

Great Lakes Water Authority

*Key Performance Indicators and
Effective Utility Management (EUM) Metrics
July 13, 2022*



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)



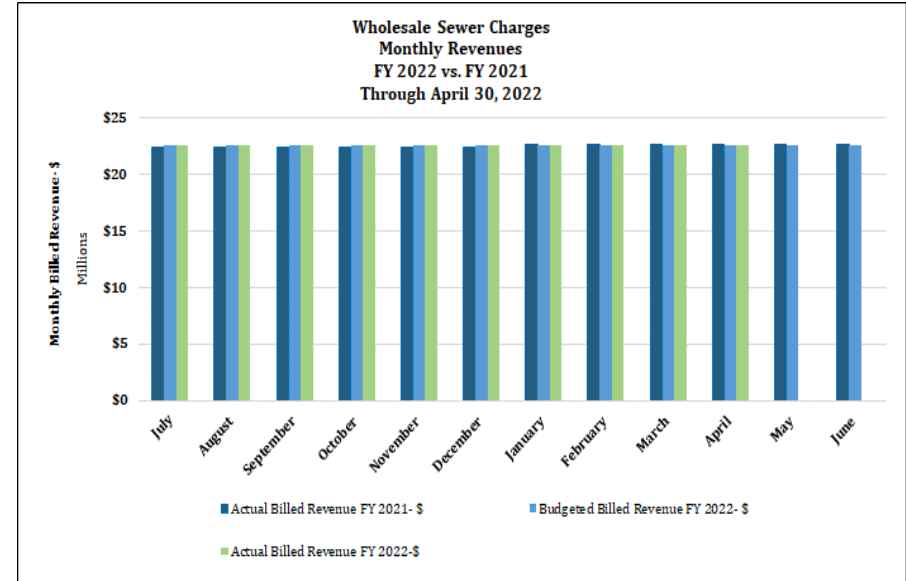
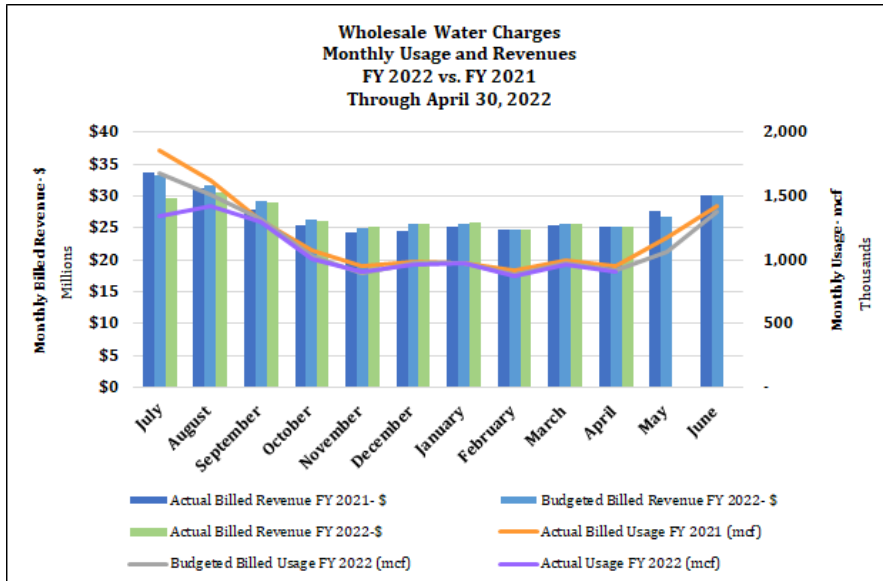
Attribute	Attribute Components
Product Quality	Produces “fit for purpose” water that meets or exceeds full compliance with regulatory and reliability requirements and consistent with customer, public health, ecological, and economic needs. Products include treated drinking water, treated wastewater effluent,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



EUM Attribute:

Financial Viability

Financial Viability – Reliability of Wholesale Water and Sewer Revenue Projections



Wholesale Water System billed revenues for FY 2022 are at 98.2% of original, budgeted charge revenue and actual usage at 95.6% of original, budgeted usage through April 2022. Billed revenue for FY 2022 was 0.1% lower compared to the same period in FY 2021.

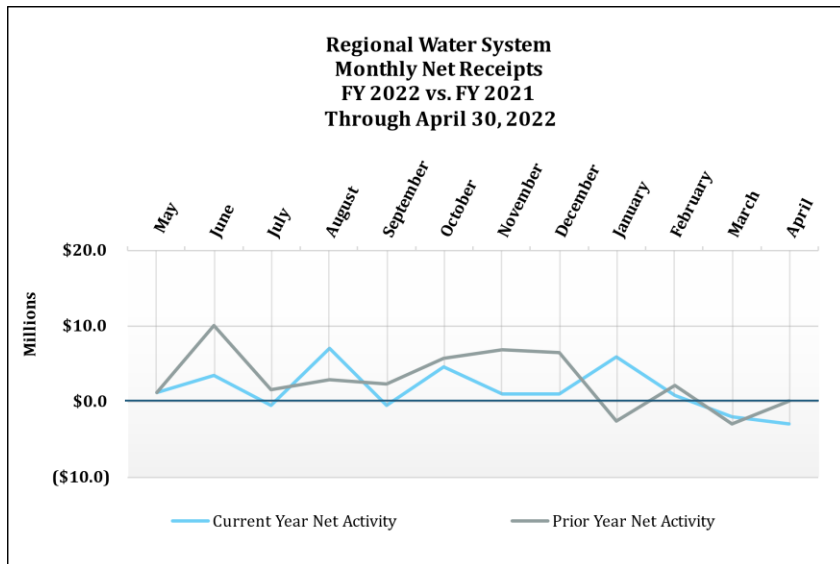
Wholesale Sewer System billed revenues for FY 2022 are at 100% of original budgeted charge revenue (based on the full fixed monthly charge) through April 2022. Billed revenue for FY 2022 was 0.7% higher compared to the same period in FY 2021.

CEO Priority KPI Performance Criteria: Water system wholesale monthly billed revenues will meet or exceed budgeted amount. (Green = 100%; Yellow= 90-99%; Red = <90%)

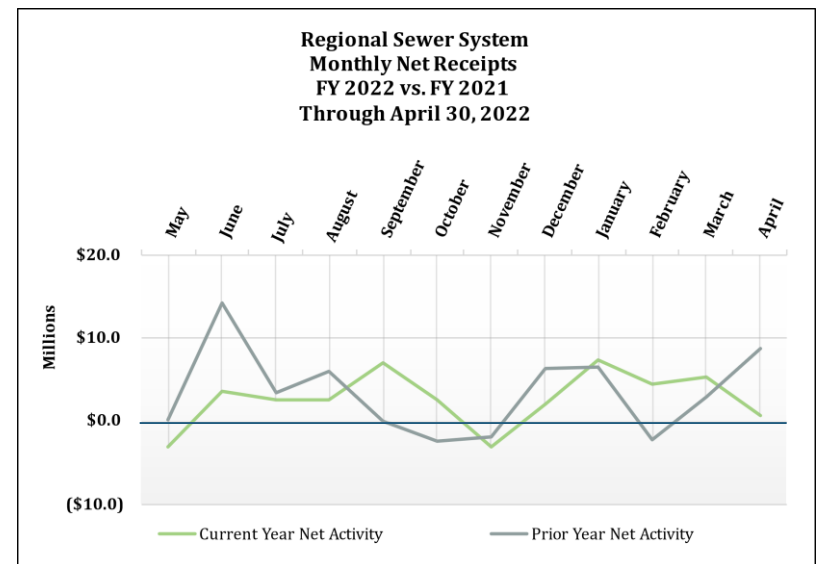
Commentary: This KPI is yellow. The budget impact of this under performance has been addressed in the first quarter budget amendments. The current water revenue variance is a \$4.8 million shortfall from the adopted budget. To date, budget amendments and confirmed billing adjustments reduce that variance to \$2.3 million. The remaining variance will be addressed by fourth quarter budget amendments.

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.

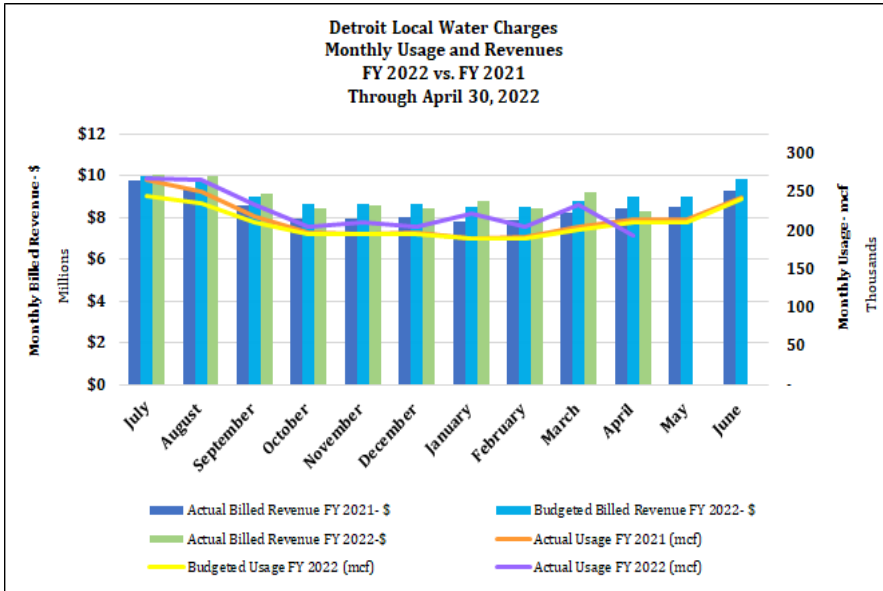


Regional Water System net receipts for the month of April 2022 fell short of required MBO disbursements by \$2.9 million due to several late payments received in early May. Despite the current month shortfall, this equates to an 6% surplus of net monthly receipts over required disbursements or \$16.3 million year-to-date.

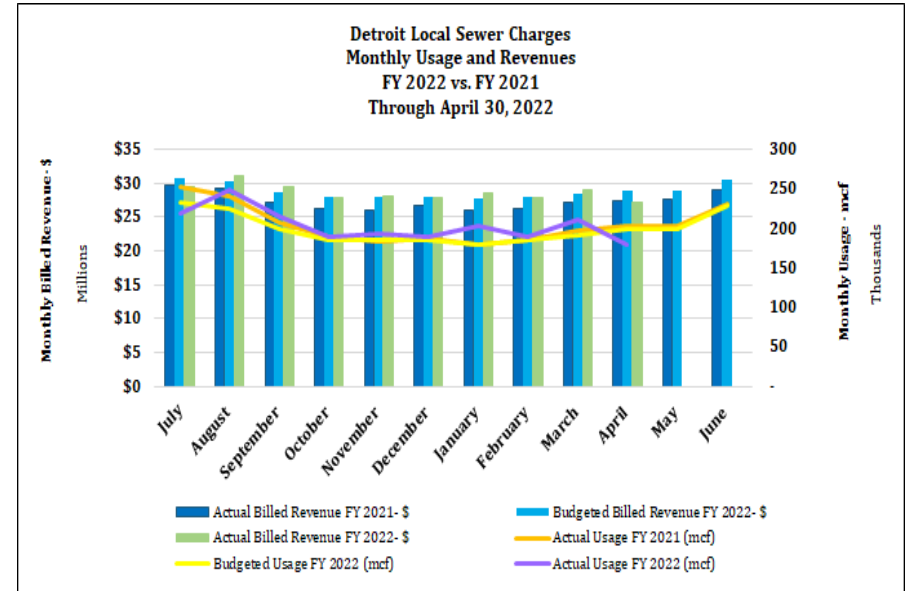


Regional Sewer System net receipts for the month of April 2022 exceeded required MBO disbursements by \$677 thousand. This equates to an 9% surplus of net monthly receipts over required disbursements or \$31.6 million year-to-date.

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



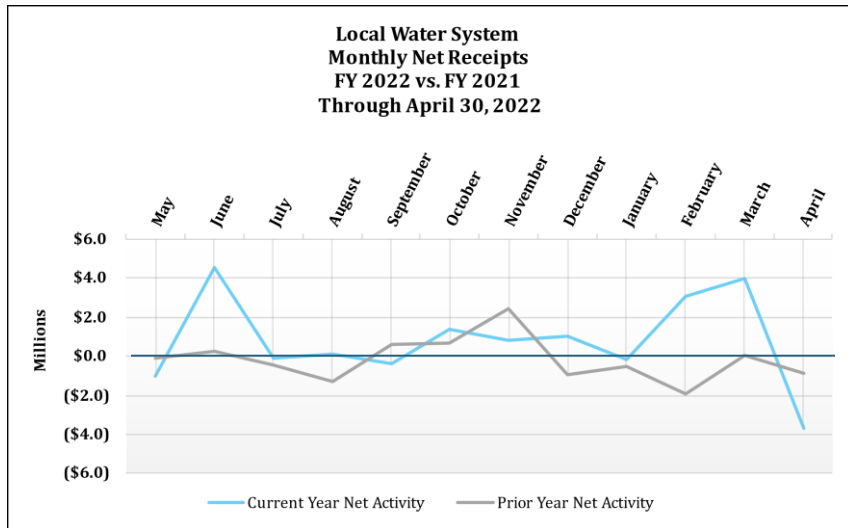
Detroit Local Water System billed revenues for FY 2022 are at 100.0% of budget and actual usage at 108.2% of budget through April 2022. Billed revenue for FY 2022 is 6.5% higher compared to the same period in FY 2021.



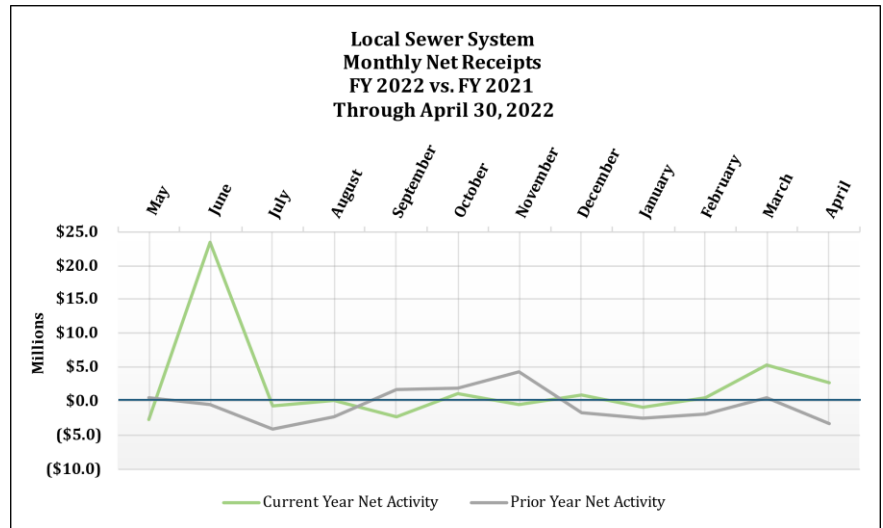
Detroit Local Sewer System billed revenues for FY 2022 are at 99.7% of budget and actual usage at 103.7% of original budget through April 2022. Billed revenue for FY 2022 is 5.3% higher compared to the same period in FY 2021.

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.

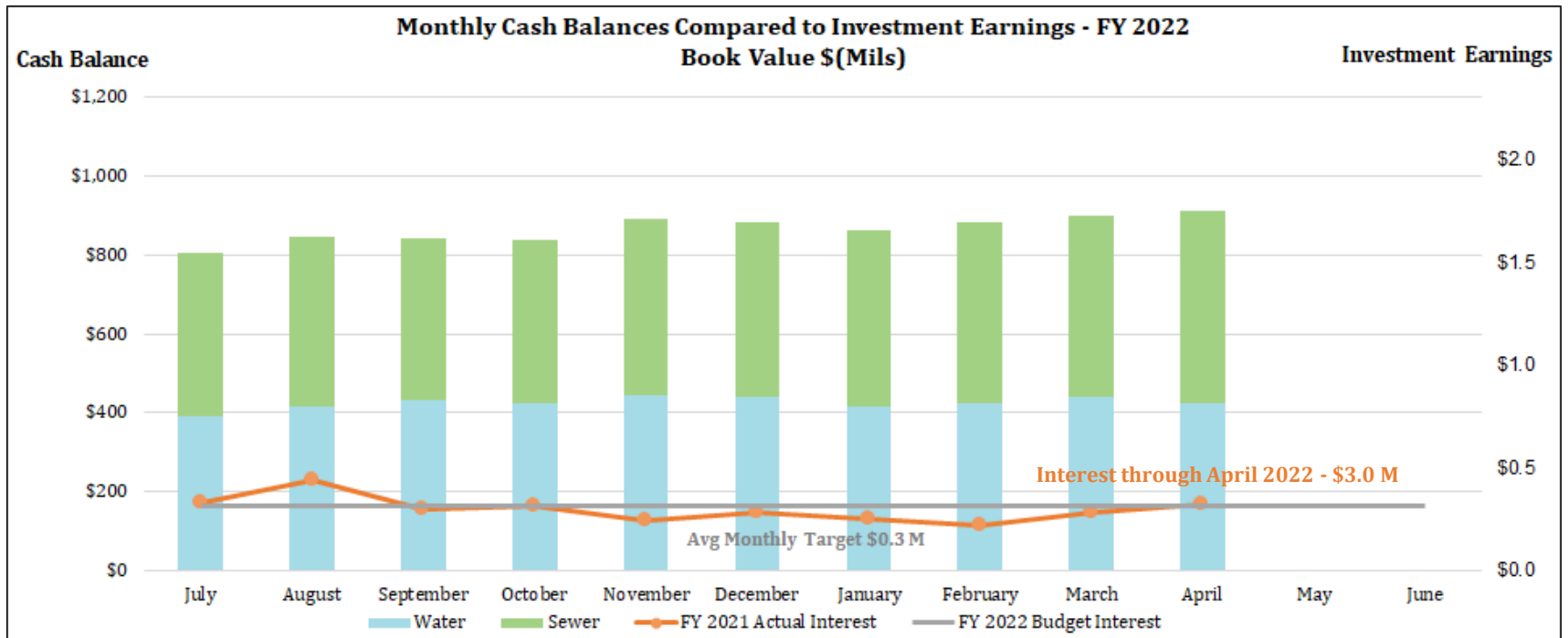


Local Water System net receipts for the month of April 2022 fell short of required MBO disbursements by \$3.7 million. Despite the current month shortfall this equates to an 8% surplus of net monthly receipts over required disbursements or \$6.2 million year-to-date.



Local Sewer System net receipts for the month of April 2022 exceeded MBO disbursements by \$2.7 million. This equates to a 3% surplus of net monthly receipts over required disbursements or \$6.2 million year-to-date.

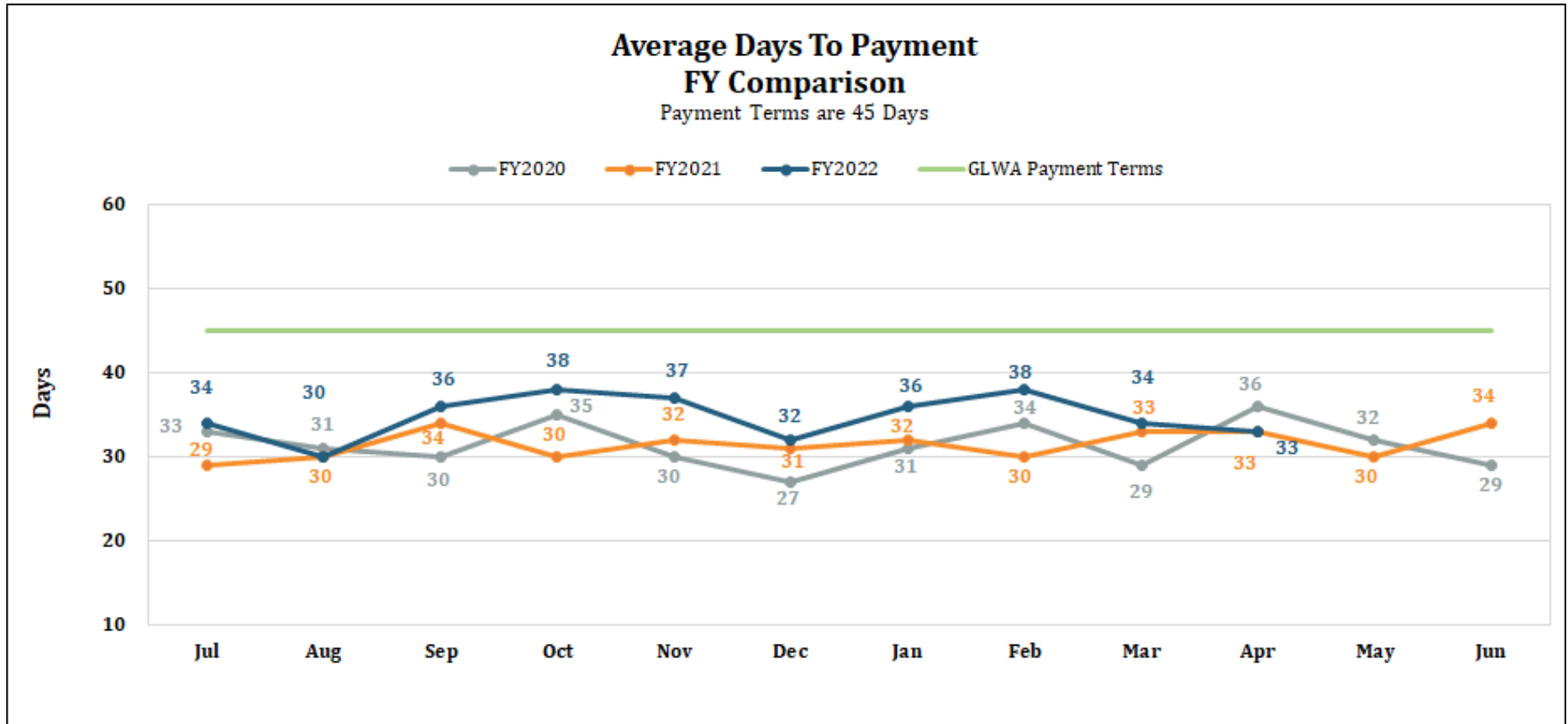
Financial Viability – Optimizing Cash Balances



- 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 earnings fluctuate monthly with the cash & investment balances as well as market conditions and investment strategy.
- For the month of April 2022, GLWA had investment earnings of \$0.3 million and cumulative FY 2022 earnings of \$3.0 million.
- GLWA continues to refine cash flows and work with its investment advisor to identify strategies to maximize future investment earnings while meeting the objectives of safety and liquidity.

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 2020	FY 2021	FY 2022 (rolling calendar)
31	32	34

The average days to pay is higher than the target of less than 30 days date due to challenges with a small number of vendors. The Accounts Payable team continues to work in conjunction with the Procurement team to assist in improving vendor management and compliance.

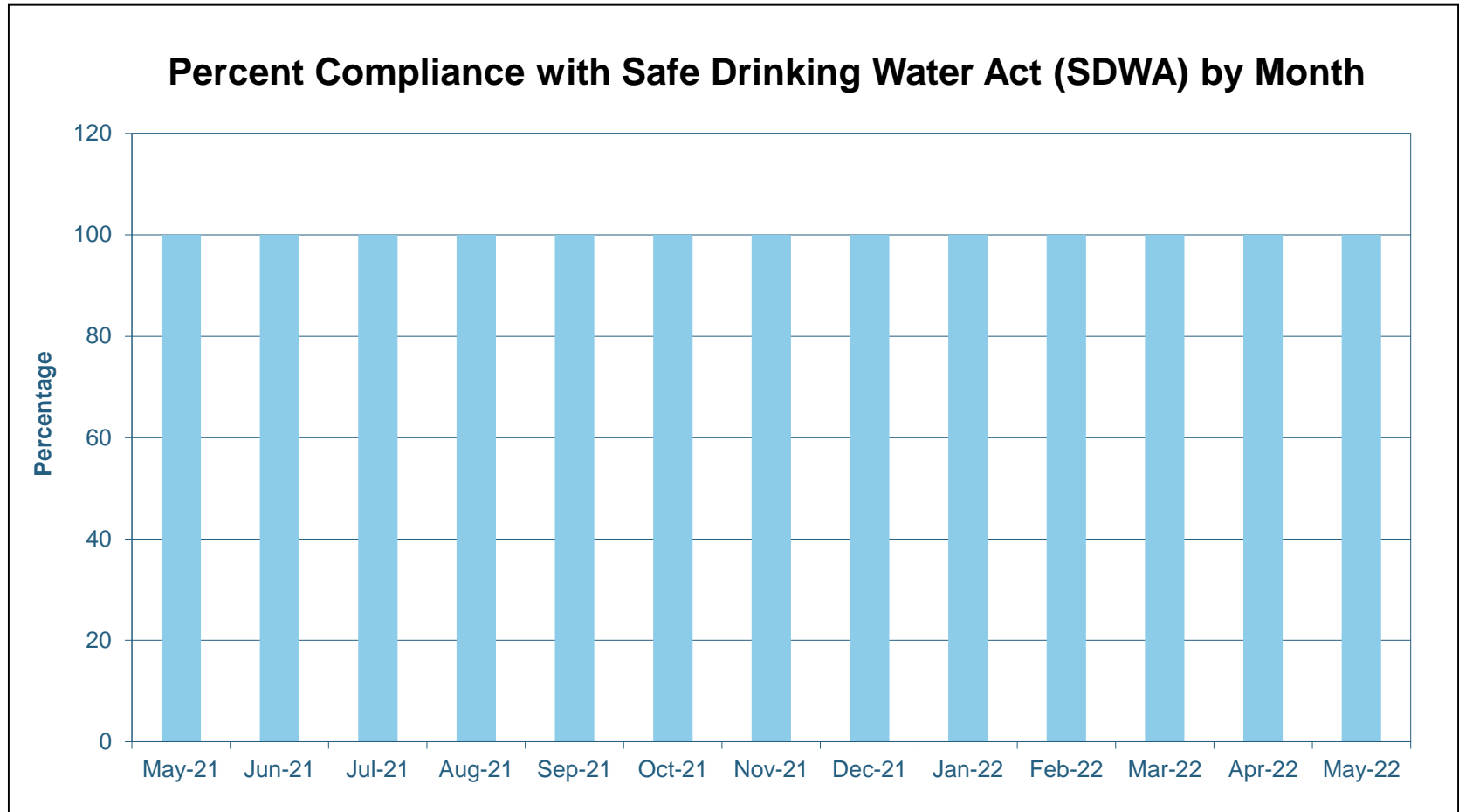
CEO Priority KPI Performance Criteria: Days to pay an invoice is monitored to support healthy supplier relationships. (Green = 43 days or less; Yellow = >43 to <48 days; Red = >48 days)
Commentary: The KPI is green at 33 days for the month of April, within the stated criteria.



EUM Attribute:

Product Quality

Product Quality – SWDA Compliance

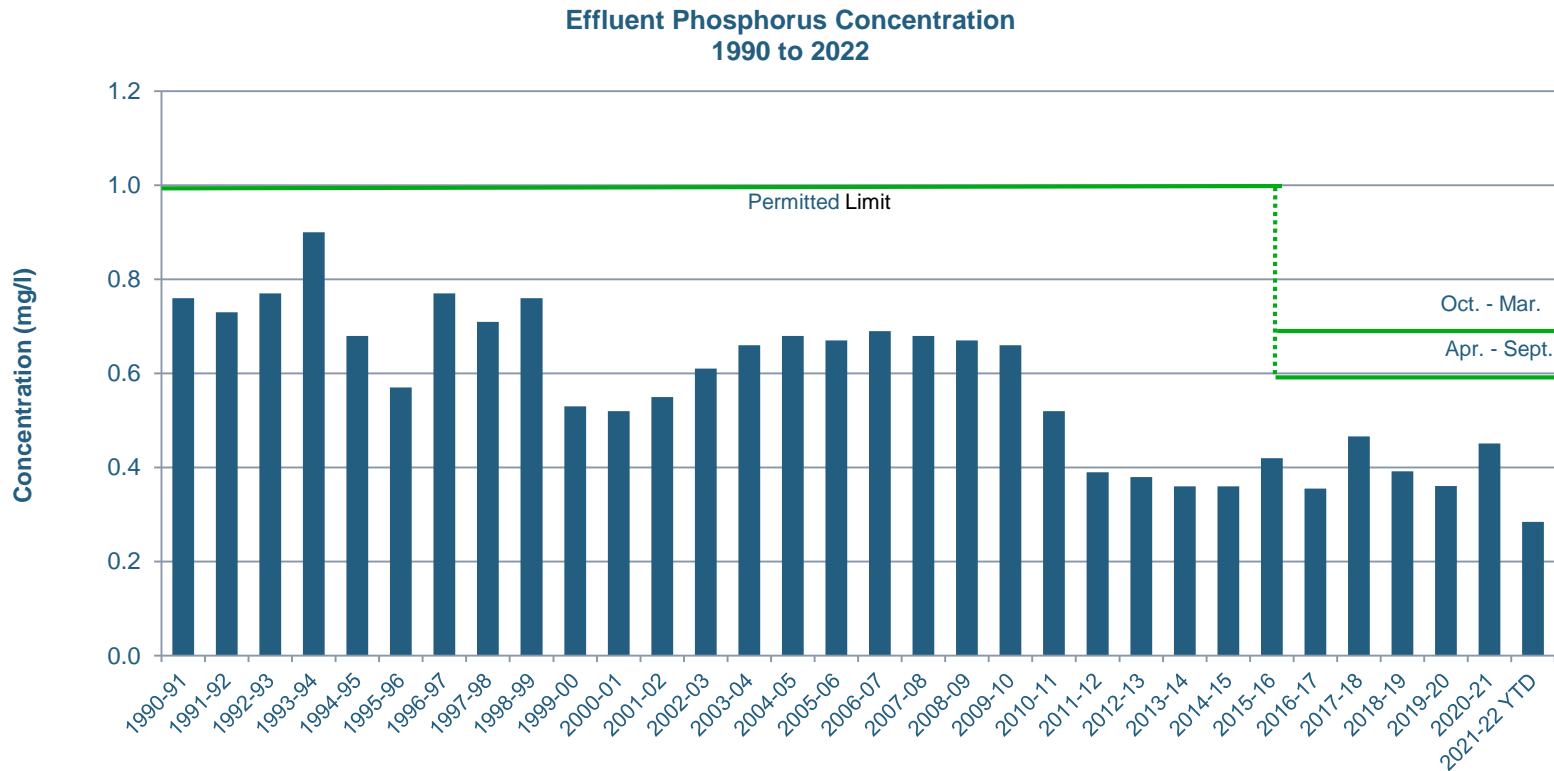


Product Quality: GLWA's goal is to surpass Safe Drinking Water Act requirements and this slide indicates compliance for the month.

Product Quality

Regulatory Compliance – Effluent Phosphorous Concentration

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

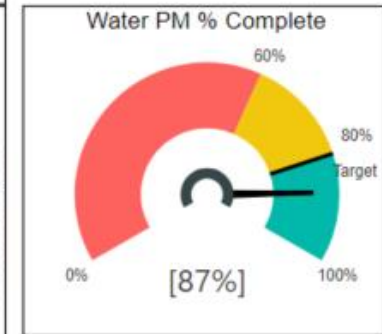
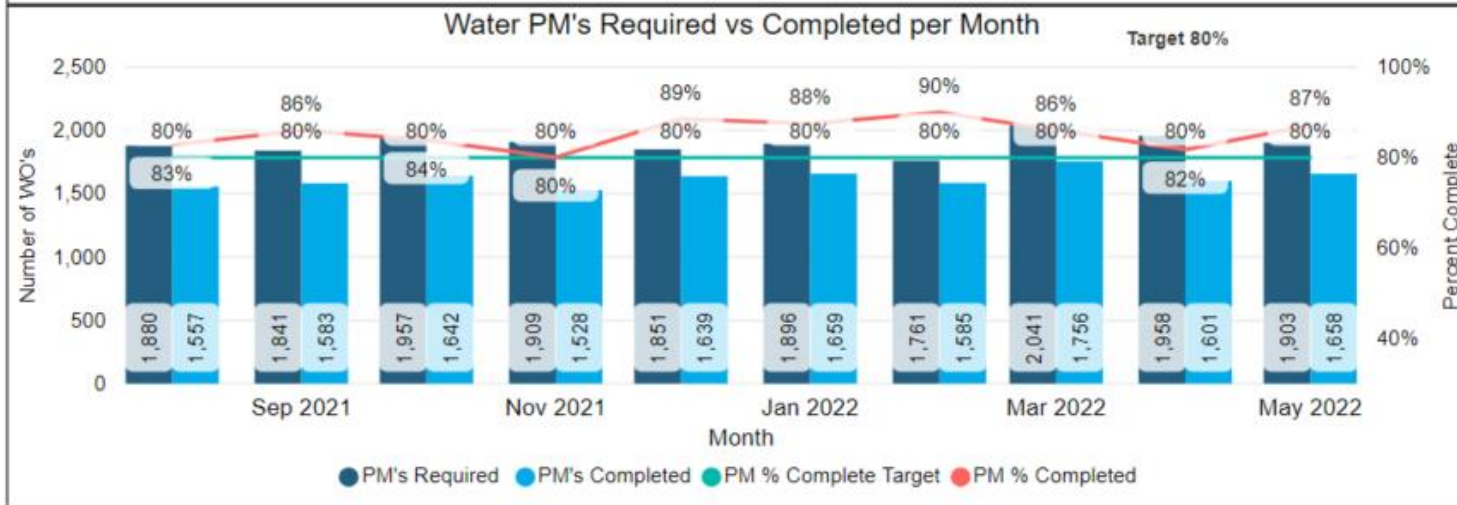
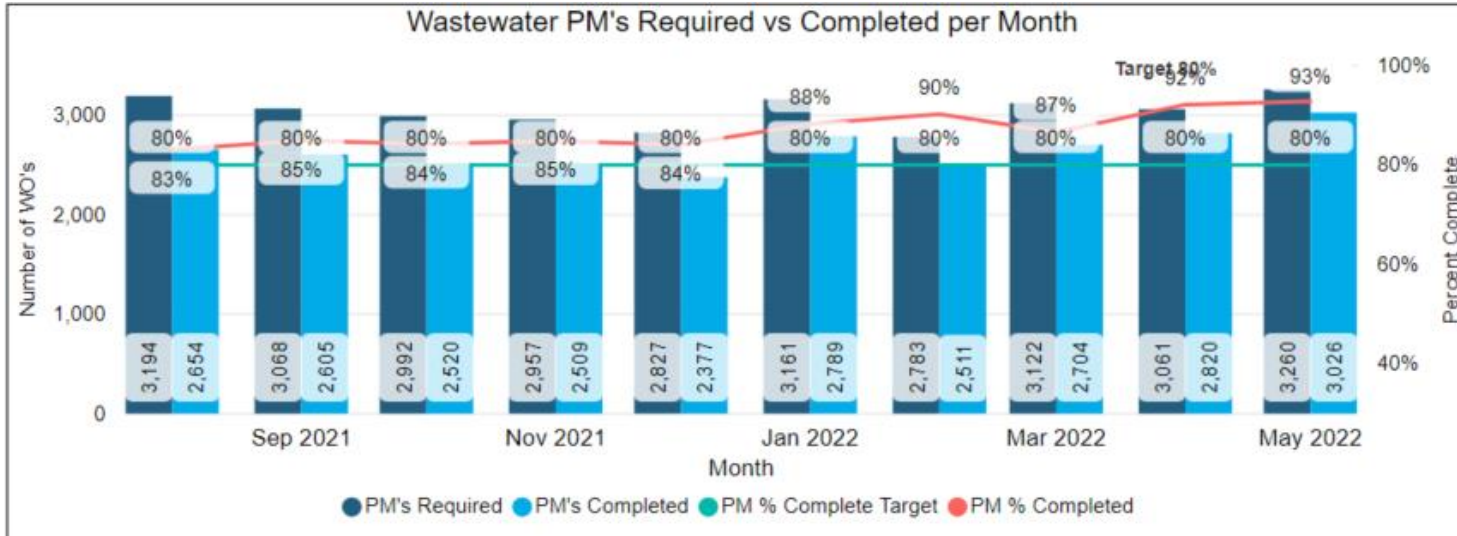




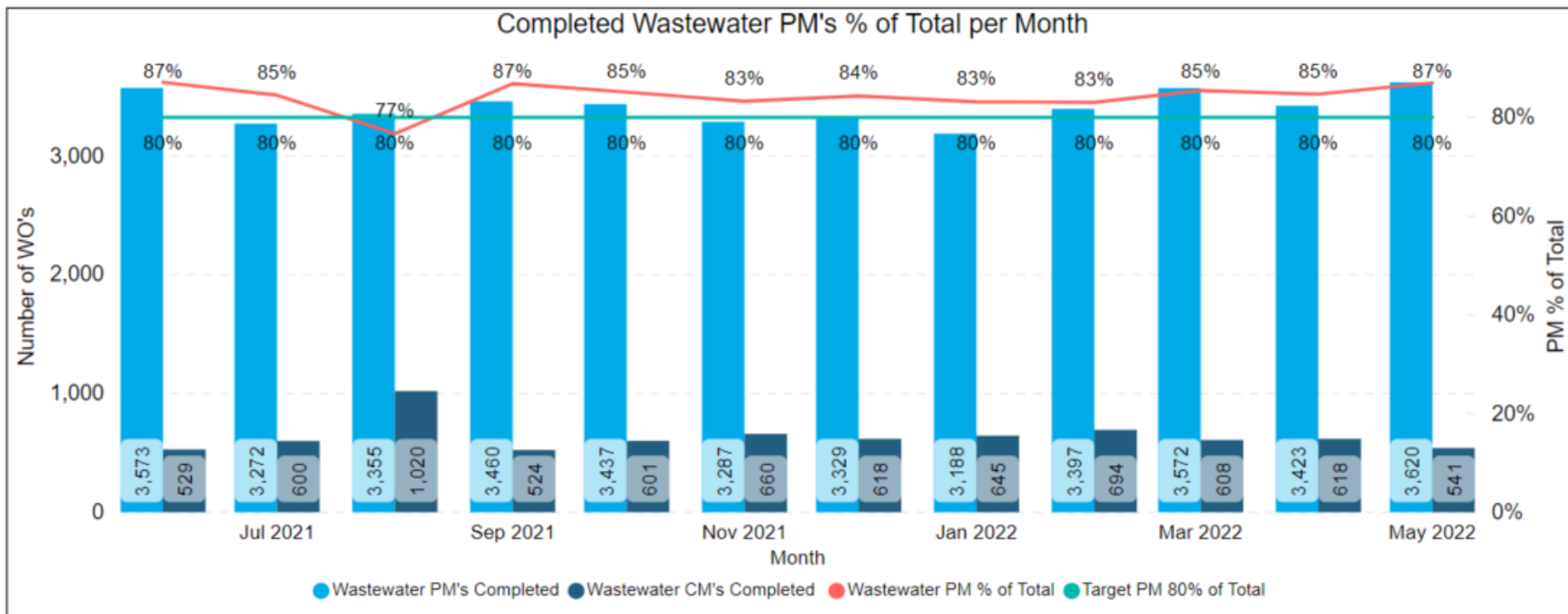
EUM Attribute:

**Infrastructure
Strategy and
Performance**

Infrastructure Strategy and Performance – Wastewater and Water Preventative Maintenance (PM) Management May 2022

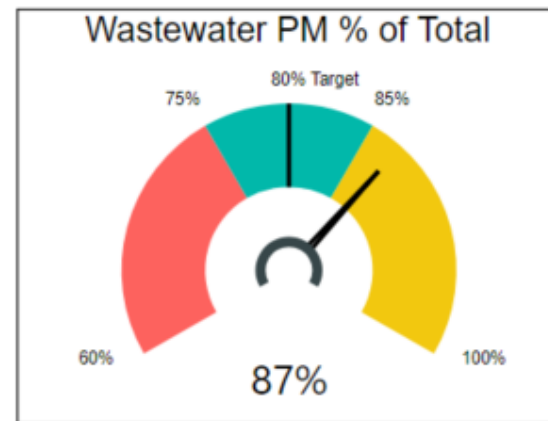


Infrastructure Strategy and Performance – Wastewater Preventative & Corrective Maintenance Management May 2022

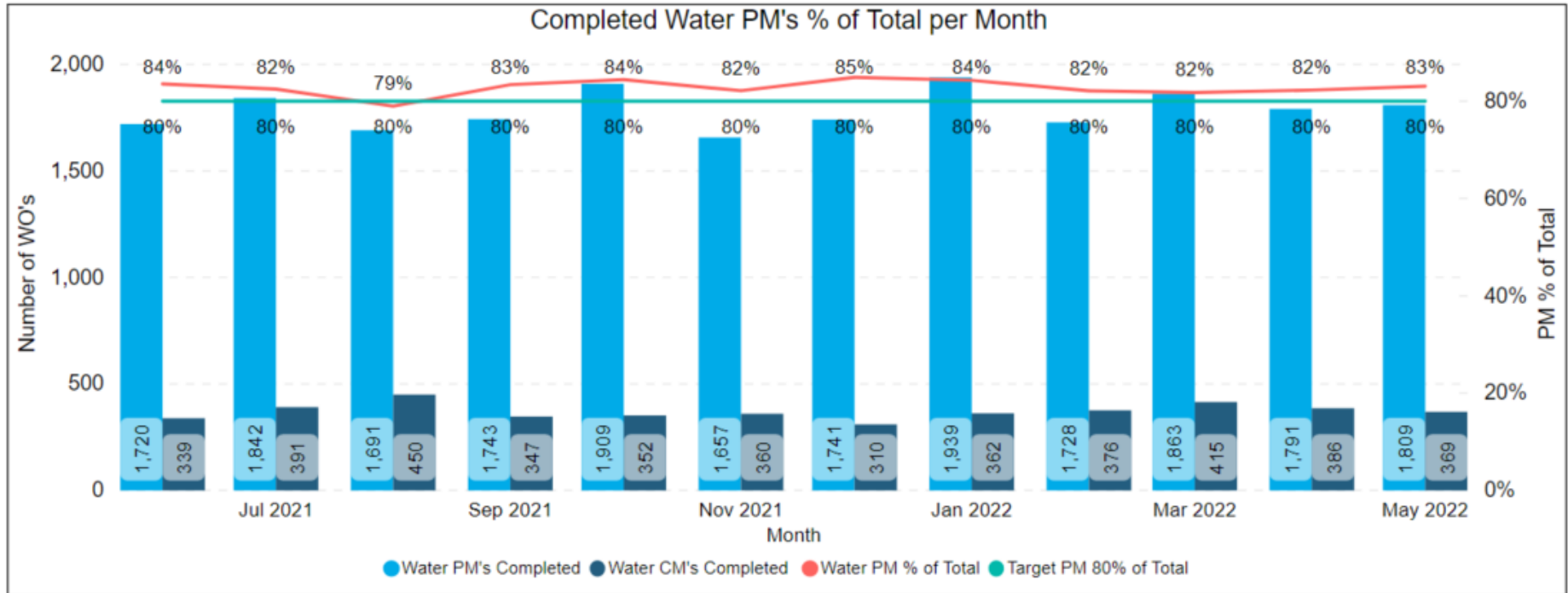


*The Target is derived from the 2017 American Water Works Association Utility Benchmarking program that indicates that an appropriate level of PM activities can be identified by the PM percentage of total maintenance work performed. If the percentage is significantly lower than the target (red) it is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

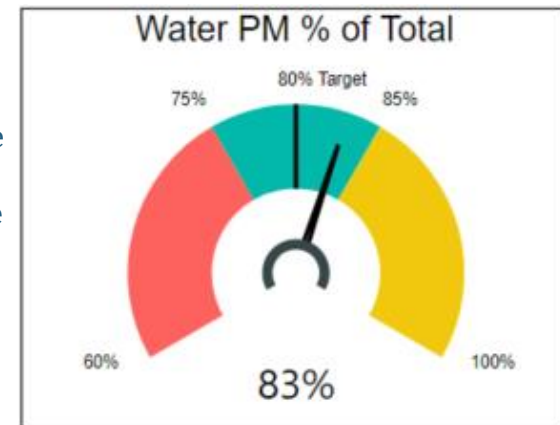
PM = Preventative Maintenance
CM = Corrective Maintenance



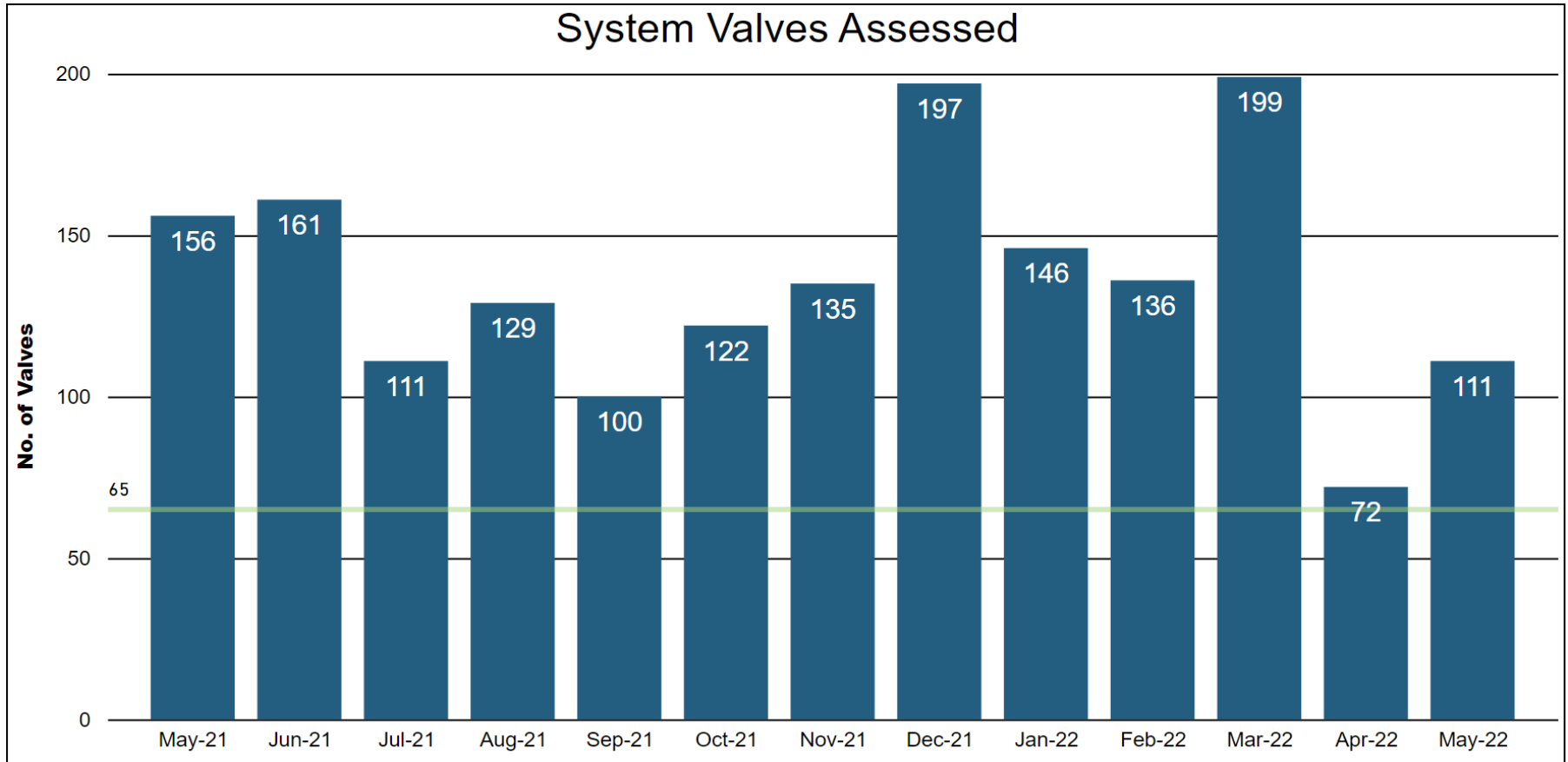
Infrastructure Strategy and Performance – Water Preventative & Corrective Maintenance Management May 2022



*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.



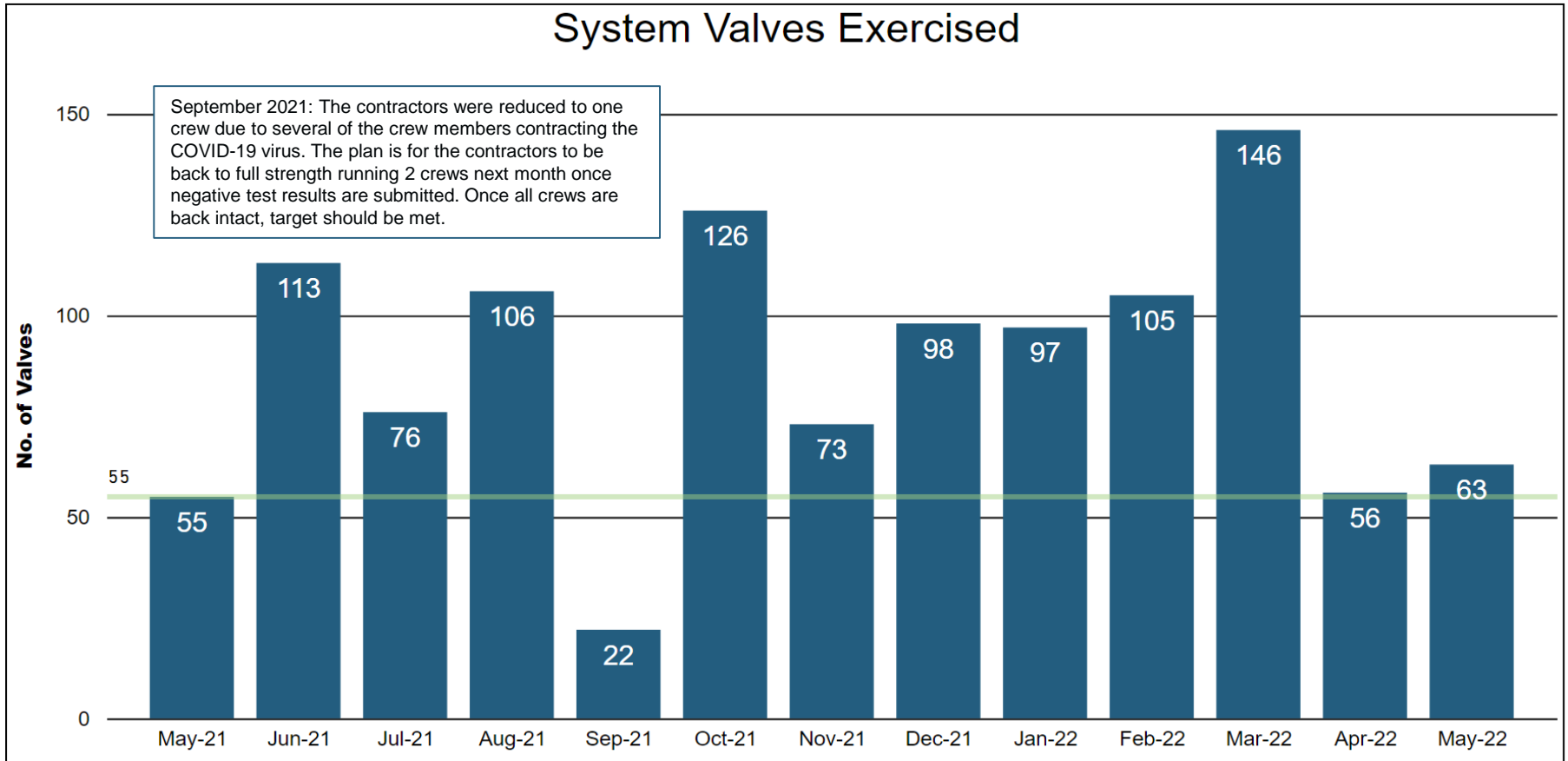
Infrastructure Strategy and Performance – Water and Field Services Valve Assessments



Note: The contractor began exercising valves in the month of December. A seasonal target has been set for the winter season with expectations that the number of valves exercised will increase in the coming spring and summer months.

Infrastructure Strategy and Performance: GLWA's ultimate goal is to locate, visually assess, determine the condition and valve position, and fully exercise system valves.

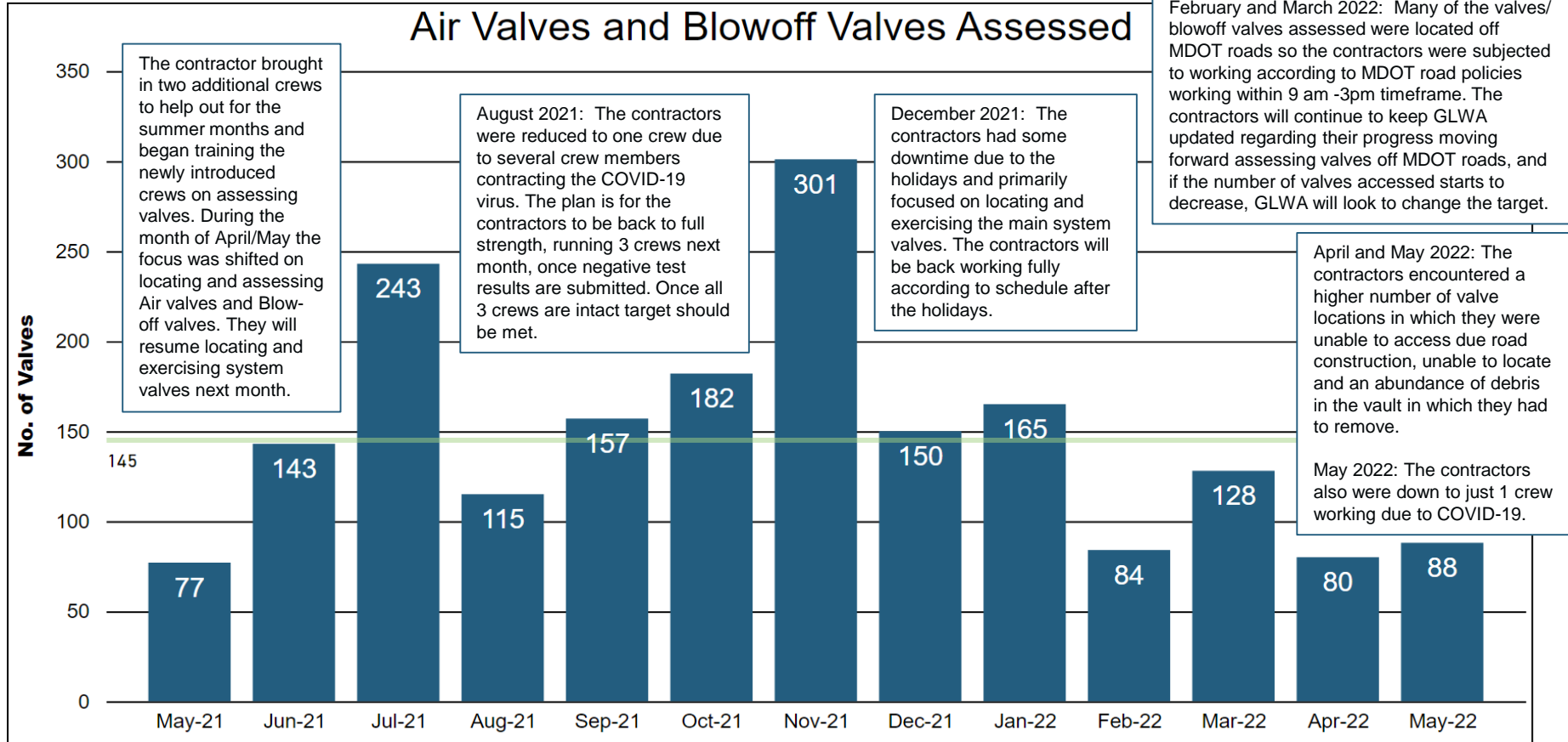
Infrastructure Strategy and Performance – Water and Field Services Valve Exercising



Note: The contractor began exercising valves in the month of December. A seasonal target has been set for the winter season with expectations that the number of valves exercised will increase in the coming spring and summer months.

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Infrastructure Strategy and Performance – Water and Field Services Valve Assessments



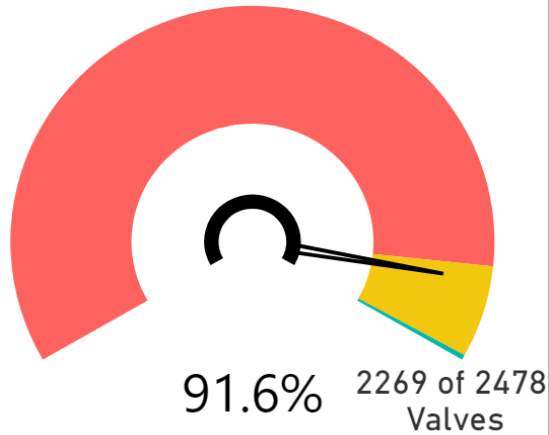
Note: Phase 2 of the project began in August 2020. The project will focus on locating and assessing designated valves within the water transmission main.

Infrastructure Strategy and Performance: GLWA's ultimate goal is to locate, visually assess, determine the condition and valve position, and fully exercise system valves.

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

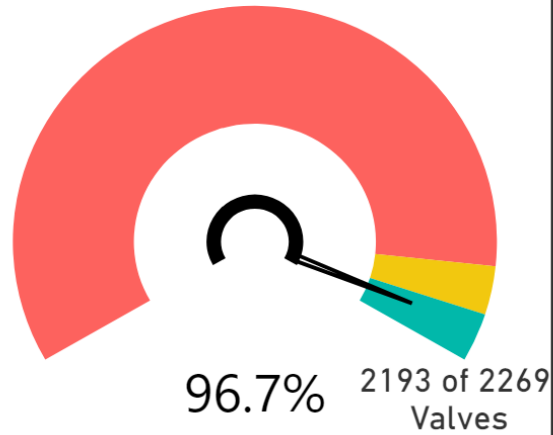
System Valve Assessment Totals – May 2022

Valves Located



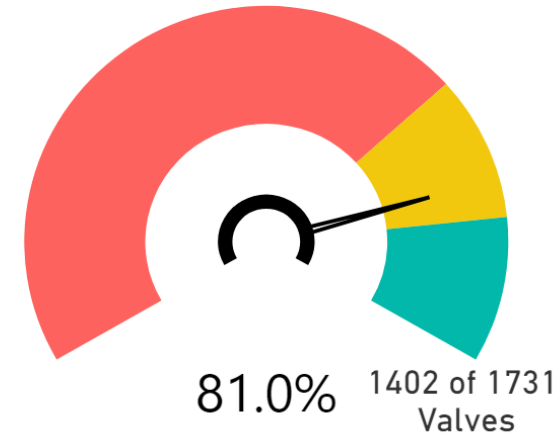
Red <90%, Yellow 90 to 99.5%, Green >=99.5%

Valves Assessed



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

Valves Operational



Red <70%, Yellow 70 to 85%, Green >=85%

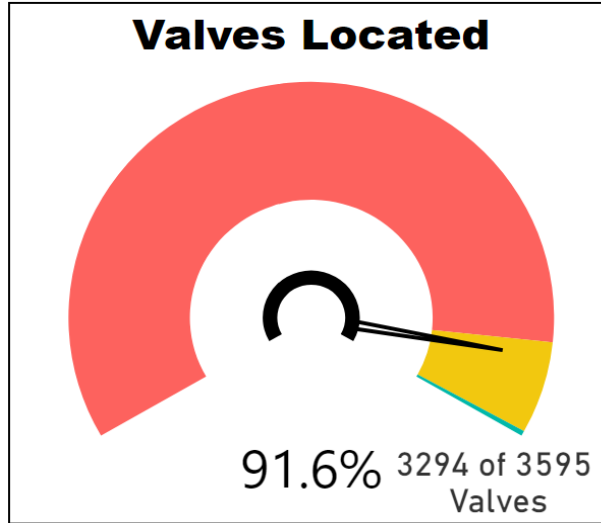
Reason for yellow on Valves Located (91.6%) and Valves Operational (81.0%): Valves not located were mostly due to heavy vegetation and some were paved over. Some valves could not be assessed due to location of the valves.

NOTE: Based on the results of the pilot study, the current valve exercising program has been streamlined to locate, assess, and operate all isolation valves within the GLWA Transmission System. Valves that could not be located, or accessed for assessment and exercising, or found to be non-operational, will be remedied using the GLWA Water Transmission Main, Valve, and Urgent Repairs contractors. Valves will be addressed based on geography, criticality to the system, and potential impacts to member partners; therefore, repairs will lag the exercise program substantially to minimize impacts to the system and customers. Normally, open valves found closed are not operated until GLWA operations have reviewed the effected member partners to ensure no unintended disruptions to service.

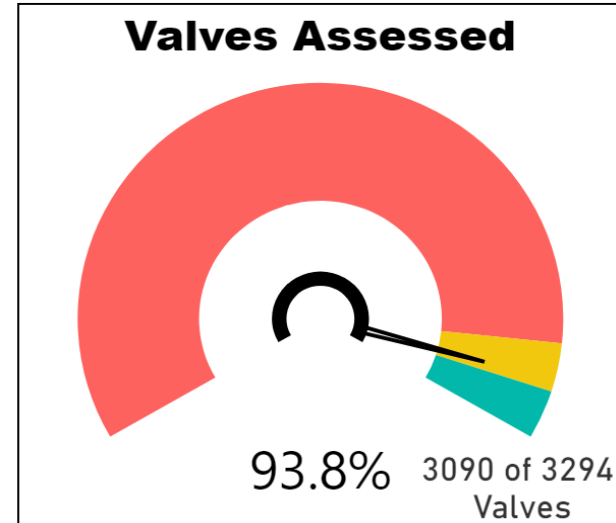
Infrastructure Strategy and Performance: GLWA's ultimate goal is 100% operational valves. However, during this transitional phase, and the need to carefully plan contingencies for valve failures during repair, GLWA has lowered the valve percent operational goal. This reduction reflects the necessary time to plan and conduct valve repairs to include appropriate contingencies that will minimize the impacts to customers should catastrophic failures occur during repair.

Infrastructure Strategy and Performance – Water and Field Services Valve Assessment Totals

Air and Blowoff Valve Assessment Totals – May 2022



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



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

Reason for yellow on Valves Located (91.6%) and Valves Operational (93.8%): Valves not located were mostly due to heavy vegetation and some were paved over. Some valves located could not be assessed due to particulars associated with their individual locations.

NOTE: During the initial preliminary stages of the project, the contractor is conducting inventory, locating and assessing designated valves, as well as determining which valves are operational within the GLWA water transmission system.

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 annually thereafter for the next 3 years.



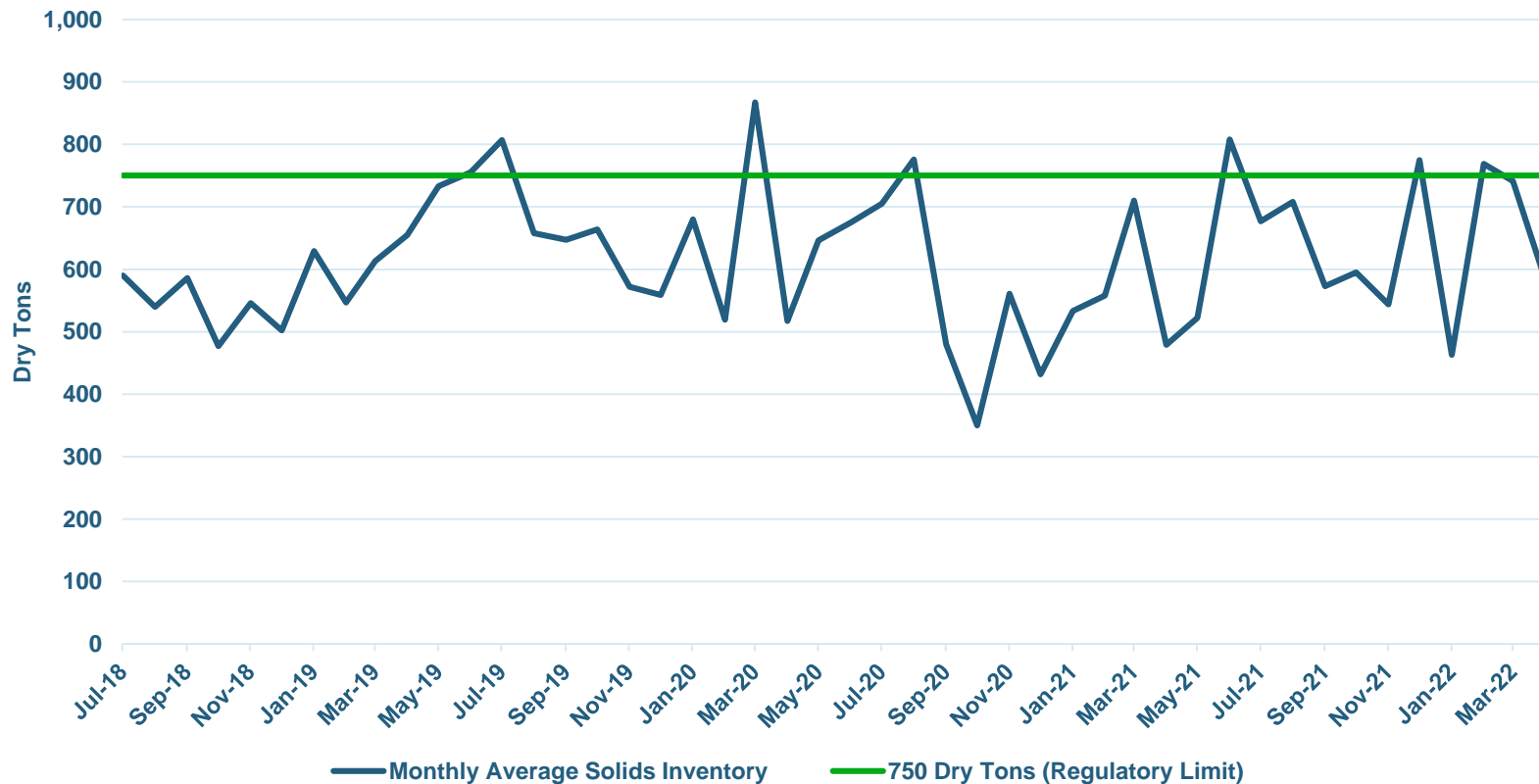
EUM Attribute:

**Operational
Optimization**

Operational Optimization Regulatory Compliance – Monthly Solids Inventory

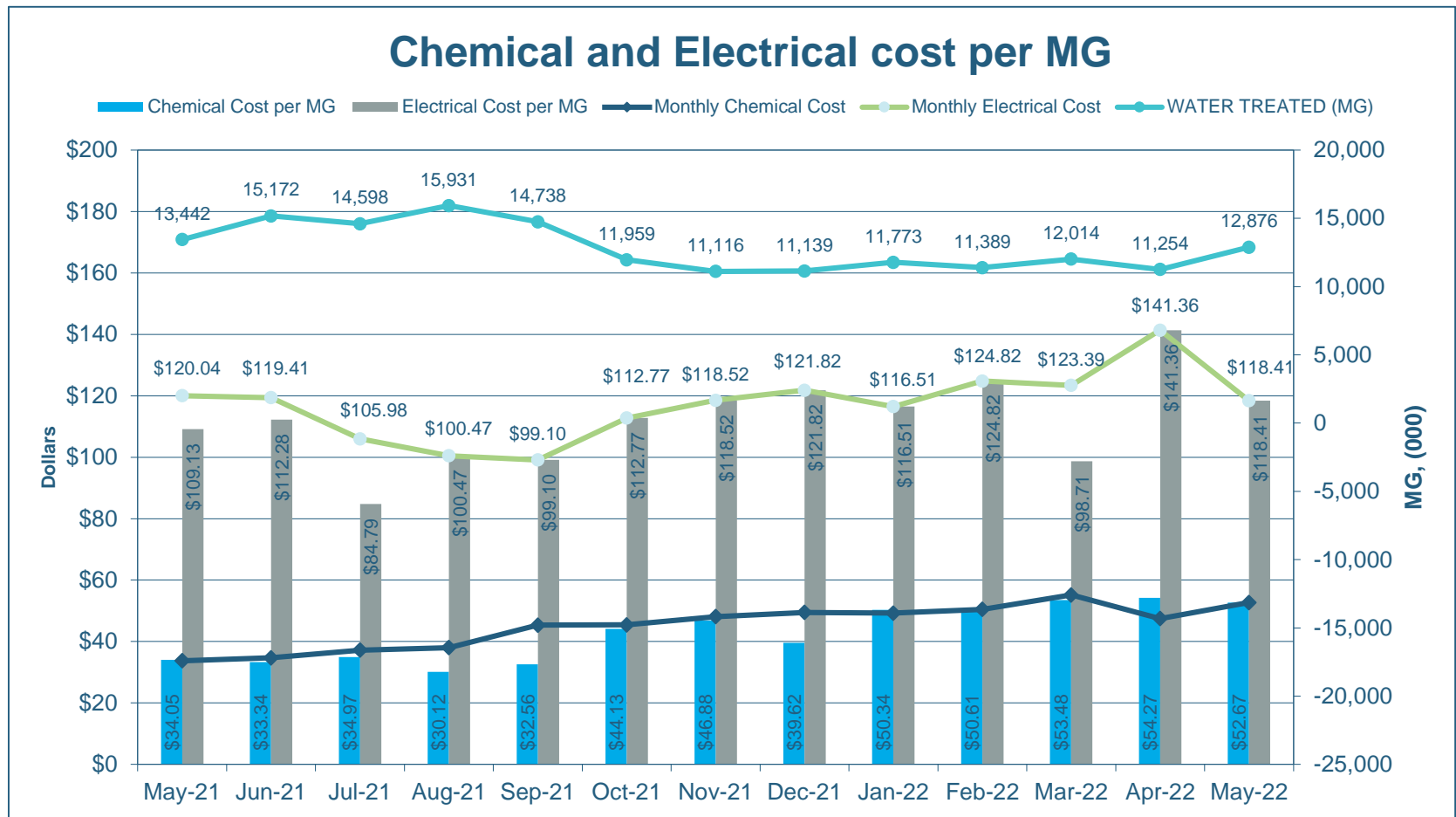
- Solids inventory is a measure of process performance and is regulated by the State.
- Having consistently tracked below 750 dry tons since Oct. 2014 is noteworthy.

Monthly Solids Inventory July 2018 to May 2022



Note: No violation occurred in July 2019, March or August 2020, June or December 2021, or February 2022: the limit did not apply in those months due to the number of days on which PE discharge occurred.

Operational Optimization Chemical & Electrical Costs



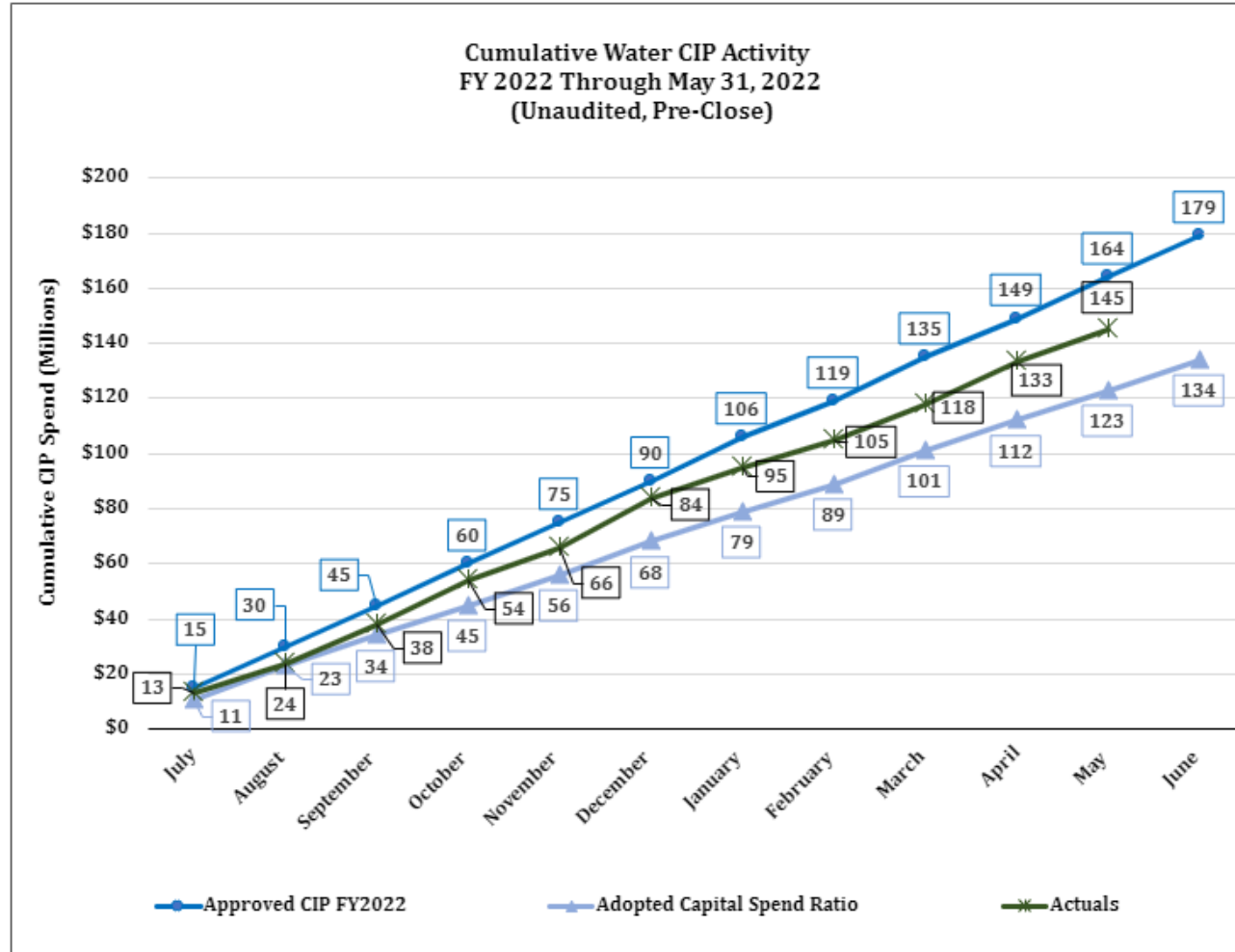
Operational Optimization: Being able to identify ongoing performance improvements for chemical and electrical usage per MG of water pumped is a key metric in managing operational cost. This slide is under development to include tracking of total costs per MG.



EUM Attribute:

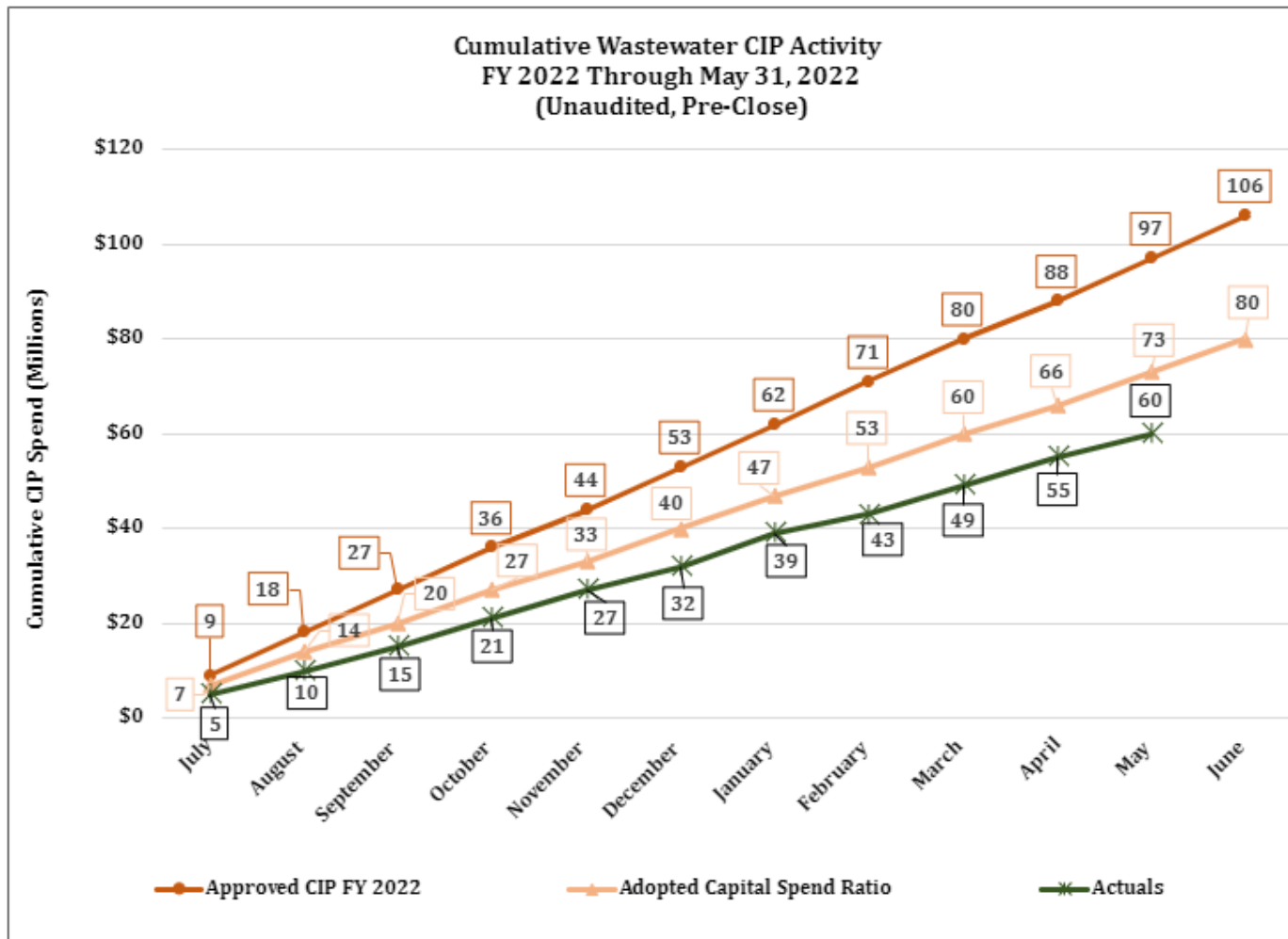
**Enterprise
Resiliency**

Enterprise Resiliency FY 2022 Total Water CIP Spend



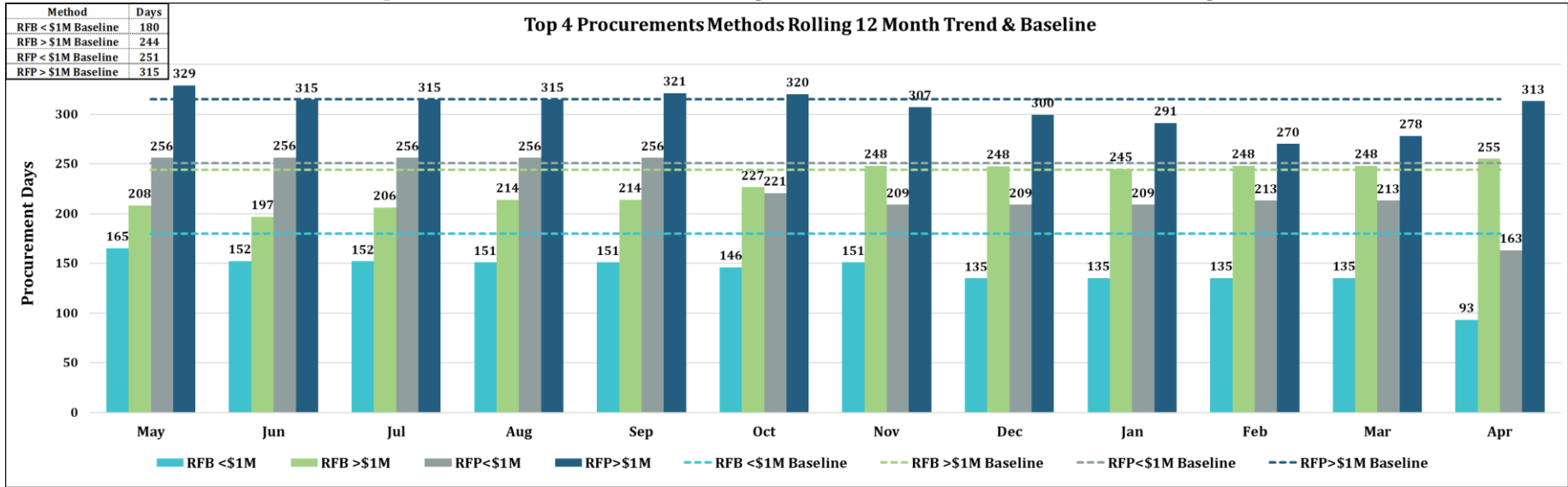
Current Status:
The water system incurred \$145 million of CIP costs through May 2022. This is 88% of the FY 2022 monthly prorated *Approved CIP* and **118%** of the *Adopted Capital Spend Ratio* amount.

Enterprise Resiliency FY 2022 Total Sewer CIP Spend



Current Status:
The sewer system incurred \$60 million of CIP costs through May 2022. This is 62% of the FY 2022 monthly Prorated *Approved CIP* and **82%** of the *Adopted Capital Spend Ratio* amount.

Enterprise Resiliency - Procurement Cycle

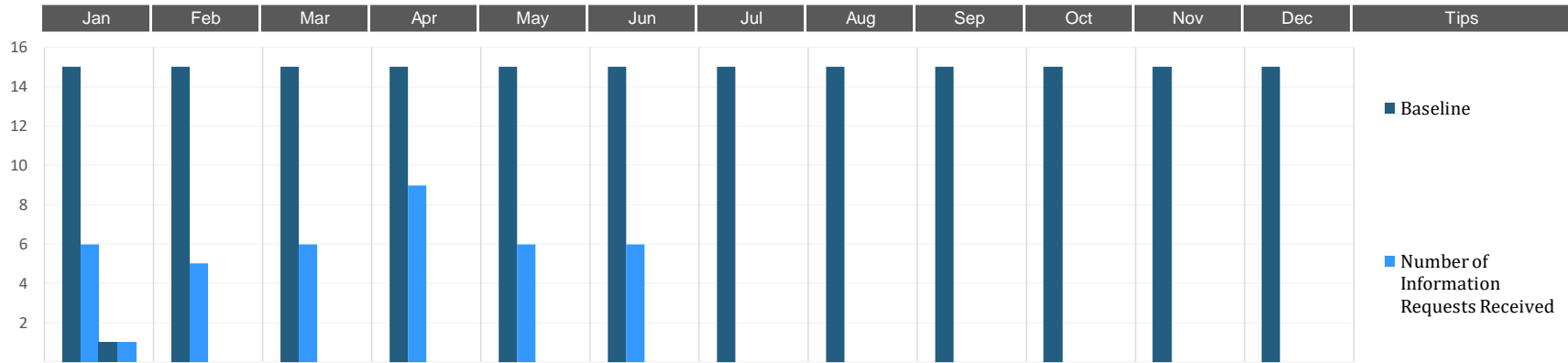


- *Scope:* This slide represents solicitations awarded and contracts executed by GLWA Procurement for the period May 1, 2021, through April 30, 2022.
- The chart above highlights the total days to execute Request for Bid (RFB) and Request for Proposal (RFP) contracts over the previous 12 months compared to the established baselines shown.
- During this period baselines were met for RFP's greater than \$1 million and RFP's and RFB's less than \$1 Million. RFB's greater than \$1 million exceeded the baselines due to some challenges encountered with negotiating contracts which extended timeframes required to execute. However, the increased timeframes did not pose a significant barrier to completing final award of the contracts.
- The table to the right provides a breakdown of this activity based on the type of contract awarded and the amount awarded for the past 12 months.
- There was a total of \$335.8 million associated with 32 contracts awarded during the period May 1, 2021, through April 30, 2022.

Contract Type	Awarded (Millions)	Total Contracts
RFB (Low-Bid)	240.2	19
Over \$1M	238.3	16
Construction	180.7	9
Consultant	1.8	1
Design Build	20.8	2
Services	35.0	4
Under \$1M	1.9	3
Construction	1.9	3
RFP	95.6	13
Over \$1M	95.5	12
Construction	15.0	1
Consultant	15.2	2
Design Build	22.4	3
IT	6.3	1
Services	36.5	5
Under \$1M	0.1	1
IT	0.1	1
Grand Total	335.8	32

Baseline Last Updated 3/1/2021
Outliers Removed

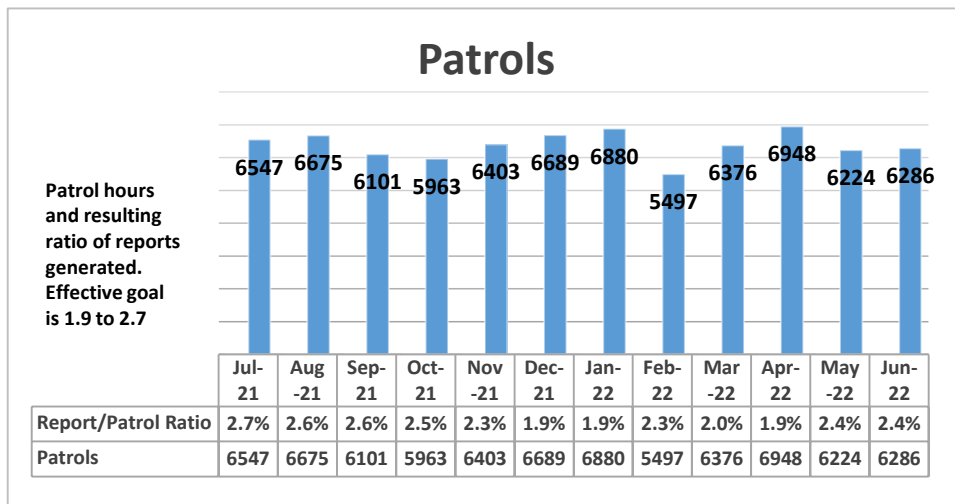
Enterprise Resiliency – General Counsel Information Requests Received



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	6.00	5.00	6.00	9.00	6.00	6.00							38.00	

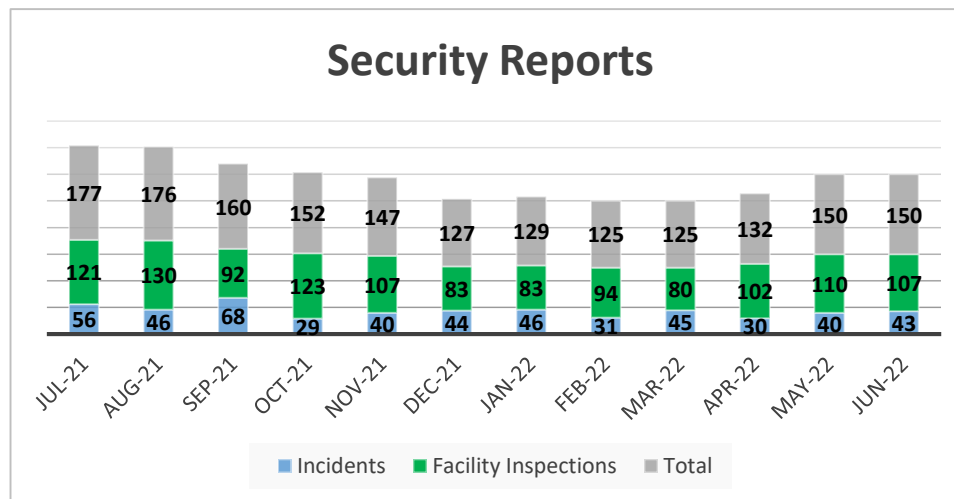
One of the measures of organizational transparency is access to information. GLWA maintains many avenues of informal information access, including through its website. To the extent the information is readily available, the Office of the General Counsel should receive fewer FOIA requests over time.

Enterprise Resiliency – Security & Integrity

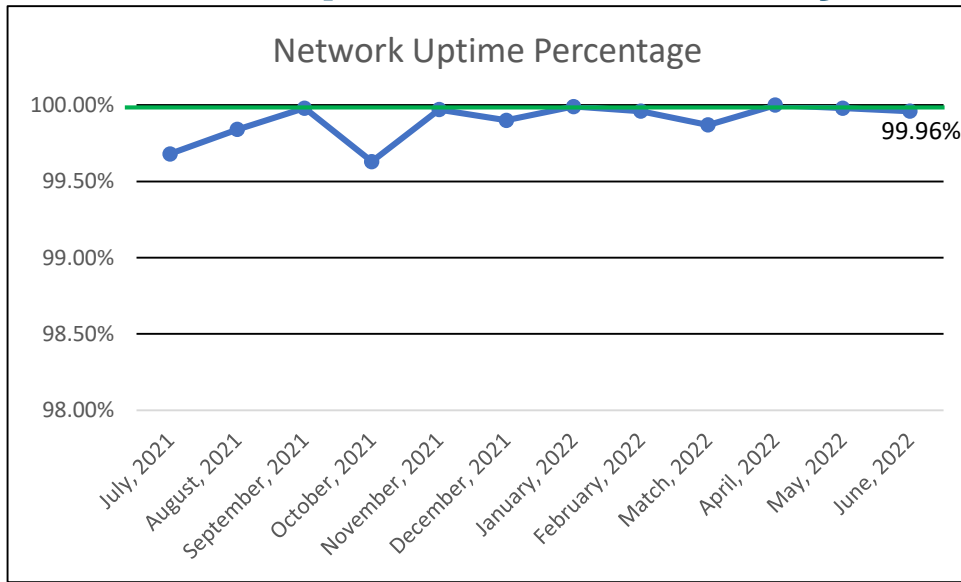


- Patrols are an indication of the level of services rendered by the staff of the Security & Integrity Group.

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

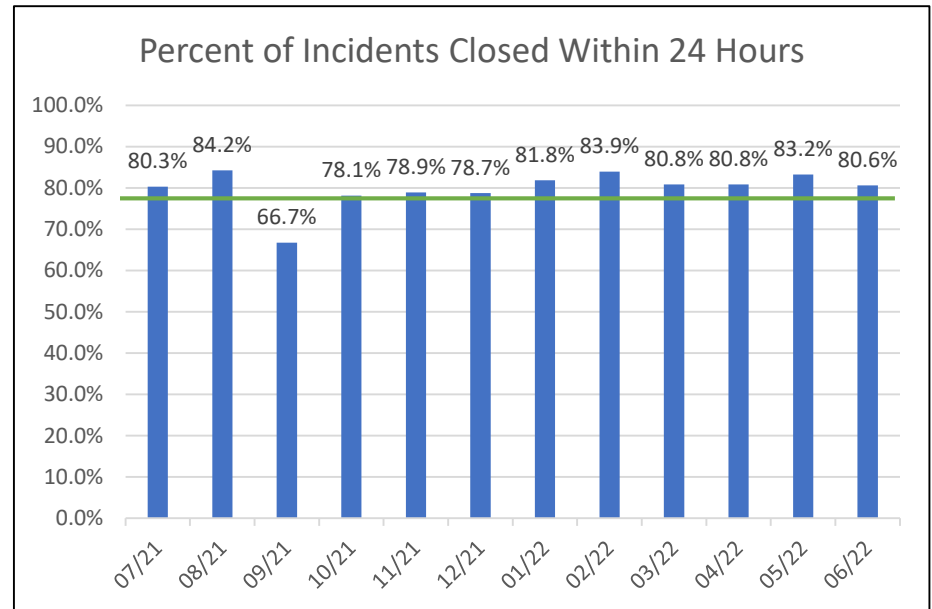


Enterprise Resiliency – Information Technology

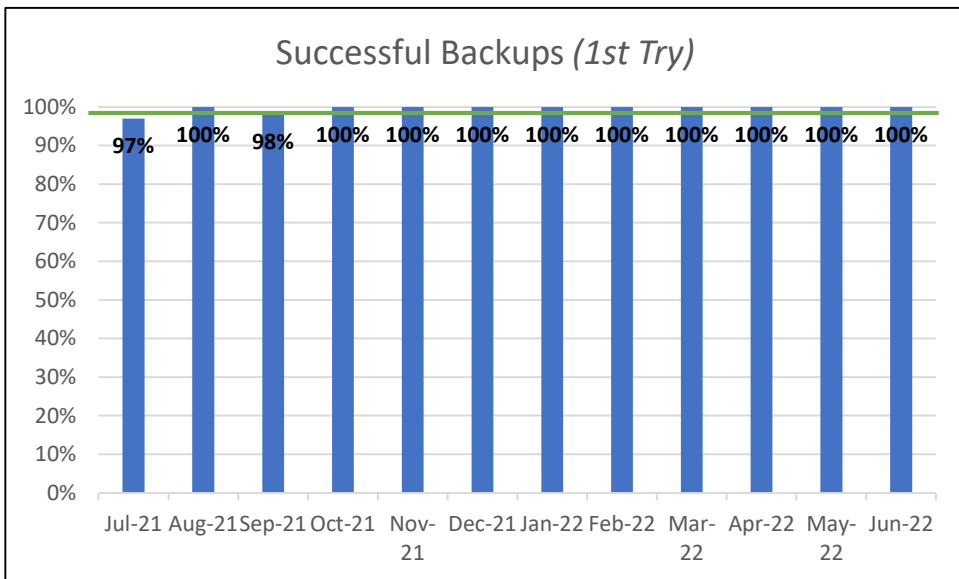


- GLWA has 42 monitored, network-connected sites, including offices, plants, pump stations, and other facilities.
- Network connectivity allows employees to access the applications needed to do their work and connects plants and pump stations to the intranet to report operational data

- 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%

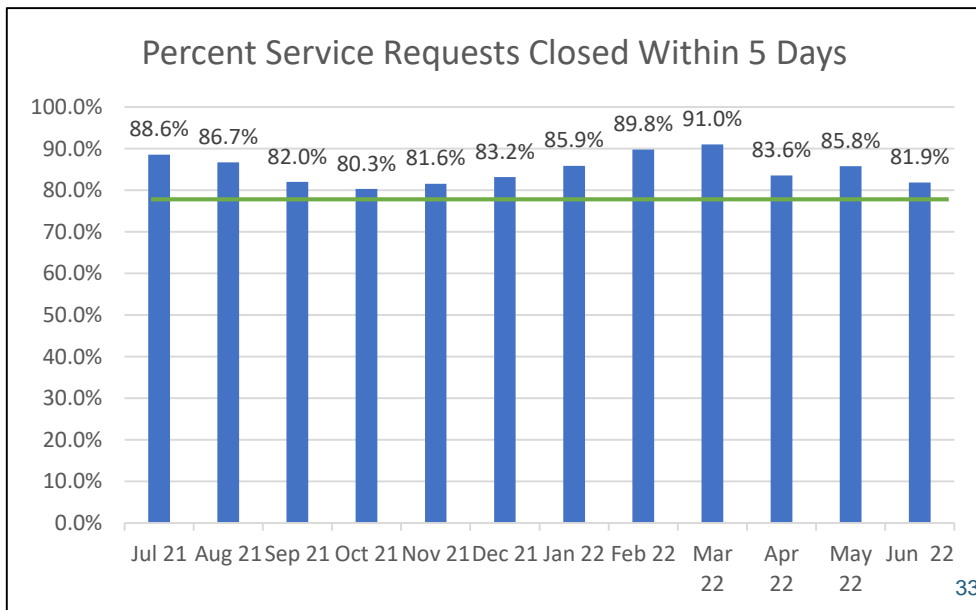


Enterprise Resiliency – Information Technology

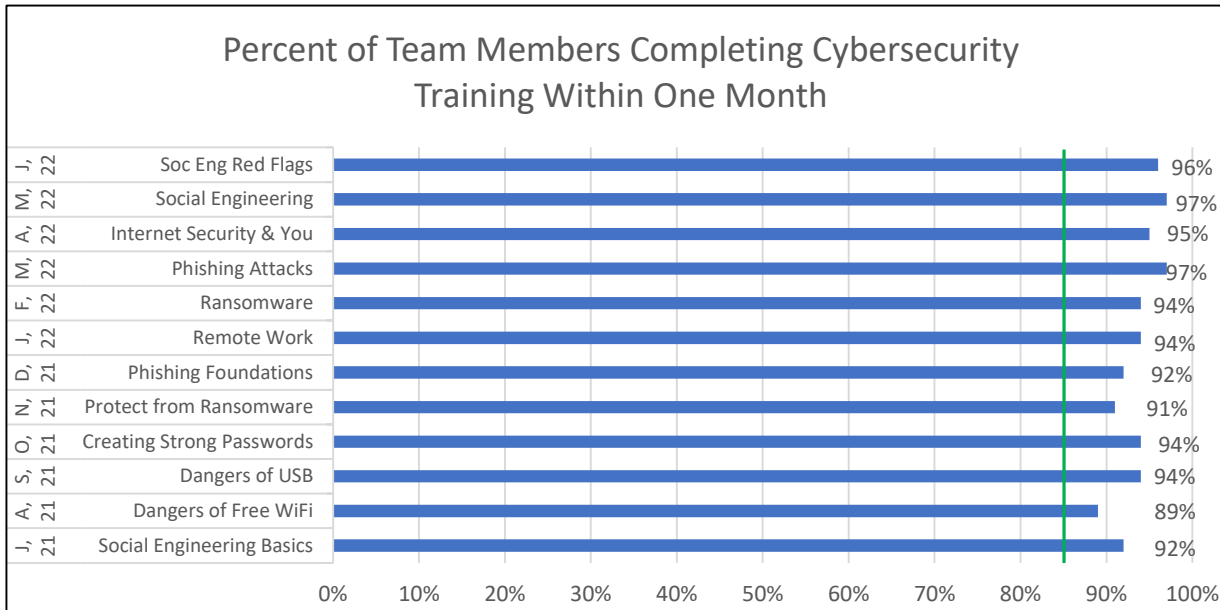


- Backups ensure that GLWA's information is safe in case of unexpected disruptions.
- Successfully backing up on the first try streamlines operations and frees up resources for other tasks.

- 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



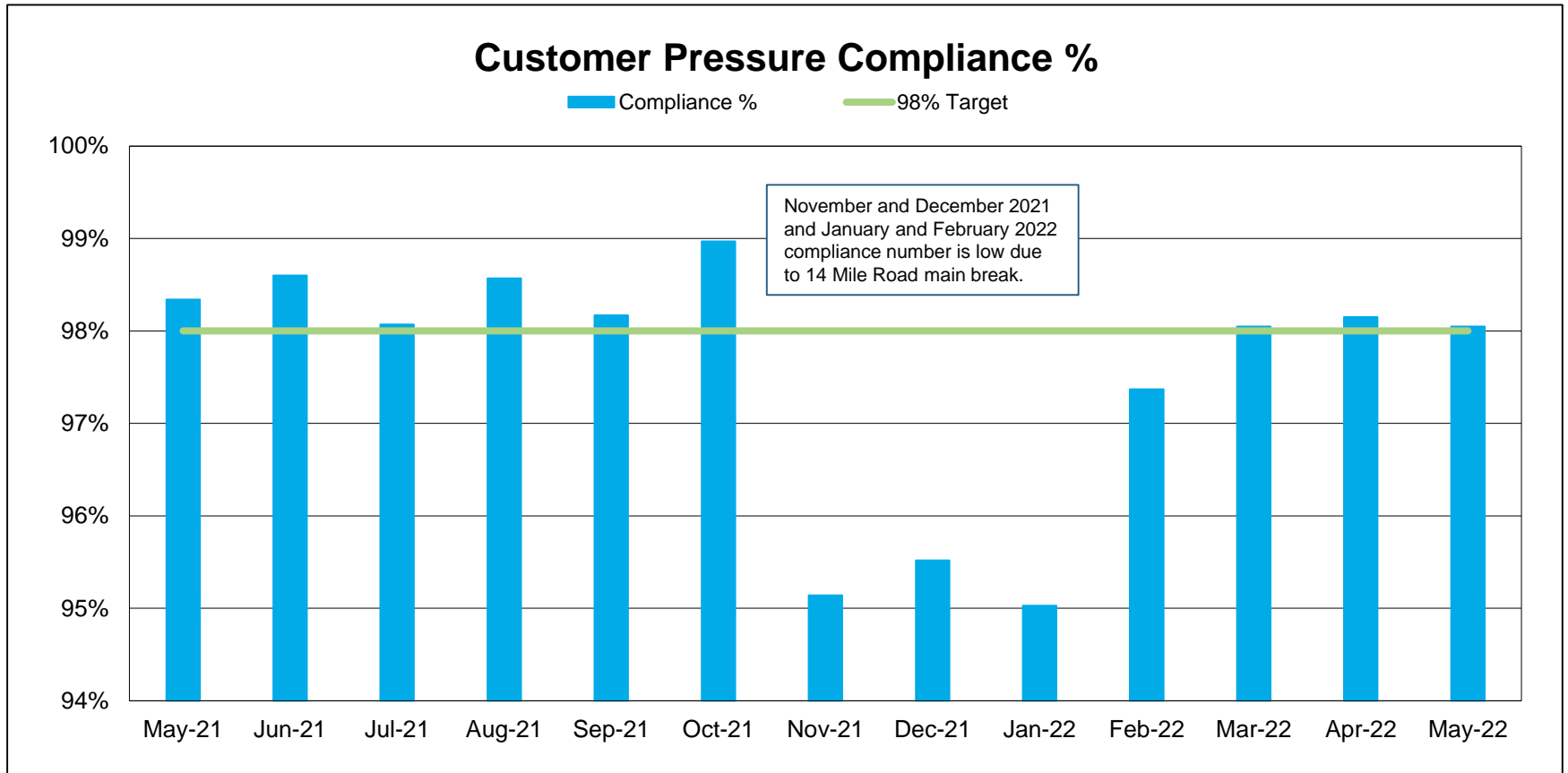
- End users are responsible for 80 percent of cybersecurity breaches.
- Well trained users are less likely to take action that could cause a breach



EUM Attribute:

**Customer
Satisfaction**

Customer Satisfaction – Water & Field Services



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



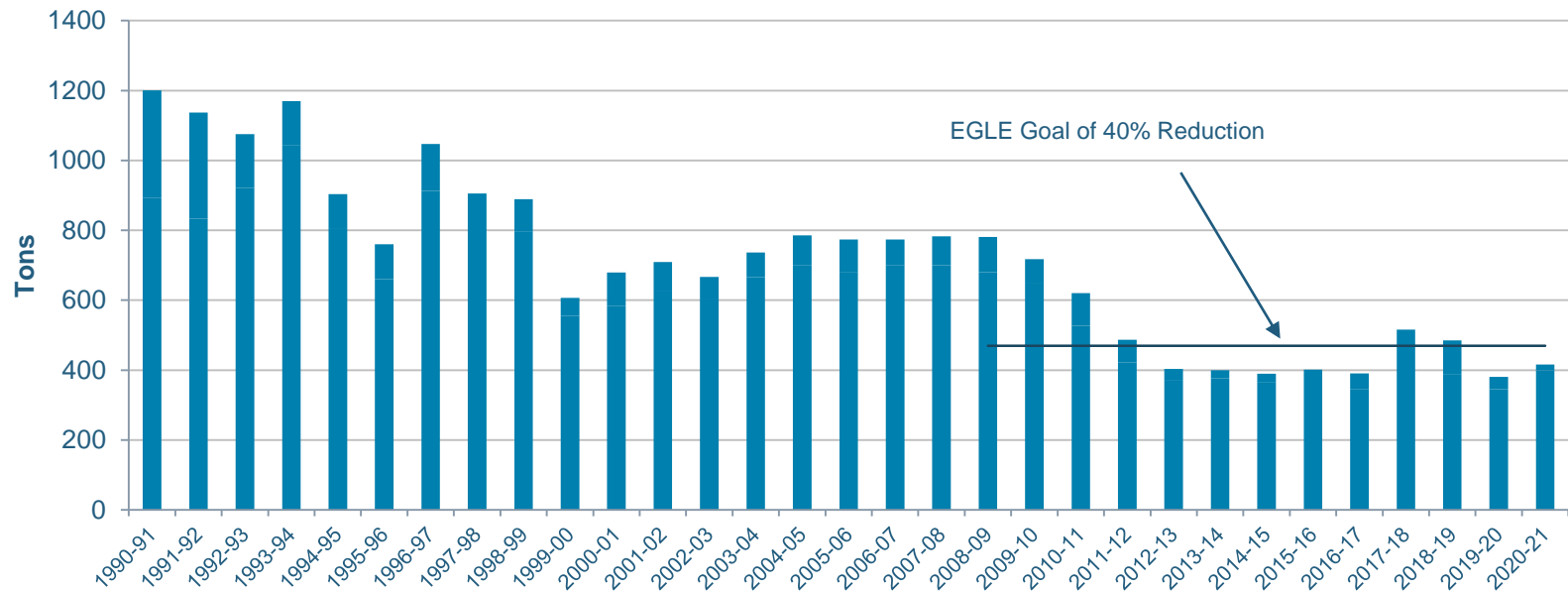
EUM Attribute:

**Community
Sustainability**

Community Sustainability – Watershed Health

- 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.

Effluent Phosphorus Loading
July 1990 to June 2021





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.





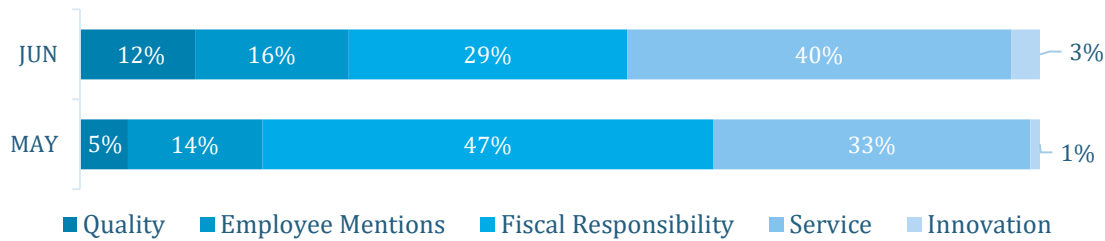
EUM Attribute:

**Stakeholder
Understanding and
Support**

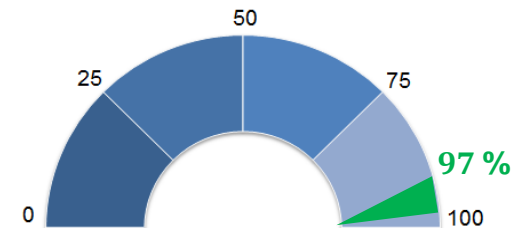
TRADITIONAL MEDIA SUMMARY

Traditional media coverage was neutral in tone and centered on [the independent investigation report](#) on 2021 summer rain events, as well as the GLWA Board of Directors' decision to [eliminate Highland Park bad debt recovery amounts in FY23 charges](#). Other coverage focused on GLWA's [collaboration with Michigan State University](#) on long-term solutions for biosolid residual materials and the Authority's [proactive storm alerts](#). Of the month's media coverage, 23 percent included cursory mentions and 77 percent non-cursory. Of the stories with non-cursory mentions, 97 percent included a GLWA quote or message.

PERCENT COVERAGE BY MESSAGE PILLAR



MESSAGE PULL-THROUGH*



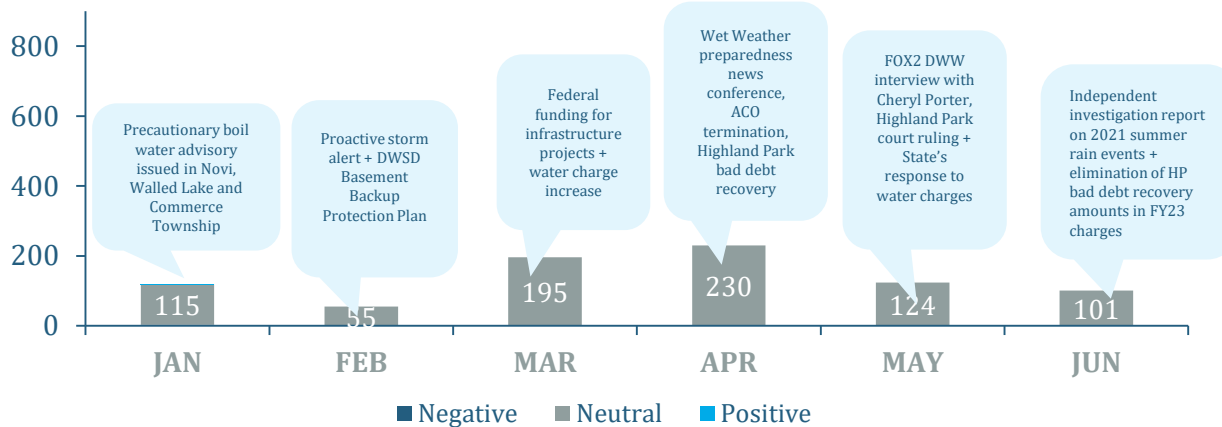
97% of non-cursory coverage included a GLWA message (GOAL = 75%)

MEDIA VOLUME: 101

CURSORY OR FLINT MENTIONS: 23

INCLUDED GLWA MESSAGE: 78

*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.

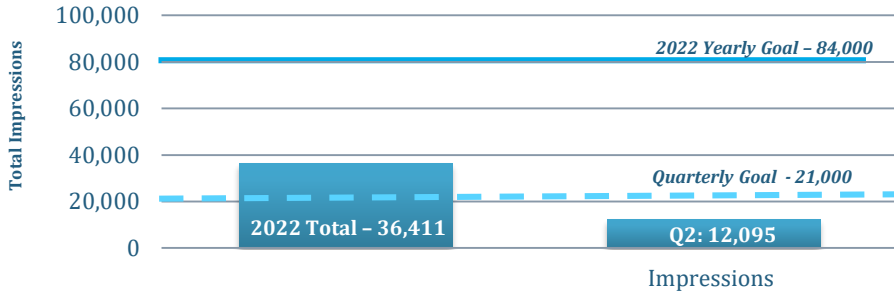


FACEBOOK & TWITTER QUARTERLY REVIEW



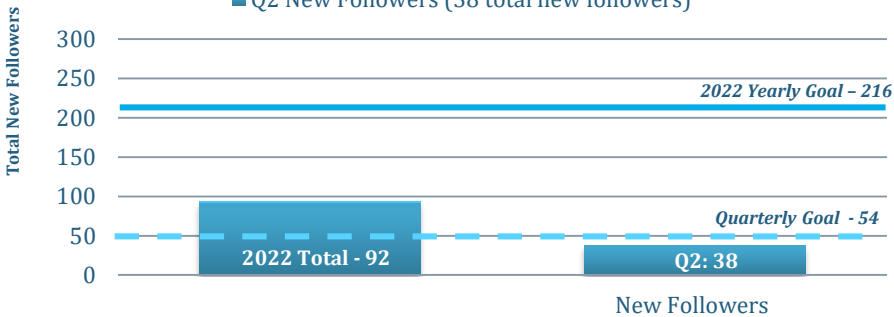
Facebook - Total Impressions Q2 2022

- Yearly Goal (84,000 impressions/year)
- Quarterly Goal (21,000 impressions/quarter)
- Total Q2 Impressions (12,096 total impressions)



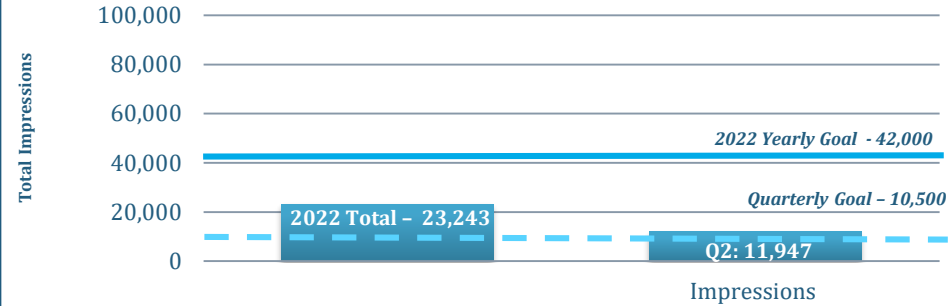
Facebook- Total New Followers Q2 2022

- Yearly Goal (216 new followers/year)
- Quarterly Goal (54 new followers/quarter)
- Q2 New Followers (38 total new followers)



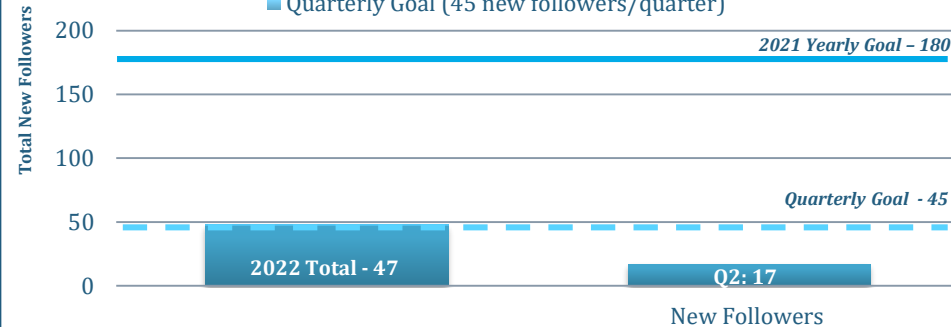
Twitter - Total Impressions Q2 2022

- Yearly Goal (42,000 impressions/year)
- Quarterly Goal (10,500 impressions/quarter)
- Total Q2 Impressions (11,947 total impressions)



Twitter - Total New Followers Q2 2022

- Q2 New Followers (17 total new followers)
- Yearly Goal (180 new followers/year)
- Quarterly Goal (45 new followers/quarter)

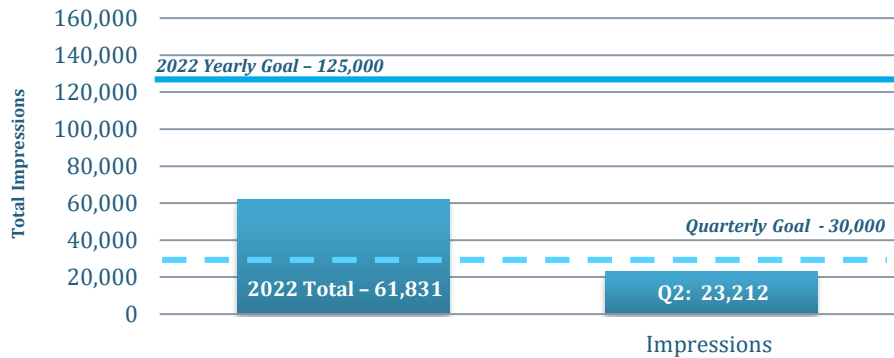


LINKEDIN QUARTERLY REVIEW



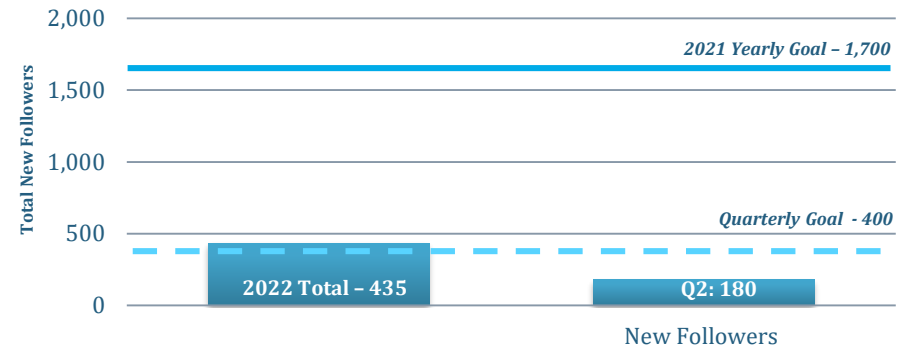
LinkedIn - Total Impressions Q2 2022

- Total Q2 Impressions (23,212 total impressions)
- Yearly Goal (125,000 impressions/year)
- Quarterly Goal (30,000 impressions/quarter)



LinkedIn- Total New Followers Q2 2022

- Yearly Goal (1,700 new followers/year)
- Quarterly Goal (400 new followers/quarter)
- Q2 New Followers (180 total new followers)



Follower growth recommendations:

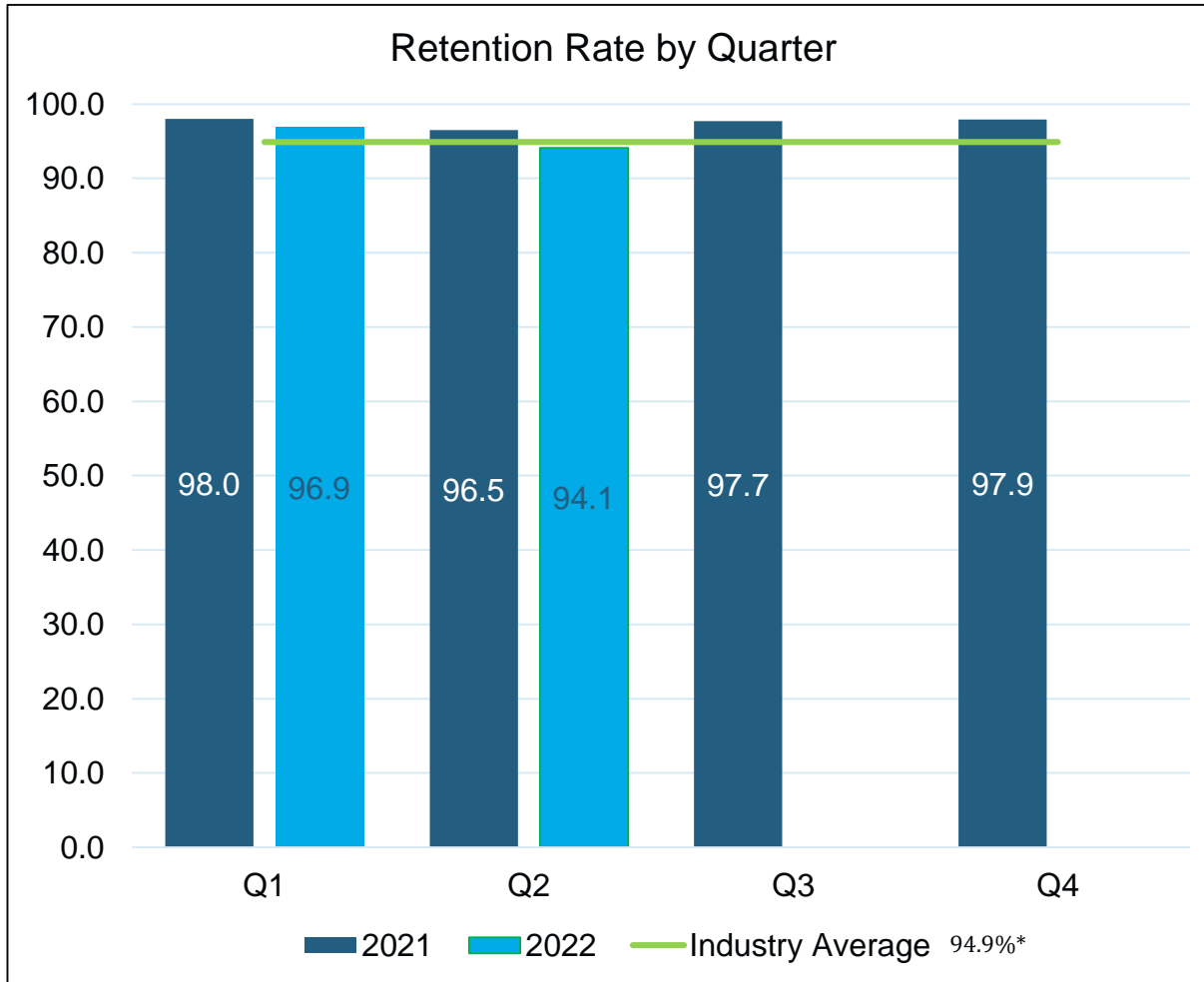
- Continue following related organizations and key media contacts, and regularly engage with their content.
- Ensure link previews are visually appealing before posting and if not, consider a different visual asset for the post.
- Continue sharing engaging content that users can interact with, specifically visual content like videos, quote cards and GIFs.
- Continue tagging leadership and team members in posts, especially on LinkedIn, when possible.



EUM Attribute:

**Employee and
Leadership
Development**

Organizational Development

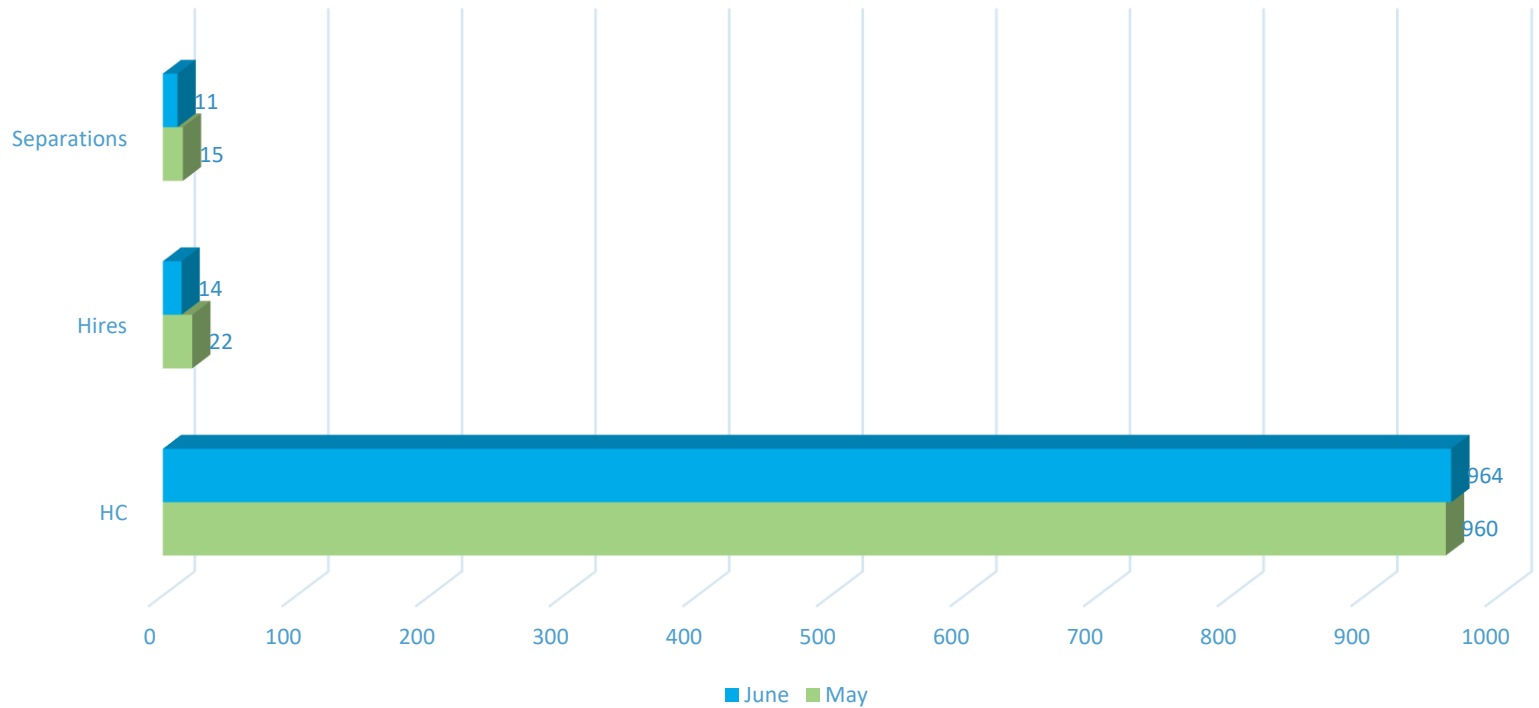


- Retention leads to decreased training costs, increased productivity, and cross training and development.

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

Above retention rates are reflected in percentages

GLWA May & June 2022 Headcount, Hires, & Separations



Headcounts are as of last day of the month