Great Lakes Water Authority

Key Performance Indicators and
Effective Utility Management (EUM) Metrics
February 12, 2020

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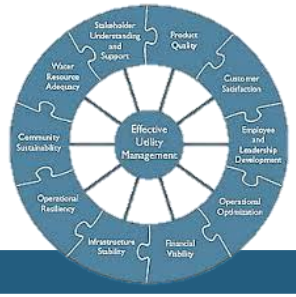
Ten Attributes of Effectively Managed Water Sector Utilities (EUM)



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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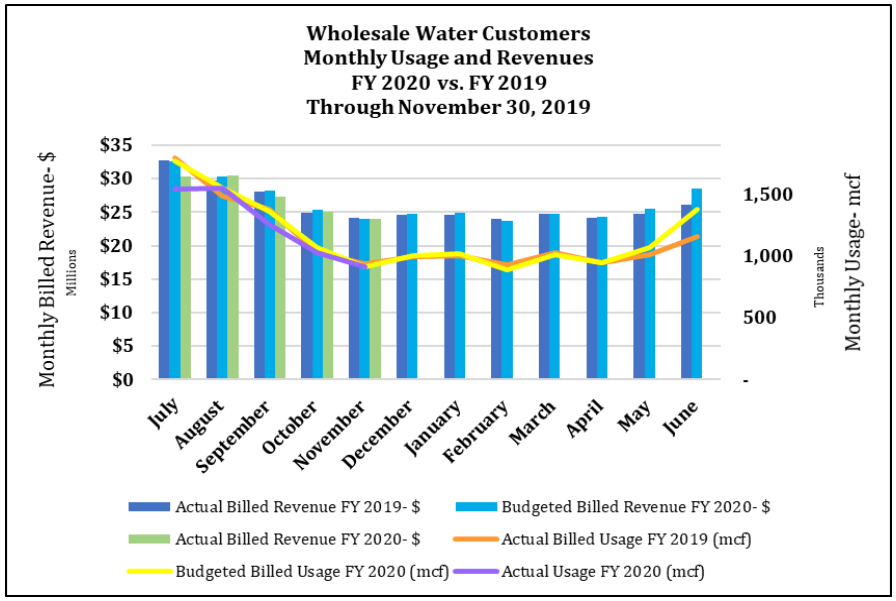
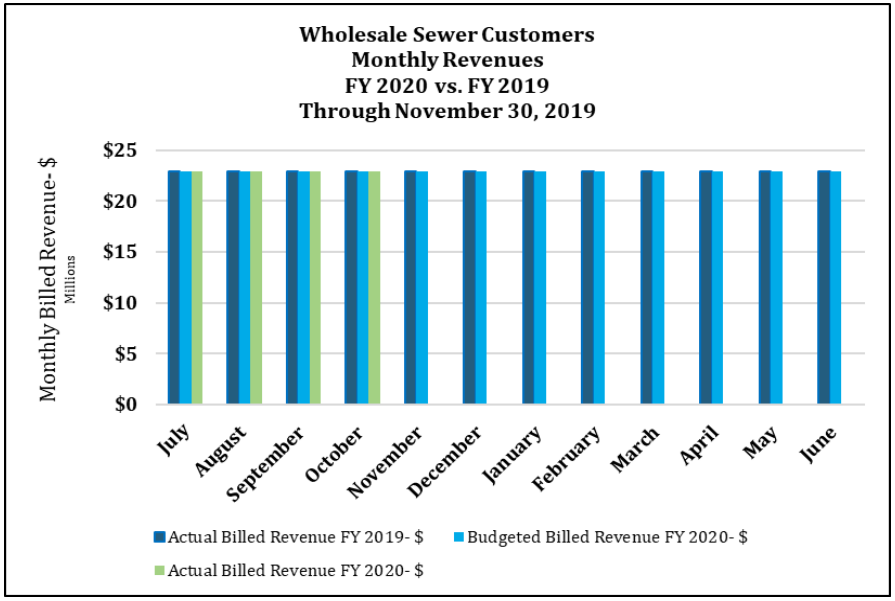
EUM Attribute:

Financial Viability

Financial Viability – Reliability of Wholesale Water and Sewer Revenue Projections





Wholesale Water System billed revenues for FY 2020 are at 97.50% of budget and actual usage at 94.15% of budget through November 2019. Billed revenue for FY 2020 was 1.8% lower compared to the same period in FY 2019.

Wholesale Sewer System billed revenues for FY 2020 are stable with actual billings at 100% of budget (based on the full fixed monthly charge) through November 2019. Billed revenue for FY 2020 was 0.13% lower compared to the same period in FY 2019.

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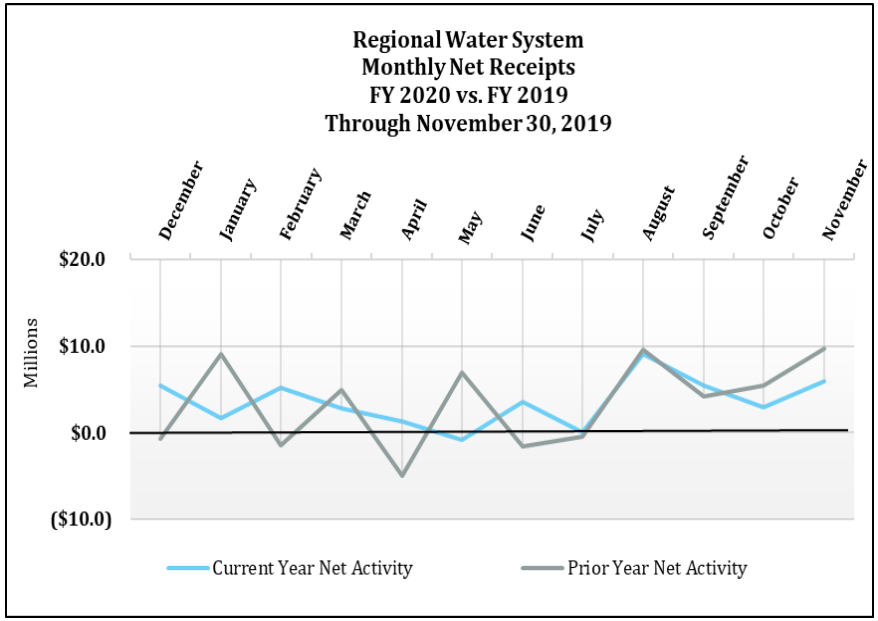
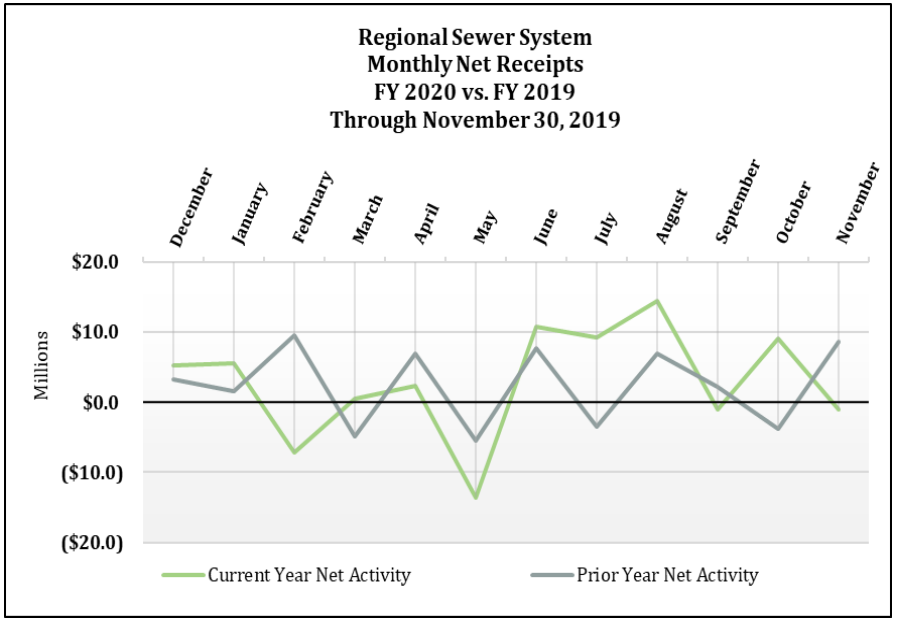
Financial Viability – GLWA Regional System Net Receipts

For the purposes of this reporting, ***Net Receipts equals cash collections less Master Bond Ordinance (MBO) disbursements****.*
The black line in the charts below at zero highlights the minimum goal for net receipts.
While this measure may vary monthly based on billing and collection cycles,
cumulative positive net receipts supports long-term financial sustainability.





Regional Water System net receipts for the month of November 2019 exceeded MBO disbursements by $5.9 million.

The year-to-date net receipts over disbursements ratio of 19% for FY 2020.

Regional Sewer System net receipts for the month of November 2019 fell short of MBO disbursements by $1.0 million.

The year-to-date net receipts over disbursements ratio of 16% for FY 2020.

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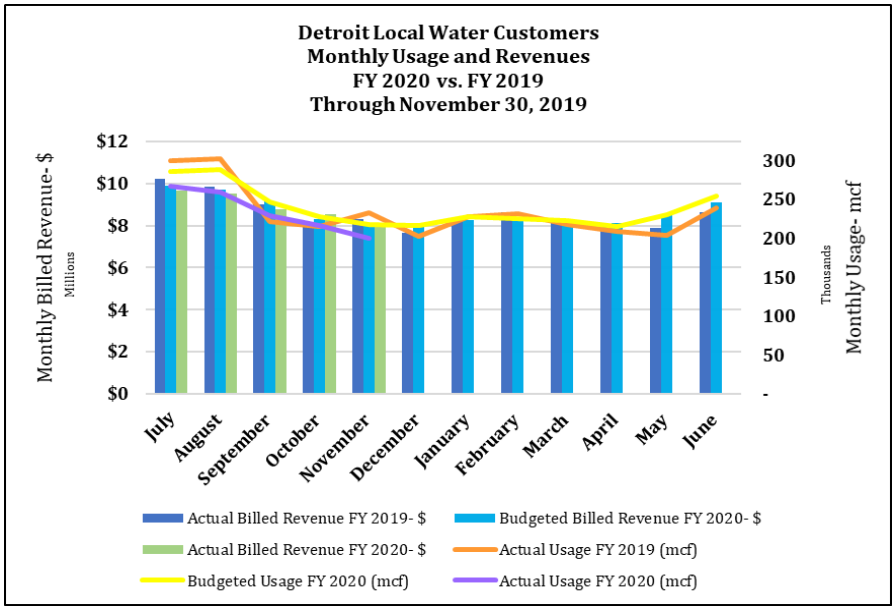
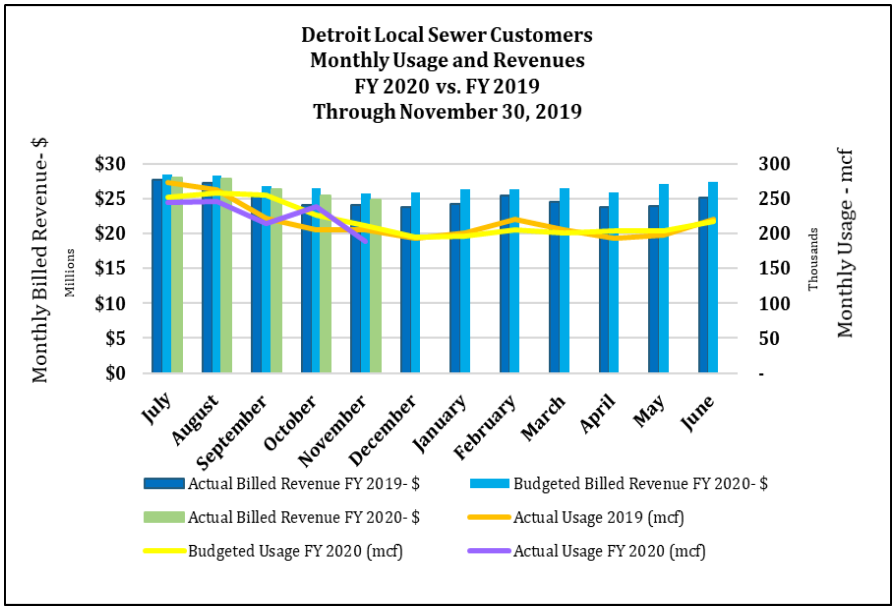
Financial Viability – Reliability of Detroit Local Water and Sewer Revenue Projections





Detroit Local Water System billed revenues for FY 2020 are at 98.40% of budget and actual usage at 92.40% of budget through November 2019. Billed revenue for FY 2020 is 2.1% lower compared to the same period in FY 2019.

Detroit Local Sewer System billed revenues for FY 2020 are at 97.51% of budget and actual usage at 94.10% of budget through November 2019. Billed revenue for FY 2020 is 2.96% higher compared to the same period in FY 2019.

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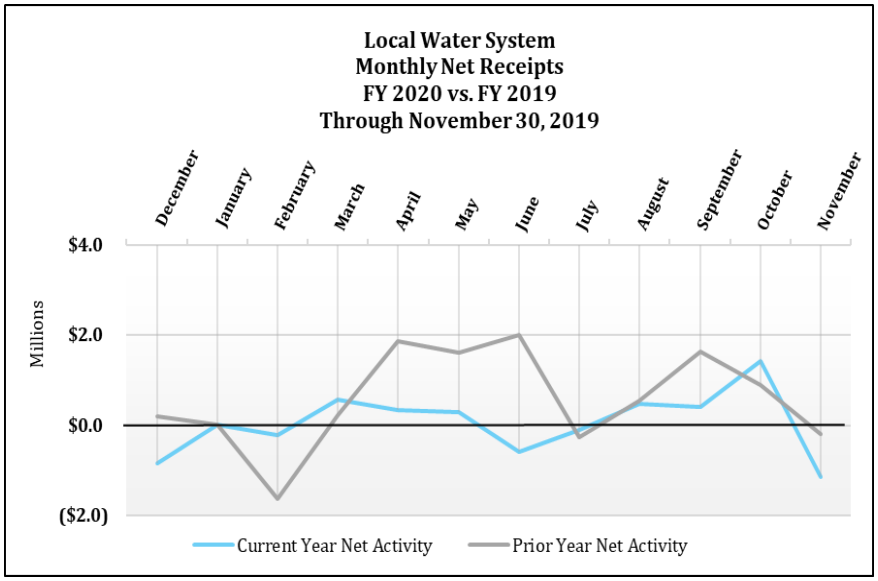
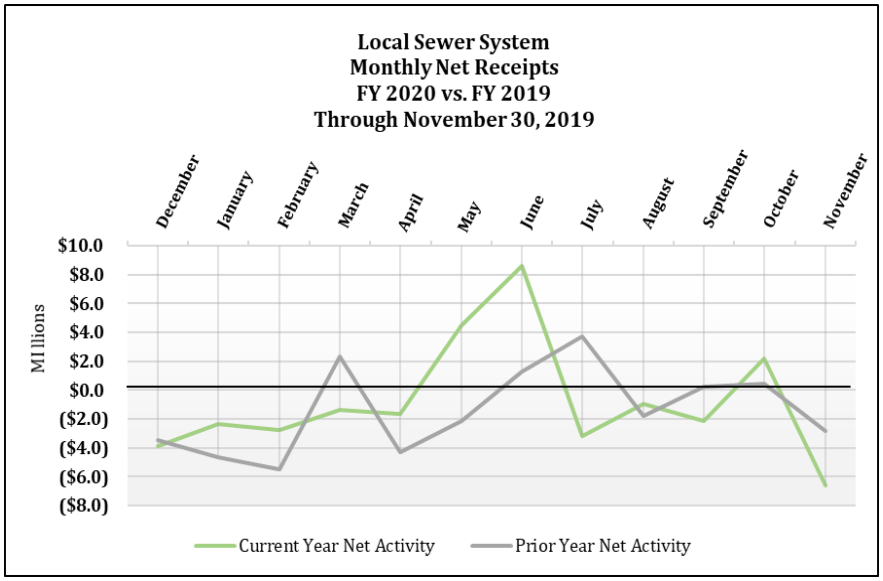
Financial Viability – DWSD Local System Net Receipts

For the purposes of this reporting, ***Net Receipts equals cash collections less Master Bond Ordinance (MBO) disbursements.***
The black line in the charts below at zero highlights the minimum goal for net receipts.
While this measure may vary monthly based on billing and collection cycles,
Cumulative positive net receipts supports long-term financial sustainability.





Local Water System net receipts for the month of November 2019 fell short of MBO disbursements by $1.1 million.

The year-to-date net receipts over disbursements ratio is 3% for FY 2020.

Local Sewer System net receipts for the month of November 2019 fell short of MBO disbursements by $6.6 million.

The year-to-date net receipts over disbursements ratio of -9% for FY 2020.

To remedy this shortfall, DWSD made a one-time transfer of $2.6 million from DWSD O&M to the Receiving Fund in December and has lowered the monthly Operations & Maintenance transfer request beginning December 1, 2019.

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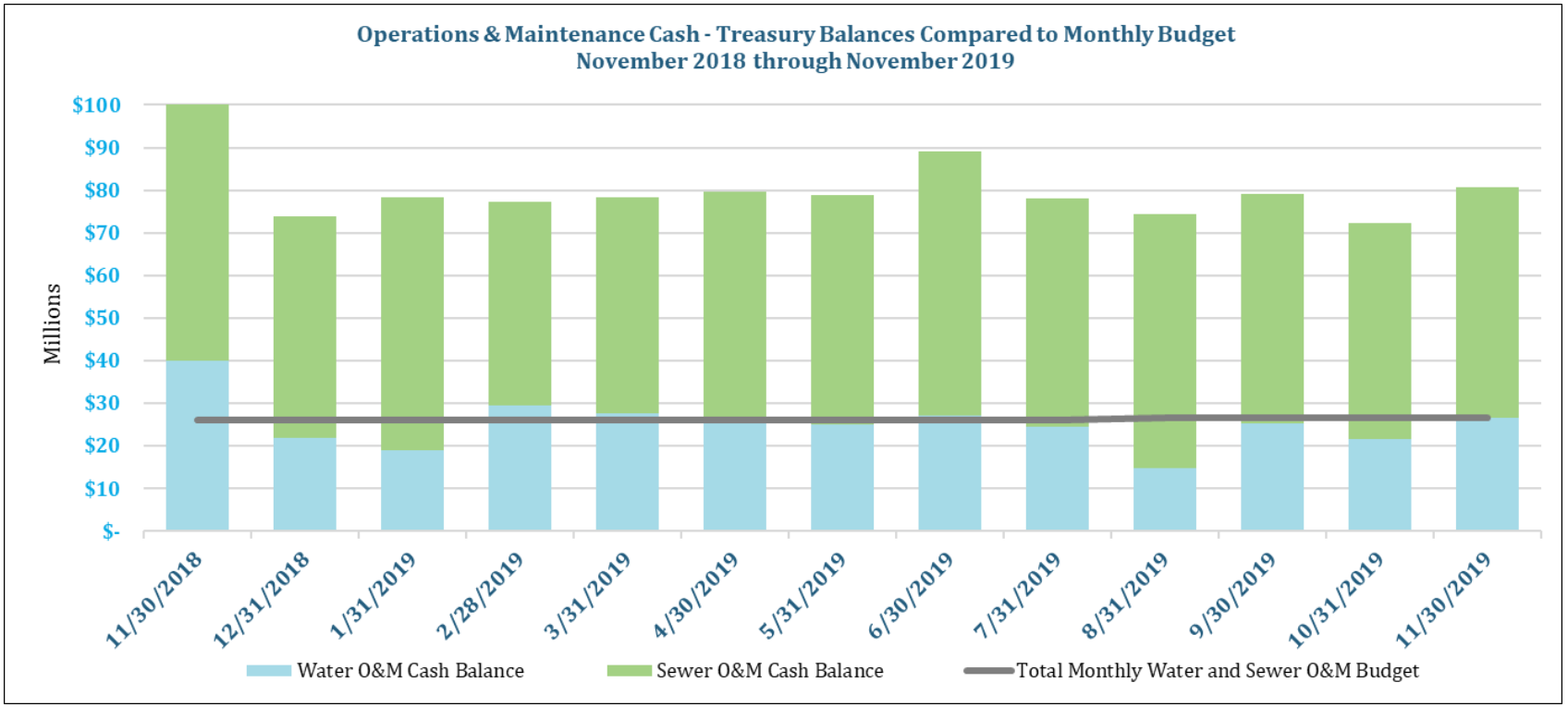
Financial Viability – Revenue Stability and Appropriate O&M Cash Reserves

Maintaining a sufficient level of operating cash provides for system stability.



- Cash balances are appropriate to fund monthly budgeted Operations & Maintenance (O&M) with an average ratio of O&M cash to budget of 2.44x for water and 3.47x for sewer.
- Variability in cash balances is due to timing differences related to interfund transfers settled in the following months.

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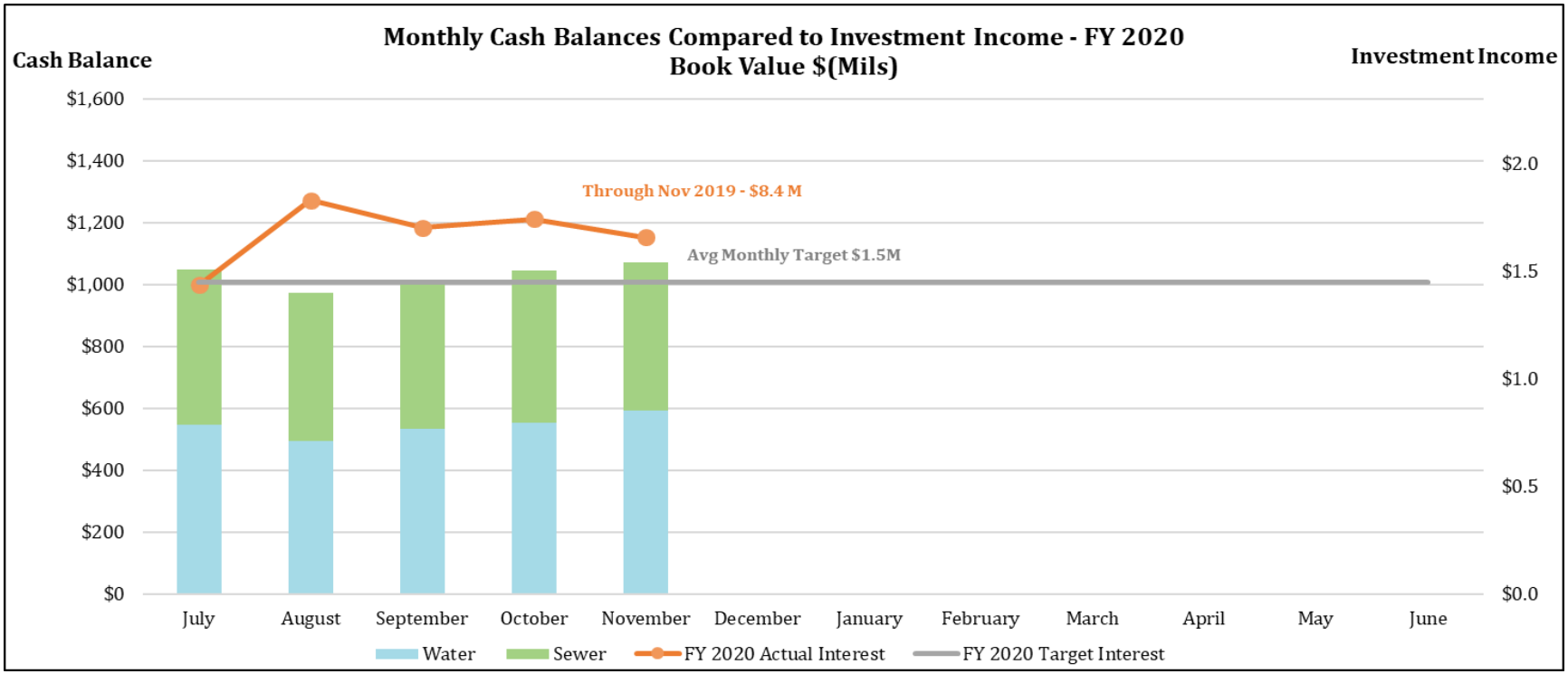
Financial Viability – Optimizing Cash Balances



- Cash and investment balances for the water and sewer funds change each month based on Master Bond Ordinance funding, operational requirements, capital funding, and debt payments.
- Investment income fluctuates monthly with cash and investment balances as well as market conditions and investment strategy.
- GLWA earned investment income of $1.7 million in November 2019 compared to the average monthly target of $1.5 million. The cumulative investment income through November 2019 of $8.4 million is 48% of the FY 2020 target of $17.4 million.
- 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.

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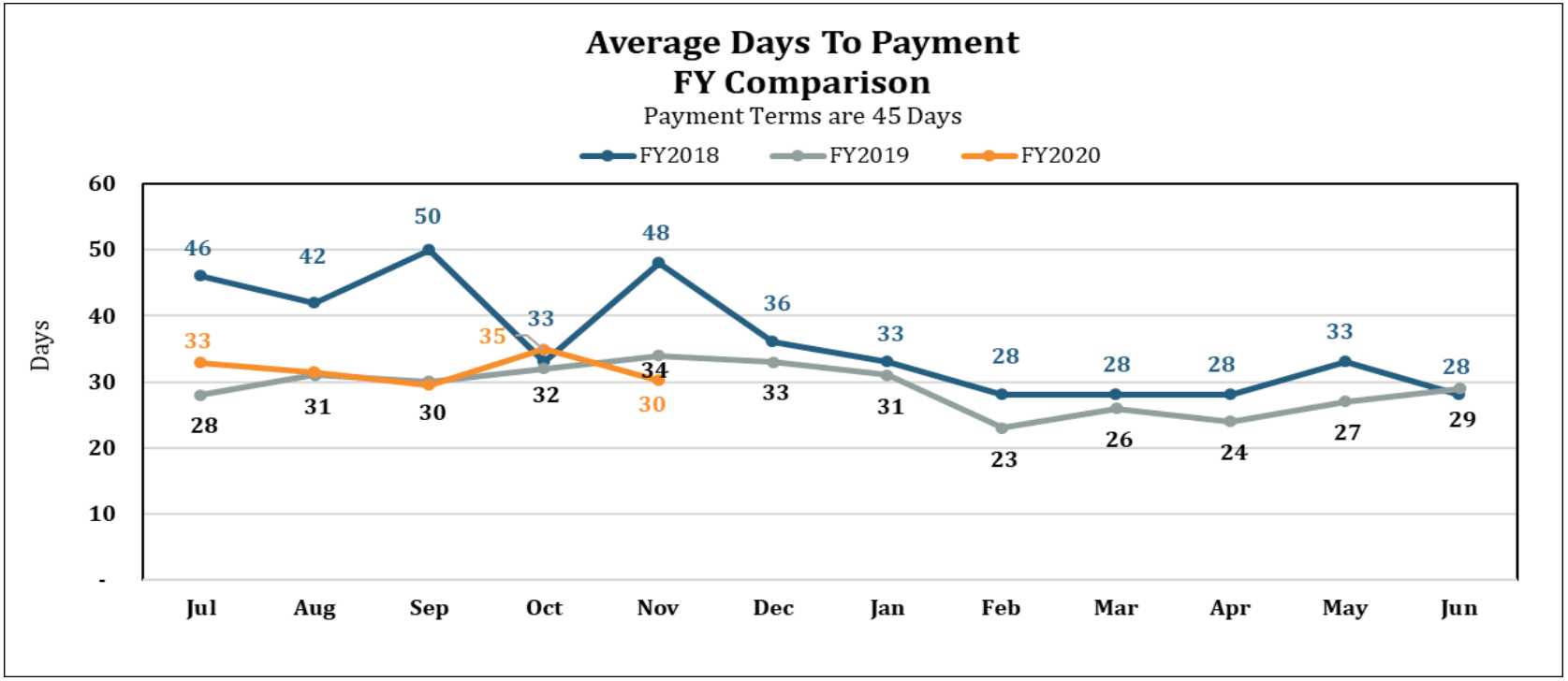
Financial Viability – Days to Pay an Invoice

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.



Timely vendor payments support:

- ✓ Positive supplier relations;
- ✓ Leveraging early payment discounts; and
- ✓ Effective cashflow management.

Twelve-month average days to payment		
FY 2018	FY 2019	FY 2020 (rolling calendar)
36	29	30

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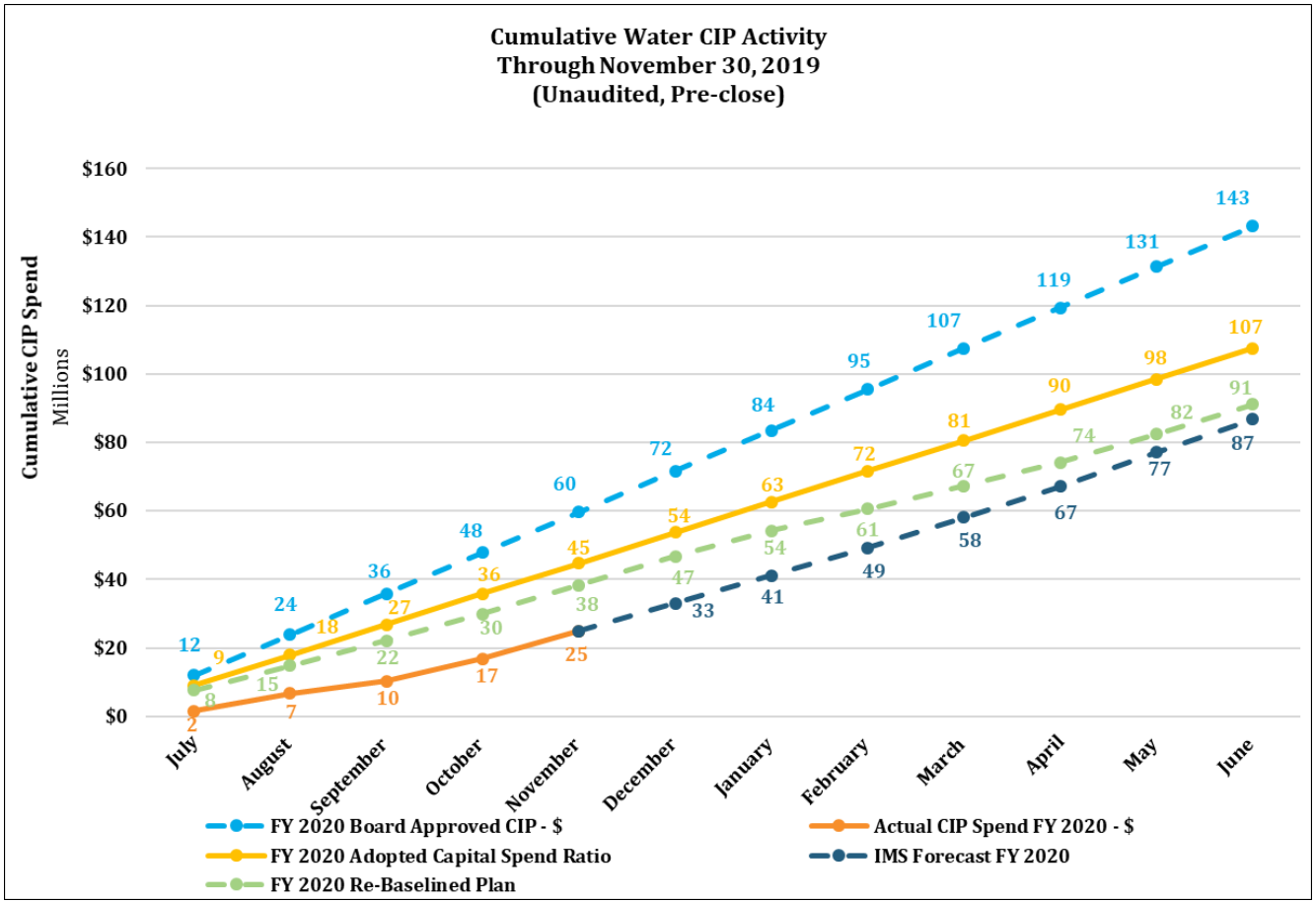
Financial Viability- FY 2020 Total CIP Spend



The water system incurred $25 million of CIP costs through November 2019. This is 41.7% of the five-month prorated FY 2020 Board approved CIP.

FY 2020 Actual, Forecasted, and Re-Baselined Plan values consider the impact of construction contracts having been awarded for amounts less than planned. Consideration was also given to costs transitioned to future fiscal years attributable to both GLWA and consultant delays in completions of design packages, efforts preceding the award of construction contracts, and delays in construction.

Based upon the IMS forecast, it appears that FY 2020 spend will be approximately 61% of the total FY 2020 Board-approved CIP. That forecast is within the 75% capital spending ratio approved with the FY 2020 financial plan.

FY 2020 Re-Baselined Plan: *With the development of the FY 2021 – 2025 CIP all CIP Project progress and priorities were re-evaluated. The schedule and financial impacts of the current fiscal year were incorporated into the Re-Baselined Plan. Future progress will be evaluated against this Re-Baselined Plan.*

Integrated Master Schedule (IMS) Forecast: *The comprehensive schedule of all Capital Improvement Plan (CIP) projects with start and finish forecast of dates and dollars based on most current project execution logic, data and other assumptions. This data is the result of an FY 2019 initiative to produce monthly financial forecasts utilizing Primavera P6. GLWA engineers and construction contractors are actively engaged in the forecasting process.*

Prorated Board Approved CIP: *Calculated by dividing 100% of the total FY 2020 board-approved Capital Improvement Plan by twelve equal months .*

Prorated Amended Spend: *Generally represents amendments to the plan based on award of contracts, change orders or cancelled projects resulting in variances to plan.*

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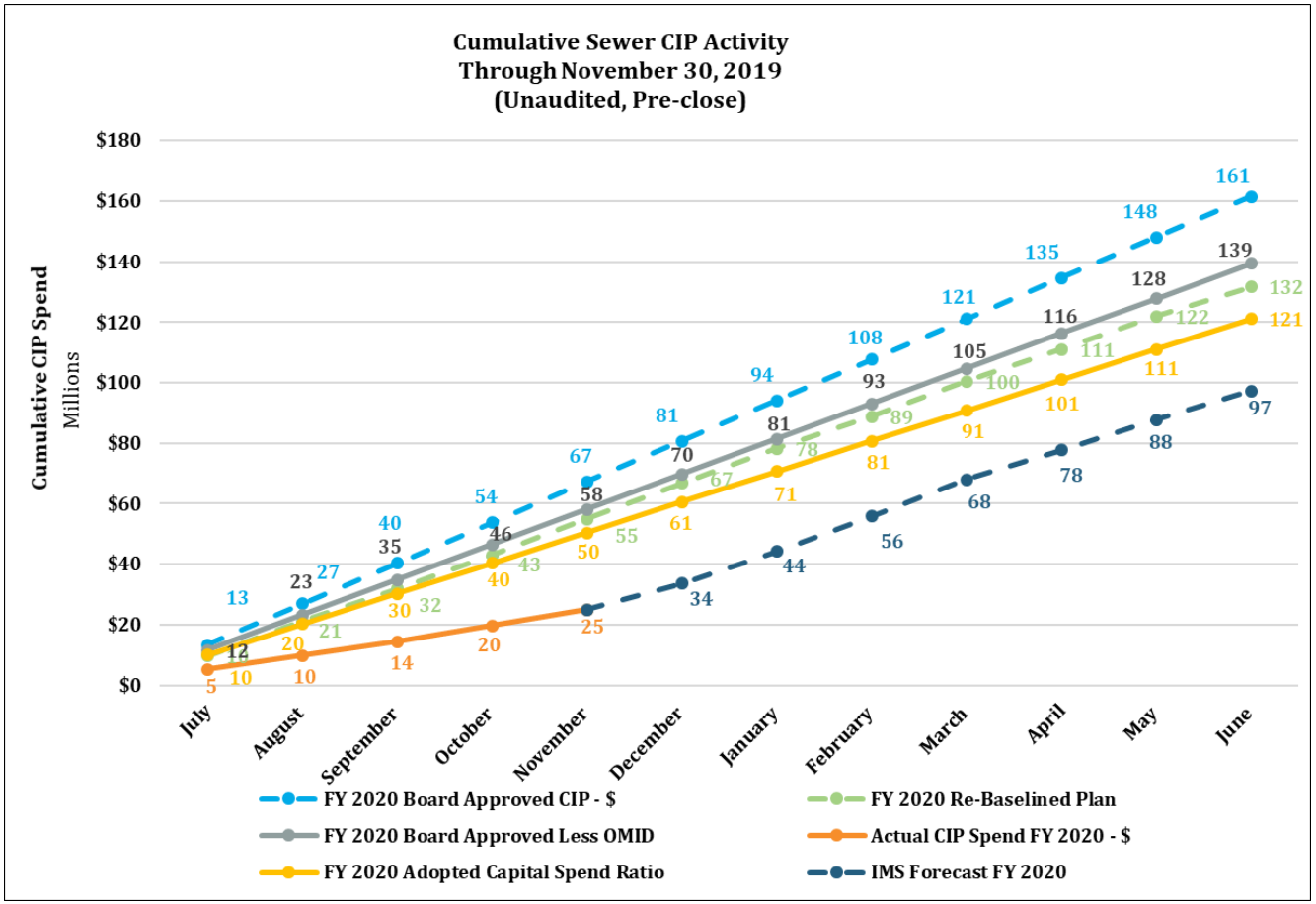
Financial Viability- FY 2020 Total CIP Spend



The sewer system incurred $25 million of CIP costs through November 2019. This is 37.1% of the five-month prorated FY 2020 Board approved CIP.

FY 2020 Actual, Forecasted, and Re-Baselined Plan values exclude OMID Projects 222003 NIEA Evaluation and Rehabilitation and 232003 Northeast Pumping Station in the amount of $20 million in addition to nearly $8 million for the cancelled CIP Project 213002, Rehabilitation of Central Offload Facility that were included in the FY 2020 Board Approved Spend.

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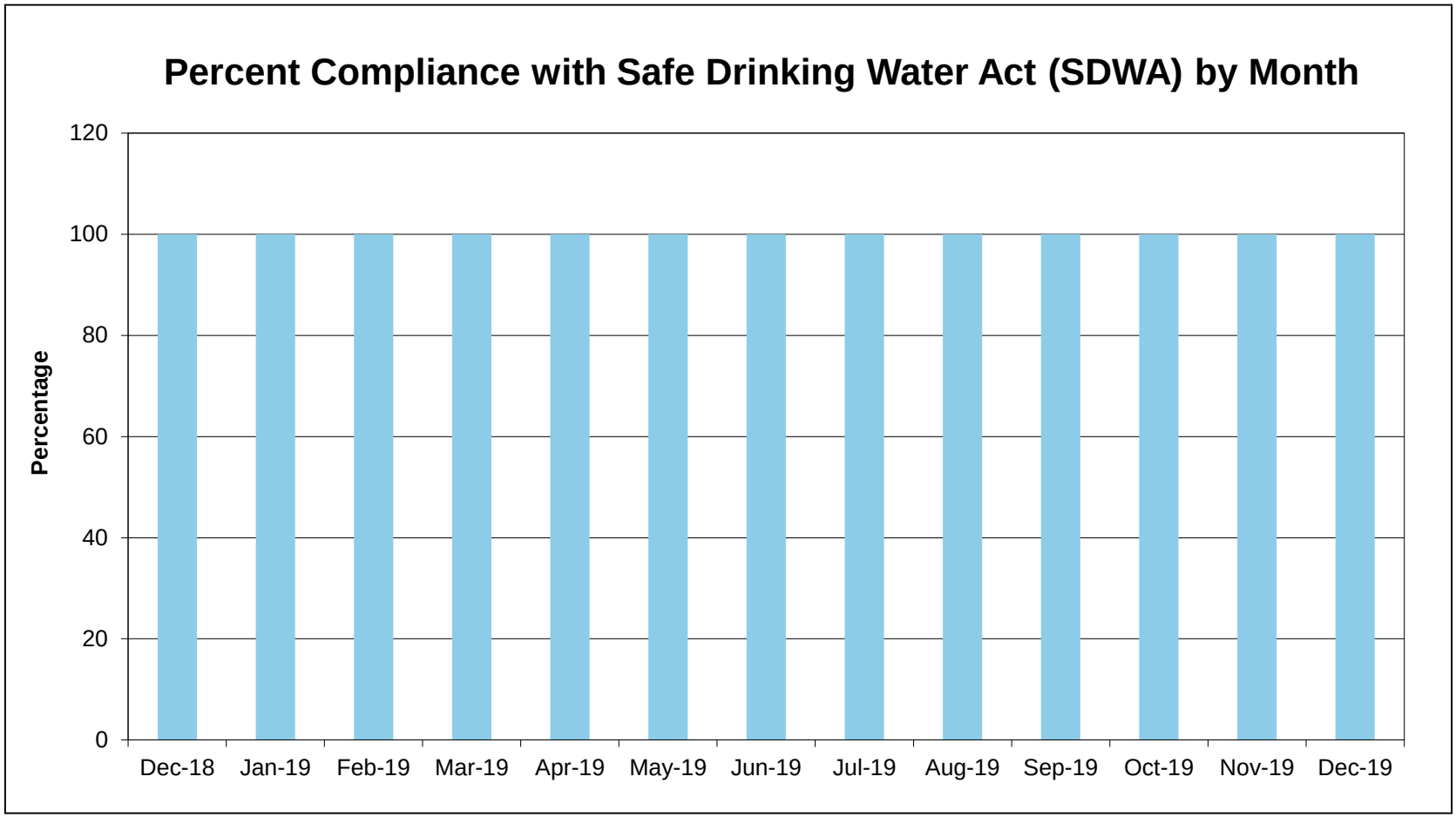
EUM Attribute:

Product Quality

Product Quality – SWDA 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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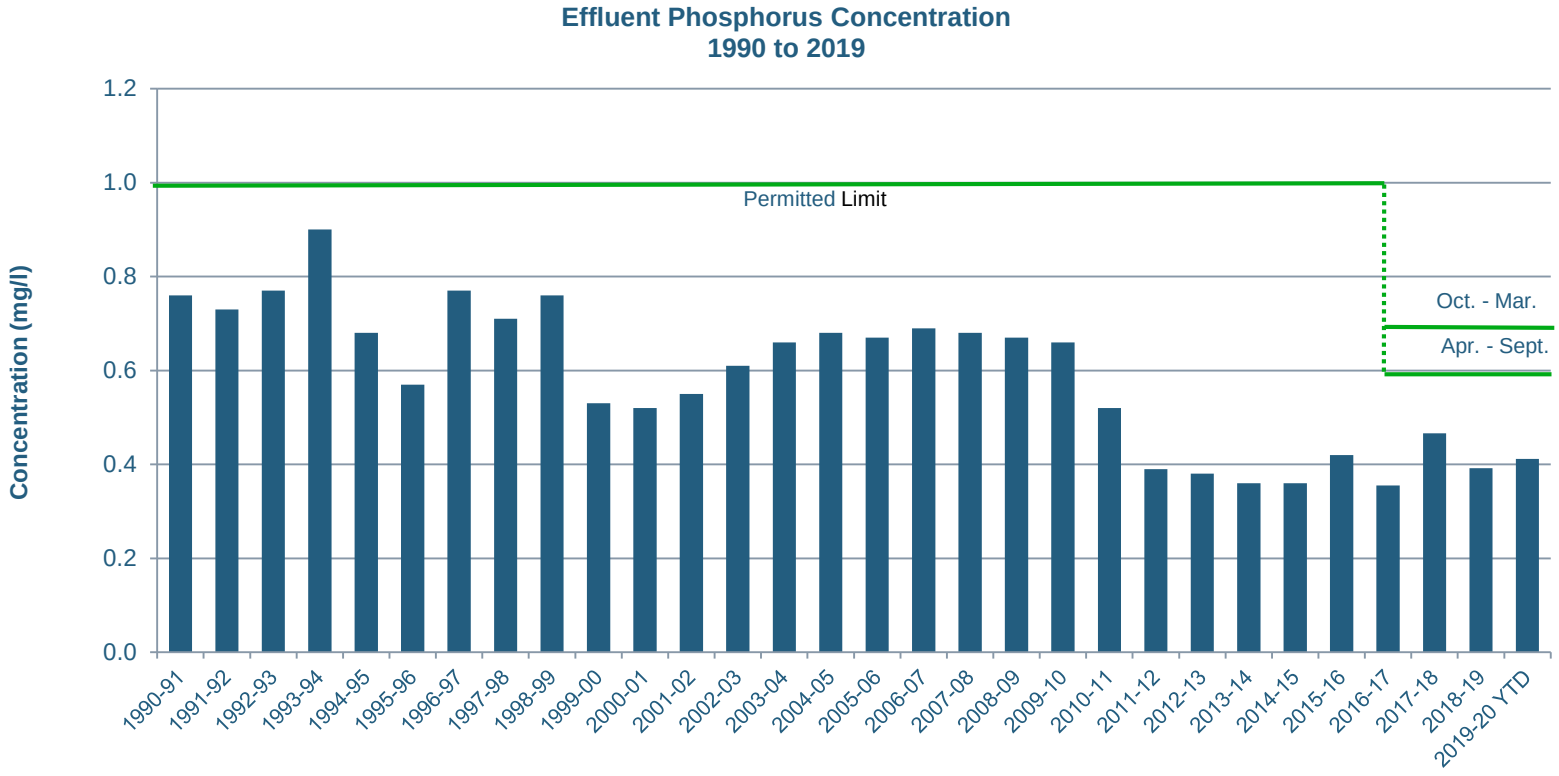
Product Quality
Regulatory Compliance – Effluent Phosphorous Concentration

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



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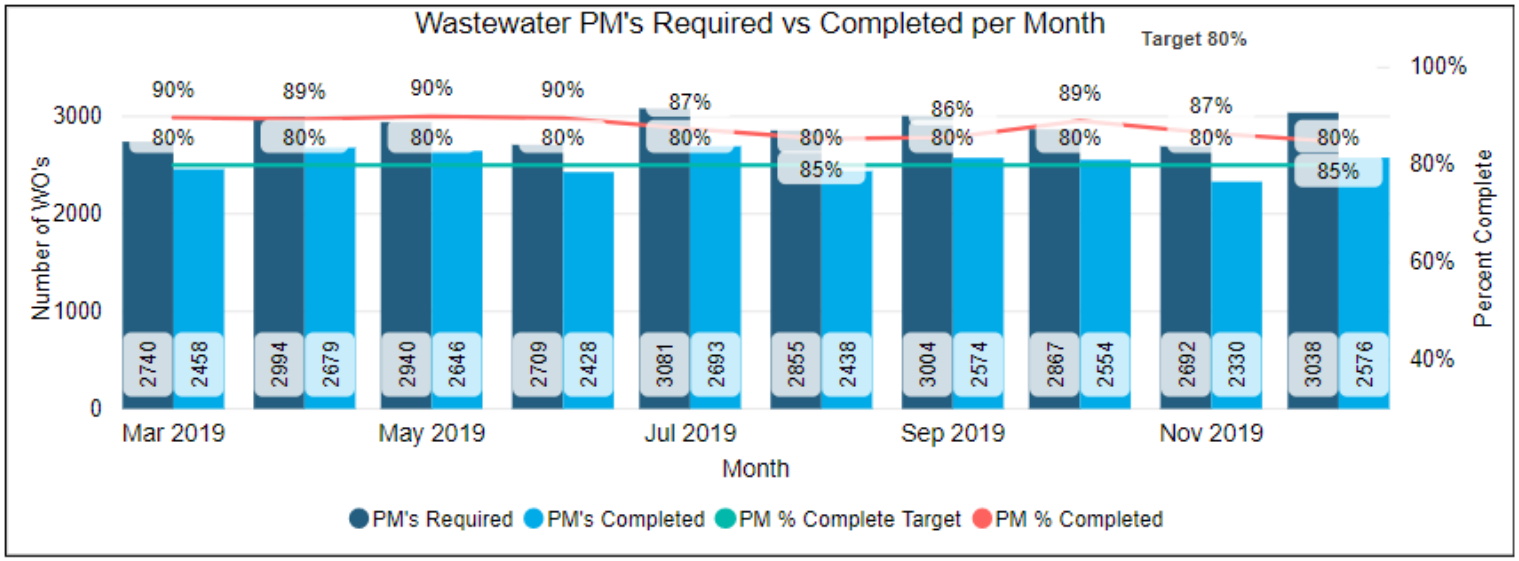
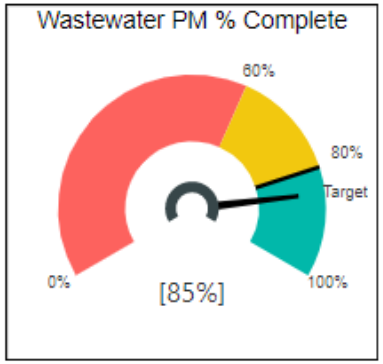
EUM Attribute:

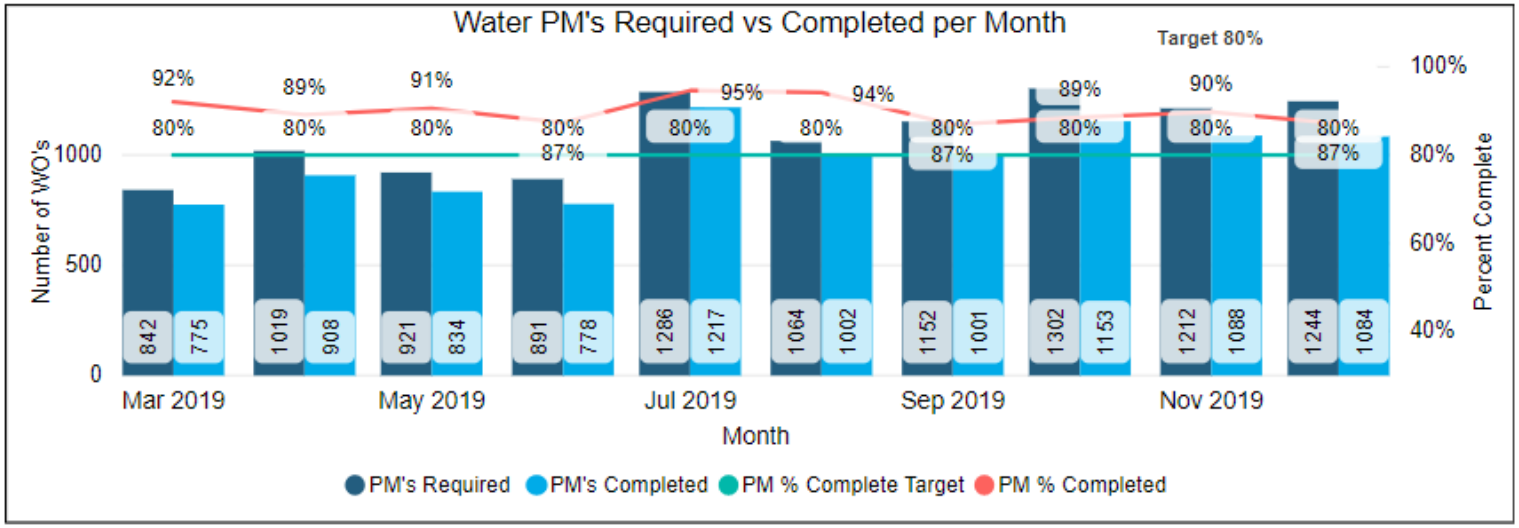
Infrastructure Strategy and Performance

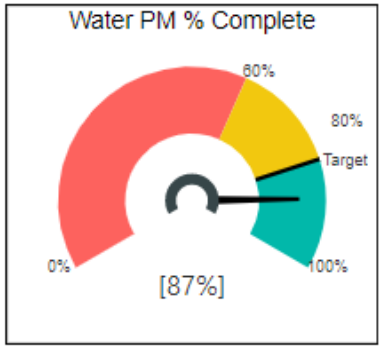
Infrastructure Strategy and Performance – Wastewater and Water Preventative Maintenance (PM) Management

December 2019









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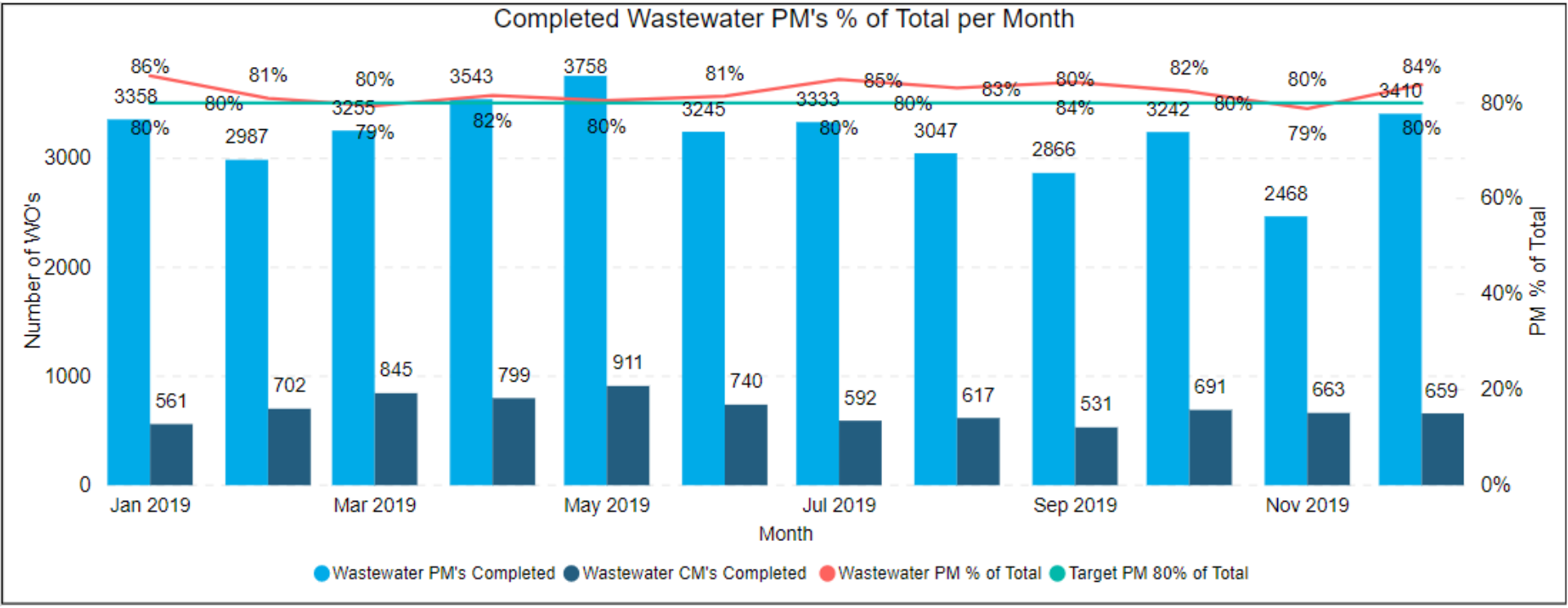
*Timely preventative maintenance extends asset useful life and minimizes unplanned downtime.

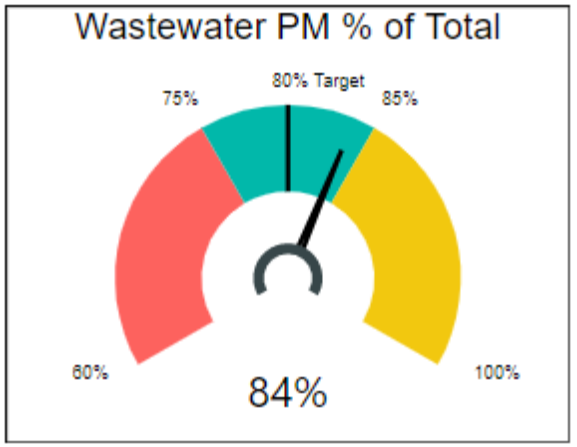
*Unplanned downtime can lead to permit non-compliance and negative environmental impacts.

Infrastructure Strategy and Performance – Wastewater Preventative & Corrective Maintenance Management

December 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

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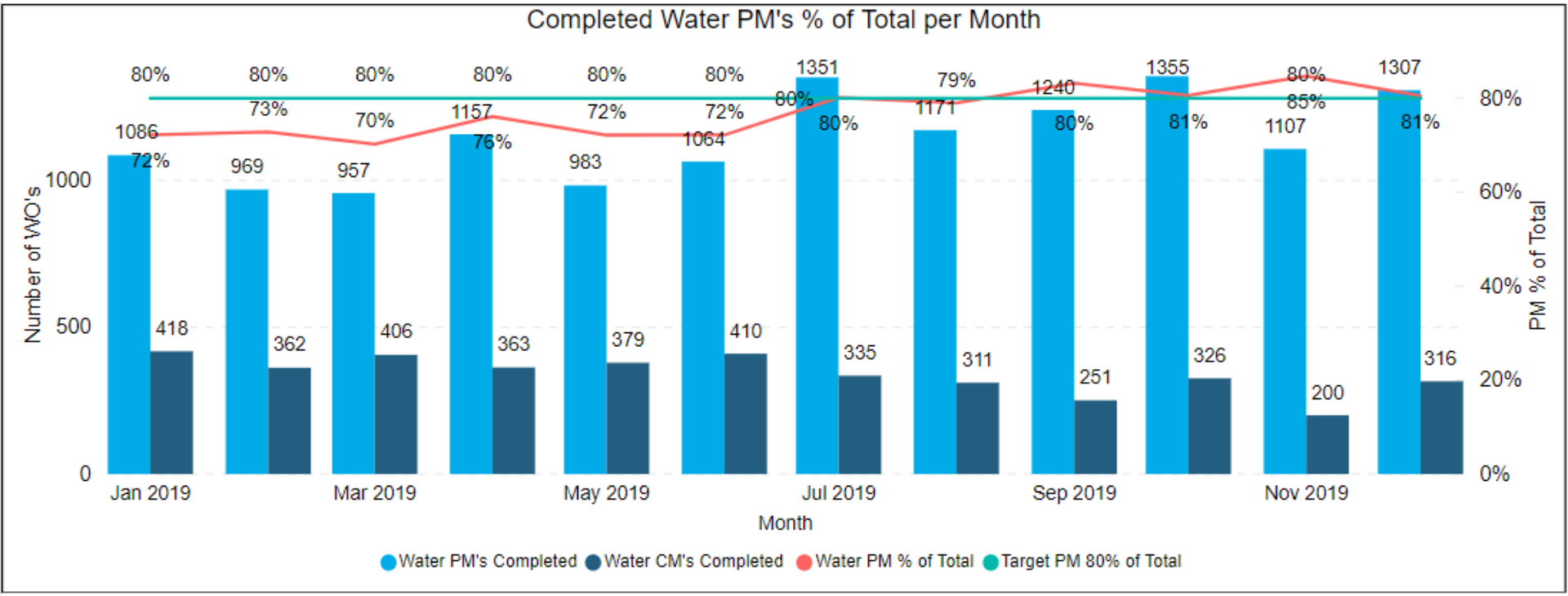
Infrastructure Strategy and Performance – Water Preventative & Corrective Maintenance Management

December 2019



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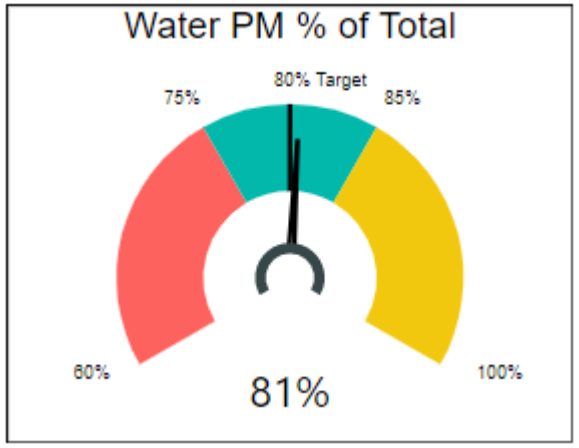

PM = Preventative Maintenance
CM = Corrective Maintenance

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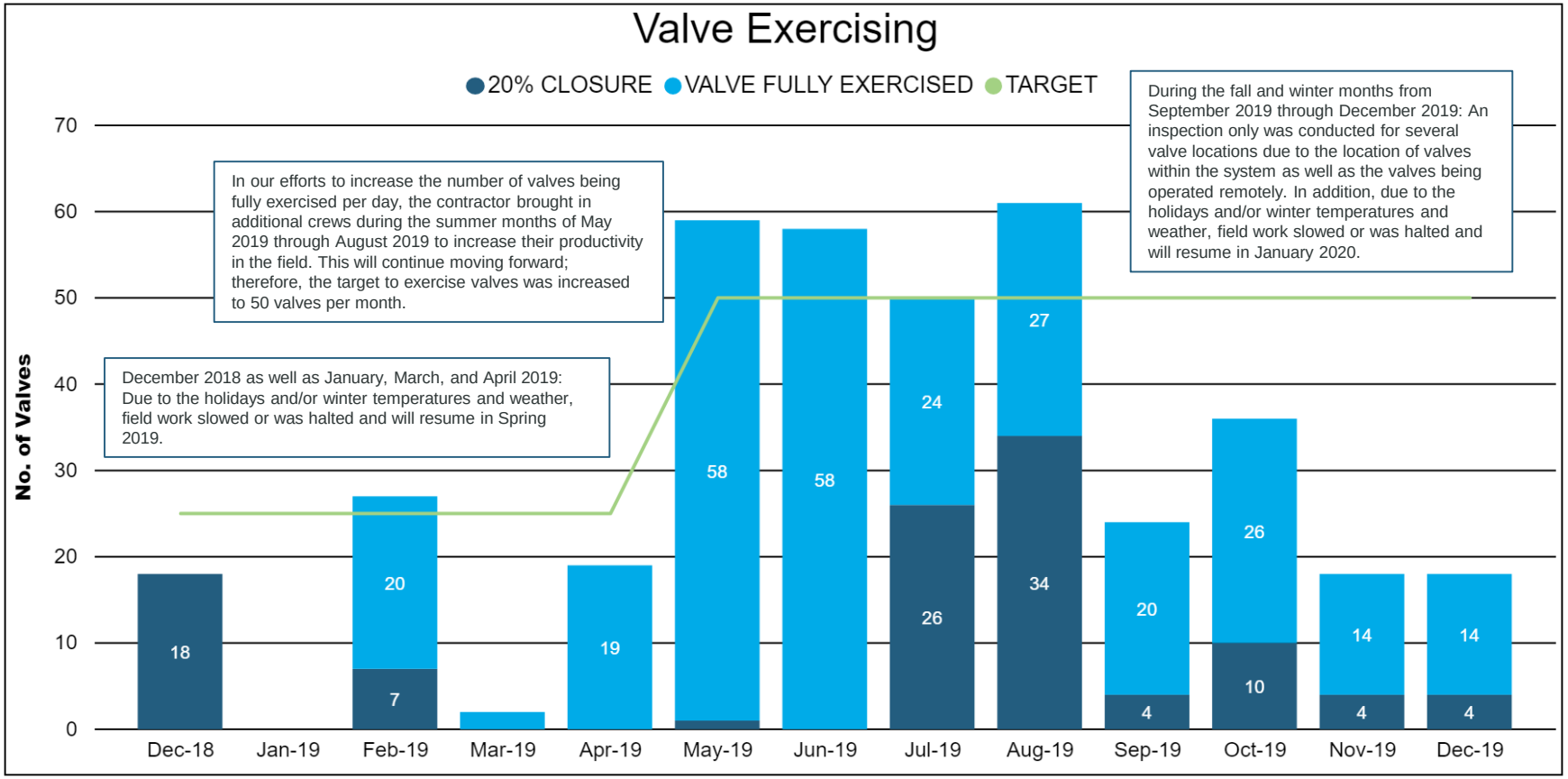
Infrastructure Strategy and Performance – Water and Field Services Valve Exercising



Valves cycled 20% on the initial visit/attempt • Valves fully exercised on the initial visit/attempt • Target to exercise 50 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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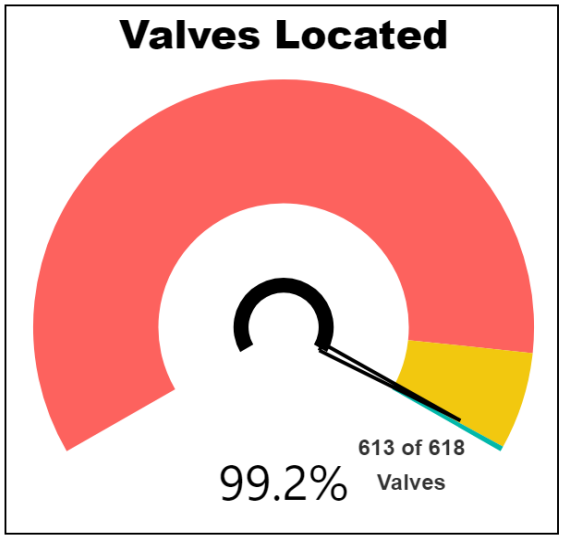
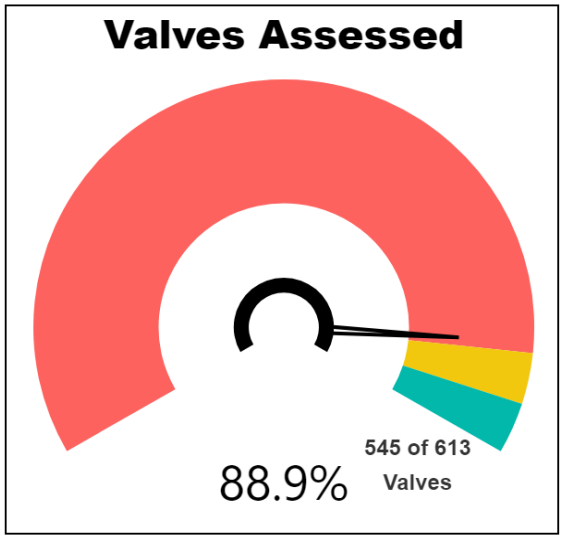
Infrastructure Strategy and Performance – Water and Field Services Valve Exercising

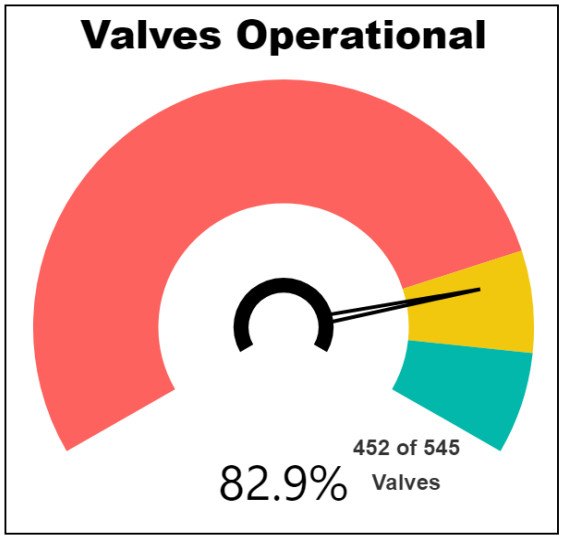
December 2019 KPIs



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 yellow on Valves Located (99.2%) and Valves Operational (82.9%), and red on Valves Assessed (88.9%), 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.

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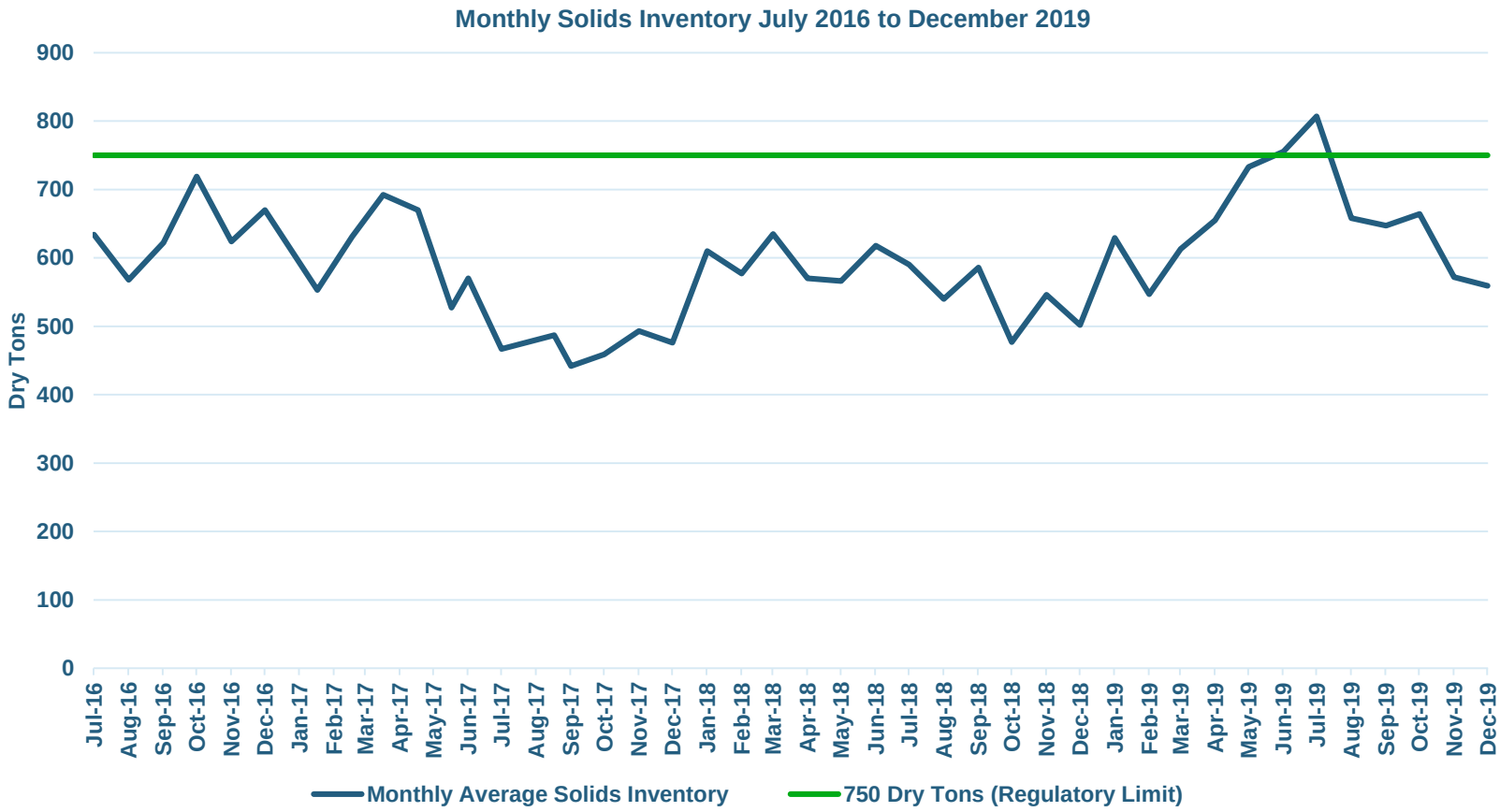
EUM Attribute:

Operational Optimization

Operational Optimization
Regulatory Compliance – Monthly Solids Inventory

- Solids inventory is a measure of process performance and is regulated by the State.
- Except for July 2019's extraordinary sustained wet weather event, GLWA has consistently tracked below 750 dry tons since Oct. 2014.



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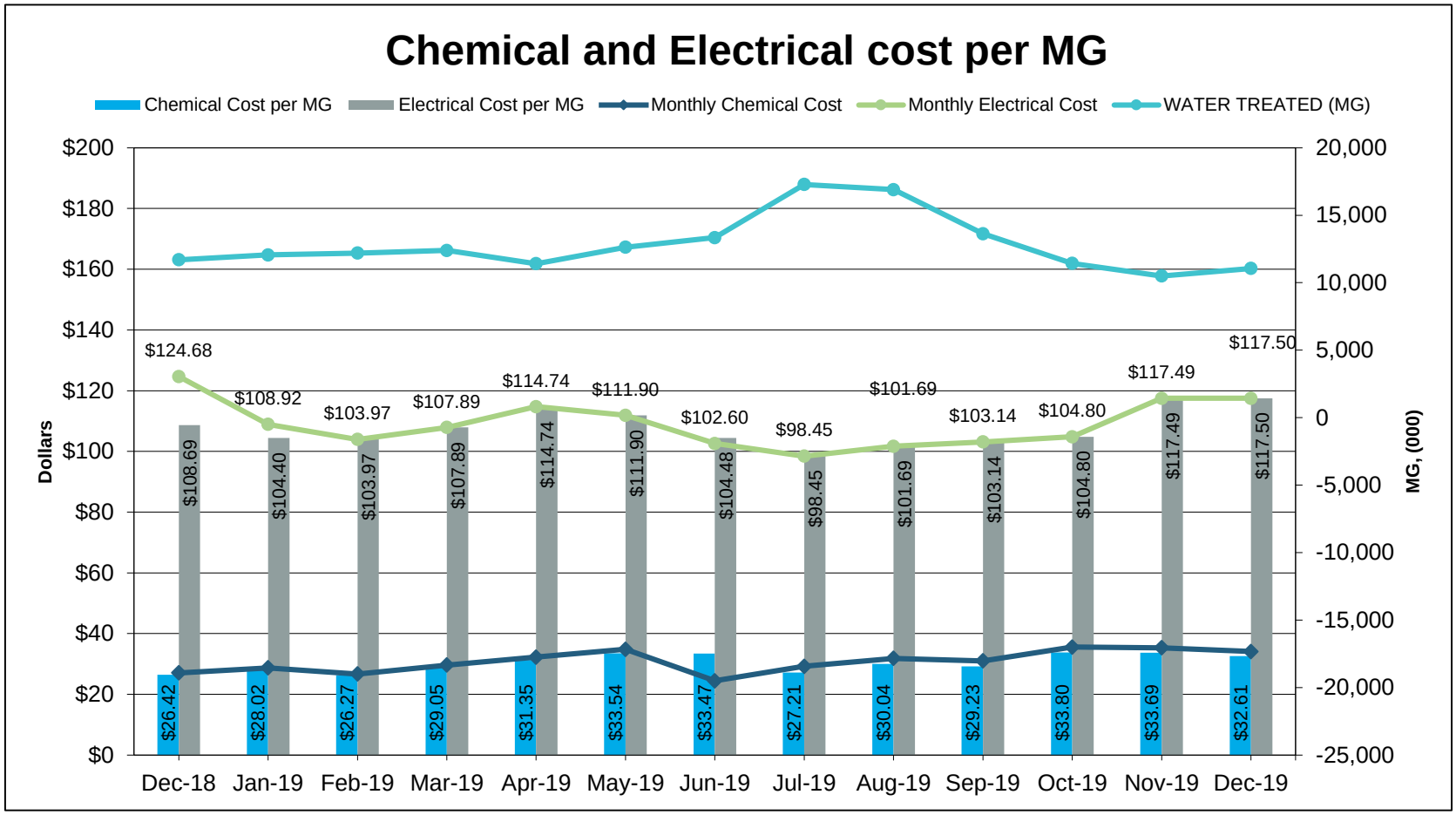
Operational Optimization
Chemical & Electrical Costs



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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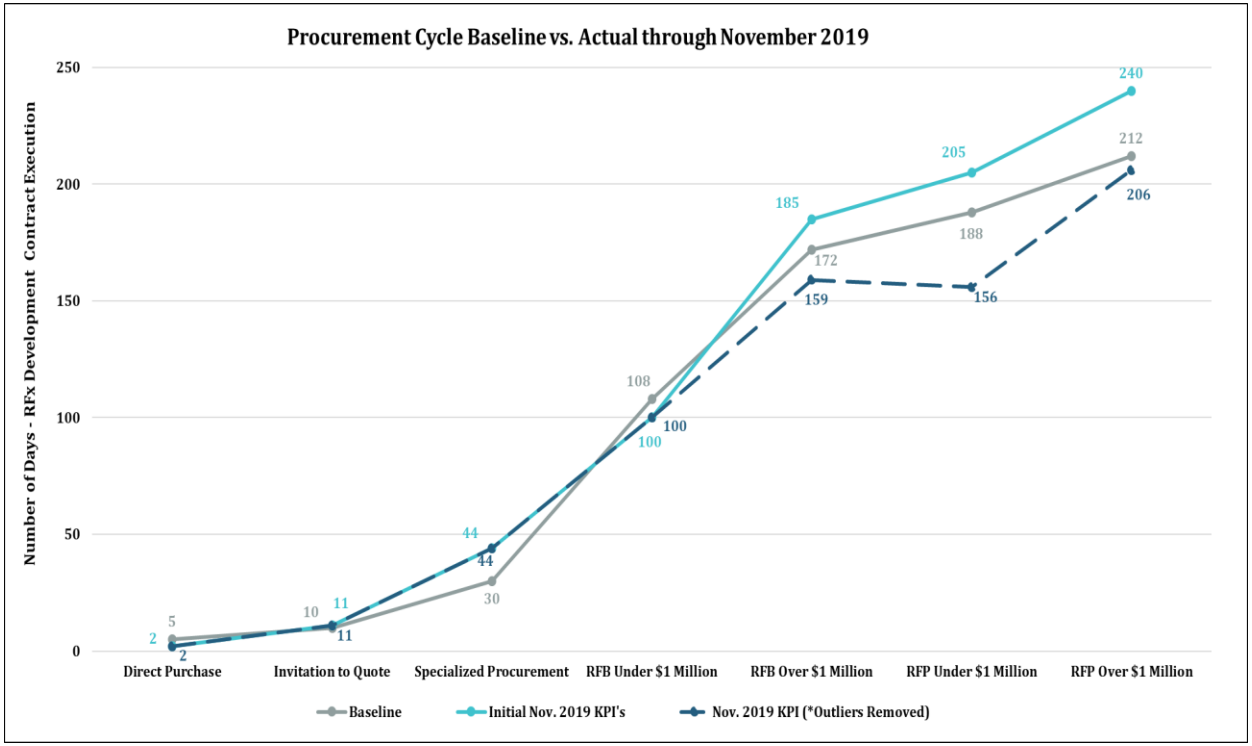
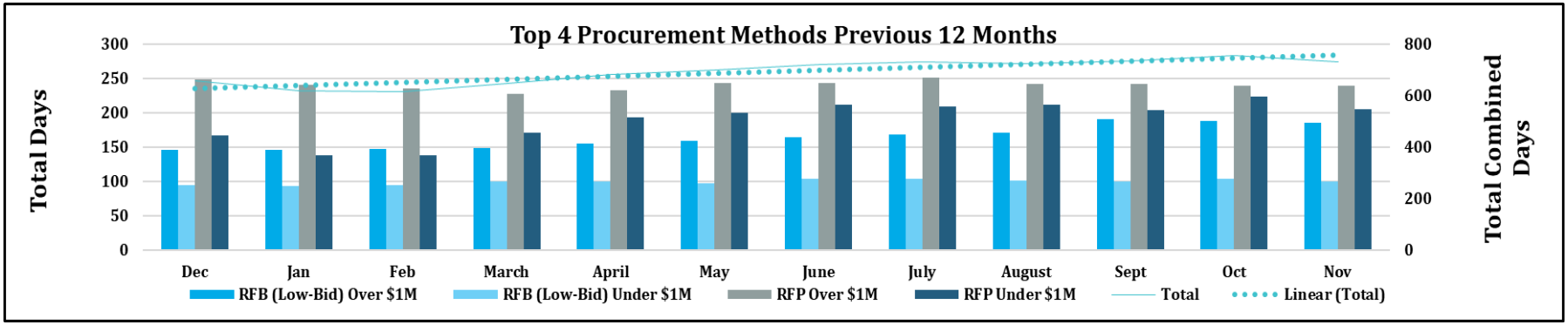
EUM Attribute:

Enterprise Resiliency

Enterprise Resiliency - Procurement Cycle Plan vs. Actual Timeline



- Four areas are above the baseline: Specialized Procurements, RFB's > $1 million, RFP's < $1 million, and RFP's > $1 million.
- Additional effort is being placed on reviewing contracts extensively to confirm their alignment with the needs of the organization both operationally and to avoid dispute in the long-term. Concurrently new standards are being implemented to improve contract management as well as increased scope review in the initial procurement phase.
- The dark-blue dashes removes outliers from the total day's calculations. Outliers consist of projects that encounter extraordinary demands and/or obstacles.
- The analysis below tracks the previous 12 months of RFB's and RFP's separately and as a combined total (illustrating a slight <u>decrease</u> in length of time to complete highlighted by the aqua solid line.)



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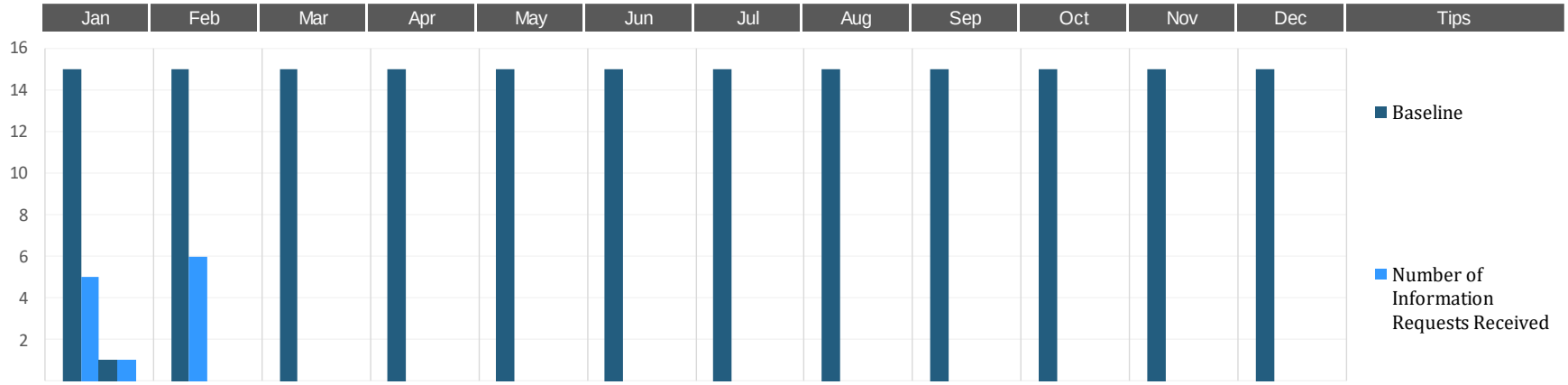
RFP – Request for Proposal ***RFB*** *– Request for Bid* ***Specialized Procurement:*** *single source*
Direct Purchase: *A purchase that constitutes a dollar threshold of < $10K or not requiring a formal contract*

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	5.00	6.00											11.00	

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.

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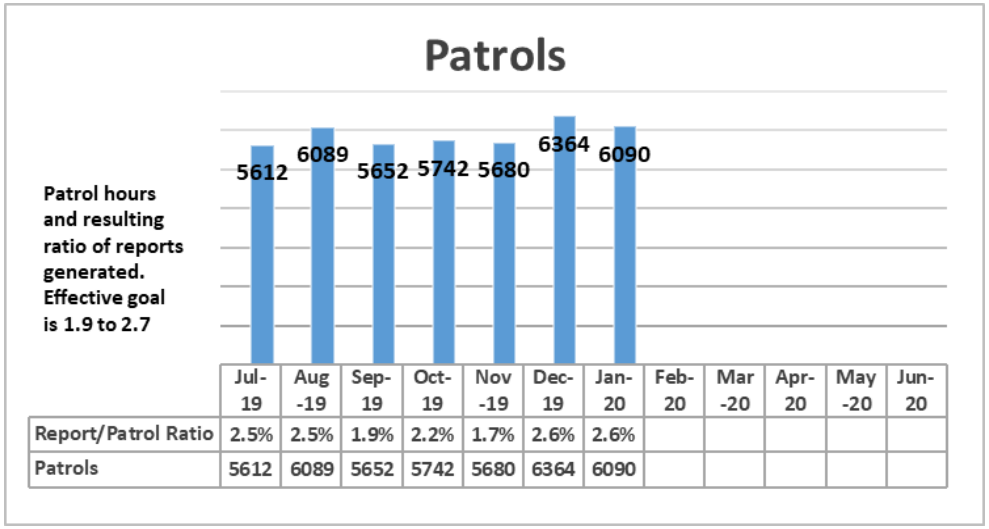
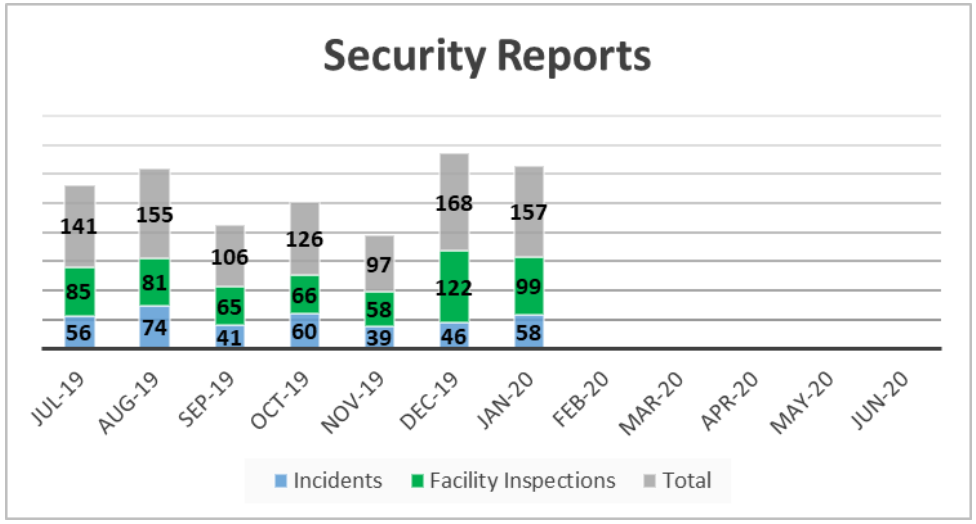
Enterprise Resiliency – Security & Integrity



	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20
Report/Patrol Ratio	2.5%	2.5%	1.9%	2.2%	1.7%	2.6%	2.6%					
Patrols	5612	6089	5652	5742	5680	6364	6090					

- 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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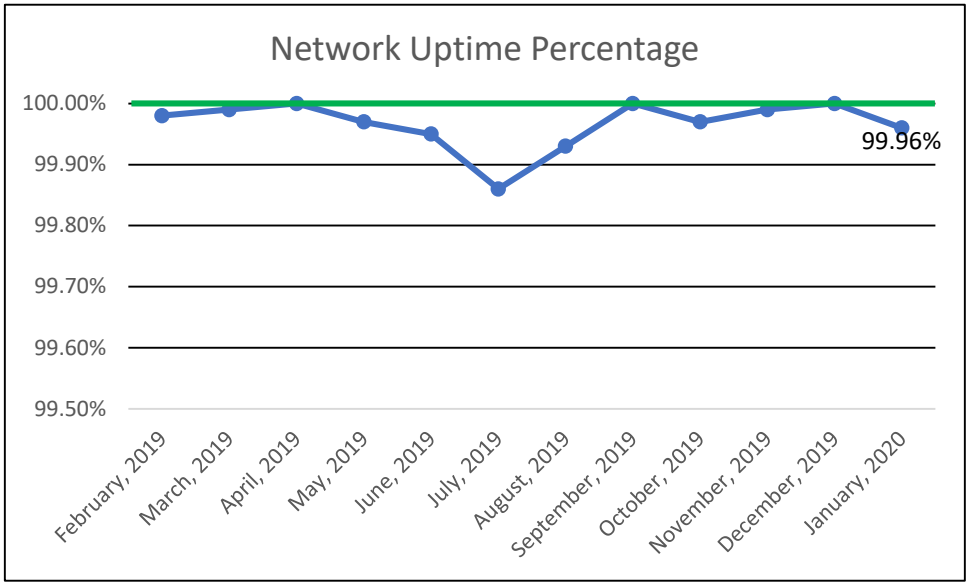
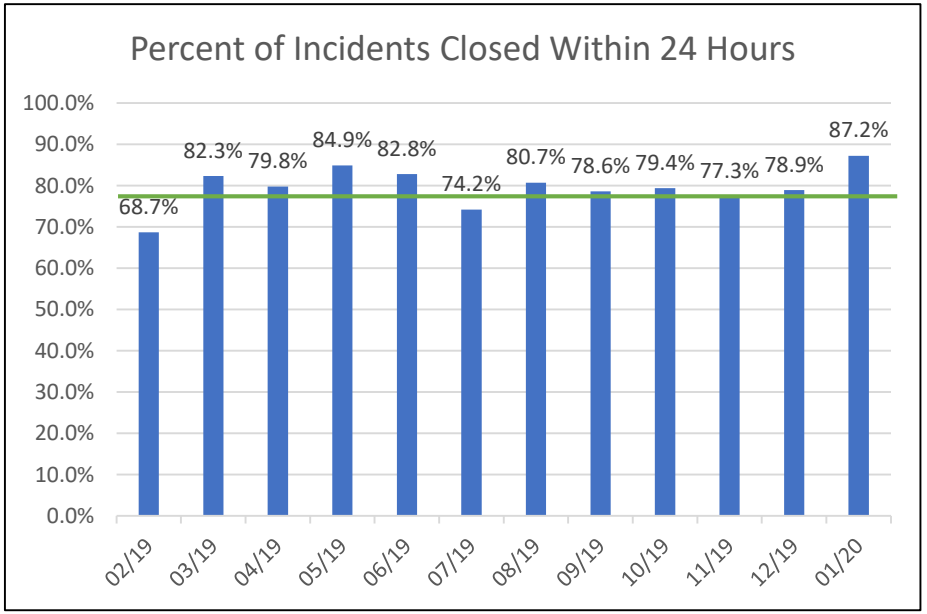
Enterprise Resiliency – Information Technology



- GLWA has 42 monitored, 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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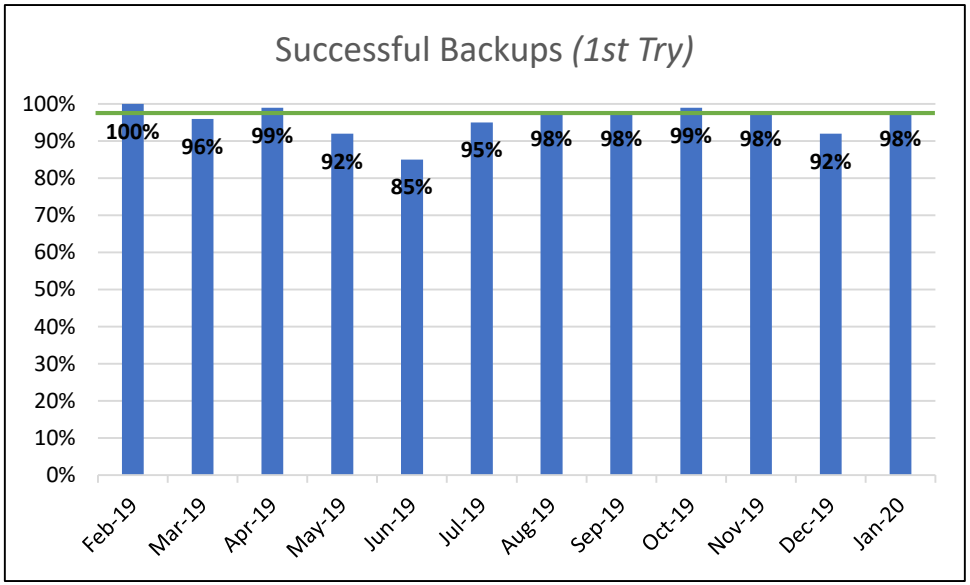
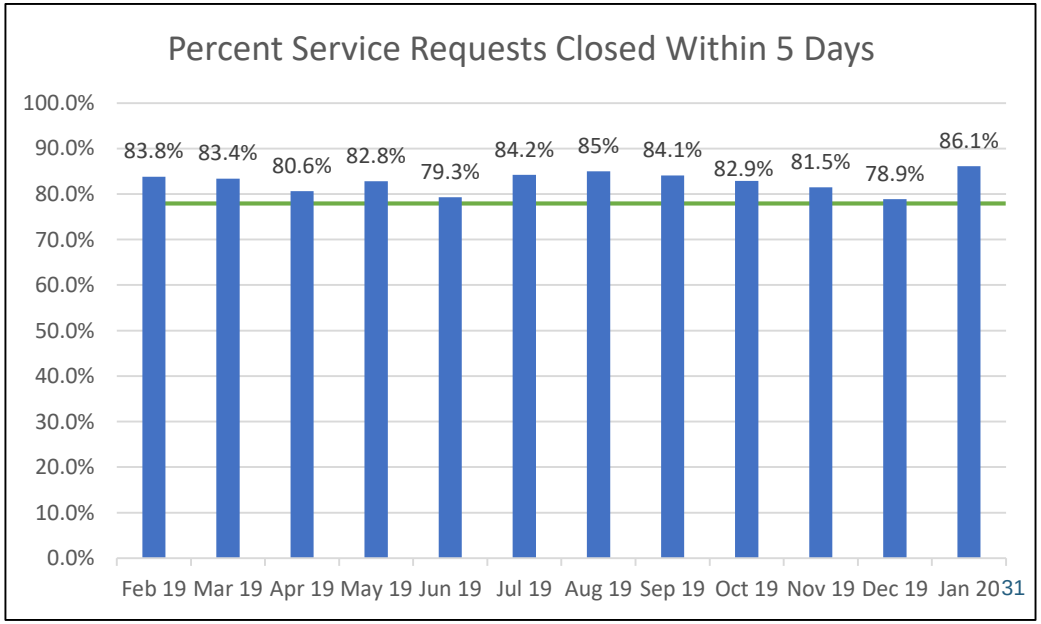
Enterprise Resiliency – Information Technology



- 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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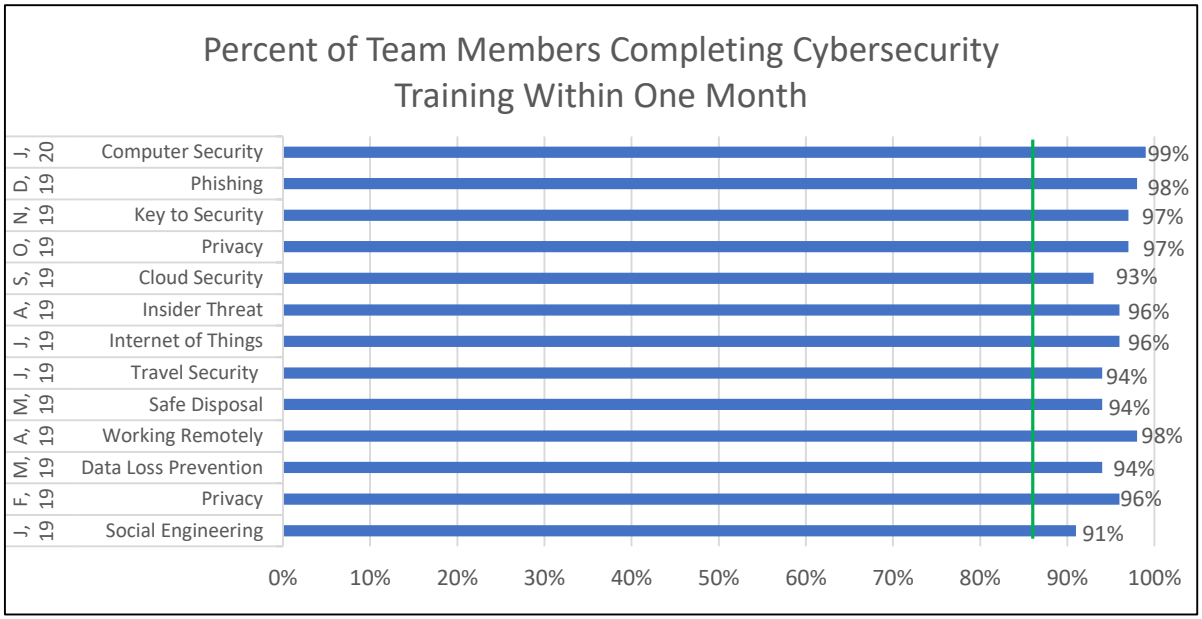
Enterprise Resiliency – Information Technology



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

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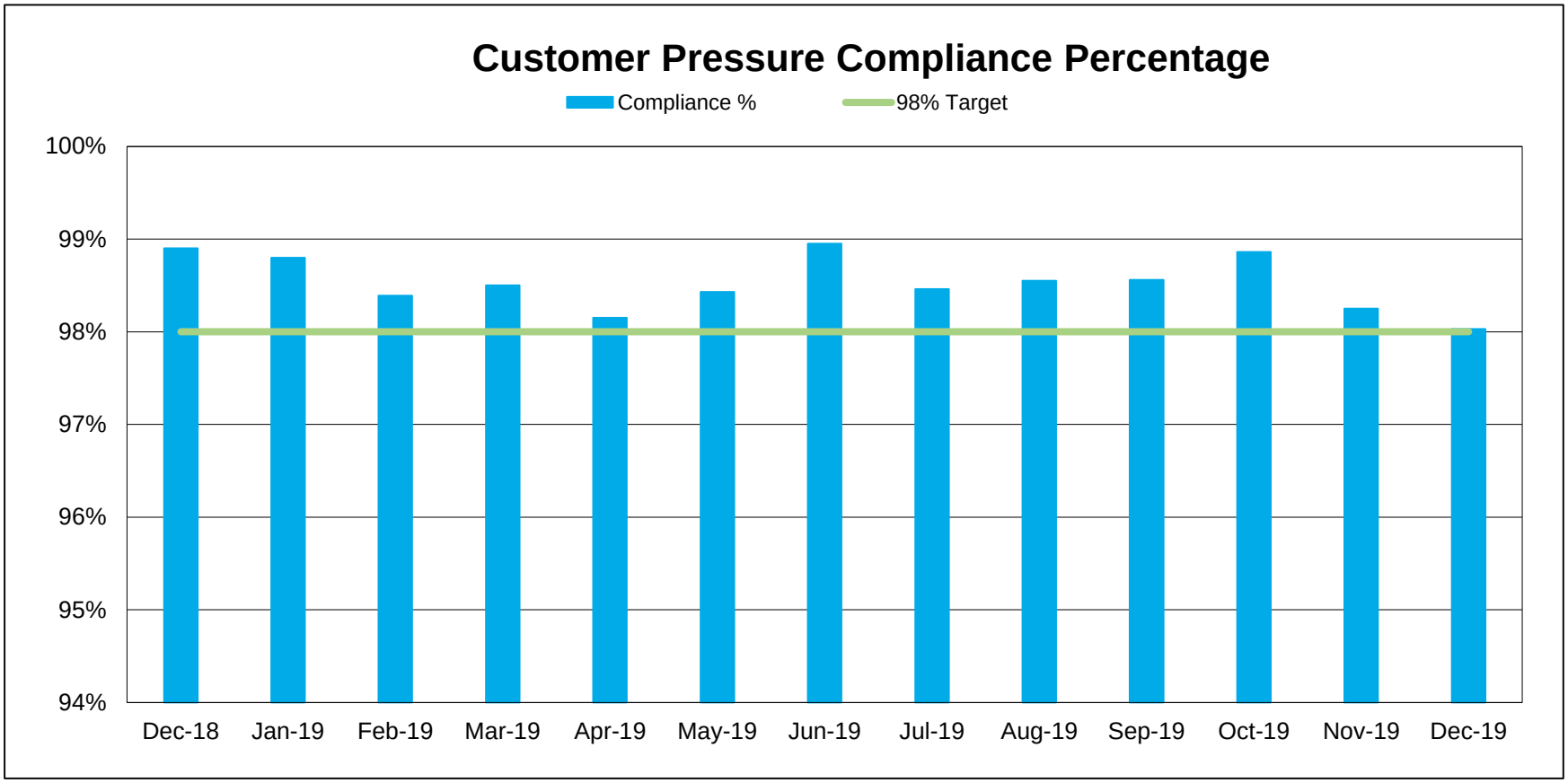
EUM Attribute:

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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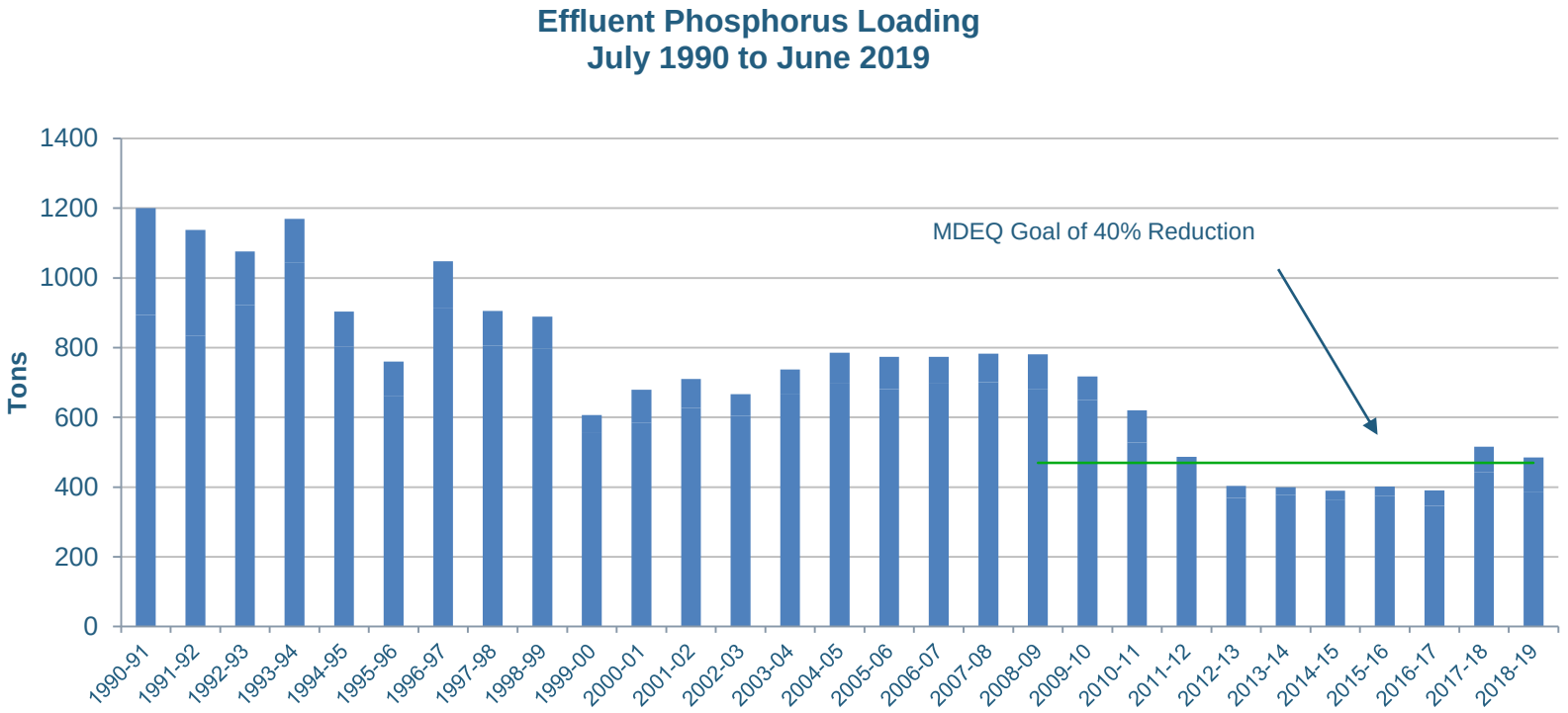
EUM Attribute:

Community Sustainability

Community Sustainability – Watershed Health

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



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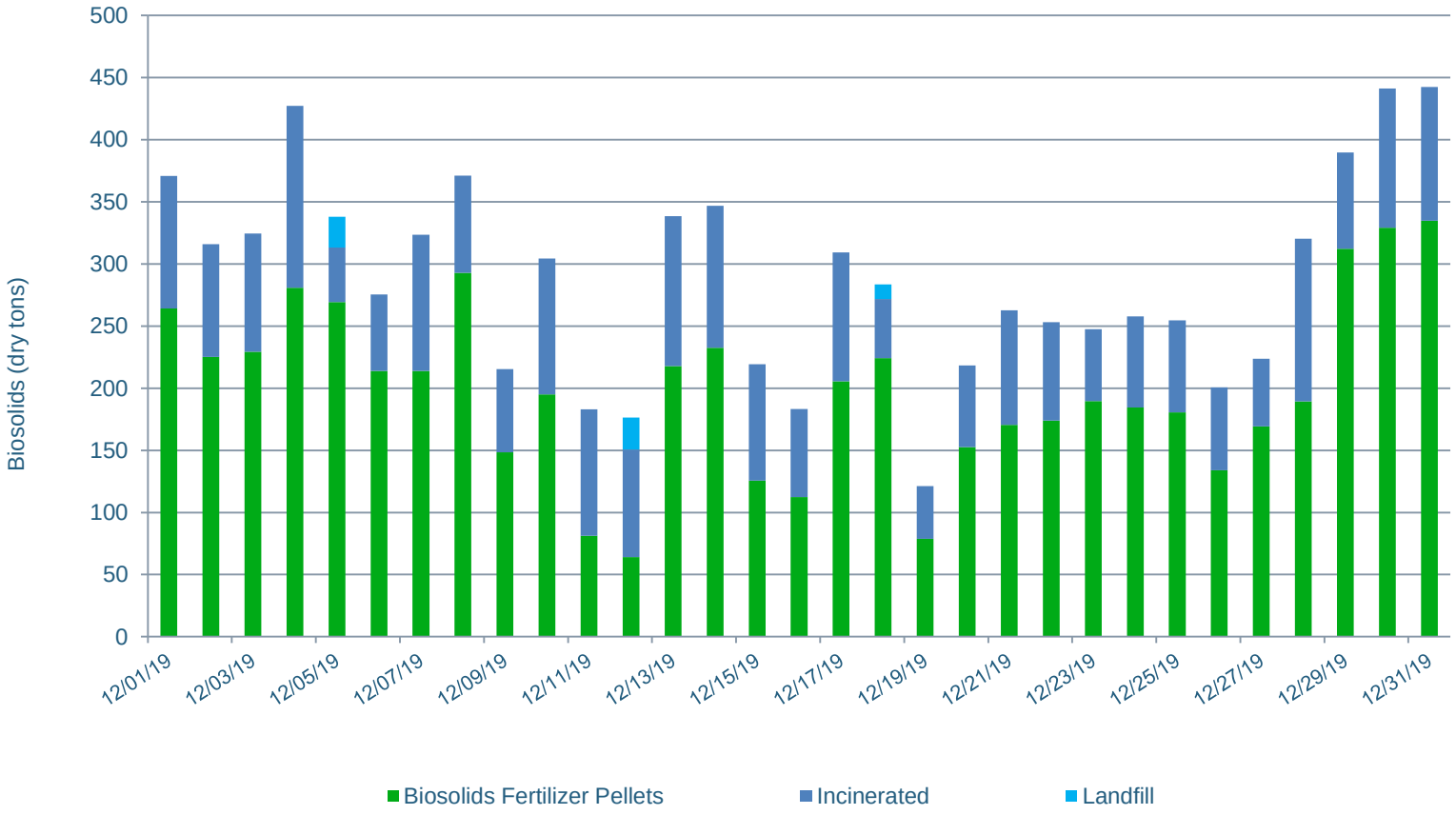
EUM Attribute:

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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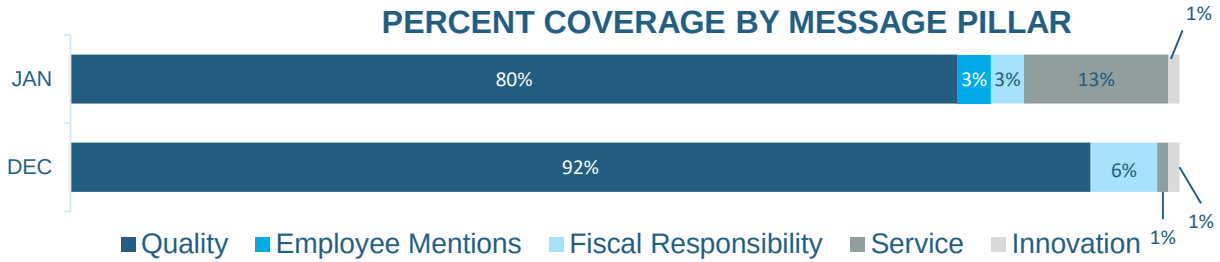
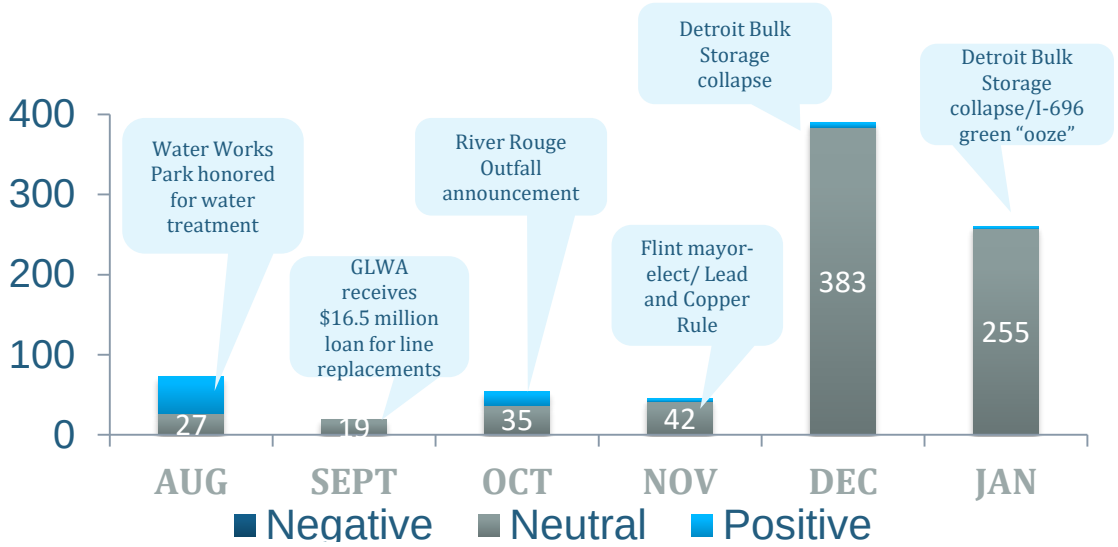
EUM Attribute:

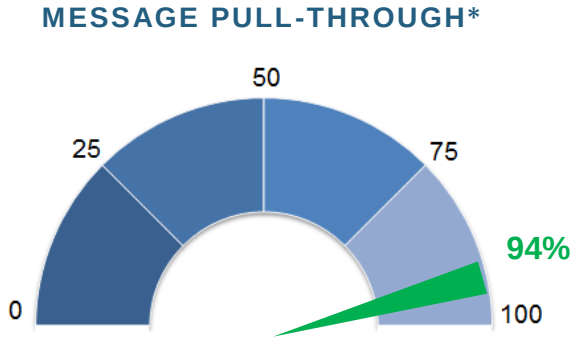
Stakeholder Understanding and Support

Traditional Media Summary

The primary topic of coverage in January was quality-related, with the top driver of coverage being GLWA's second round of water testing near the partially collapsed Detroit Bulk Storage site, with additional coverage surrounding no impact to water quality from the green "ooze" on I-696. Coverage was 98 percent neutral this month, with one percent positive coverage, and one percent negative. Of the coverage with non-cursory mentions, 94 percent contained a GLWA quote or messaging.







94% of non-cursory coverage contained a GLWA message **(GOAL = 75%)**

MEDIA VOLUME: 260

CURSORY OR FLINT MENTIONS: 108

CONTAINED GLWA MESSAGE: 143

*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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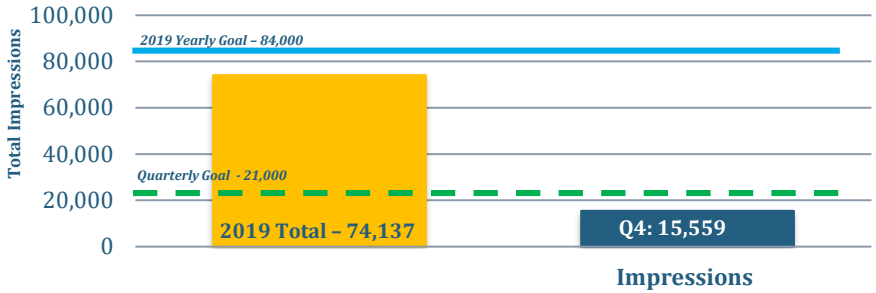
Facebook & Twitter Quarterly Review

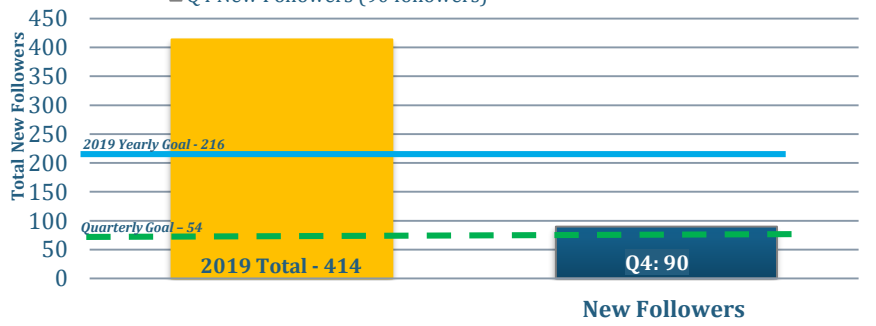
Facebook - Total Impressions Q4 2019

- Sum 2019 Impressions (74,137)
- Yearly Goal (84,000 impressions/year)
- Quarterly Goal (21,000 impressions/quarter)
- Total Q4 Impressions (15,559 total impressions)



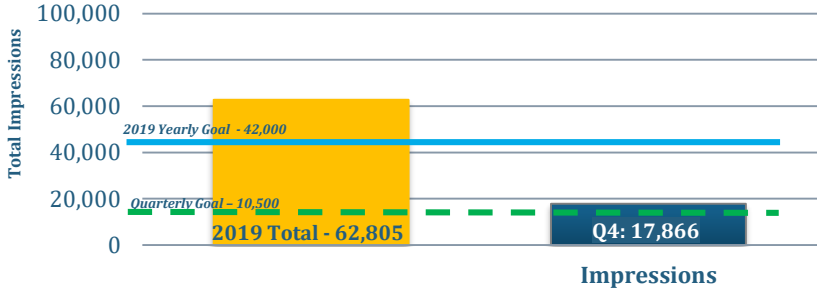
Facebook - Total New Followers Q4 2019

- Sum 2019 Followers (414)
- Yearly Goal (216 new followers/year)
- Quarterly Goal (54 new followers/quarter)
- Q4 New Followers (90 followers)



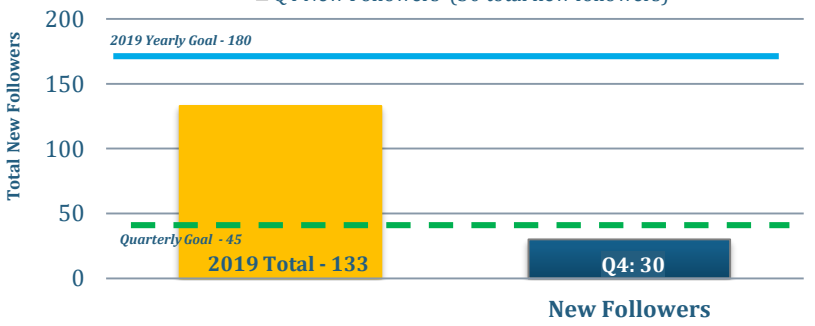
Twitter - Total Impressions by Q4 2019

- Sum 2019 Impressions (62,805)
- Yearly Goal (42,000 impressions/year)
- Quarterly Goal (10,500 impressions/quarter)
- Total Q4 Impressions (17,866 total impressions)



Twitter - Total New Followers Q4 2019

- Sum 2019 Followers (133)
- Yearly Goal (180 new followers/year)
- Quarterly Goal (45 new followers/quarter)
- Q4 New Followers (30 total new followers)



- Q4: October 2019 – December 2019

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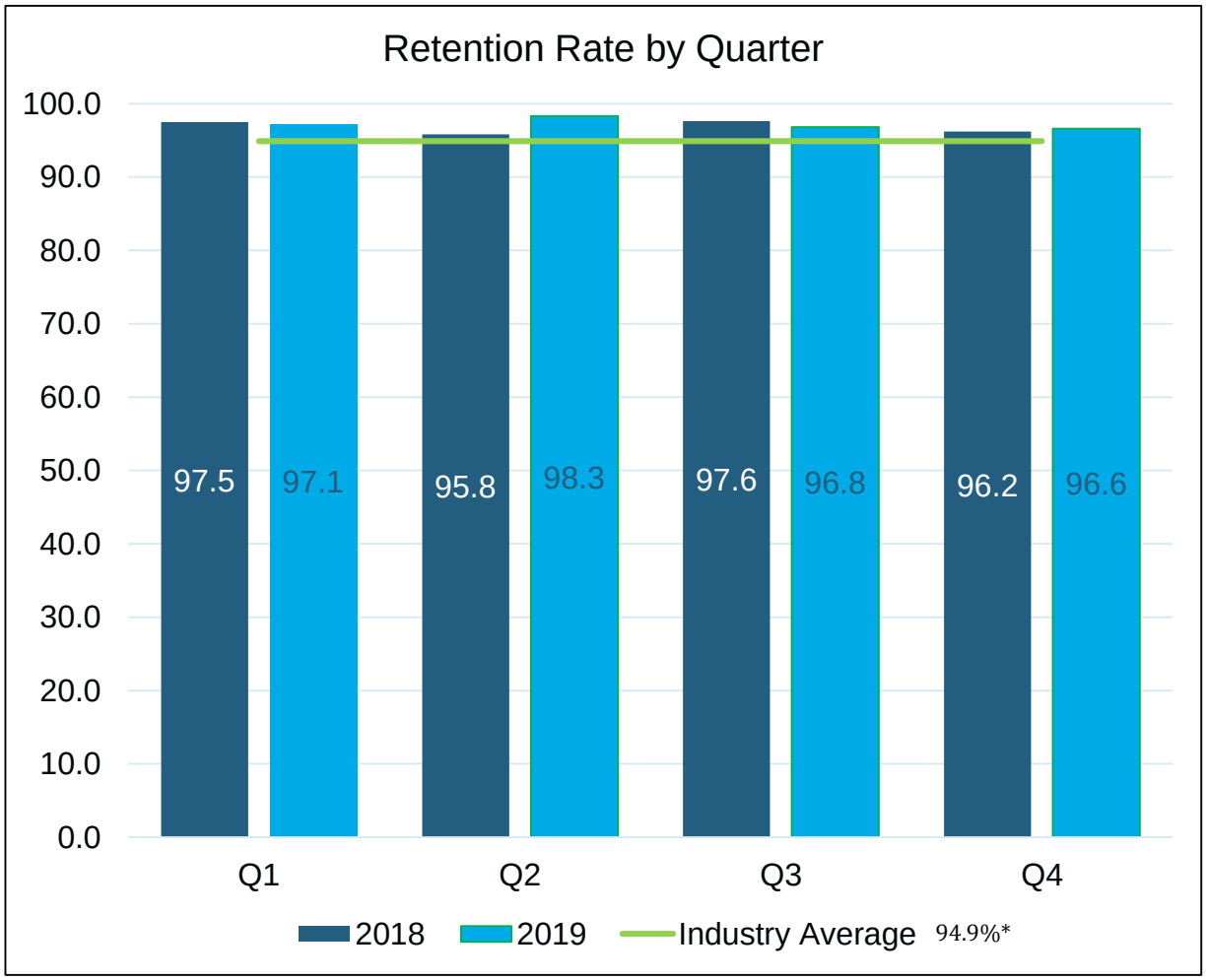
EUM Attribute:

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: 12/30/19