

Water Reuse in the Hill Country: Analyzing Opportunities in Comal County, Texas

Summary Version

Greater Edwards Aquifer Alliance

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The Texas Hill Country is known for its many natural treasures, not least of which are its springs, rivers, and underlying aquifers. These inviting waters serve as an attraction for people who want to live, work, and play surrounded by the rugged beauty of the Hill Country. It is unsurprising then that development in the region is occurring at an unprecedented pace. This development, however, is placing great strain on the natural resources for which the region is known and on which millions of people depend. The unique environment of the Texas Hill Country – overlying two karstic aquifers and subject to intense rainfalls and droughts – means water sources in the region are vulnerable to shortages caused by drought and to contamination caused by wastewater disposal practices. Implementing water reuse districts will allow communities to better meet the challenges posed by population growth and water scarcity while preserving the quality and availability of existing water supplies.

Water reuse – using reclaimed and treated wastewater – is an integral step in ensuring that counties in the Hill Country will have the water supplies they need to ensure the health, safety, and quality of life of residents in the years to come. Water reuse systems can provide an alternative or supplement to existing water supplies. Using reclaimed and treated wastewater protects the quality of existing water supplies by diverting wastewater effluent previously being disposed into sensitive waterways. Unfortunately, there is not currently in many Hill Country counties a comprehensive system in place for the reuse of treated wastewater, nor do there appear to be major efforts by many of the water providers in these counties to implement reuse systems within their utility boundaries.

The status of water reuse in Comal County underscores both the long way Hill Country counties have to go in implementing water reuse systems and the unique opportunities present to do so within their boundaries. While the Texas Water Development Board recommends that water reuse make up 15 percent of the state's water supplies by 2070, water reuse in 2020 accounted for 4 percent of the supply for the state as a whole and just 1.5 percent for Comal County. Groundwater from the Edwards and Trinity Aquifers, on the other hand, accounted for 62.5 percent of Comal County's total water use in 2020 and 100 percent of the county's mining water use. This is no small concern. Comal County is one of the top three counties for water use by the aggregate mining industry in the State of Texas; 100 percent of the county has been categorized as being in moderate to exceptional drought more often than not over the last 20 years; and spring flows from the Edwards Aquifer at Comal Springs have shown a declining trend over the same time period.

Though quarries make up 11 percent of Comal County's land area, they use around 21 percent of the county's groundwater, primarily for dust suppression and for washing the aggregate to clean and sort it. Annual water use by this industry is expected to increase around 10 percent per decade over the next 50 years, representing a significant opportunity for the implementation of a water reuse district to immediately protect groundwater supplies. Because the majority of these quarries are linearly clustered along Quarry Row and some are already located next to existing wastewater treatment plants, they provide likely a simpler path forward for the development of a water reuse system than elsewhere in the county. A "purple pipe" network could be created along Quarry Row to supply the water necessary for the quarries' operations, thereby reducing demand placed on stressed groundwater supplies in the county. New residential developments and high growth areas in the county could also benefit from reuse districts or systems for non-potable water uses, similarly reducing demands placed on groundwater supplies.

Examples from communities large and small across Texas – such as San Antonio, Boerne, Big Springs, Fredericksburg, El Paso, Lakeway, and Round Rock – show that water reuse systems can successfully be implemented and provide blueprints for how Comal County can move forward in realizing a more comprehensive water reuse system. A water reuse district in the county can be modeled after the Alamo Water Conservation and Reuse District; the Texas State Legislature could authorize the creation of one or more water reuse districts within Comal County using legislation similar to Senate Bill 1667 in 1989. Or, the Guadalupe-Blanco River Authority, which has prior experience in water reuse and whose statutory authority covers Comal County, could implement or expand water reuse systems in the county. State and federal grants and loans, such as the Clean Water State Revolving Fund or the U.S. Bureau of Reclamation's Large-Scale Water Recycling Program, could assist whichever entity operates the water reuse district in its implementation. Along with established rates, charges, and fees, the sale of waste products like biosolids and biogas generated from the reclamation of wastewater could also help fund the operation of a reuse district, similar to the San Antonio Water System's model.

The Greater Edwards Aquifer Alliance is excited to be releasing a report on the state of water reuse in Comal County. In preparation for the 2025 Legislative Session, the Texas House of Representatives Natural Resources Committee should conduct an interim study for the creation of wastewater reuse districts for irrigation use in the fast-growing areas of Comal County and the Texas Hill Country and for industrial use at sites such as the aggregate production operations. The study should analyze the possibility of implementing multiple water reuse districts with flexible boundaries throughout the study area, given variations at different locations in the volume of potential reuse water generation and the need for that water. As evidenced by the state of water reuse in Comal County, this source of water is a vastly underutilized tool in the fight to manage the Hill Country's water supplies in the face of prolonged drought and presents a clear opportunity to better preserve our natural resources for the generations to come.