

208 Plan Database – RWRD’s Facilities Update (April 2021)

(3FGS17) Fairgrounds Gravity Sewer (completed, 2019)

- Fairgrounds is now being served by a gravity line constructed by the County. Construction of this gravity line allowed decommissioning of the Pima County Fairgrounds WRF.
- The 3-mile 15” gravity line was built in 2019 to serve various lands in and around the vicinity of the Pima County Fairgrounds.
- The gravity line runs from Rita Rd to the intersection of Harrison Rd and Brekke Rd.

(3TPBBS) Twin Peaks Blue Bonnet Gravity Sewer (completed, 2020)

- The 5-mile 15” gravity line was built near the Twin Peaks Rd/Blue Bonnet Rd alignment in 2020 to provide gravity sewer connection to the development area which lacked a public sewer service.
- The gravity service allowed decommissioning of the Tangerine Road Pump Station.

Biosolids - PFAS study (completed, 2020)

- Washed into wastewater collection and treatment systems, and ultimately in biosolids, PFAS poses a challenge for wastewater industries today. Currently there are no methods on testing PFAS in wastewater.
- In 2020, RWRD began a PFAS biosolids study to find out what is happening to the PFAS when the biosolids are land applied and if it is penetrating through the soils and affecting the groundwater. The research involved surface and subsurface soil sampling, groundwater samples from irrigation wells, and current Class B biosolids from the Tres Rios WRF. Findings show that the environmental impact is minimal. As a result, RWRD will resume land application of biosolids; the land application was ceased in the beginning of 2020 due to PFAS concerns.
- RWRD continues to monitor the level of PFAS in wastewater effluent and is confident in its sampling methodology (over 50,000 tests on pollutants run per year).
- RWRD will continue to apply the best biosolids management practices by reviewing the analysis, data, and updating the Biosolids Management Plan.

NuReSys Nutrient Recovery Project at Tres Rios WRF (ongoing, 2020-2021)

- o The project involves designing and constructing a nutrient recovery facility to reduce operations and maintenance costs by capturing phosphorus in the form of struvite. The NRP will remove phosphorus from digested sludge prior to dewatering at the TRWRF. In addition to nutrient recovery, the process will prevent the buildup of struvite scale in treatment equipment and improve dewaterability in biosolids.
- o The NRP received the National Award of Merit in the Water/Wastewater category from the Design-Build Institute of America in 2020.
- o Start-up date: Fall 2020 with final performance demonstration in the spring 2021.

(3GAS18) Biogas Cleaning & Utilization Facility at Tres Rios WRF (ongoing, 2021)

- o Currently only 20% of the biogas produced at the Tres Rios WRF is used to heat and cool the facilities processes. The remaining biogas is flared into the atmosphere. RWRD is actively exploring renewable energy options for its various facilities as part of the

County renewable energy policy. In order to make beneficial use of 100% of the biogas produced at the facility, RWRD has persuaded the construction of a BioGas cleaning facility for the sale of the pipeline quality biogas produced to a local buyer.

- The facility will eliminate the need to flare the excess biogas into the atmosphere, thus eliminating the perception that odors could be emanating from active flare of biogas.
- Near completion; County will be selling biogas this calendar year.

Green Valley WRF – Treatment Capacity Re-Rating (2021) and Additional Recharge Basins (future)

- RWRD applied to amend the AZPDES permit to re-rate the operating capacity of the oxidation ditch from 2.0 MGD to 2.8 MGD.
- RWRD has permitted recharge storage capacity for up to 640 acre feet per year with plans to increase the recharge capacity to 802 acre feet per year in 2022.

(3TRCAB) Class A Biosolids (2021)

- RWRD contracted with HDR Engineering for a Biosolids Master Plan Update with completion by June 2021. The results of this effort will be used for planning biosolids management and disposal strategies through 2040.

(3ANOMX) Anammox Side-Stream Treatment Process at Tres Rios WRF (2022)

- RWRD needed to make modifications to the TRWRF process to assure long term compliance with the most stringent chronic ammonia limits prescribed in the AZPDES permit renewal.
- Anammox is an innovative process for treating side stream ammonia flows for improved performance and reduced energy cost. A key process for targeting ammonia reduction is the centrate side stream waste generated through the dewatering of anaerobically digested bio-solids at the RBMF (regional biosolids management facility). The centrate side stream waste typically contains ammonia concentrations of 1,000 mg/L and a volume between 300,000 – 500,000 gallons each day which represents almost 30% of the daily ammonia load processed at the REWRF. With the anammox treatment process, approximately 90% of ammonia removal can be achieved.
- Incorporation of a side stream anammox de-ammonification process at TRWRF can result in both operational benefits and energy savings while simultaneously reducing both ammonia and total nitrogen.
- Anticipated start-up date: Fall 2022

(3AVE08) Avra Valley WRF emergency overflow basin (future, next 5 years)

- The location of the AVWRF in the Black Wash and floodplain creates challenges with stormwater surcharges into the plant, especially during the monsoon season. Also, maintenance tasks at the Influent Pump Station (IPS) require a shutdown of the headwork and a need for a reliable overflow basin.
- The project will provide an Emergency Overflow Basin that will allow adequate retention in an emergency event, provide accurate metering of influent flows for AZPDES permitting compliance and eliminate unused obsolete equipment that poses a safety hazard.

Mt. Lemmon WRF – new equalization tank and electrical upgrade (future, next 5 years)

- In 2019, RWRD successfully amended a special-use permit with the United States Department of Agriculture – Forest Services for the Mt. Lemmon WRF that serves the Summerhaven community. The amendment removed the service connection limits of 77, and further amended the permit for the maximum amount for effluent disposal from 12,000 gallons per day to 15,000 gallons per day.
- The service area has seen an increased number of new commercial developments and year-round visitors.
- RWRD continues to monitor flows for the impact of new development and additional visitors. Currently two existing emergency tanks (EQ) have capacity to handle peak flow events (rain/visitors/etc.); however, a more functional long-term operational system is desired.
- RWRD is evaluating options for a new equalization tank and electrical upgrades and will add them into the CIP based on need.

Arivaca Junction WRF/ Canoa Ranch Trunk Sewer (future, next 5 years)

- The Canoa Ranch trunk sewer will extend the gravity sewer system south to Elephant Head Road in order to decommission the Arivaca Junction WRF (AJWRF). Following the ADOT I-19 frontage road, the sewer extension project may be constructed in phases, with the first phase designed to serve improvements at the Raul M. Grijalva Canoa Ranch Conservation Park and new development in the adjacent Canoa Ranch.

Corona de Tucson WRF Expansion (future, next 5-10 years)

- 1.3 to 2.0 MGD expansion design dependent on new development and currently forecasted outside 5-year CIP.

(3SHGVI) Sahuarita – Green Valley Interceptor (future, 2026 and beyond)

- RWRD is planning to construct a new facility northeast of the Town of Sahuarita. Flows from the Green Valley WRF plus flows from unserved areas near or within the Town of Sahuarita can be combined and treated more efficiently at a regional WRF. Prior to start-up of the Sahuarita WRF, a gravity sewer is needed to convey the Green Valley WRF (GVWRF) flow to the new facility.
- Construction of this interceptor will allow decommissioning of the GVWRF. Interceptor diameter will vary from 21" to 48" between the GVWRF and the new facility.
- Timeline: FY 2025/26, beyond

(3SHWRF) Sahuarita Water Reclamation Facility (future, 2026 and beyond)

- Planning studies predict significant future growth in and around the Town of Sahuarita, as well as in the unserved areas near Sahuarita and Green Valley. Estimates predict that the combined flows from these service areas will approach 6 MGD by 2041. As the major wastewater service provider in the region, RWRD started to plan proactively for future sewer service.
- Flows from County-owned WRF facilities, GVWRF and AJWRF plus flows from unserved areas within and near Sahuarita can be combined and treated more efficiently at a regional WRF. All of these sewer basins are up gradient of the selected Pima County WRF location near the Town of Sahuarita.

- Pima County purchased a 50-acre parcel outside of the Town of Sahuarita boundary to begin the planning process of a regional facility.
- The new facility will use latest state of the art technology integrating high efficiency equipment to minimize the facility's environmental footprint. The optimal treatment capacity of 24 MGD will be constructed in phases. Construction of the facility could begin within 5-15 years depending when FICO begins their development and what occurs in the surrounding areas.

Recharge facilities

- Recent changes now allow Agua Nueva WRF and Tres Rios WRF to receive 95 percent credit, after deductions, which is an increase from 50 percent credits in the past. Recharge facilities exist at Avra Valley, Corona de Tucson, and Green Valley. Green Valley was the last WRF to receive ADWR approval and is now earning recharge credits.
- Agua Nueva WRF's AZPDES permit has been upgraded to permit A+ quality reclaimed effluent in February of 2020.