



THE LOWER TRINITY GROUNDWATER CONSERVATION DISTRICT and MERCY WATER SUPPLY CORPORATION of San Jacinto County teams up to monitor and avoid any Groundwater Subsidence in the southern part of the County.

Land subsidence is the gradual lowering of land-surface elevation and is caused by compaction of fine-grained aquifer sediments (silts and clays) below the land surface due to groundwater well withdrawals. Removing water from fine-grained aquifer sediments compresses the aquifer leaving less pore space available to store water resulting in the lowering (sinking or settling) of the land-surface. Most compaction that occurs because of groundwater withdrawals is irreversible; even if groundwater levels rise, compacted sediments and the associated land-surface lowering would remain as-is.

Consequences of land subsidence already exists south of San Jacinto in Montgomery County, The Woodlands and all the Houston-Galveston Region for many years now and displays several of the following symptom's: Reduced ability to store

water in an aquifer. Partially or completely submerged land. Collapsed water well casings. Disrupted collector drains and irrigation ditches. Altered flows of creeks and bayous which may increase the frequency and severity of flooding. Damaged roadways, bridges, building foundations, and other infrastructure.

“Even though our County does not show any sign of Subsidence at this time, it is practical to put the system in place early so if it does ever start to occur, we can be prepared. The Groundwater District uses the data to understand land surface deformation trends and monitor subsidence to know if any changes do happen over the next few years of aquifer use in the area as we continue to grow in population.” said Randy Baker the President of the Lower Trinity Groundwater Conservation District and Operations Manager of the Mercy Water Supply Corporation.

The Mercy Water Supply Corporation supplied the land and power for the Groundwater District to have a monitoring system installed that uses GPS to detect any movement of the ground either up or down or sideways. The Harris-Galveston Subsidence District donated all the computer equipment. The GPS monitoring station consists of a deep pipe that holds an antenna that collects satellite signals and an enclosure box that holds a receiver which stores the satellite data and powers the equipment. The station collects data every 30 seconds, which is averaged over 24hrs, every day of the year. The Groundwater District collects the raw GPS data and sends the data to the Harris-Galveston Subsidence District and the University of Houston that currently monitors over 220 stations in the Gulf Coast Aquifer area to collect and process it to produce the rate of change in the horizontal and vertical directions. Then reports their findings to all the areas water planning groups.

