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Phoenix Water Services

The City of Phoenix Water Services Department provides water and wastewater services to the United States’ sixth largest city in an area of approximately 540 square miles and for a population of approximately 1,500,000. This is accomplished through the hard work of nearly 1,500 employees, who carefully manage our major assets, including 7 water treatment plants, nearly 300 pump, well, lift, and pressure stations, 7,000 miles of water main, 5,000 miles of sewer main, 52,000 fire hydrants, and 94,000 manholes. We are owned by and accountable to the people of our community through the community’s elected officials on the Phoenix City Council.

This Is What We Do:

We respond to customers’ needs

We respond to nearly 700,000 calls and emails each year to turn utilities on and off and to ensure proper billing. We respond to customer concerns regarding water pressure, water quality, and wastewater odor. We repair problems in the water distribution and wastewater collection systems.

We ensure sustainable supplies

Water is provided from three general sources: the Salt and Verde Rivers, the Colorado River via the Central Arizona Project, and groundwater wells. The City also reclaims wastewater to a very high standard and delivers it for cooling purposes at the Arizona Nuclear Power Plant, for irrigation in the Roosevelt and Buckeye Irrigation Districts, and for recharge into the local aquifer, where it can be held as mitigation against drought and as a future supply.

We treat water supplies to potable standards

Surface water from the Salt and Verde Rivers is treated at the Val Vista, Deer Valley, and 24th Street Water Treatment Plants. These plants produce approximately 50% of the water used in the City. Colorado River water is treated at the Union Hills and Lake Pleasant Water Treatment Plants, which produce approximately 47% of the City’s water. Groundwater wells produce the remaining 3% of the water used in the City.

We ensure the quality of water in the distribution system

We protect the quality of the water in the distribution system through a strong regulatory compliance program that includes use of the latest technologies to meet quality regulations and a backflow prevention program that helps prevent cross contamination.
We maintain the distribution system and move water to meet demand

There are many aspects of meeting customer demands, including: location (where the customer wants it), volume (how much the customer wants it), timing (when the customer wants it), pressure (how the customer needs it), and reliability (always there when needed). The water system includes numerous storage facilities, pump stations, pressure reducing valves, 52,000 fire hydrants, 155,000 valves, and approximately 7,000 miles of water distribution mains. We maintain this equipment to ensure reliable water deliveries to our customers.

We meter and deliver water

There are more than 430,000 meters in the water distribution system. We have developed an automatic meter reading system to capture monthly meter reads efficiently.

We collect wastewater and deliver it to treatment plants

There are nearly 92,000 manholes, 5,000 miles of sewer lines, and dozens of lift stations and corrosion and odor control facilities in the City’s wastewater system. We maintain this infrastructure in a proactive manner, work to minimize blockages and fix them quickly when they occur, and maintain adequate capacity in the collection system so that all customers’ wastes can be handled safely and efficiently.

We ensure the quality of wastewater does not harm the collection system or the treatment plants

The Department maintains an active industrial pretreatment program through which major industries are identified, sampled, and regulated to protect the collection system, our wastewater treatment plants, and the environment from sources of pollution.

We process wastewater into reclaimed water, biosolids, and bio-gas

Two water reclamation plants (WRP) provide wastewater treatment for the City of Phoenix. The 91st Avenue WRP is operated by the Water Services Department but is jointly owned by the Cities of Glendale, Mesa, Scottsdale, and Tempe in addition to the City of Phoenix. The City also owns and operates the 23rd Avenue WRP.

We deliver reclaimed water, biosolids, and bio-gas for beneficial reuse

Reclaimed water from the 91st Avenue WRP is sold to the Arizona Nuclear Power Plant, where it is reused in the cooling towers, providing an important nexus between water and power in the state. Reclaimed water from this plant is also delivered to the Buckeye Irrigation District. Reclaimed water from the 23rd Avenue WRP is delivered to the Roosevelt Irrigation District. The City delivers approximately 30,000 acre-feet to the Roosevelt Irrigation District, and receives around 20,000 acre-feet of Salt River water in return, due to an innovative exchange agreed to in the 1988 Salt River Pima-Maricopa Indian Community Water Rights Settlement. Biosolids are delivered to local farms for fertilizer for non-edible crops. Bio-gas will be sold in the green energy market beginning in 2018.

We ensure regulatory compliance for the City’s Municipal Separate Storm Sewer System permit

We reduce the amount of pollution entering the storm drain system through public education and outreach, inspections of industrial and commercial facilities, investigation of potential illicit discharges, and enforcement of the local stormwater ordinance.
Significant Accomplishments

The City has a proud history of reliable deliveries of clean, safe drinking water. That is a record we are proud of and one we are determined to continue.

- Of the 20 largest cities in the nation, Phoenix's water and wastewater utility rates are among the lowest.

- Our water utility operating cost per gallon sold is lower than the national median.

- Our wastewater utility operating cost per gallon treated is lower than the national median.

- We have a comprehensive safety program to keep our employees safe and the workplace clean.

- We have never experienced a significant regulatory violation in the operation of our wastewater treatment plants.

- We developed a beautification program for our existing facilities so that neighbors will view our infrastructure as a community amenity.

- The National Association of Clean Water Act Agencies’ Peak Performance Award recognizes facilities for protection of the environment through outstanding compliance with permit limits. The 23rd Avenue Wastewater Treatment Plant (WWTP) achieved six consecutive years with no permit limit exceedances and was recognized with a Platinum Award.

- Our history of water pipeline leaks and breaks is approximately 40% lower than the national standard, and our history of sanitary sewer overflows is approximately 34% lower than the national standard.

- We have acquired the surface water resources required to meet demand 100 years into the future.

- Our New Employee Orientation Program was refreshed to help new staff members understand their role in the organization, learn departmental values and expectations, tour facilities, meet our leaders, and increase employee success and retention.

- The Utility Billing Center regularly answers more than 95% of calls within two minutes.

- We continue efforts to reduce our industrial energy rate by partnering with the Arizona Division of Occupational Safety & Health through the Public Entity Partnership Program.
Significant Accomplishments

Continued:

- We entered into an innovative partnership with the City of Tucson to store, recover, and exchange Colorado River water that will protect Phoenix during extreme shortages on the Colorado River. Under the program, the City of Phoenix will store a portion of its unused Colorado River water in Tucson-area aquifers. In the future, Tucson will recover the stored water and use it in exchange for ordering an equivalent amount of their Colorado River water for delivery through the Central Arizona Project to Phoenix’s water treatment plants. This partnership optimizes the use of resources and infrastructure and increase the resiliency of Phoenix’s Colorado River supplies during drought conditions.

- We reclaim all wastewater to a very high standard. The reclaimed water is reused for irrigation, power generation, and aquifer recharge, and the bio-solids are reused as a fertilizer in local agriculture.

- We installed 7.5MW of solar power at our Lake Pleasant Water Treatment Plant and were awarded with a 3 MW allocation of renewable hydro-power from the Colorado River.

- The water utility system includes dozens of miles of pre-stressed concrete cylinder pipelines (PCCP), which are large transmission mains that over time have shown a tendency to fail catastrophically, causing major service disruptions and flooding. To prevent these failures, the Department set a goal of inspecting 32 miles of critical PCCP water mains in 3 years. The Department is poised to complete a cumulative total of over 55 miles of inspections versus the 32 originally planned. One assessment identified a pipe segment in danger of failure. If this segment had failed catastrophically, it likely would have impacted the Union Pacific Railroad crossing at 67th Avenue. Staff was able to replace the deteriorated segment, eliminate a previously unknown risk, and prevent a catastrophe.

- We deliver high-quality reclaimed water to the Roosevelt Irrigation District for use in local agriculture and in exchange receive Salt River water for our potable needs. This unique exchange was a cornerstone of the 1988 Salt River Pima-Maricopa Indian Community Water Rights Settlement.

- We recharge our aquifer with surface water to help manage it as a resource that can be used during times of drought or climate change.

- We have managed the utility such that water and wastewater system capacity meets the needs of existing customers but is also available for future economic development opportunities.

- We partnered with the Salt River Project to evaluate and monitor source water quality so that employees at the water treatment plants can literally see what’s coming in the canals, and prepare treatment strategies accordingly.

- We implemented an automatic meter reading program to increase efficiency and reduce manual errors.

- We implemented new technology that efficiently routes our employees to locations to activate utility service for our customers. The result is an increase in productivity, diminished use of gas, fewer miles driven, and improved customer service.

- We implemented a computerized maintenance management system through which work on physical assets is better tracked and analyzed.

- We entered into a contract to harness bio-gas produced at the 91st Avenue Wastewater Treatment Plant for sale in the green energy market.
Continued:

- We joined the Department of Energy's Better Plants Program to make our plants more energy efficient.

- We partner with others in the region to solve difficult water and wastewater issues cooperatively. We work with other cities, agricultural districts, conservation districts, Indian communities, private water companies, non-governmental organizations, the State, the Federal government, Maricopa County, Arizona State University, and the University of Arizona.

- We have an effective industrial pre-treatment and commercial inspection program that prevents industrial customers from dumping products into the sewer system that would be harmful to our wastewater treatment plants and the environment.

- Phoenix serves as the Chair of the Maricopa Association of Governments Water Quality Advisory Committee.

- We annually analyze water delivery and wastewater collection system flow data and re-examine the need for system expansion projects identified in the Water and Wastewater Master Plans.

- We value union efforts and ensure regular meetings between the Department's executives, division managers, and union representatives to work collaboratively to provide the best service to our customers.

- We monitor revenues and expenditures to identify and address variances against forecasts and provide a monthly variance report to each division head.

- We fitted Department vehicles with GPS technology, which tracks vehicle location throughout the day resulting in improved productivity, quicker emergency response, and enhanced employee safety.
VISION
We will provide superior water services while perpetuating environmental excellence and focusing on safety.

MISSION
To provide high quality, reliable, and cost effective water services that meet public needs and maintain public support.

VALUES
Responsive and effective customer service.
Honesty and transparency in the conduct of City business.
Respect for our employees through the provision of a positive and safe work environment and the celebration of successes.
Participation and contribution toward the betterment of our community.
Fairness and consistency in personnel matters.
Responsible stewardship of our infrastructure and the environment.
Employee accountability for achieving the best value for the community.
Knowledge and technical expertise in the pursuit of excellence.
Open, honest, and clear communications.
Participatory decision-making at all levels of the organization.
GOALS, STRATEGIES, AND OBJECTIVES
**SUPPLY HIGH QUALITY WATER**

*Provide high quality drinking water in full compliance with regulatory requirements and protect public health.*

*Provide treated effluent water supplies in full compliance with regulatory requirements.*

**Strategies:**
- Ensure drinking water and treated wastewater quality complies with local, county, state, and federal regulations.
- Ensure regulatory compliance through sound field operational procedures and high performance standards.
- Perform monitoring of regulated parameters at the required frequency to ensure regulation and permit limits are met.
- Limit the introduction of pollutants into the wastewater collection system.
- Provide leadership and active engagement on regulatory issues.
- Leverage data, technology, and treatment techniques to exceed current and future regulatory requirements.

**Objectives:**
- Annually review the minimum and maximum process control parameters at the treatment plants.
- Maintain and reevaluate as necessary alert criteria at 80% of the regulatory or permit value to initiate a process or operational evaluation.
- Study the use of influent quality sensors at the bar screens at the 91st Avenue and 23rd Avenue wastewater treatment plants.
- Review and update standard operating procedures for all major tasks at the water and wastewater treatment plants.
- Develop a formal program through which a record is kept of the annual position-specific training of all plant and environmental services employees on existing, updated, and new standard operating procedures.
- Maintain automated monitoring programs for UCOS and HARS where feasible.
- Strengthen controls to continue to ensure that all regulated industries are permitted and monitored.
- Develop an automated permit tracking and billing system for the industrial pre-treatment program.
- Further develop working relationships with regulators to help shape policies and stay informed about regulatory activities.
- Maintain quarterly meetings between divisions to ensure communication on water quality issues.
- Re-evaluate Phoenix’s lead and copper rule testing program.
PROVIDE EXCELLENT CUSTOMER SERVICE

Provide safe, timely and effective customer service.

Build and maintain good relationships with customers and the community.

Strategies:

- Provide reliable, responsive and affordable services in line with explicit customer accepted service levels.
- Respond to customers immediately and act to safely resolve problems.
- Invest in business process changes and technologies that promote customer care and convenience and that provide a consistently positive customer experience.

Objectives:

- Upgrade the utility billing customer information system to the latest version to enable enhanced customer self-service.
- Document response times for customer requests and report the Department’s performance against set goals.
- Continue the training program on phone etiquette; train new call center representatives within three months of hire and repeat training a minimum of every two years.
- Develop a training program on field interactions with customers; train new field employees within three months’ of hire and repeat training a minimum of every two years.
- Develop a training program on presenting water quality information to customers; train new field employees within three months’ of hire and repeat training a minimum of every two years.
- Develop a method to consolidate and map all customer complaints using GIS if practical.
- Develop educational material to describe the water line leak repair process so that customers may better understand the timeliness of the Department’s response to reported problems and issues.
- Continue efforts to consolidate yards, warehouses, and facilities to improve timely response to customer concerns and requests.
Optimize water losses, chemical use, miles driven and energy demands. Make the best use of employee experience, education and technical expertise.

Strategies:
- Minimize energy usage while still meeting operational requirements.
- Do planned work on non-premium pay schedules.
- Maximize cost-effective use of renewable energy resources.
- Standardize and consolidate technology systems, equipment, and software across the organization.
- Minimize water loss.
- Maintain tight controls on inventory to avoid wasting materials and equipment.
- Invest in research and new processes.
- Actively route the water and wastewater field crews to improve response time and to minimize equipment usage and miles driven.
- Minimize chemical use while still meeting operational objectives.
- Optimize water and wastewater operations and delay system expansions by utilizing existing system flexibility.
- Leverage mobile technology.
- Collect, analyze, and use data and metrics in day-to-day operations at all levels.

Objectives:
- Continue the efforts of the Energy Management Program: over the next three years accomplish the following:

  *Energy monitoring and management*
  - Implement networked power monitoring for all raw and finished water pumps and other major energy use processes at all water treatment plants, at the remote facilities that fall within the top 10 for energy use, as well as all 480 Kva switchgear at the 23rd Avenue wastewater treatment plant.
  - Develop dashboards to view, trend and analyze energy consumption data for all major processes at all water treatment plants and at all remote facilities where networked power monitoring has been implemented.

  *Water system energy audits and pump testing*
  - Conduct wire-to-water efficiency tests on all raw and finished water pumps at water treatment plants, at the remote facilities that fall within the top 10 for energy use, at the motor driven assets greater than 50 HP at the 23rd Avenue Wastewater Treatment Plant, and at the motor driven assets greater than 100 HP at the 91st Avenue Wastewater Treatment Plant.
OPERATE AT THE HIGHEST LEVELS OF EFFICIENCY AND COST-EFFECTIVENESS

Operate at the highest levels of efficiency and cost-effectiveness. Optimize water losses, chemical use, miles driven and energy demands. Make the best use of employee experience, education and technical expertise.

Objectives Continued:

- Continue the efforts of the Energy Management Program: over the next three years accomplish the following:

  * System upgrades to improve energy efficiency
    - As budget allows, replace and/or upgrade equipment based on findings and recommendations from the pumps tests. Projects will be prioritized by return on investment and will be tailored to take advantage of rebates offered by APS and SRP.
  
  * Building energy audits, retro-commissioning, & exterior lighting assessments
    - Conduct energy audits on all buildings within the water treatment plant campuses and the 23rd Avenue wastewater treatment plant campuses.
    - Retro-commission HVAC systems on all buildings with cooling loads greater than 100 tons.
  
  * Ensure communication between work groups on electric usage, times of day use, and plans for well maintenance runs and sampling.
  
  * Continually review the electric usage and needs of the water distribution system, water treatment plants, remote facilities, and wastewater treatment plants and take advantage of different electrical rates and pumping times to lower electrical costs where possible.
  
  * Explore the possibility of developing and implementing algorithms based on energy efficiency and water quality to automate the operation of major pump stations.
  
  * Analyze the use of alternative energy at additional facilities.
  
  * Complete the bio-gas contract at 91st Avenue if appropriate.
  
  * Explore the possibilities for development of on-site power generation using digester gas.

- Implement three-day meter reads to reduce overtime in the meter operations section.

- Develop a collection system sulfide generation model and optimize chemical dosage for cost and corrosion control in the wastewater collection system based on this model.
Operate at the highest levels of efficiency and cost-effectiveness

Optimize water losses, chemical use, miles driven and energy demands.
Make the best use of employee experience, education and technical expertise

Objectives Continued:

- Implement new coding and scanning software in the warehouse section that reduces the potential for waste and abuse.

- Develop an integrated IT business plan for the Department that identifies all software and hardware used in the department, catalogs it, and plans for its maintenance, potential consolidation, and eventual replacement. The plan should also describe IT standards for system design, development and maintenance.

- Continue the department-wide quarterly progress report to track strategic efforts and to measure performance against established benchmarks.

- Update the mobile workforce management software to the most appropriate version.

- Develop standard reports for GPS tracking on appropriate vehicles to improve routing, safety and accountability.
ENSURE AMPLE TALENT TO SAFELY DO OUR WORK TODAY AND TOMORROW

Recruit and retain a workforce that is competent, motivated and adaptive. Retain and improve upon institutional knowledge and innovation.

Strategies:
- Enhance the culture of safety in the workplace.
- Establish a participatory, collaborative organization dedicated to continual learning and improvement.
- Develop and implement workforce plans that ensure critical work is performed, identify new ways to perform work, and meet future workforce needs.
- Actively manage employee performance to ensure that the Department’s goals are met.
- Emphasize optimal use of internal expertise and balanced use of consultants.
- Provide opportunities for professional and leadership development.
- Provide meaningful and challenging work.

Objectives:
- Recruit talent at industry conferences such as AZ Water.
- Explore the possibility of internship placements through Gateway Community College or other partners.
- Develop a formal cross-training program that enhances the ability of employees to learn about the work performed in different divisions; ensure the program is structured such that employees are treated consistently and fairly, and given consistent and fair opportunities to participate.
- Hold supervisors accountable for ensuring employees receive all designated safety training.
- Continue regular meetings between the executive team and union leaders.
- Evaluate annual performance standards; develop new standards based on performance, behaviors, and expectations, and link these standards to the Business Plan.
- Ensure that every supervisor has established and communicated clear performance expectations and standards through the employee’s annual performance appraisal process. Regularly assess and communicate performance against standards.
- Continue the Water Smart training program that reinforces key skills for supervisors.
- Ensure job hazard analyses are performed on all critical tasks.
- Continue the in-house training programs that expose various workgroups to the broader aspects of utility management and develop additional resident-expert training programs.
- Hold everyone accountable for safety rule violations.
- Develop a plan to implement a learning management system and e-learning environment.
ENSURE RELIABLE INFRASTRUCTURE PERFORMANCE

Maintain Robust, Secure, and Reliable Water and Wastewater Infrastructure at the Lowest Possible Lifecycle Cost.

Make the Right Capital Investments at the Right Time.

**Strategies:**
- Engineer and build it right the first time.
- Update infrastructure master plans annually to reflect the utility’s highest priorities and align operating and capital budgets to support these priorities.
- Ensure transfer of knowledge for proper operations of equipment and systems.
- Use cost-benefit and life-cycle analysis to evaluate projects to determine the best capital improvement alternatives and the best timing of those alternatives.
- Maintain an asset management program through which all assets are identified, characterized, and mapped in GIS, and through which maintenance and replacement is documented, analyzed, and predicted.
- Continue to conduct asset condition assessments and repair or replace infrastructure as necessary.
- Perform timely and cost-effective preventative maintenance on infrastructure.

**Objectives:**
- Finalize the inclusion of all water distribution, wastewater collection, wastewater treatment plant, water treatment plant, and remote facility assets and their characteristics in the computerized maintenance management system software and ensure that asset units and descriptions are consistent across all facilities.
- Continue and improve the formal process for communicating asset record changes from field to engineering and GIS to update the department’s asset registry.
- Continue the quarterly executive management briefing on progress regarding implementation of the asset management program; develop a scorecard for tracking progress.
- Program preventative maintenance work orders into computerized maintenance management systems and hold staff accountable to perform the work by using monthly productivity reports.
MAINTAIN FINANCIAL VIABILITY

Manage the Water Services Department’s Finances to Support Utility Needs while Maintaining Reasonable Water and Wastewater Rates and Fees.

Maintain a Transparent Financial Environment Free of Fraud, Waste and Abuse.

Strategies:

- Make the best use of every dollar spent.
- Enhance monetary and fiscal controls.
- Optimize rate structure.
- Effectively manage revenues and expenditures.
- Maintain adequate cash flow by maintaining an available fund balance that is at least as large as annual debt service requirements.
- Accurately forecast revenues, expenditures, and cash flows.
- Develop and manage operating and capital budgets aligned with the strategic plan that keep rates reasonable over the long term.
- Work with the Finance Department to ensure the water and wastewater utility financial plans achieve the annual financial indicators required to maintain the existing triple-A rating to minimize the cost of debt.
- Plan, budget, and spend funds on programs and activities needed to support department priorities.

Objectives:

- Improve and formalize programs that identify and minimize non-revenue water loss.
- Continue to ensure that billing and collection practices and policies enhance customer fairness.
- Review and if appropriate, update fees and surcharges to ensure appropriate cost recovery.
- Develop enhanced budget, procurement, and inventory training programs to ensure employees are using best practices.
- Revise and implement internal controls and conduct audits to reduce the potential for fraud and abuse.
- Improve upon the water and wastewater consumption and revenue forecast models that are used to predict rate requirements, ending fund balances, and master plan needs.
- Continue to measure and benchmark performance of the utility’s work groups.
- Continue the monitoring and reporting of CIP scope, schedules, budgets, and change orders.
- Develop a transition plan to implement the new e-procurement system.
- Finalize the water and sewer rate structure reviews to ensure rates are aligned with department needs, customer equity, and City priorities.
- Collaborate with the City’s Finance Department to prepare the department’s long term financial plan.
FOSTER STAKEHOLDER SUPPORT

Engender Understanding and Support from the Community for Service Levels, Rate Structures, Operating Budgets, and Capital Improvement Programs.

Actively Involve Stakeholders in the Decisions that will Affect Them.

Strategies:
- Educate, inform, and elevate transparency to build long-term support for water and sewer programs and services.
- Continuously seek customer input.
- Increase our presence in the community to foster positive relationships.
- Foster relationships with other City departments and with the City Council.
- Cultivate stronger relationships with the media.
- Foster relationships with regulatory oversight agencies.
- Continue to emphasize customer service training throughout the Department.
- Utilize a citizen advisory panel to help guide the CIP and rate making processes.

Objectives:
- Develop a speakers’ bureau that regularly appears at community events such as neighborhood association, village planning, HOA, Council coffee chats, and other meetings and events.
- Develop a Water/Wastewater 101 academy for stakeholders that includes tours and presentations.
- Continue to engage the Water Advisory Committee.
- Pitch targeted topics to morning shows, radio programs, and newspaper reporters at least once a month.
- Assess department-wide outreach methods used to inform customers about major projects, programs, and achievements and ensure a consistent, branded look and message.
- Participate in key stakeholder groups that propose changes to regulatory agencies.
- Expand the use of City-approved social media communications.
- Offer tours to Councilmembers and their staff.
- Continue timely and appropriate communication with City Council on relevant issues.
- Coordinate utility messaging and strategic issue management with other Valley utilities, business partners, and industry organizations.
- Align water related education, outreach, and community efforts with PHXAchieves initiatives and programs that promote information and opportunity for Water Services careers.
ENSURE OPERATIONAL RESILIENCY

Proactively Mitigate Risks.

Continue to Develop and Maintain Water and Wastewater Systems that are Reliable with Adequate Redundancy and Resiliency to Ensure Quality Service to the Customer.

Strategies:
- Ensure power redundancy to meet demand during a commercial power outage during peak demand conditions.
- Secure critical facilities.
- Proactively identify, manage, and mitigate risks.
- Ensure legal review of contracts, regulatory issues, intergovernmental agreements, significant human resources cases, bond issuances, water rights settlements, and other relevant issues.
- Support and align the Department’s technology security strategy with the City’s cyber security efforts.
- Enhance our ability to attract employees to critical operational positions that are traditionally difficult to fill (shift work, weekend and on-call schedules, wastewater operations, process controls, etc).
- Use CMOM, GIS, and asset management databases to track conditions of water and wastewater lines and predict impending failures effectively to replace risky infrastructure proactively.
- Continue to meet peak water supply demands and system pressure requirements, as well as wastewater collection and treatment needs by maintaining a reliable system with adequate redundancy.
- Minimize service interruptions and sanitary sewer overflows (SSO).

Objectives:
- Continue to develop power needs to meet water demands during a commercial power outage during peak demand conditions and to maintain wastewater operations during a commercial power outage.
- Complete updates to the vulnerability analyses of major plants and infrastructure.
- Re-evaluate redundancy and reliability issues associated with Lift Station 40.
- Evaluate and strengthen the water line leak detection program.
- Analyze physical alternatives for continuing water deliveries during a catastrophic shortage on the Colorado River system and recommend a strategy.
- Pursue state legislation and/or State Department of Water Resources rule and policy changes that enable improved management of the aquifer for the long term.
- Continue efforts to recruit skilled workers for critical positions.
ENSURE SUSTAINABLE AND RESILIENT WATER RESOURCES

Acquire Adequate Water Supplies for Current and Future Customer Needs. Adapt to Conditions Such as Drought and Global Climate Change.

Strategies:
- Proactively manage demand and supply portfolios.
- Address the impacts of climate change and drought on surface water supplies.
- Maximize the use of the City’s reclaimed water supplies.
- Protect and enhance Phoenix’s physical access to groundwater and underground storage credits.
- Participate in the adjudication of water rights in Arizona, and settle water rights disputes where prudent.
- Advance water policies, laws, and regulations to protect and enhance Phoenix’s water resources portfolio.

Objectives:
- Continue research and analysis to better understand residential outdoor uses and non-residential uses.
- Continue targeted conservation programs that reinforce our culture of efficient water use.
- Influence the drought recovery plans being formulated by the Central Arizona Water Conservation District and the Arizona Water Banking Authority.
- Participate in the development of programs to improve the resiliency of Phoenix’s surface water supplies.
- Develop a definitive plan for the use or recharge of Gatewater and New Conservation Space water.
- Continue to develop and expand the aquifer storage and recovery well program.
- Participate in the review of rules, regulations, policies, and laws that govern recharge, recovery, and replenishment; advocate for changes that provide an incentive for recharge to take place closer to the area of groundwater pumping.
- Engage in strategies and priorities that arise to deal with statewide water imbalances.
- Establish a program to accurately measure the volume of reclaimed water delivered to each beneficial use.
- Develop 25/50-year projections of Phoenix’s reclaimed water production and identify the amount exceeding current delivery obligations.
- Identify mechanisms to increase the use of available reclaimed water supplies for the benefit of the City.
- Pursue an agreement with the Arizona State Land Department regarding the transfer of its Colorado River subcontract entitlement to Phoenix lands north of Jomax Road.
ENHANCE COMMUNITY SUSTAINABILITY

Incorporate Pollution Prevention and Watershed Approaches as Part of an Overall Strategy to Maintain and Enhance Ecological Sustainability.

Attend to the Impacts that Operational Decisions Have on Current and Long-Term Future Community Health and Welfare.

Strategies:

- Manage operations, infrastructure, and investments to protect, restore, and enhance the natural environment.
- Promote economic vitality by supporting City infill objectives.
- Support community improvement by ensuring our facilities have a positive impact on the community economically and aesthetically.
- Re-establish the Water Services Department as a recognized leader in the environmental field and resource management.
- Foster the Department’s understanding of environmental issues and our impact on those issues.

Objectives:

- Promote the department’s environmental programs with community outreach by newsletters, website and social media.
- Continue the partnership with local art groups to support the use of art to develop aesthetically pleasing remote facilities; recommend sites for artistic enhancements.
- Continue educational outreach regarding water conservation, stormwater, and other environmental issues at schools and other civic functions.
- Identify emerging environmental issues of importance to the department and develop appropriate responses.
- Support and participate in local, regional and national efforts on forest restoration and watershed management.
- Continue leadership in salinity studies.
- Continue to encourage thoughtful use of water in the community.
- Support the use of Department-owned vacant land for urban gardens.
- Prefer the purchase of local goods and services while still meeting City and State procurement rules.
<table>
<thead>
<tr>
<th>Category</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply High Quality Water</td>
<td>100% compliance with all regulatory deadlines</td>
</tr>
<tr>
<td></td>
<td>100% compliance with all state and federal regulations</td>
</tr>
<tr>
<td>Provide Excellent Customer Service</td>
<td>90% of unplanned water outages less than 4 hours in duration</td>
</tr>
<tr>
<td></td>
<td>Respond to all customer water turn-on, turn-off, and high bill investigation requests within established timeframes</td>
</tr>
<tr>
<td></td>
<td>Answer 90% of utility billing center calls within 2 minutes</td>
</tr>
<tr>
<td>Ensure Ample Talent to Safely do our Work</td>
<td>100% of designated staff attend critical and regulatory training</td>
</tr>
<tr>
<td>Today and Tomorrow</td>
<td>Total recordable injury rate less than 8.4</td>
</tr>
<tr>
<td>Operate at the Highest Levels of Efficiency and Cost-effectiveness</td>
<td>Water utility O&amp;M cost per MG less than $1,600, wastewater utility O&amp;M cost per MG less than $1,300</td>
</tr>
<tr>
<td></td>
<td>KWh per MG less than 1,500 for water utility, less than 2,000 for wastewater utility</td>
</tr>
<tr>
<td></td>
<td>Overtime expenses less than a portion of the cost of unscheduled absences and vacancy costs</td>
</tr>
<tr>
<td>Maintain Financial Stability</td>
<td>Maintain at least AAA bond ratings</td>
</tr>
<tr>
<td></td>
<td>100% of customers billed every month</td>
</tr>
<tr>
<td>Ensure Reliable Infrastructure Performance</td>
<td>Clean at least 1,162 miles of sewer line each year</td>
</tr>
<tr>
<td></td>
<td>Ratio of planned-to-reactive work orders completed at least 4-1</td>
</tr>
<tr>
<td></td>
<td>No more than 20 leaks and breaks per 100 miles of water lines</td>
</tr>
<tr>
<td>Ensure Operational Resiliency</td>
<td>Average time to address unplanned water service disruptions less than four hours</td>
</tr>
<tr>
<td></td>
<td>No more than 1.0 sanitary sewer overflows per 100 miles of sewer pipe</td>
</tr>
<tr>
<td></td>
<td>Key system availability at least 99%</td>
</tr>
<tr>
<td>Ensure Sustainable and Resilient Water Supplies</td>
<td>Annual water losses less than 10%</td>
</tr>
<tr>
<td></td>
<td>Reclaimed water reuse at least 90%</td>
</tr>
<tr>
<td>Foster Stakeholder Support</td>
<td>Ratio of positive to negative news stories per year at least 4-1</td>
</tr>
<tr>
<td></td>
<td>At least four meetings of the Water Advisory Board each year</td>
</tr>
<tr>
<td>Enhance Community sustainability</td>
<td>At least 80% of capital improvement projects meet SBC goals each year</td>
</tr>
<tr>
<td></td>
<td>At least 80 community education events attended each year</td>
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</tbody>
</table>
EXPLANATION OF SCORECARD METRICS

SUPPLY HIGH QUALITY WATER

100% compliance with all regulatory deadlines

- This metric gauges the Department’s commitment to regulatory excellence, a cornerstone of the provision of high quality water and treatment of wastewater to high standards that protect the environment.

- There are dozens of reports that must be submitted against deadlines in the water, wastewater, and stormwater utilities. This metric is calculated as the number of reports that are turned in to regulatory agencies in a timely manner in a fiscal year divided by the total number of reports that are turned in during a fiscal year.

- Our FY 15/16 Score: 100%
- Our FY 14/15 Score: 100%

100% compliance with all county, state, and federal regulations related to the water, wastewater, and stormwater utilities

- Regulations broadly define the acceptable levels of various constituents in drinking water, reclaimed water, and stormwater. This metric gauges the Department’s ability to comply with regulations related to the water, wastewater, and stormwater utilities.

- This metric is calculated as the percentage of time each fiscal year that the water, wastewater, and stormwater utilities meets all regulatory standards. Non-compliance is defined as the receipt of a violation as finally determined by Arizona Department of Environmental Quality as directed to the Water Services Director.

- Our FY 15/16 Score: 100%
- Our FY 14/15 Score: 100%
EXPLANATION OF SCORECARD METRICS

PROVIDE EXCELLENT CUSTOMER SERVICE

90% of Unplanned Water Outages Less Than 4 Hours in Duration

- This metric gauges the Department’s ability to restore water service to customers after an unplanned disruption. It is inconvenient to be without water service, and the Department is dedicated to providing for our customers as quickly as possible in support of customer service.
- This metric is calculated as the number of customers that experienced an unplanned water service outage during the fiscal year of four hours or less in duration, divided by the total number of customers that experienced unplanned water service outages in the fiscal year.
- Our FY 15/16 Score: 81%
- Our FY 14/15 Score: 95%
  Explanation of Score: The amount of time to repair a waterline leak/break can vary by job, month and year based on the time, location and severity of the leak/break.

Respond to All Customer Water Turn-On, Turn-Off and High Bill Investigation Requests Within Established Timeframes

- This metric gauges the Department’s ability to quickly respond to customer requests.
- Water turn-on requests should be met within 1 day. Water turn-off requests should be met within 1 day. Investigation of high bill complaints should begin within 3 days. This metric is calculated as one-third of the sum of the number of turn-on requests in a fiscal year accomplished within 1 day divided by the number of turn-on requests in a fiscal year times the ratio of the number of turn-on requests in a fiscal year over the total number of customer requests in a fiscal year plus the number of turn-off requests in a fiscal year accomplished within 1 day divided by the number of turn-off requests in a fiscal year times the ratio of the number of turn-on requests in a fiscal year over the total number of customer requests in a fiscal year plus the number of high bill investigation requests in a fiscal year accomplished within 3 days divided by the number of high bill investigation requests in a fiscal year times the ratio of the number of high bill requests in a fiscal year over the total number of customer requests in a fiscal year.
- Our FY 15/16 Score: 98%
- Our FY 14/15 Score: 93%
  Explanation of Score: A factor that lead to the improvement was a reduction in the employee vacancy rate.

Answer 90% of Utility Billing Center Calls Within Two Minutes

- This metric gauges the Department’s ability to respond quickly to customer phone calls.
- This metric is calculated as the number of calls that were answered within two minutes during the fiscal year divided by the total number of calls received by the utility billing center in the fiscal year.
- Our FY 15/16 Score: 65%
- Our FY 14/15 Score: 60%
  Explanation of Score: The department made significant improvements in this area and has averaged 95% of calls answered within two minutes for the last five months of FY 15/16.
EXPLANATION OF SCORECARD METRICS

OPERATE AT THE HIGHEST LEVELS OF EFFICIENCY AND COST-EFFECTIVENESS

Water O&M Cost per MG less than $1,600, Wastewater O&M cost per MG Less than $1,300

- This metric provides a “bottom line” indication of the Department’s efficiency in operations.
- This metric is calculated as the total actual O&M expenditure of the water/wastewater utility in a given fiscal year divided by the total amount of water/reclaimed water produced each fiscal year.
- **Our FY 15/16 Score: Water: $1,565  Wastewater: $1,392**
- **Our FY 14/15 Score: Water: $1,512  Wastewater: $1,306**

**Explanation of Score:** The increase in cost was due to an increase in contractual services (Lake Pleasant Contract) and increase in production (raw water) from previous years in addition to the rise in raw water cost of $3.8 million since exceeding the order using CAP water.

Water KWh usage per MG less than 1,500, Wastewater KG usage per MG less than 2,000

- This metric provides a “bottom line” indication of the Department’s energy efficiency in operations.
- This metric is calculated as the total actual KWh usage of the water/wastewater utility in a given fiscal year divided by the total million gallons of water/wastewater produced/treated in that fiscal year.
- **Our FY 15/16 Score: Water: 1,338 / Wastewater: 1,762**
- **Our FY 14/15 Score: Water: 1,293 / Wastewater: 1,762**

**Explanation of Score:** The increase in Water energy intensity was due to the increased pumping north from lower zones to higher zones when Union Hills WTP was off line earlier this year.

Customer Accounts per employee

- This metric provides an indication of how efficiently the Department’s employees are being managed.
- This metric is calculated by taking the number of accounts divided by the number of Full Time Employees (FTEs). This is an American Water Works Association (AWWA) Utility Benchmarking Performance Indicator.
- **Our FY 15/16 Score: 289**
- **Our FY 14/15 Score: 285**

**Explanation of Score:** An increase in added residential and non residential accounts was accompanied by a decrease in Full Time Employees.
EXPLANATION OF SCORECARD METRICS

ENSURE AMPLE TALENT TO SAFELY DO OUR WORK TODAY AND TOMORROW

100% of Designated Staff Attend Critical and Regulatory Training

- This metric gauges the Department’s commitment to ensuring proper training for both employee safety and operational excellence.
- The Department maintains a list of designated positions and the critical and regulatory training associated with each position, including the required frequency of the training. This metric is calculated as 100 minus the ratio of the number of employees on this list that did not complete all required training within the established timeframe in a given fiscal year over the total number of employees on this list in the same fiscal year. The total number of employees on this list in a fiscal year shall be calculated as the number of employees on this list as of June 30.

  - Our FY 15/16 Score: 60%
  - Our FY 14/15 Score: 42%

Explanation of Score: The 18% improvement was the result of enhanced tracking mechanisms and communication over the training season. The Safety and Training division developed bi-annual tracking reports for use by supervisors, along with weekly reminders of available training and empty seats.

Total Recordable Injury Rate of Less Than 8.4

- This metric is a representation of the Department’s safety record. The incidence rate represents the number of injuries and illnesses per 100 full-time workers.
- OSHA shows an industrial incident rate per 100 employees of 8.4 for the Utilities/Water, Sewage and other Systems category. This metric is calculated as 200,000 (the base for 100 equivalent full-time workers) times the ratio of the number of injuries and illnesses in a fiscal year over the total number of hours worked by all employees during the fiscal year.

  - Our FY 15/16 Score: 9.8
  - Our FY 14/15 Score: 10

Explanation of Score: Although we saw an improvement this year, our current rate is approximately 15% above the average reported to ADOSH by water utilities in Arizona. Water Services is working to reduce the occurrence of industrial injury through updates to policy and procedure, enhanced training, completion of additional job hazard analysis and implementation of the Public Entity Partnership program (PEPP) safety management system in collaboration with ADOSH.
EXPLANATION OF SCORECARD METRICS

ENSURE RELIABLE INFRASTRUCTURE PERFORMANCE

Clean at least 1,100 Miles of Small-Diameter Sewer Pipe and 62 miles of Large Diameter Sewer Pipe per Year

- This metric is an indication of how the Department is maintaining the sewer collection system.
- This metric is calculated as the total number of miles of small- and large-diameter sewer pipe cleaned in a fiscal year.

- **Our FY 15/16 Score:** Small Diameter: 1,116 / Large Diameter: 98
- **Our FY 14/15 Score:** Small Diameter: 1,023 / Large Diameter: 45

**Explanation of Score:** In FY 14/15 city staff dealt with a number of equipment failures. Equipment was repaired and available in 2015/2016.

Ratio of Planned to Reactive Work Orders Completed at least 4 to 1

- This measure gauges the Department’s ability to complete preventative maintenance work to extend infrastructure life.
- This metric is calculated as the number of preventative work order tasks finished in a fiscal year over the total number of work order tasks finished in a fiscal year.

- **Our FY 15/16 Score:** 3.58 to 1
- **Our FY 14/15 Score:** 3.85 to 1

**Explanation of Score:** A factor that led to the FY 15/16 score was the successful shutdown of Union Hills Water Treatment Plant for scheduled maintenance and the increased accuracy in utilizing the work-order system.

Number of Leaks and Breaks per 100 Miles of Water Lines

- This measure gauges the state of the water utility’s water lines.
- This metric is calculated as the number of leaks and breaks on any water line in a fiscal year divided by seventy. The National benchmark from the American Water Works Association in 2012 was 30 or less to be in the top 25 percentile.

- **Our FY 15/16 Score:** 15
- **Our FY 14/15 Score:** 14

**Explanation of Score:** The increase in FY 15/16 could be due to several different causes such as age, ground temperature or increased contractor strikes.
EXPLANATION OF SCORECARD METRICS

ENSURE OPERATIONAL RESILIENCY

Average Time to Address Unplanned Water Service Disruptions Less than Four Hours

- This measure gives an indication of how quickly and effectively the Department can respond to unplanned water line leaks and breaks that disrupt service.
- This metric is calculated as the total time necessary to address unplanned water service disruptions in a fiscal year divided by the total number of water service disruptions in a fiscal year.

- Our FY 15/16 Score: 2.30
- Our FY 14/15 Score: 3.38

Explanation of Score: A factor that led to the improvement was a reduction in the employee vacancy rate.

No More Than 1.0 Sanitary Sewer Overflows per 100 Miles of Pipeline

- This measure gives an indication of the Department’s ability to ensure adequate sewer capacity and maintain sewer infrastructure.
- This metric is calculated as the total number of sanitary sewer overflows divided by 50.

- Our FY 15/16 Score: .56
- Our FY 14/15 Score: .56

Key System Availability

- This measure gives an indication of the Department’s ability to ensure the continued operation of key systems.
- This metric is calculated as one minus the total number of hours that water treatment plants, major pump stations, wastewater treatment plants, and lift stations are out-of-service (pro-rated by the capacity of the facility compared to total system capacity) for reasons that are not planned in a fiscal year divided by 8,760.

- Our FY 15/16 Score: 100%
- Our FY 14/15 Score: 100%
EXPLANATION OF SCORECARD METRICS

ENSURE SUSTAINABLE AND RESILIENT WATER RESOURCES

Water Losses less than 10%
- This measure gives an indication of how well the Department is managing the water treatment and distribution systems in support of resource efficiency.
- This metric is calculated using the same report to the Arizona Department of Water Resources for the previous calendar year.
- Our FY 15/16 Score: 8.53%
- Our FY 14/15 Score: 6.98%

Reclaimed Water Reuse at least 90%
- This measure gives an indication of how well the Department is managing and reusing reclaimed water.
- This metric, expressed as a percentage, is the ratio of the amount of reclaimed water delivered to customers and/or contract obligation to customers in a fiscal year over the total amount of reclaimed water produced in a fiscal year at the 23rd Avenue Wastewater Treatment Plant and the Phoenix only flows at the 91st Avenue Wastewater Treatment Plant.
- Our FY 15/16 Score: 84%
- Our FY 14/15 Score: 88%

Explanation of Score: The decrease is due to Palo Verde Nuclear Power Plant taking less water due to shutdowns in the months of October and April.
EXPLANATION OF SCORECARD METRICS

ENHANCE COMMUNITY SUSTAINABILITY

At Least 80% of Capital Improvement Projects Meet Small Business Concern Goals each Year

- This measure gives an indication of how well the Department ensures inclusion of small business interests and minority employment in capital improvement projects.
- This metric is calculated as the ratio of capital improvement projects that meet SBC goals each fiscal year over the total number of capital improvement projects each fiscal year.
- Our FY 15/16 Score: 84%
- Our FY 14/15 Score: 82%

At Least 80 Community Education Events Attended Each Year

- This measure gauges the Department’s success in educating the public regarding water conservation, water resource, wastewater treatment, stormwater quality, and other issues.
- This metric is calculated as the number of community events attended by Department staff at which educational material is discussed or made available.
- Our FY 15/16 Score: 133
- Our FY 14/15 Score: 100

Explanation of Score: The addition of two new staff members led to the increase in outreach events attended.
EXPLANATION OF SCORECARD METRICS

MAINTAIN FINANCIAL VIABILITY

Maintain an AAA Bond Rating in the Water and Wastewater Utilities
- This measure gives an indication of the overall financial health of the utility as determined by Standard and Poor’s.
- **Our FY 15/16 Score:** AAA
- **Our FY 14/15 Score:** AAA

100% of Customers Billed Every Month
- This measure gives an indication of the ability of the Department to protect revenues and ensure fairness between customers. Billing errors can prevent bills from going out in a timely manner.
- **Our FY 15/16 Score:** 99.9%
- **Our FY 14/15 Score:** 99.9%

FOSTER STAKEHOLDER SUPPORT

Ratio of Positive to Negative Media Stories at Least 4 to 1
- This measure gives an indication of how the Department is perceived by the broader community.
- This metric is calculated as the ratio of positive-to-negative news releases, broadcast, print, and online articles, tweets, re-tweets, YouTube viewings, Facebook posts, and followers gained in the fiscal year including both City of Phoenix Water Services Department and Water Use It Wisely mentions.
- **Our FY 15/16 Score:** 0.9-1
- **Our FY 14/15 Score:** 4.6-1
  **Explanation of Score:** Although the number of positive news stories remained the same as last year, the number of negative stories grew due to national stories about lead and a water bottling facility relocating to the region.

At Least Three Meetings of the Water Advisory Panel Each Fiscal Year
- The Water Advisory Panel is used to vet the Department’s capital improvement program, water rate recommendations, and other pertinent issues with interested stakeholders. This measure gives an indication of how frequently the Department is formally interacting with interested stakeholders and the “influential public.”
- This metric is calculated as the number of publicly noticed formal meetings of the Water Advisory Panel held each fiscal year.
- **Our FY 15/16 Score:** 3
- **Our FY 14/15 Score:** 3
The City of Phoenix has a proud history of reliable deliveries of clean, safe drinking water.

That is a record we are proud of and one we are determined to continue.