FLAGSTAFF
WATER
SERVICES

JANUARY 2020

FLAGSTAFF WATER SERVICES
STRATEGIC PLAN 2025

Drinking Water Wastewater Reclaimed Water Stormwater "We are Water"

WATER SERVICES STAFF 2018

FLAGSTAFF AND ITS **WATER SERVICES DIVISION**

With clean air, a cooler climate, and beautiful natural areas, Flagstaff is a great place to live and visit. Residents and visitors enjoy the many amenities Flagstaff has to offer—from the Flagstaff Urban Trails System (FUTS) of bike and pedestrian paths to the Grand Canyon to the unique biodiversity of surrounding forests. Home to Northern Arizona University and world-class research centers, Flagstaff residents are informed, passionate, and engaged in issues concerning their community.

Flagstaff Water Services is a Division of the City of Flagstaff and is an integral part of the community. Reliable water service is critical to maintaining the local economy and high quality of life. The following Strategic Plan provides an overview of the water issues and actions necessary to address the aging of the water system and system reliability, growth, and the increasing challenges associated with climate change.

PURPOSE OF THIS STRATEGIC PLAN

Flagstaff Water Services is currently well-positioned to provide reliable services, meeting both regulatory and internal standards. However, the 2025 Strategic Plan focuses on the future, addressing the risks, major decisions, needed investments, and opportunities likely to arise within the plan's five-year horizon. Specifically, this Strategic Plan is designed to meet the following objectives:

- Provide a substantive and easy to read overview of the water issues facing Flagstaff
- Identify the major challenges, strategic objectives, and needed investments likely to come up during the five-year planning horizon
- Increase confidence among the Flagstaff City Council and the community that Flagstaff Water Services is addressing future risks, opportunities, and needed investments (such as in infrastructure or staffing)
- Establish a basis for future community dialogue on specific water issues in Flagstaff
- Ensure that strategic objectives are aligned with the Division's mission, values, standards, City Council goals, and the appropriate elements of Flagstaff's Climate Change Action and Adaptation Plan
- Outline the financial implications of the issues described in this Strategic Plan

ELEMENTS OF THE STRATEGIC PLAN

Strategic Foundation – The Division's Mission and Behavioral Values define its fundamental roles and the way it conducts business with its customers, the community, and the region.

Business Values – The Division's Business Values describe its commitments to provide compelling value, for example highly reliable water service, high quality water, and protecting the environment. They establish a consistent framework for developing more detailed standards, identifying issues, assessing risks, evaluating and implementing solutions, and communicating in a meaningful way.

Standards – In order to provide consistent value, it is critical that the Division develop and comply with standards. A standard is simply a rule, a level of quality, or an achievement that is considered acceptable or desirable. The Division standards drive its activities, decisions, and proposed investments. Some of these standards are legal or regulatory, for example complying with the Safe Drinking Water Act, and others are developed internally by the Division and refined in collaboration with the City Council and the community.

Strategic Objectives – The Strategic Objectives outlined in this plan describe a significant challenge, opportunity, or proposed investment likely to arise during the planning horizon. In general, they do not address tasks that are part of normal utility operations. The information provided in each Strategic Objective does not reflect a final policy decision but creates a context for collaborations with the City Council, community leaders, and the public. These collaborations could result in a decision to invest in solving a problem or modify the relevant standards and timing.

STRATEGIC FOUNDATION

MISSION

To professionally and cost effectively provide water, wastewater, and stormwater services that meet the present and future environmental, health, and safety needs of the staff and the community.

BEHAVIORAL VALUES

We are guided in our daily decisions and activities by these values:

Integrity
We are transparent, honest, and ethical in all of our communications and our actions

Respect
We thoughtfully consider each other's differences and opinions

Commitment
We strive to meet high standards of service and reliability

Responsibility
We are accountable for our behaviors, actions, and use of public resources

Collaboration
We listen and openly share our ideas to achieve better decisions and outcomes

Leadership
We are proactive in protecting the interests of our staff, customers and community

BUSINESS VALUES

Business Values describe the Division's commitments to provide compelling value to the residents and businesses it serves. These Business Values establish a consistent framework for developing more detailed standards, identifying issues, assessing risks, and evaluating and implementing solutions. The Division's commitments to provide value are as follows:

- **Sound Planning and Appropriate Investment**
- **Reliable Water Supplies and Water Service**
- **Protecting Public Health and the Environment**
- **Exceptional Customer Service**
- **Sound Financial Management, Increasing Efficiency**
- **Transparency and Community Engagement**

BUSINESS VALUES

The following narrative briefly describes Flagstaff Water Services' Business Values and the significant standards that apply to these values.

SOUND PLANNING:
The foundation for reliable water services is sound planning. The Division's planning process is based on having a long-term view, identifying key standards, and assessing and mitigating risks. Specifically, the Division concentrates on two essential issues: adequate resources and reliable infrastructure. Resource planning must account for water-supply challenges arising from population growth and the direct and indirect effects of climate change. Infrastructure planning must ensure that pipes, pumps, treatment plants, and sewer and stormwater systems are proactively maintained. By planning for changing environmental conditions and anticipating future regulations, the Division will continue to meet our standards of water reliability, high quality water, flood hazard mitigation and protection of the environment.

APPROPRIATE INVESTMENT:
Providing reliable services requires funding that covers today's operational costs and invests in maintaining cost-effective services in the future. Consequently, rates and fees must cover current operations and infrastructure maintenance and replacement, needed capital investments, and provide for a highly qualified, trained and resilient workforce. Securing adequate funding requires that Division managers and staff are trusted, and that their investment proposals are compelling.

HIGHLY RELIABLE WATER SUPPLIES AND WATER SERVICE:
Water reliability is the foundation for Flagstaff's economy and high quality of life. Therefore, the Division's planning and investment must ensure that the risk of a sustained water shortage is extremely low. To meet this standard into the future, the Division is looking for opportunities to diversify the water-supply portfolio, increase water-use efficiency, and increase the use of reclaimed water. Additionally, with continued investment in treatment capacity made in time to meet future needs, the Division can continue to deliver highly reliable water service.

PROTECTING PUBLIC HEALTH AND THE ENVIRONMENT:
Protecting public health begins with providing high quality drinking water, reclaimed water, and adequate stormwater infrastructure. The Division complies with all state and federal drinking water, reclaimed water and stormwater regulations. Providing tap water that is fit for drinking and reclaimed water that matches the intended use requires managing the quality of water sources, employing state-of-the-art water purification processes, paying close attention to facility operations and maintenance, and conducting rigorous water-quality testing. The Division's efforts are supported by involvement in industry associations, keeping abreast of the latest water-quality research and best practices.

Beyond water quality issues, the Division protects public and environmental health by keeping wastewater in the pipes, and as a minimum meeting all Sanitary Sewer Overflow (SSO) regulations. However, meeting the health and environmental needs of the community does not end with regulatory compliance. Stormwater infrastructure and regulations protect public health and our ecosystems by mitigating the impact of flooding and reducing the pollutants carried by stormwater.

EXCEPTIONAL CUSTOMER SERVICE:
The Division, in partnership with the City, provides timely, courteous and responsive service to its residential and business customers. This includes 24/7 support, offering customers the option to get information or solve problems online, on the phone, or in person. To accomplish this, the Division is developing a comprehensive data system to resolve problems and identify future needs.

SOUND FINANCES, INCREASING EFFICIENCY:
The Division's financial standards ensure that it has the financial strength to provide the reliable service that customers expect, and the stability to avoid unexpected rate spikes. This includes finances that are resilient to economic downturns, changes in water demands, and natural disasters. Financial practices and reserves earn favorable credit ratings, which facilitates access to low interest rates on financed infrastructure improvements. Combined with aggressively pursuing grant funding and its culture of improving efficiency, the Division's financial practices keep rates as low as possible while maintaining essential investment in the water system.

TRANSPARENCY AND COMMUNITY ENGAGEMENT:
By providing easy access to information and timely responses to customer inquiries, the Division creates an environment that fosters public trust and allows customers to easily understand its roles, values, priorities and strategic plans. This creates long-term and mutually beneficial relationships with customers, the media and other influential stakeholders, and leads to standards of service that meet the needs of the community. The Division adopts a culture of partnering and information-sharing with other agencies toward common goals and objectives.

ASSESSING AND **MITIGATING RISKS**

Reliable water, wastewater and stormwater services are critical to sustaining the economy and high quality of life, which means that the cost of failure is high. Consequently, the utility must ensure that the risks of system, water supply, and environmental failures are extremely low. Meeting this objective requires that the Division set clear performance standards and be diligent in assessing water resources, managing its water treatment plants, performing water quality testing, and maintaining water delivery and collection system infrastructure.

STRATEGIC OBJECTIVES

USING STRATEGIC OBJECTIVES TO DESCRIBE THE FUTURE – The Division's Strategic Plan employs several criteria for assessing future challenges and opportunities. These criteria include the following:

- Making sure that the Division remains compliant with current regulations and standards
- Responding to changes in water demands, environmental conditions, and the conditions of assets
- Anticipating and planning for changes in regulations and internal standards
- Addressing evolving community needs and taking advantage of opportunities to increase efficiency

Assessing the Division's operations and capital programs using the criteria above has led to the development of a series of Strategic Objectives that address future performance to standards, or opportunities to increase efficiency. They do not represent final decisions, rather they are designed to provide a compelling argument for the proposed analyses or actions. Furthermore, they establish a framework for the Division's staff to continue clarifying the issues and establishing priorities, collaborating with experts, and leading a dialogue with the City Council and the community about needed investments and the urgency of these investments.

FRANCES SHORT POND

SUMMARY OF STRATEGIC OBJECTIVES – The Objectives in this Plan address the following important issues:

1. Use Standards and Data to Drive Decision Making
2. Address Wildcat Hill Water Reclamation Plant Capacity
3. Protect the Water System for Wildfire Threat
4. Upgrade Stormwater System and Increase Maintenance
5. Accelerate Infrastructure Maintenance and Replacement
6. Ensure Adequate Water Resources and Plan for Climate Change
7. Maintain Excellent Water Quality
8. Improve Compliance with Environmental Standards and Protections
9. Enhance Communications and Customer Service
10. Address Critical Workforce Issues

FINANCIAL IMPLICATIONS – The Strategic Objectives outline the challenges facing Flagstaff Water Services and the community within the 5-year planning horizon and beyond. Implementing solutions will require significant financial resources. The magnitude of these resources, their impact on current budgets, and their potential effect on rates will be provided during future discussions with the Water Commission, the City Council, and the community.

PLANT OPERATOR MONITORS TREATMENT PROCESS

OBJECTIVE 1: USE STANDARDS AND DATA TO DRIVE DECISION MAKING

RELEVANT STANDARDS

- Secure community support for appropriate investment in water resources and infrastructure
- Emphasize standards in decision making and communications
- Use data to enhance operational performance and decision making
- Maintain involvement in statewide water industry associations

BACKGROUND

The Division's Business Values provide a framework for planning and investing appropriately in water services and the environment. Appropriate investment is defined by specific standards, or levels of service. Planning and proposed investments should be based on the confluence of these standards and accurate data, specifically related to environmental conditions and the condition of water assets.

CHALLENGE/OPPORTUNITY

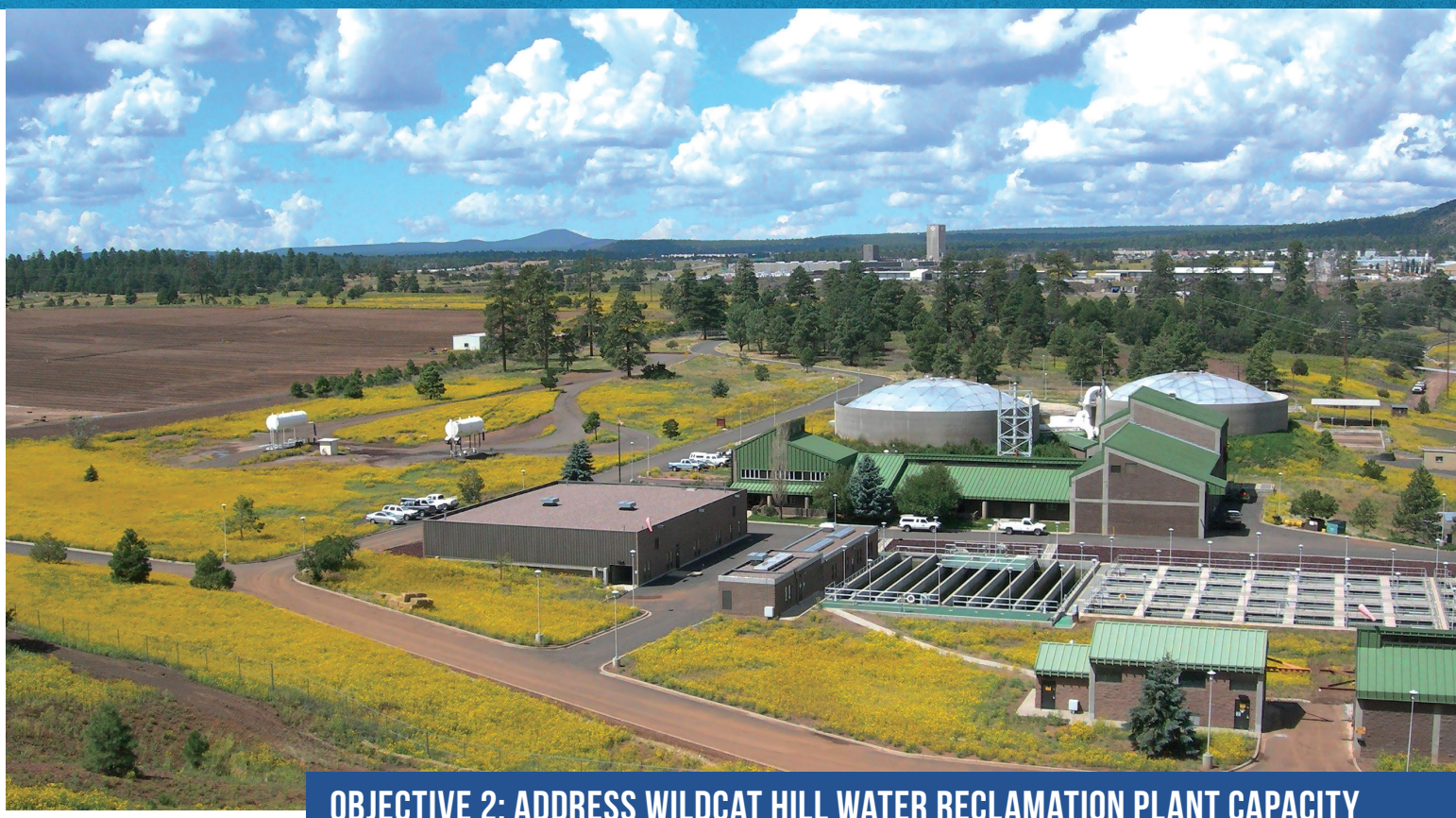
Flagstaff Water Services needs to prioritize the process of clarifying its standards, highlighting standards in communications and decision making, and enhancing the data available for decision making. With respect to data, the current challenge is to define the most relevant data and develop more automated ways to collect, store, organize, utilize, and share this data.

SPECIFIC RESPONSES

- Increase emphasis on standards in problem solving at all levels of the organization, effectively building a culture based on the Division's standards.
- Preface all planning discussions and investment proposals with the relevant standards
- Develop a critical information/data list for key functions, including water production, maintenance, water usage, water quality, stormwater management, and wastewater treatment
- Automate the work-order system and the Bi-Weekly Reports
- Use GIS, CMMS, SCADA, and other SMART technologies to optimize and automate the collection and sharing of data and information and billing for those services.
- Maximize the use of GIS to organize data with respect to geographic location
- Employ accurate, organized usage data methods for billing and planning needs

TIMING CONCERNS

This is an ongoing but important effort to enhance performance and decision making



OBJECTIVE 2: ADDRESS WILDCAT HILL WATER RECLAMATION PLANT CAPACITY

RELEVANT STANDARDS

- Uninterrupted wastewater and reclaimed water services
- Adequate collection, treatment, and disposal capacity for current and future customers
- Maintain wet-weather capacity in compliance with regulatory requirements
- Efficient and cost-effective approach to maintaining assets, data-driven decision making
- Comply with current regulations and prepare for future regulations

BACKGROUND

In 2008, the Division upgraded the Wildcat Hill Water Reclamation Plant's filtration systems to produce Class A+ reclaimed water. At that time, it was decided not to add additional digester or hydraulic capacity to save costs. Digesters treat the solids in wastewater and provide the means to create Class B Sludge, which can be applied locally on City owned land. It was decided at that time not to increase the hydraulic capacity of the Wildcat Facility.

CHALLENGE/OPPORTUNITY

- The treatment plant has reached its capacity with respect to processing solids.
- The amount of water arriving at the plant has reduced over time due to various factors, including water conservation, which means the wastewater is more concentrated, changing plant optimization parameters.
- There is no redundancy in the plant with respect to many processes, including solids processing.
- Failure of the current digesters would force the City to send sludge to the landfill, increasing costs by approximately $240,000 per year.

SPECIFIC RESPONSES

- Look for options to buy time by increasing the effective capacity of the current digesters
- Continuing assessing plant risks (points of failure and time to repair the failure) and implementing mitigation measures to increase reliability
- Perform a cost/benefit analysis on providing redundancy in filtration or solids processing
- Review conservation goals, projected growth, and future reclaimed water demands to develop the optimum plant parameters and timing for plant upgrades

TIMING CONCERNS

The timeline for planning, designing, and constructing a new digestor is 2024, with additional flow diversion to Rio de Flag WRP. Barring measures to buy more time, this process needs to start now to ensure adequate future capacity and avoid compliance issues with the Arizona Department of Environmental Quality.

NEWMAN FIRE PROTECTION, INCIWEB IMAGE

INNER BASIN PIPELINE ROAD

OBJECTIVE 3: PROTECT THE WATER SYSTEM FROM WILDFIRE THREAT

RELEVANT STANDARDS

- Uninterrupted water, wastewater, and reclaimed water services
- Water supply and system resilient to the effects of climate change
- Provide safe, secure, and reliable service during normal and emergency conditions

BACKGROUND

The majority of Flagstaff's water supplies are located outside of town and in the forest. These supplies are extremely susceptible to the effects of wildfire. Climate change models indicate that the frequency of fires will increase due to higher temperatures and the lengthening of summer-like weather. This may include a higher frequency and/or severity of lightning storms, which also increases the risk of fire.

CHALLENGE/OPPORTUNITY

Wildfires are an imminent threat to water service reliability because of the potential impact on critical water assets, including electricity to pump water, system communications, and the quality of water in Upper Lake Mary (due to silty runoff from fire ravaged areas). Loss of Upper Lake Mary as a water resource due to water quality problems would increase energy costs (pumping of additional water from aquifers).

SPECIFIC RESPONSES

- Support the funding of forest maintenance
- Increase radio redundancy and protecting radio towers to improve communication reliability
- Reduce communication risks by developing local control of water assets, including treatment plants
- Assess reliability (and rehabilitate as needed) assets for transferring water to fight fires
- Purchase land for sedimentation ponds to protect Lake Mary WTP water quality and design these ponds (Contingent on Lake Mary yield predictions given climate change)
- Continue developing increased back-up power capabilities
- Integrate increasing risks from wildfires into stormwater planning, including data collection, advanced hydrologic/hydraulic modeling and flood warning system.

TIMING CONCERNS

Wildfires should be viewed as an immediate and increasing threat caused by climate change. The responses outlined in this Strategic Objective should be a high priority for the Division.

2014 FLOOD EVENT AT MILTON /BUSINESS 40 INTERSECTION

OBJECTIVE 4: UPGRADE STORMWATER SYSTEM AND INCREASE MAINTENANCE

RELEVANT STANDARDS

- Protect public health, safety, and the local environment
- Stormwater system resilient to the impacts of climate change
- Reduce stormwater drainage complaints

BACKGROUND

Flagstaff's stormwater system is separate from the sanitary sewer system and is comprised of open channels (both natural and man-made) that convey large amounts of stormwater through culverts/pipes that allow stormwater to cross under roads and catch basins that capture and guide stormwater into an underground network of pipes. For the system to function properly, it must be well maintained (clear of debris) and be sized to meet the type and magnitude of storms that occur in Flagstaff. The Stormwater Section is the delegated authority managing the National Flood Insurance Program for the City.

CHALLENGE/OPPORTUNITY

Consistent with climate change models, the intensity of rainstorms in Flagstaff has been increasing. Flagstaff has experienced "100-Year" storms in 2014, 2016, 2018, and a "1000-Year" storm in 2018. Clearly, storms that were considered very unlikely may now be much more frequent or even the norm. Storms are typically categorized in terms of likely frequency, for example a 10-Year or 100-Year storm Also, wildfires increase the risks of flooding. These conditions highlight a variety of problems, Including:

- Flagstaff's current stormwater control system is under-sized, and in certain areas cannot meet the requirements of what was previously defined as a 10-Year storm, let alone a 100-Year storm.
- Over the last 5 years, the number of drainage complaints has reached 350, and overall damage estimates/insurance claims are unknown.
- Maintenance is a problem. Many drainage complaints are due to a clogged system.
- Floodplain policies and regulations need updating. Both old and new construction do not meet current grading and drainage regulations, which increases damage during storms. To the dismay of owners, some new homes are being flooded.
- The existing stormwater system is not completely documented, which makes it difficult to administer the National Flood Insurance program.
- These concerns are above and beyond the downtown flooding being addressed by the Army Corps of Engineers' Rio de Flag project.

SPECIFIC RESPONSES

- Continue data collection to improve understanding of Flagstaff hydrology on the configuration and condition of the stormwater system
- Ensure that system maintenance is adequately specified and funded
- Update current policies, process and enforcement of grading and drainage regulations for new construction. Ensure sufficient staffing to review plans, permits and final inspections
- Re-set the storm categorization system to reflect the changing reality of climate change
- Conduct a risk analysis of the stormwater system based on recent storms and damage
- Develop a comprehensive stormwater infrastructure computer model to enhance decision-making
- Prioritize upgrades to the stormwater system based on risk analyses

TIMING CONCERNS

All indications are that "100-year" storms are now regular occurrences and may get worse in the near term. Damage will increase if this issue is not addressed expeditiously. Identifying and addressing the greatest vulnerabilities should be a high priority.

WATER VALVE REPLACEMENT

WATERLINE REPLACEMENT

OBJECTIVE 5: ACCELERATE INFRASTRUCTURE MAINTENANCE AND REPLACEMENT

RELEVANT STANDARDS

- Uninterrupted water, wastewater, reclaimed water, and stormwater services
- Maintain appropriate water system redundancy for both infrastructure and power
- Investment and rates based on the full cost of service, including long-term investment needs
- Efficient and cost-effective operations, including applying lifecycle cost analyses
- Accurate inventory of assets and making data-driven asset management decisions

BACKGROUND

A critical element of ensuring that water and wastewater pipes, pumps, valves, and treatment plants operate reliably and efficiently is that they are proactively maintained or replaced.

CHALLENGE/OPPORTUNITY

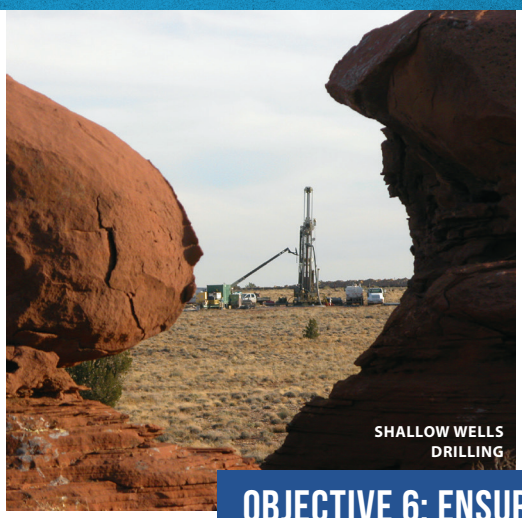
- Flagstaff has over 470 miles of water lines and the current rate of water line replacement is 2 miles per year. This is appropriate for now, but in the next 10 years, infrastructure that was built in the 1940's and 1950's will begin reaching the end of its useful life.
- Flagstaff's 270 miles of wastewater pipes and 5,700 manhole covers are experiencing higher rates of corrosion because of water conservation efforts (which increases the concentration of wastewater and corrosive gases in the pipes). The current rate of manhole replacement is only 5 per year.
- The Lake Mary Water Treatment Plant and Woody Mountain Booster Station are operating with the same sedimentation basins and sand clarifier equipment, respectively, installed in the 1960's.
- The North Reservoir Filtration Plant's filters have not been upgraded in over thirty years.
- Portions of the pipelines delivering water to these facilities are 100 years old and need replacement.

SPECIFIC RESPONSES

- Continue making asset management decisions based on G.I.S. data, inspection data, the function of the asset, and the ramifications of asset failure
- Begin ramping funding for water mains replacement, reaching 3 miles per year by 2030.
- Increase the inspections and data on corrosion of wastewater pipes and manhole covers, and recommend updated maintenance procedures and increased funding.
- Continue developing a more systematic process for capturing data on gas detectors, pumps, and other critical components in water, wastewater, and recycled water treatment plants
- Begin concept design to "loop" the recycled water system to increase redundancy and reliability
- Develop a more comprehensive risk assessment of potable water wells (based on age/condition)
- Upgrade the Lake Mary Water Treatment Plant sedimentation basins, Woody Mountain Booster Station sand clarifier, and North Reservoir Filtration Plant filters.
- Determine the best approach for Inner Basin pipeline replacement.

TIMING CONCERNS

Infrastructure maintenance and replacement will be an increasing concern over the next 10 years. Planning for this eventually needs to begin in 2020.


SHALLOW WELLS DRILLING

UPPER LAKE MARY SPILLWAY

OBJECTIVE 6: ENSURE ADEQUATE WATER RESOURCES AND PLAN FOR CLIMATE CHANGE

RELEVANT STANDARDS

- Maintain 100-year Adequate Water Supply Designation as administered by the AZ Department of Water Resources
- Ensure that the risk of a sustained water delivery shortage is extremely low
- Continue to build resiliency in water supplies and infrastructure systems with specific attention to the forecasted effects of climate change
- Maintain a diverse and redundant water-supply portfolio, including optimizing the use of reclaimed water
- Encourage efficient water use while maintaining quality of life
- Conduct water loss assessments, per AWWA standards

BACKGROUND

Flagstaff's water supply currently comes from three sources, Upper Lake Mary, pumping water from deep aquifers (approximately 1000-2,000 feet below the ground), and reclaimed water. Upper Lake Mary has always been a highly variable supply, its yield determined by yearly snowpack and precipitation. The deep well aquifers have provided a reliable source of high-quality water. Flagstaff residents and businesses have cut water use per-capita by over 50% since 1989.

CHALLENGE/OPPORTUNITY

- Climate change models indicate accelerating uncertainty about yearly snowpack and precipitation, potentially decreasing the availability of Upper Lake Mary as a water resource and impacting aquifer levels.
- Loss of Upper Lake Mary would increase costs due to pumping of additional groundwater and trigger the search for a new water resource.
- Although Flagstaff currently maintains its 100-year Adequate Water Supply Designation, the City pumps more groundwater in certain well fields than is naturally replenished by snowpack and rain.
- Future natural replenishment could decrease significantly with climate change.
- Increased temperatures and "longer summers" will increase overall water demand.
- Water resources planning and engineering codes must consider future conservation efforts, including the effects of "demand hardening" on supply reliability and the impacts on wastewater collection and treatment.

SPECIFIC RESPONSES

- Update planning with respect to Flagstaff's water resource and climate change impacts, including updating the risks associated with current water resources and the 100-year supply designation (Water Resources Master Plan)
- Update predictions on the ongoing yield of Upper Lake Mary based on climate change considerations
- Increase monitoring and management of aquifer water levels through strategic operations and better understanding of recharge rates and its locations.
- Continue promoting water-use efficiency, as per the adopted 2020 Water Conservation Strategic Plan
- Increase the use of reclaimed water, including recharge to augment groundwater supplies and evaluating other options, such as Direct Potable Reuse.
- Develop measures that establish a sustainable water budget, or safe yield of groundwater by 2033 (the 20-year period established by ADWR in the Adequate Water Supply Designation)
- Work to foster a continued community conservation ethic to ensure future supply reliability (considering the impacts of demand hardening on reliability, the wastewater treatment system, and reclaimed water).
- Enhance communications on climate change and water resources, including clearing up confusion related to the difference between infrastructure and water resource limitations

TIMING CONCERNS

Climate change is accelerating, resulting in increased uncertainty in water supply issues, indicating more aggressive planning and communications should begin now.

WATER PRODUCTION
LAB TESTING

OBJECTIVE 7: MAINTAIN EXCELLENT WATER QUALITY

RELEVANT STANDARDS

- Meet or surpass drinking water regulations
- Meet customer needs in terms of taste, odor, and consistency
- Comprehensive knowledge of local sources of contamination
- Broad industry knowledge of water quality issues, best practices, and future regulations
- Ensure that reclaimed water quality meets the needs of intended use

BACKGROUND

Flagstaff enjoys high quality water in part due to the fact that 70% of potable water comes from deep well aquifers. While groundwater requires little treatment, surface water passes through multiple treatment steps prior to distribution. Water from Upper Lake Mary requires more treatment than groundwater and is also more susceptible to environmental factors such as wildfires and reduced snowpack due to climate change.

CHALLENGE/OPPORTUNITY

Due to Flagstaff's water sources, drinking water quality is typically not a major concern. As most of Flagstaff's water sources (wells) are located in the forest and transported into town through pipelines, water quality challenges are primarily infrastructure and environmentally related, as mentioned in Strategic Objectives 3 & 5. Water quality for Upper Lake Mary becomes an issue due to the runoff implications of wildfire.

With groundwater wells relied upon to provide high quality water for specific neighborhoods, the need for local or proximal redundancy exists due to risk of single points of failure with a specific well. Loss of high-producing wells in strategic locations could lead to local water quality degradation in isolated neighborhoods.

Many communities are dealing with Contaminants of Emerging Concern (CECs), which are unregulated. In 2013, the City Manager convened an advisory panel of national, state and local experts to help understand what CECs mean locally. The panel determined after their five-year study that there is no evidence at the present time that the continued use of reclaimed water in Flagstaff poses undue risk to human health. However more attention to CECs will occur when considering indirect or direct potable reuse.

SPECIFIC RESPONSES

The Water Services Division will continue its efforts in the following areas:

- Maintain critical groundwater well equipment in reserve and where possible create redundancy in groundwater wells and/or distribution lines.
- Increase its knowledge about local water quality above and beyond what is regulated under the Safe Drinking Water Act.
- Participate with research institutions on best practices for addressing CEC's.
- Improve the quality of communications, providing clear information on current and future water quality issues and concerns.

TIMING CONCERNS

Not critical from a timing perspective. Providing high-quality water is an ongoing commitment.

FRANCES SHORT POND BIORETENTION SWALE (LID)

WATTLE DETERS EROSION ON SLOPES

OBJECTIVE 8: IMPROVE COMPLIANCE WITH ENVIRONMENTAL STANDARDS AND PROTECTIONS

RELEVANT STANDARDS

- Meet requirements of the Clean Water Act, anticipate future legal/regulatory requirements
- Operate and maintain facilities to minimize impacts on the environment
- Swift response to pollutant/contaminant spills and illegal discharges
- Support watershed health, and a proactive approach to habitat protection and enhancements

BACKGROUND

Stormwater management and protecting the environment are related. However, this Strategic Objective focuses less on flood management and more on pollution. The City and the Division participate in a variety of activities that address environmental protection, many arising from standards in the Clean Water Act, including monitoring and ensuring compliance related to:

- Wastewater treatment plant discharges
- Restricting development in rural flood plains
- Run-off and discharges from construction sites and industrial facilities
- Managing flood plains and addressing sources of contaminants in these flood plains

The Low Impact Development (LID) program requires collecting and treating stormwater from impervious development sites. Flagstaff has one of the most effective LID programs in Arizona. In addition, the Division participates in mitigation and restoration of wildlife and natural habitats

CHALLENGE/OPPORTUNITY

Despite the City's and Division's successes with respect to environmental protection, there is a need for continued improvement, including the following:

- The standards and capabilities for responding to illegal discharges are not fully developed
- Some flood channels are filled with contaminating debris, e.g. tires and old automobiles
- A better overall assessment of environmental issues in Flagstaff's watersheds is needed
- Maintaining NPDES permits related to wastewater discharges

SPECIFIC RESPONSES

- Update the Low Impact Development (LID) Code, addressing errors, emissions, and clarity
- Continue to improve the standards and response related to illegal discharges
- Develop a better assessment of wildfire issues and recommend corrective actions
- Assess the resources required to produce the Watershed and Flood Plain Management Plans
- Develop schedule for completing the Watershed and Flood Plain Management Plans
- Increase water-use efficiency through active and passive rainwater capture
- Evaluate the overall environmental impact of Water Services on our natural resources

TIMING CONCERNS

This is an ongoing effort, but improved response to illegal discharges should happen immediately.

OBJECTIVE 9: ENHANCE COMMUNICATIONS AND CUSTOMER SERVICE

RELEVANT STANDARDS

- Build a strong reputation, maintaining trust and support from the community
- Provide exceptional customer service based on clearly defined standards
- Encourage meaningful public participation in the Division's decision-making processes
- Make it easy for people to be substantively informed about critical water issues in Flagstaff
- Base communication content and outreach activities on clearly defined standards

BACKGROUND

The Division is charged with providing reliable water services and exceptional customer service. Both of these require appropriate investment in resources and infrastructure. Securing this investment requires that the Division be trusted related to its operations, planning, and investment proposals.

CHALLENGE/OPPORTUNITY

As technical organizations, many utilities struggle with defining the most effective and efficient way to communicate with policy makers, employees, and the community. Shared information is often too technical, and communication activities are often not tied to specific standards or outcomes. Customer service can be enhanced by developing standards that define a service experience we all would want.

SPECIFIC RESPONSES

- Work with City on enhancing customer service, beginning with identifying and refining standards that define the service experience
- Tie communication priorities to those developed in each Strategic Objective in this Plan.
- Develop communication standards that address customer communications, specifically water-use efficiency, emergencies, planned service outages, and neighborhood construction. These standards should also address what it means for people to be substantively informed.
- Continue Division efforts to provide brief and meaningful information to employees, policy makers, and the community that makes it easy to be substantively informed about water issues. Use this information to build stronger community relationships.
- Continue to improve investment proposals, making them clear and compelling
- Develop stronger information and messages on critical water issues, for example climate change, supply reliability, and rates affordability

TIMING CONCERNS

Climate change is accelerating, resulting in increased uncertainty in water supply issues, indicating more aggressive planning and communications should begin now.

OBJECTIVE 10: ADDRESS CRITICAL WORKFORCE ISSUES

RELEVANT STANDARDS

- Maintain a culture and standards that retain high-performing employees
- Provide for a safe, collaborative, and non-hostile workplace
- Offer competitive compensation and benefits
- Proactively support professional development
- Plan and execute succession planning, minimizing vacant position times

BACKGROUND

Flagstaff Water Services employees are required to have a variety of technical skills, take on multiple responsibilities, and often operate in dangerous environments. Despite these challenges, staff members have consistently demonstrated a commitment to doing what it takes to get the job done right. Some staff are required to hold ADEQ certifications or must adhere to regulations tied to their specific profession and position.

CHALLENGE/OPPORTUNITY

The Divisions faces a variety of challenges with respect to its workforce, including the following:

- 40% employer turnover in the last 5 years due to retirement or resignations
- It's not uncommon to lose skilled employees to other utilities (e.g. the Phoenix area)
- It is increasingly difficult and time consuming to recruit qualified new employees, often taking 6-12 months to find a qualified person.
- New employee recruitment and training is more expensive than retention
- Loss of skills due to attrition or retirement decreases reliability and increases safety risks.
- There is no formal system for capturing institutional knowledge or for succession planning
- Current staffing in operational Divisions is at bare minimum, which leads to employee burnout, inability to perform desired training, and higher safety and reliability risks.
- Younger employees are looking for different working conditions, including flexible schedules and personal technologies that help them do their jobs more efficiently.

SPECIFIC RESPONSES

- Make skills development and employee retention an integral part of the culture, especially where reliability is essential, multiple skills are required, or the work environment is dangerous
- Set staffing levels to ensure proper time and attention to skills development
- Maintain strong data on pay levels and competition and provide competitive pay
- Make specific and compelling proposals for staffing levels in each work area
- Build resiliency through cross-training of staff and flexible work programs that address emergencies and unexpected events
- Develop an apprentice program for highly technical job functions

TIMING CONCERNS

Employee turnover and loss of skills is an industry-wide problem that only seems to be increasing. Without proactive measures, this means increasing reliability risks and the potential for failures that are much more costly than investing in skills and adequate staffing.

CLOSING REMARKS

This Strategic Plan provides an overview of the values, standards, and major water issues facing Flagstaff during the 5-year planning horizon. Although each of the Strategic Objectives in the Plan is important, it is clear that certain challenges and investments are more time critical than others. It's also clear that climate change must be considered in almost every aspect of water and environmental planning.

The flooding, water service reliability, and environmental risks associated with wildfires and unprecedented rainstorms are real and imminent. The solids-processing capacity, future hydraulic capacity and reliability of the Wildcat Hill Water Reclamation Plant must be addressed within the planning horizon. The nexus between climate change, water resources, and supply reliability is a longer-term issue. However, more comprehensive data and planning needs to begin now to fully understand the safe groundwater yield and develop a model and practices to achieve a sustainable water budget. The specific effects of climate change on Lake Mary yields must be modeled, including the ramifications of losing this water resource.

Given these challenges, the Division's ability to develop clear standards and collect, share, and utilize relevant data will be critical. Finally, the Division needs to clearly communicate and discuss the issues in this Strategic Plan with the City Council and the community, especially the financial ramifications of proposed solutions.

NEXT STEPS

Brief the Water Commission and City Council on this Plan, identify staff champions for each Strategic Objective, establish an implementation process, and provide progress updates every six (6) months.

ACKNOWLEDGEMENTS

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