pump stations to the intranet to report operational data

- 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%

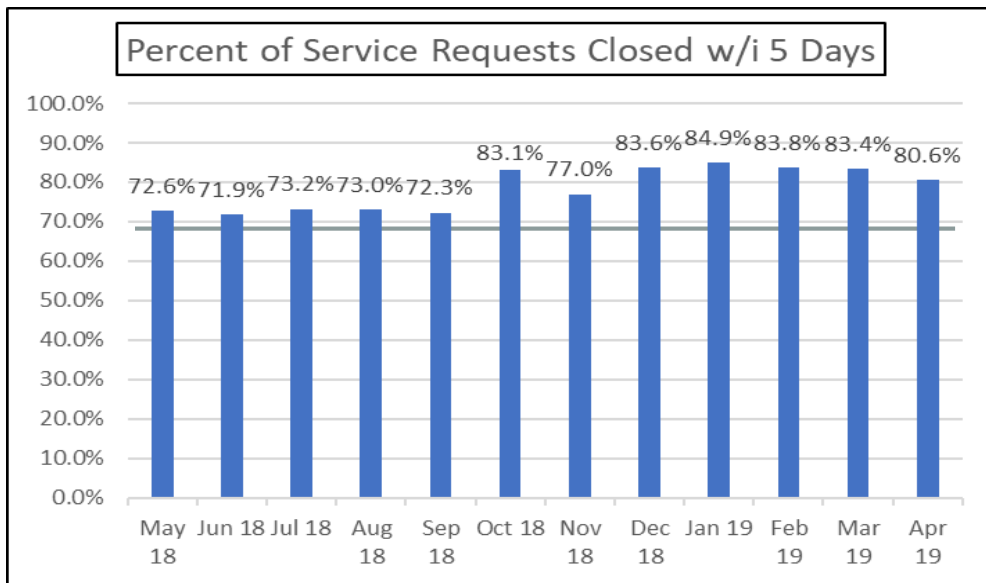


# Enterprise Resiliency – Information Technology

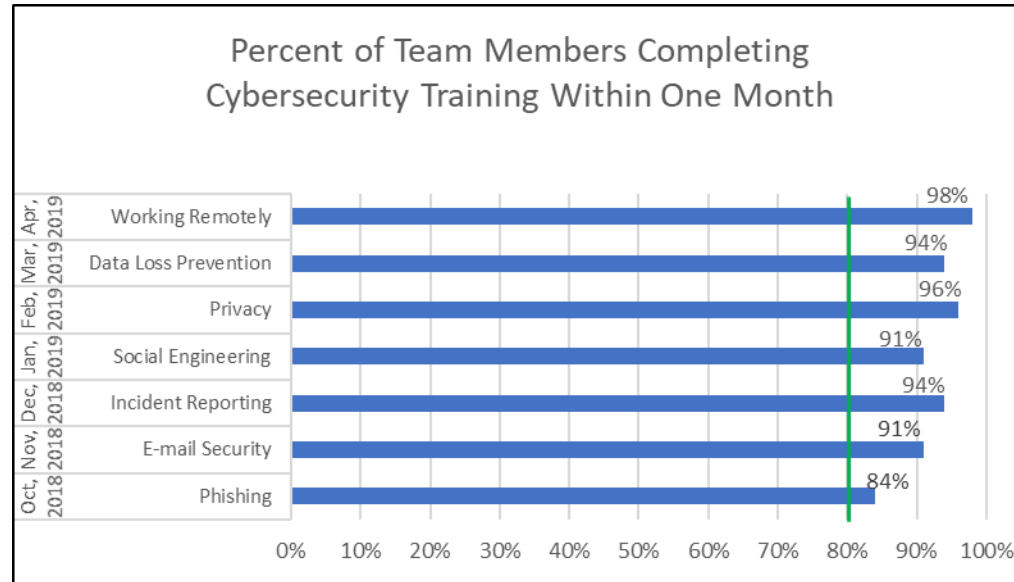


- Backups ensure that GLWA's information is safe in case of unexpected disruptions.
- Successfully backing up on the first try streamlines operations and frees up resources for other tasks.

- 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

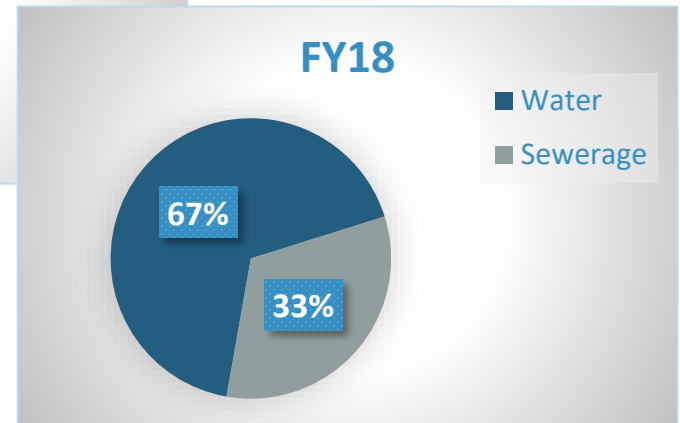
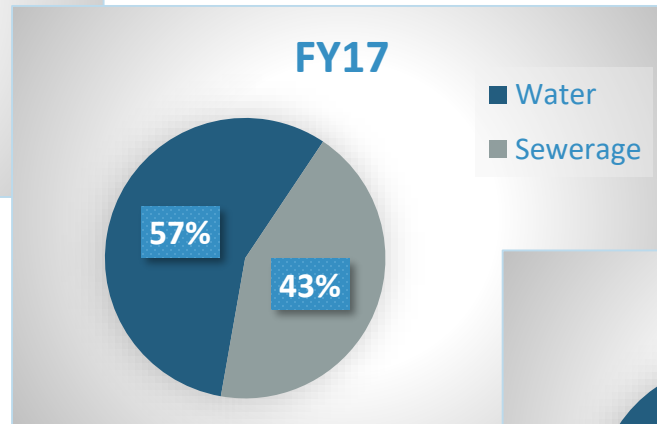
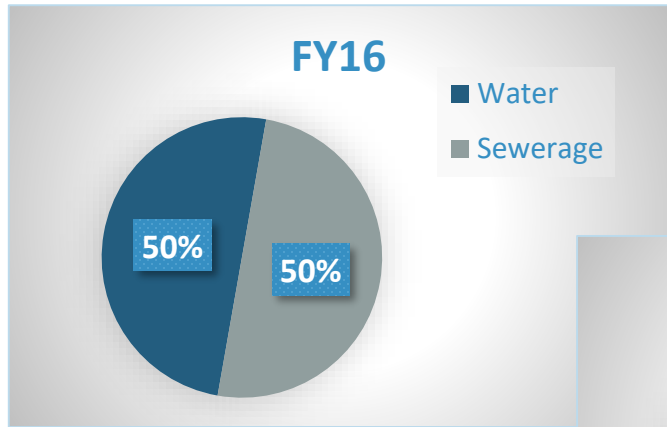
# Enterprise Resiliency – Key Workers’ Compensation Comparative Metrics Valued as of June 30, 2018

| 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<br>Right Rotator Cuff                           | Pending      | \$72,440       | \$34,828   | “Take nothing” re: additional wage loss following termination for cause                      |
| October 29, 2017<br>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-     |

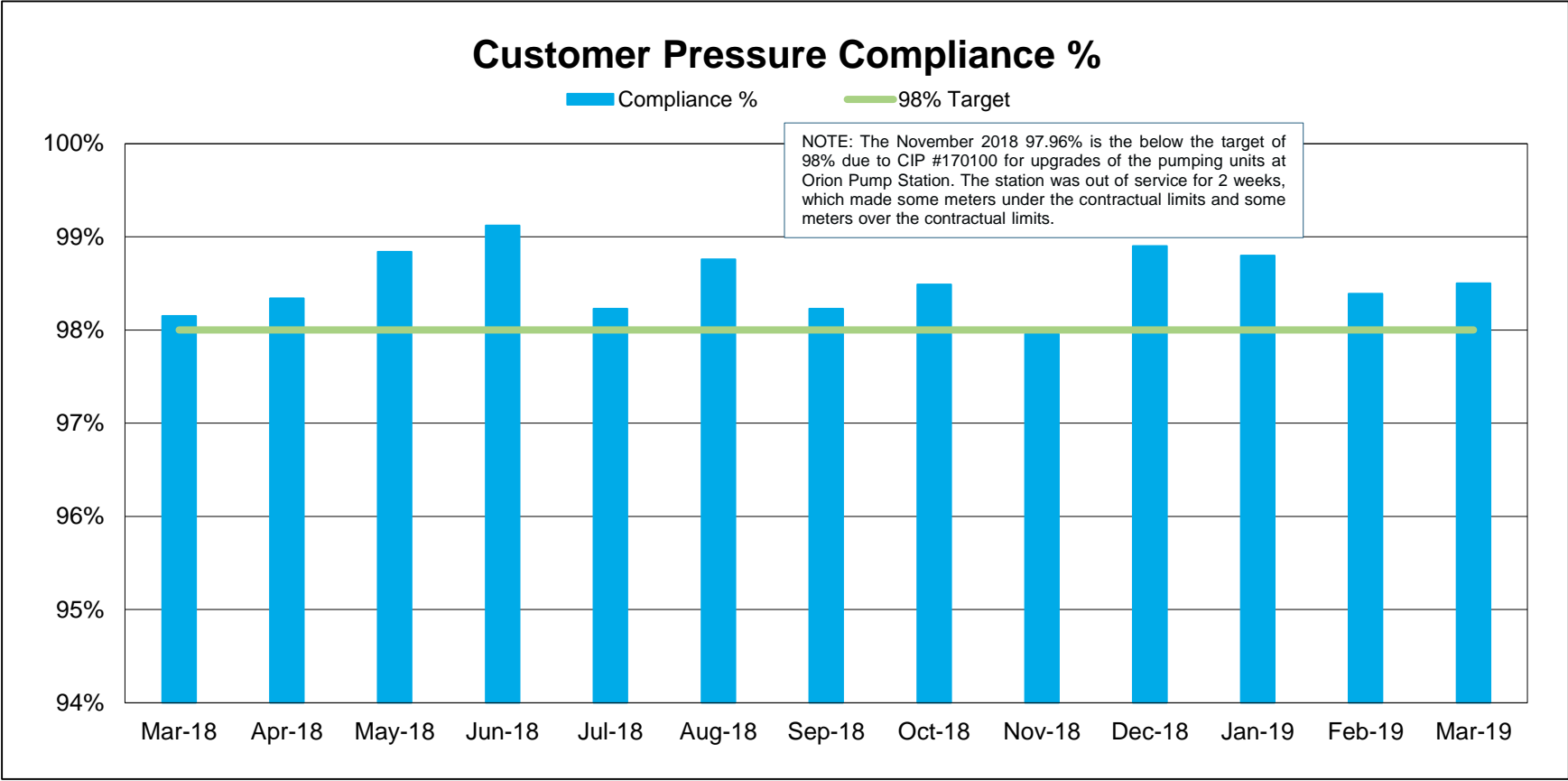
\* \$244,923 (99.6%) of the total is related to *Beasley vs. GLWA* matter



**EUM Attribute:**

**Customer  
Satisfaction**

# Customer Satisfaction – Water & Field Services



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



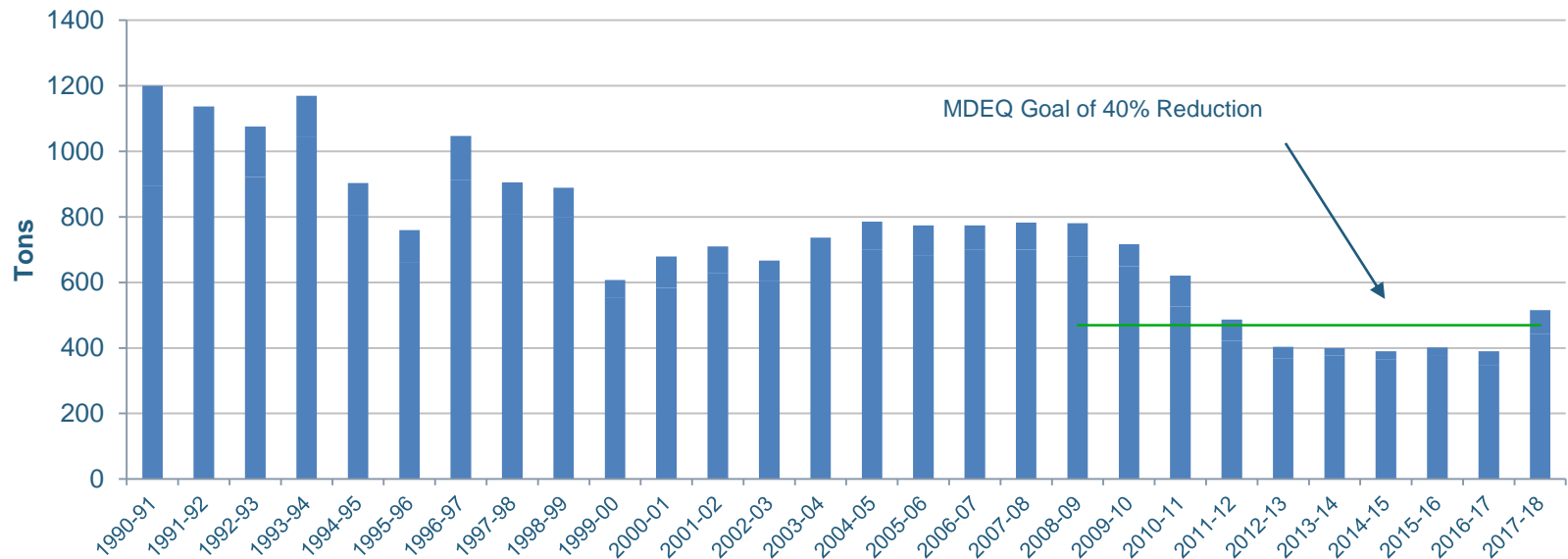
**EUM Attribute:**

**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 June 1990 to July 2018





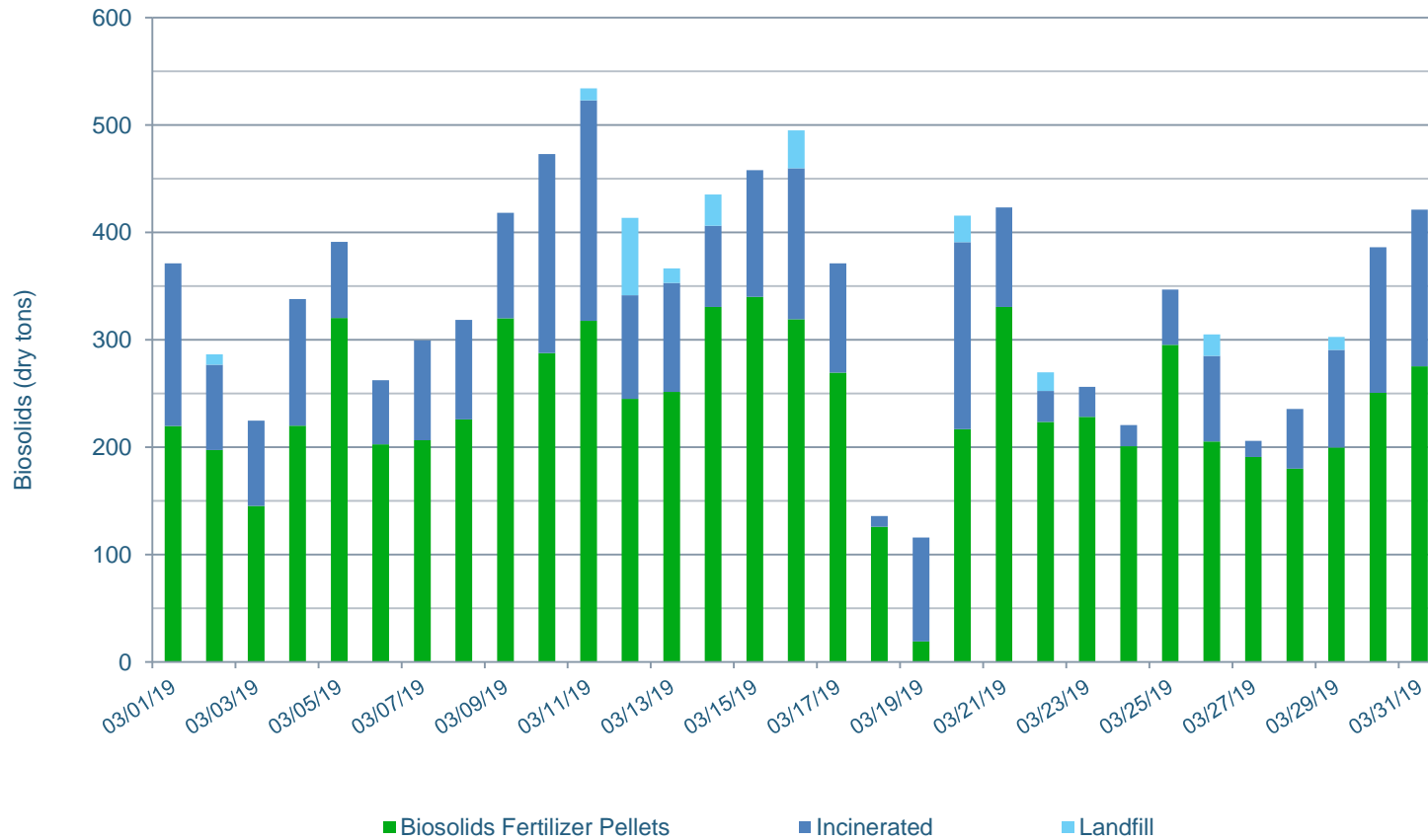
**EUM Attribute:**

**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.





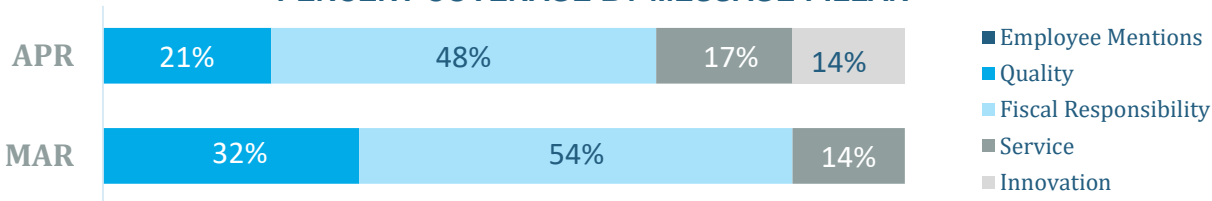
**EUM Attribute:**

**Stakeholder  
Understanding and  
Support**

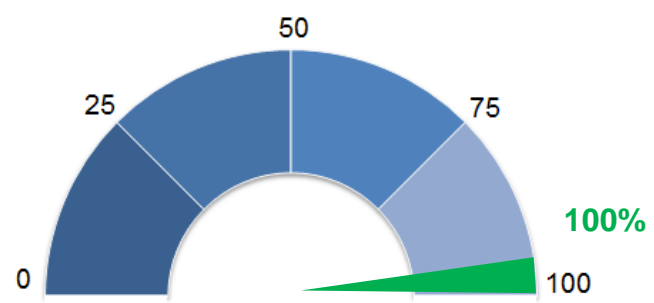
# Traditional Media Summary

Relevant news coverage for GLWA in April focused GLWA's partnership with Aquasight, WRAP assisting customers with water shutoffs, and on the FCA land deal. Overall in April, GLWA saw a 38 percent decrease in mentions compared to March. This decrease was mainly due to the continual leveling off of articles related to FCA land assembly articles. 94 percent of the articles were neutral, with six percent of articles being positive in relation to GLWA's partnership with Aquasight. 100 percent of non-cursory articles contained a GLWA message, a 17 percent increase over last month.

PERCENT COVERAGE BY MESSAGE PILLAR

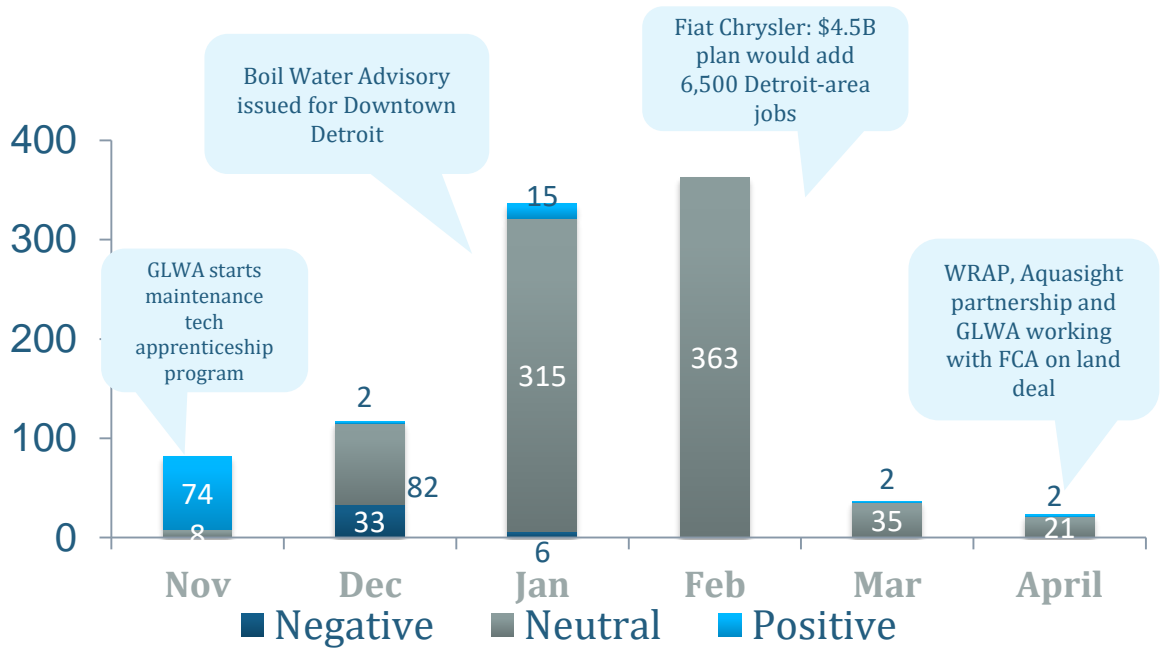


MESSAGE PULL THROUGH\*



100% of coverage contained a GLWA message (GOAL = 75%)

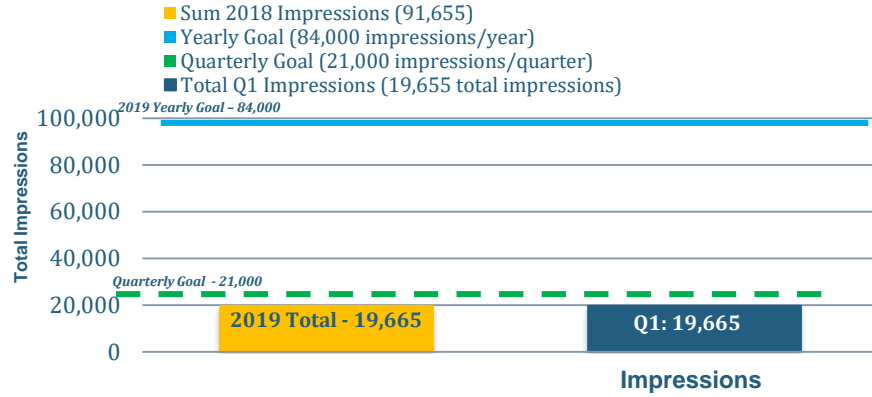
MEDIA VOLUME: 23  
 CURSORY OR FLINT MENTIONS: 17  
 CONTAINED GLWA MESSAGE: 6



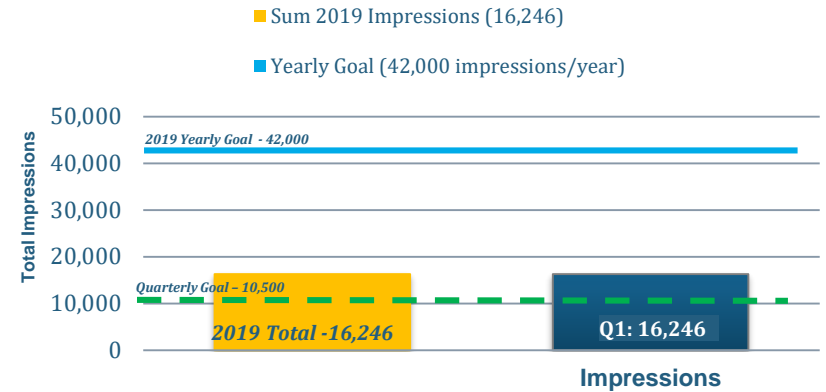
\*\*Message pull through includes quotes or comments from a GLWA spokesperson, a quote from a GLWA press release or underlying theme of GLWA providing safe and clean water.

# Facebook & Twitter Quarterly Review

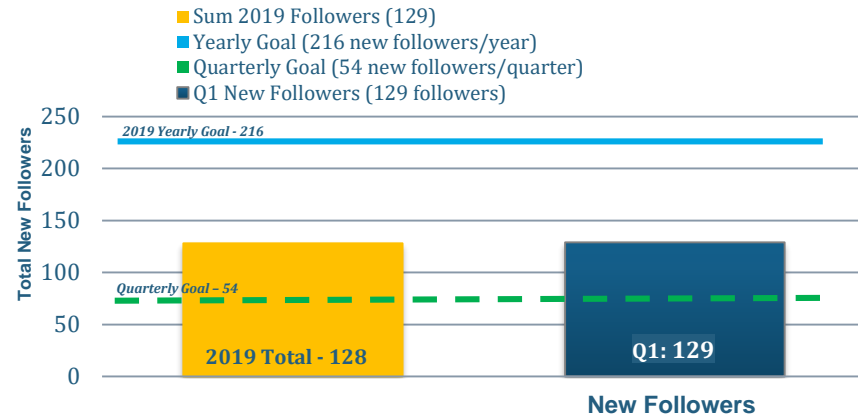
Facebook - Total Impressions Q1 2019



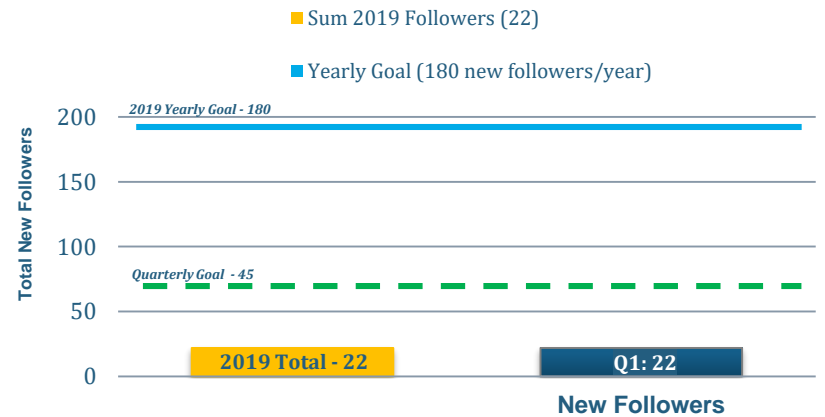
Twitter - Total Impressions by Q1 2019



Facebook - Total New Followers Q1 2019



Twitter - Total New Followers Q1 2019



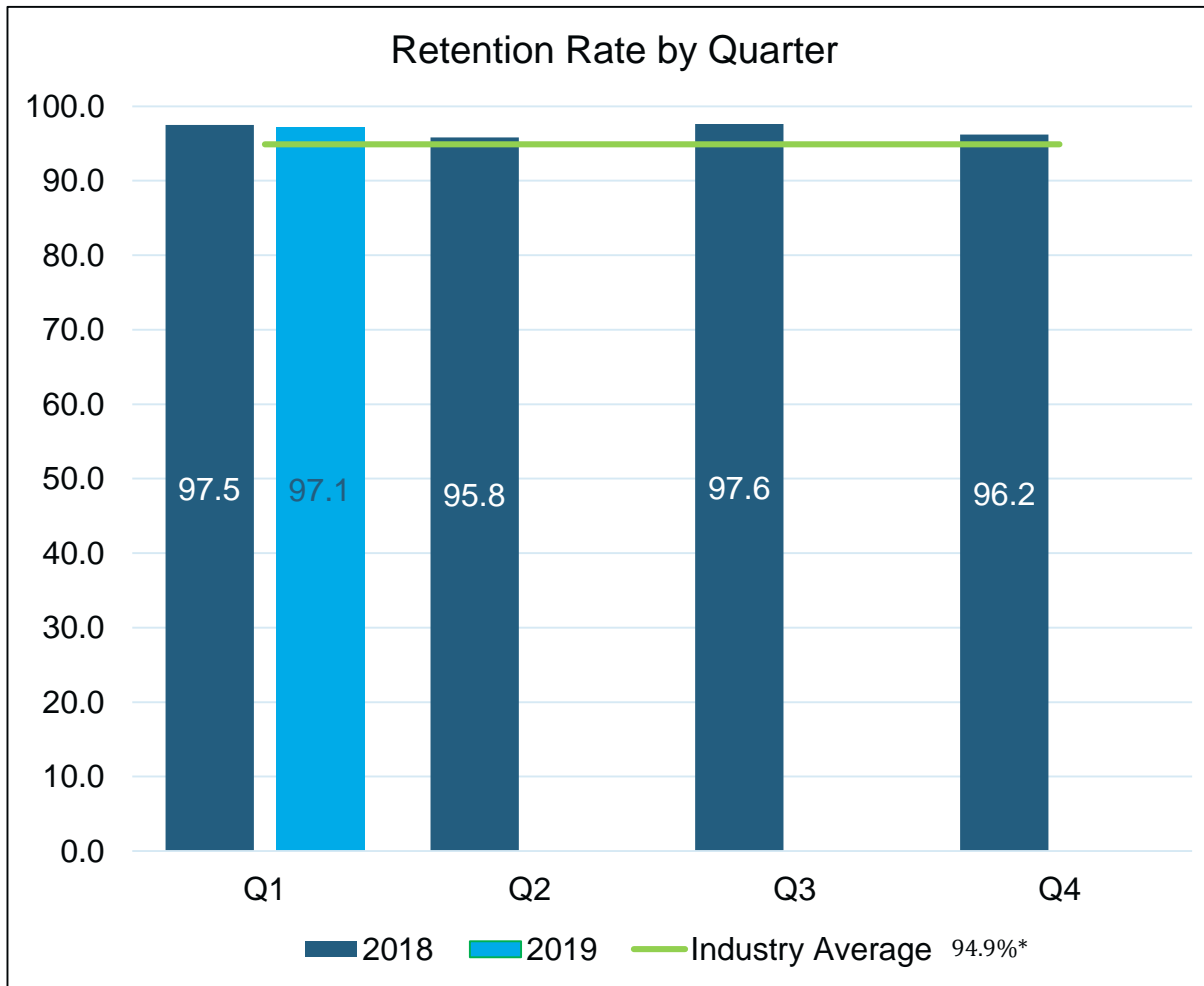
\* Q1: January 2018 – March 2018



**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."