FORT BEND
SUBSIDENCE DISTRICT

Determination of Groundwater Withdrawal and Land Subsidence within Fort Bend County for the 2025 Calendar Year

Executive Summary

by
Ashley Greuter, P.G.

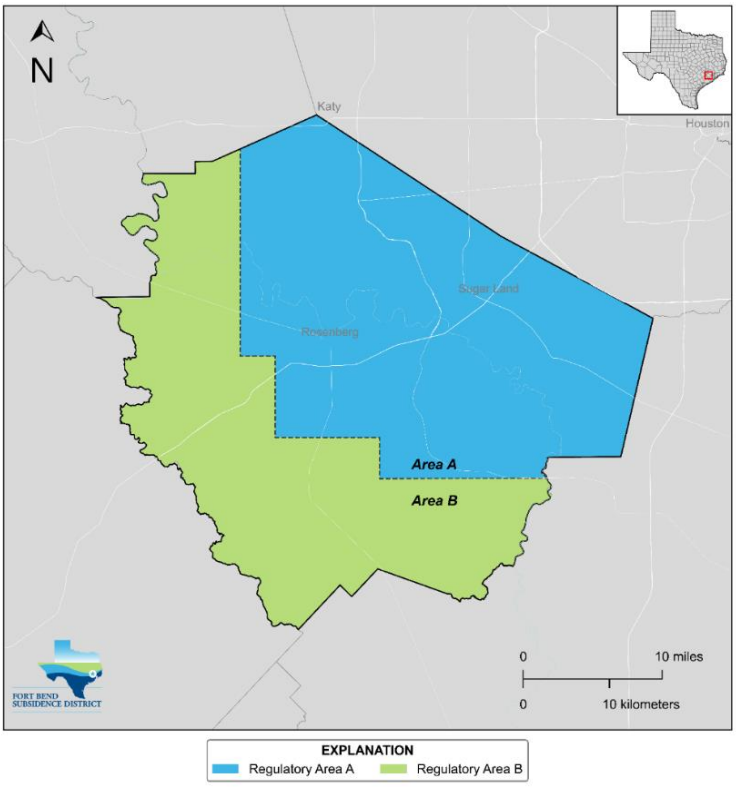
Executive Summary

In 1989, the Texas Legislature created the Fort Bend Subsidence District (FBSD) to prevent further subsidence (the gradual sinking of the land due to groundwater withdrawal) in Fort Bend County. Each year, FBSD publishes an Annual Groundwater Report to provide the latest information on subsidence in the region. A public hearing was held on April 30, 2026, to present the findings of FBSD's 36th Annual Groundwater Report for the 2025 calendar year (pursuant to Resolution No. 26-502 passed on February 25, 2026). The information below provides an overview of the report's findings presented during the public hearing.

Description of Study Area

The District provides groundwater regulation through a science-based Regulatory Plan designed to reduce groundwater withdrawals and mitigate subsidence. This plan is regularly reviewed through a multi-agency effort called the Joint Regulatory Plan Review, which factors in water demand and population growth, the availability of alternative water supplies, subsidence modeling, and regulatory scenarios to determine conversion requirements. The latest review, completed in 2025, resulted in an amendment to FBSD's Regulatory Plan in February 2026.

The Regulatory Plan divides Fort Bend County into two regulatory areas, Regulatory Area A and Regulatory Area B (**Figure 1**). Each regulatory area has conversion goals to reduce groundwater withdrawals to a specified percentage and to supply the majority of its water demand through alternative sources by a designated timeline.



REGULATORY AREA A: Groundwater withdrawals must comprise no more than 40% of a permit's Total Water Demand (TWD) unless operating under an approved Groundwater Reduction Plan (GRP). Permits with a GRP may utilize groundwater for no more than 70% of their TWD. Beginning in 2030, this percentage will change to 40%.

REGULATORY AREA B: For permits beginning January 1, 2035, a permittee not operating under an approved GRP shall reduce its groundwater withdrawals to comprise no more than 40% of its TWD. For permits beginning January 1, 2050, a group of permittees operating under an approved GRP shall reduce its groundwater withdrawals to comprise no more than 70% of the group's TWD.

Figure 1. Location of the Fort Bend Subsidence District Regulatory Areas.

Climate

Annual variations in precipitation can significantly affect water use (i.e., total water demand) in Fort Bend County. Groundwater use patterns fluctuate with total rainfall, resulting in changes in aquifer water levels and, potentially, land subsidence. During periods of excessive rainfall, total water demand can decline; conversely, during droughts, water use can increase, leading to declining aquifer levels and increased land subsidence.

The 2025 calendar year began with normal rainfall for climate stations in Fort Bend County (**Figure 2**). The year progressed with climate stations recording below-average rainfall, which increased with intermittent summer and fall events. The climate station at Sugar Land Regional Airport ended the year with total precipitation of almost 34 inches (86 centimeters), which is about 16 inches (41 centimeters) below normal (**Figure 2**).

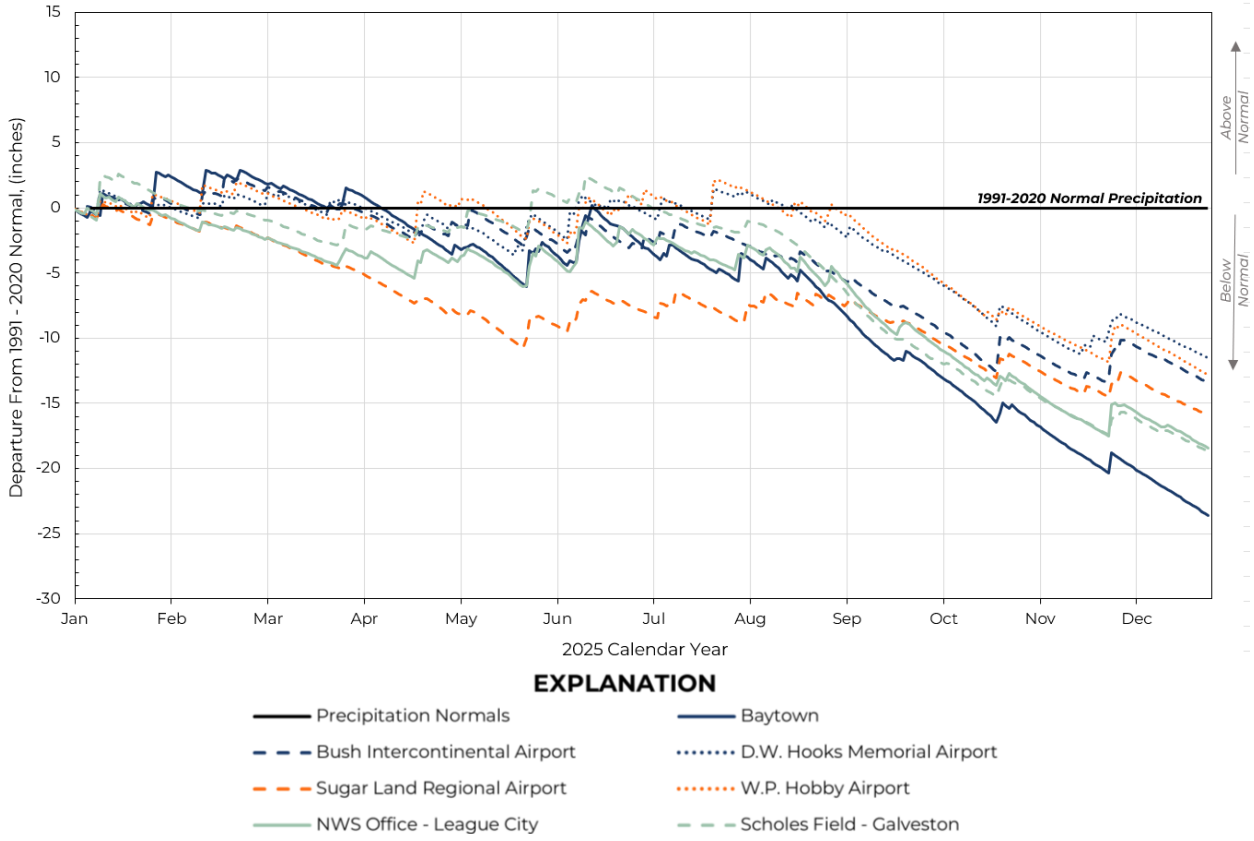


Figure 2. Cumulative precipitation, in inches, measured in 2025 compared against the 1991-2020 normal precipitation, shown as the black dashed line, at NOAA-NWS Climate Stations within and around the District. Positive values indicate above-average rainfall, and negative values show below-average rainfall. Source: https://www.ncei.noaa.gov/access.

Key Takeaway: Below-average rainfall for the majority of 2025 may have contributed to a higher water demand.

Water Use

Every year permittees are required to submit an annual report detailing their water use for the previous calendar year. For the 2025 reporting year, there were a total of 1,880 permitted wells in the District. As of April 2026, a total of 1,632 of these permittees had submitted their annual water use data. The data collected from these reports are used for the Water Use section of the Annual Groundwater Report.

The total groundwater withdrawal for 2025 was 88.5 million gallons per day (MGD), marking a nine percent increase from the previous year.

The four primary water use types are:

- Public supply
- Industrial
- Agricultural
- Other, such as lake/pond make-up

Groundwater used for public supply remains the largest category at 71.6 MGD, accounting for 81 percent of groundwater used in the District (**Figure 3**). Additionally, most groundwater use in Fort Bend County occurs in Regulatory Area A, where about 74 MGD was used in 2025, accounting for 84 percent of all groundwater used within the District. Groundwater withdrawal in Regulatory Area B was reported to be about 14 MGD in 2025, where groundwater is primarily used for agriculture.

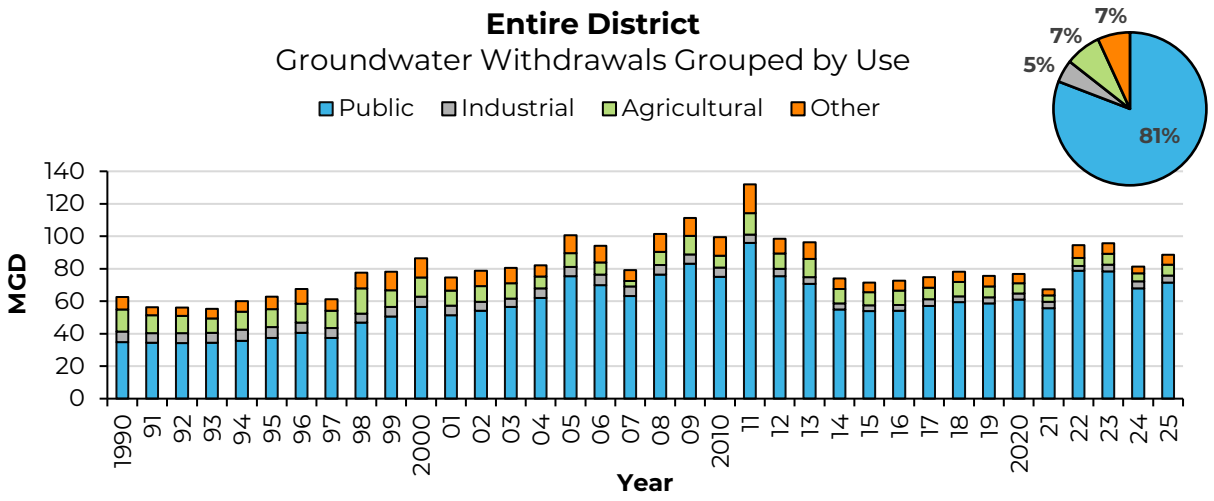


Figure 3. Groundwater withdrawals, in million gallons per day, by water use category from 1990 to 2025. The total groundwater used in the District was 88.5 MGD in 2025, with 81 percent of groundwater used for public supply as shown in the pie chart.

The District's Plan requires permittees to transition to alternative water supplies to reduce their reliance on groundwater. The primary alternative water supply in this region is surface water from three river basins: the Brazos, San Jacinto, and Trinity.

Total alternative water usage for 2025 was about 124 MGD, with the Brazos River as the largest source of alternative water, providing a total of 97 MGD, which comprises 79 percent of the total alternative water supply.

Additionally, alternative water from the Brazos River was the largest source of water supply within the District, comprising 46 percent of the total water used in Fort Bend County, followed by groundwater at 42 percent of the total (**Figure 4**).

The total water use for the District is reported to be 212.1 MGD in 2025, which is a 16 percent increase from the previous year (**Figure 4**).

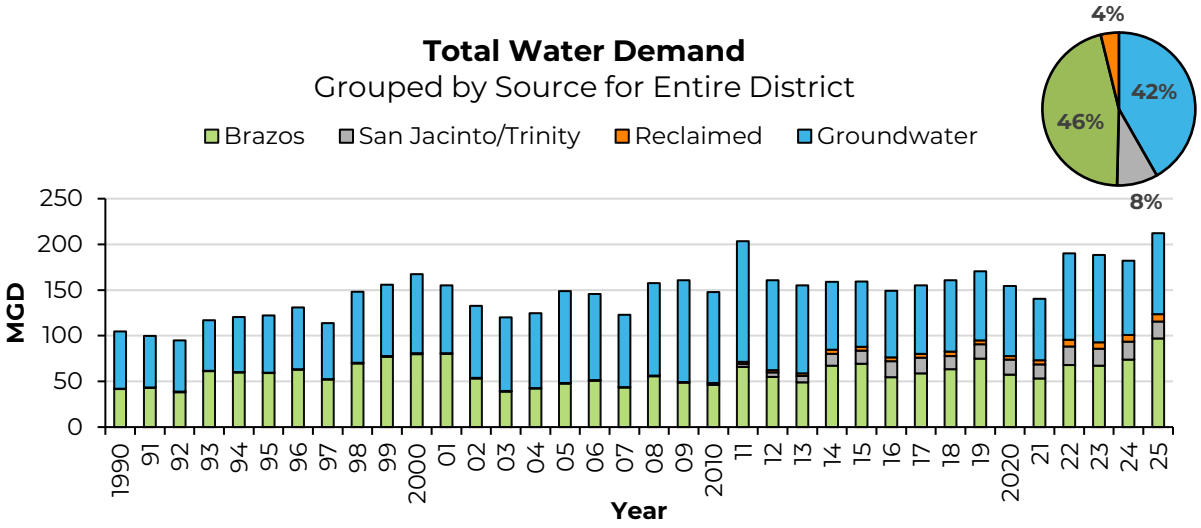


Figure 4. Total water demand for the District, in million gallons per day, by source from 1990 to 2025. The total water used in Fort Bend County in 2025 was 212.1 MGD. Surface water from the Brazos River Basin is the largest water source at 46 percent of the total water demand as shown in the pie chart.

Key Takeaway: Even as water demand increased from the previous year, alternative supply surpassed groundwater as the primary water source in Fort Bend County in 2025.

Groundwater Levels

Since 1990, the United States Geological Survey (USGS) has measured the water level in hundreds of wells throughout the region to monitor and provide reports on groundwater level altitude data for the Chicot/Evangeline (undifferentiated) aquifer. Since the aquifer water level is the best measure of pressure in the aquifer, this information is crucial to understand the impact that changes in water use have on the aquifer system and ultimately subsidence.

The change in water levels in the Chicot and Evangeline (undifferentiated) aquifer from 1990 to 2026 includes areas of rise of over 40 feet (12 meters) within the eastern portion of Regulatory Area A, such as Missouri City, as these areas began utilizing alternative water in compliance with the District's Plan (**Figure 5**). In northern Fort Bend County, including Cinco Ranch, Katy, and Fulshear, water levels declined by over 200 feet (61 meters) during this period, as these areas have experienced rapid growth in recent years (**Figure 5**).

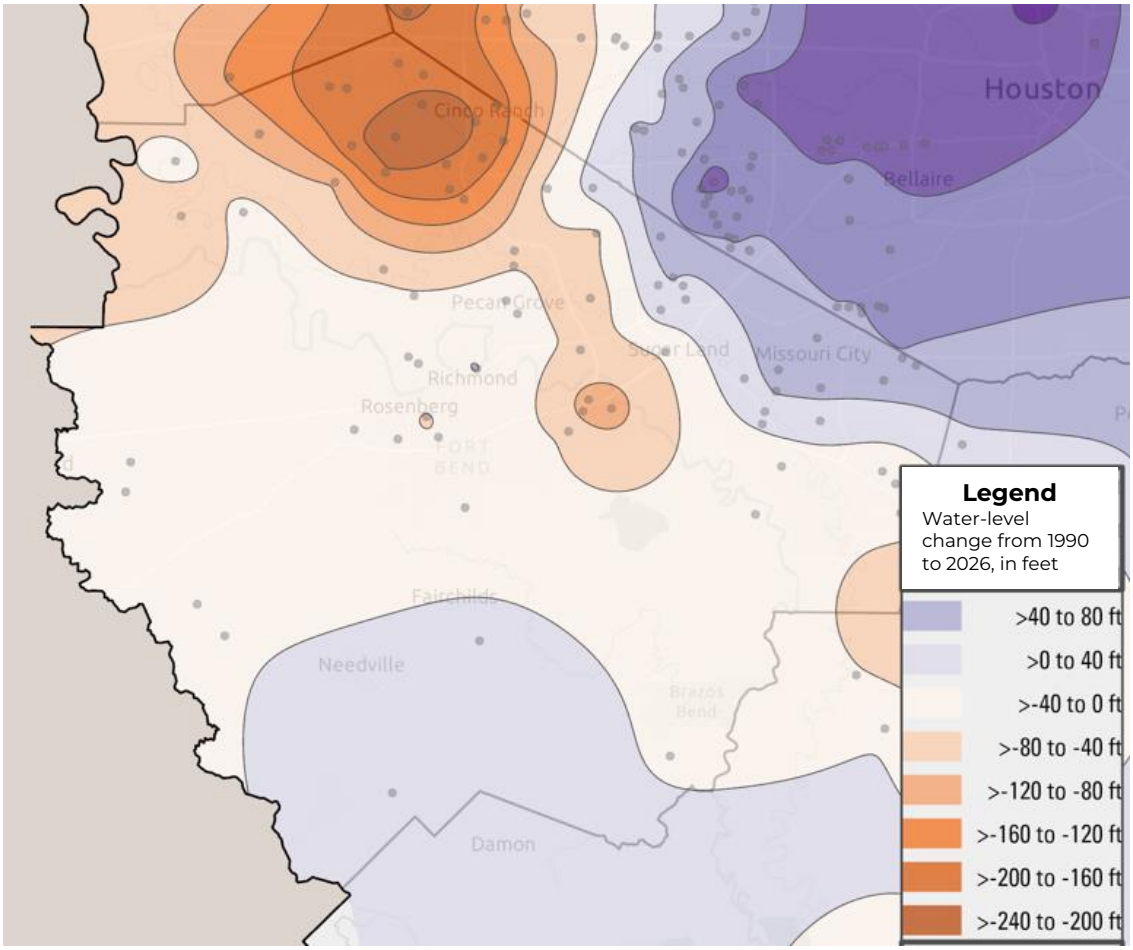


Figure 5. Water-level change at wells screened in the Chicot and Evangeline (undifferentiated) aquifer, Fort Bend County, Texas, from 1990 to 2026. Source: USGS provisional data – preliminary and subject to change.

Key Takeaway: Groundwater levels are recovering in areas like Missouri City that utilize alternative water and continue to decline in areas, such as Katy and Fulshear, that use groundwater as the primary source.

Subsidence

Since the mid-1990s, the District has used global positioning system (GPS) technology to monitor land-surface deformation in the area. Working collaboratively with University of Houston researchers, the subsidence monitoring network has grown to over 180 GPS stations throughout the region. The GPS network had 41 active stations located within Fort Bend County and within a five-mile radius of It that collected data in 2025 and were analyzed for this report.

The average annual subsidence rate is calculated as the best-fit line from GPS data collected from 2021 to 2025 and is a useful measure of current land-surface changes at a GPS station. Subsidence rates greater than 2 centimeters (0.8 inches) per year were measured in northern Fort Bend County, near the Fulshear and Katy areas (**Figure 6**). Some southern portions of Regulatory Area A near the Richmond and Rosenberg area, and all of Regulatory Area B, show little to no subsidence at under half a centimeter per year (**Figure 6**).

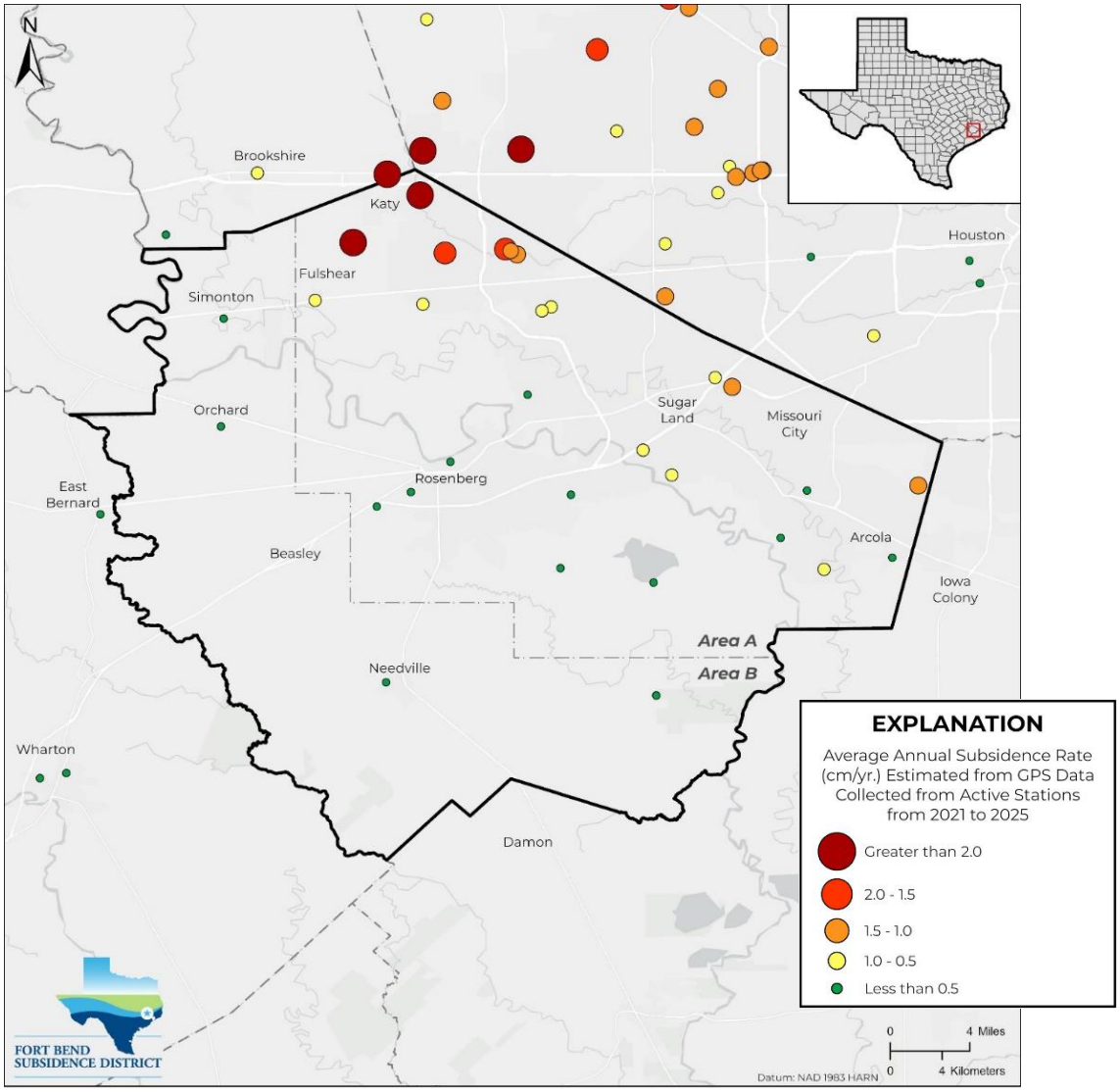


Figure 6. Average annual subsidence rate, measured in centimeters per year, from 2021 to 2025, referenced to GOM25 and estimated from three or more years of GPS data collected from active GPS stations in 2025 within Fort Bend and surrounding counties, Texas.

Since 2019, the District has sponsored research using interferometric synthetic aperture radar (InSAR) to estimate regional-scale changes in the land surface and complements the District's subsidence monitoring network by providing data between GPS stations.

Results from InSAR-derived subsidence rates closely resemble rates calculated from the GPS stations, such that the northernmost portion of Regulatory Area A shows subsidence rates greater than two centimeters per year, and Regulatory Area B has subsidence rates less than half a centimeter per year (**Figure 7**).

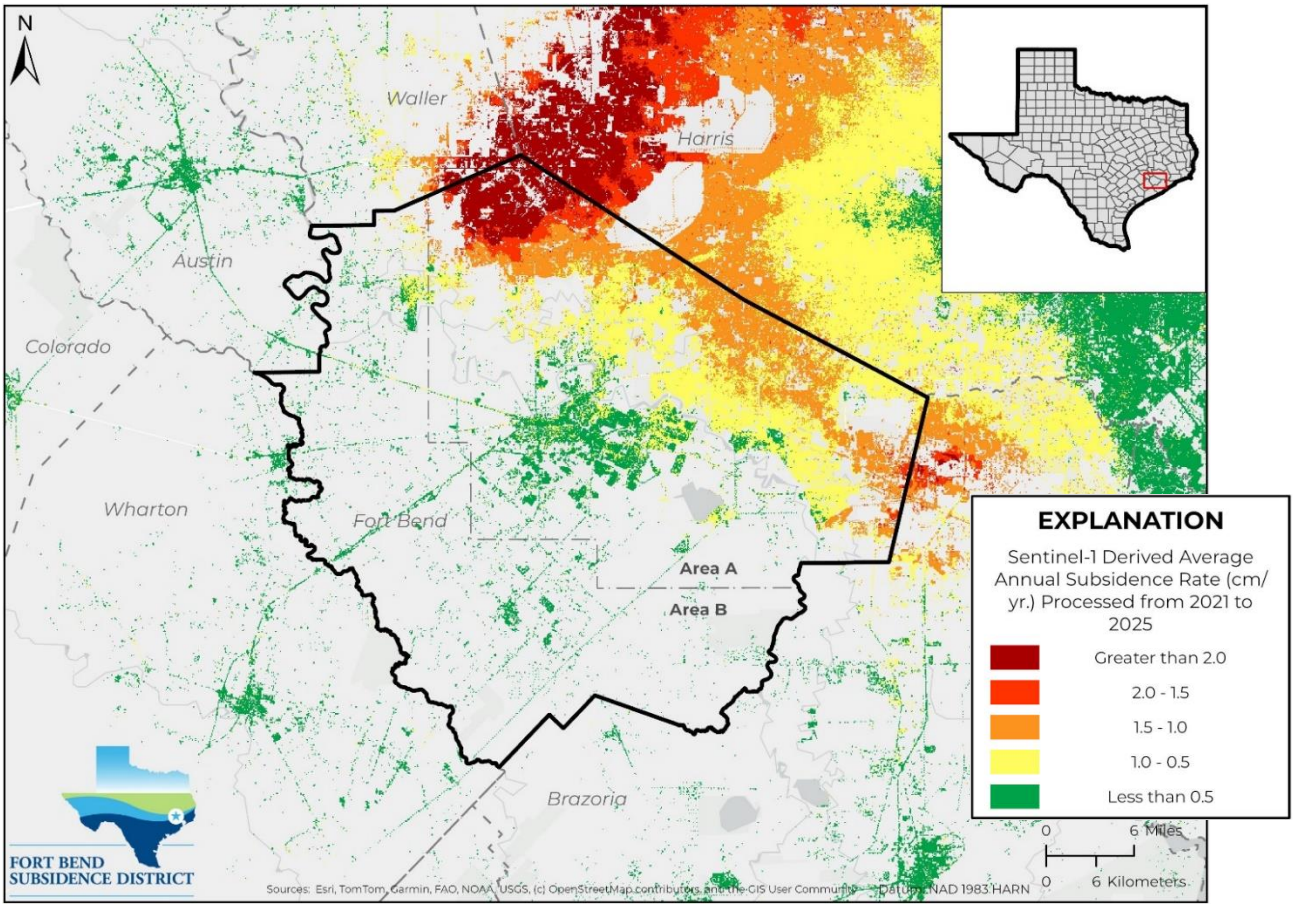


Figure 7. Interferometric Synthetic Aperture Radar (InSAR)-derived annual subsidence rate, calculated in centimeters per year, estimated from Sentinel-1 data and averaged from 2021 through 2025.

Key Takeaway: Subsidence rates greater than 2 centimeters (0.8 inches) per year are measured in the northeastern portion of Fort Bend County. Little to no subsidence is occurring in western Fort Bend County.