

City Talk for Nov. 9, 2021
Wastewater Department
Roxanne Holland, wastewater director

Upcoming wastewater infrastructure improvements

The Wastewater Department spends a lot of time operating and maintaining its infrastructure. We have 110 miles of pipe, 1,950 manholes, 17 pump stations, a reclamation plant that treats and disposes 1.2 million gallons of sewage daily, and a laboratory that conducts over 5,000 tests yearly. We must maintain this infrastructure and equipment on a regular basis to keep it in good working order. The wastewater environment that this equipment operates in is a harsh environment that causes deterioration, and can corrode parts. Our operators and staff perform regular preventative maintenance to ensure efficient, reliable operation of the equipment. We make repairs to broken equipment and rebuild pumps and motors when they fail. Even with the regular maintenance, our equipment has a useful life, much like a vehicle or any other type of machinery. When we see a significant decrease in efficiency or an increase in the frequency of repairs, we must consider replacing the equipment to avoid a catastrophic failure. We plan for these types of failures by developing Capital Improvement Plans years in advance so that upgrades and replacements can be budgeted for and projects are started before we experience potential failures.

This year we have some significant improvements in our collection system. The collection system, which collects and carries water to the Wastewater Reclamation Plant (WWRP), has 17 total pump stations which force the sewage over Sedona's hilly terrain. Three of those lift stations, termed the Major Lift Stations, handle just about every gallon of sewage that is collected. The lift stations were originally constructed in the early nineties. They were last upgraded in 2007, making some much needed improvements to the electrical components and replacing some of the pumps. After 15 years of operating reliably, the major lift stations are once again in need of some improvements, and we will be completing the Major Lift Station Upgrades project over the course of the next 18-24 months.

Design on the project was completed in the Spring of 2022. A contractor was chosen based on qualifications to complete the work and was involved during the design process to review construction plans for constructability, value engineering, and to provide input on pricing and lead time of materials. The \$6.5 million upgrade will replace antiquated and/or obsolete components of each lift station such as variable frequency drives, programmable logic controllers, flow meters and transfer switches. Each lift station will receive new wet well coatings and safety grates, new primary and bypass pumps, and the hydraulic tank at the Brewer Lift Station will be replaced. These improvements will provide efficient operation of the lift stations for the next 15-20 years.

In addition to improving or replacing aging infrastructure, we must also plan for increased flows at the WWRP. The city is permitted to treat up to 2.0 million gallons per day (MGD) of sewage. Current flows to the WWRP are on average 1.2 MGD, and we have committed to serve 1.6 MGD through approved developments that have not been built yet. Between 2012 and 2020, the WWRP underwent several upgrades related to both capacity and aging infrastructure. We added capacity to our influent barscreens, aeration basin blowers, secondary clarifiers and sludge digester. In addition, our tertiary filter system was upgraded to newer technology, which also came with the benefit of added capacity. The constructed treatment capacity of the WWRP is now 1.63 MGD, except for the ultra violet (UV) disinfection system which has a capacity of approximately 1.5 MGD.

An improvement project to replace the UV system is planned for design this fiscal year and construction next fiscal year. The UV system was constructed in 2012. It removes harmful bacteria from the wastewater and renders it to the highest recognized standard of A+ water quality. Having A+ water quality allows the city to use the water in more beneficial ways such as aquifer recharge and distribution of reclaimed water that can be used for a variety of activities such as construction and irrigation. The project is budgeted at \$1.06 million.

Our Capital Improvement Plan looks 10-years into the future to anticipate significant upgrades or additions that will be needed in order to remain compliant with our permit regulations and provide adequate collection and treatment of Sedona's wastewater. To learn more about our department, consider attending a tour of the WWRP. Tours are held on the third Thursday of every month. To reserve a spot for the tour, please call (928) 204-2234.