



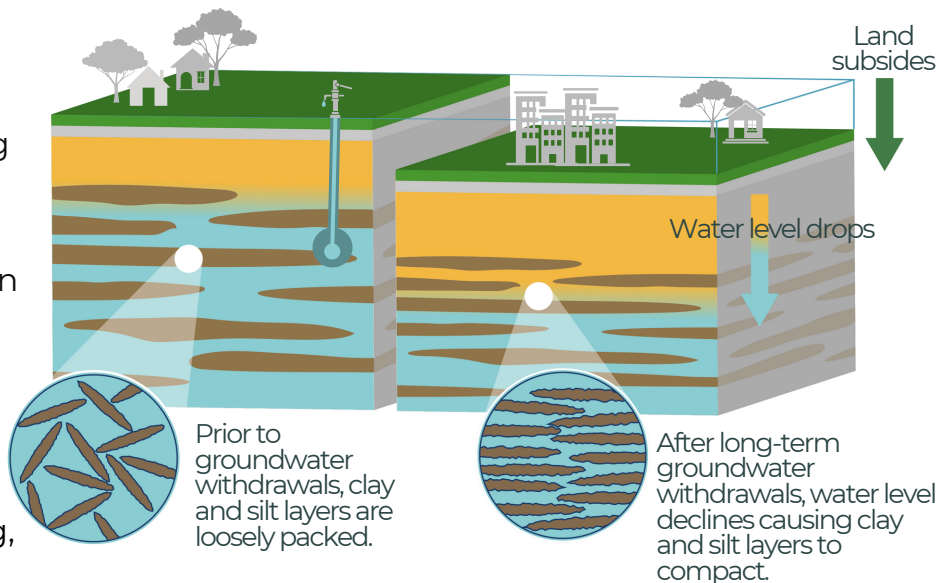
**FORT BEND  
SUBSIDENCE DISTRICT**

# SUBSIDENCE IN FORT BEND COUNTY

## WHAT IS SUBSIDENCE?

Subsidence is the gradual sinking of the Earth's surface due to subsurface movement. More specifically for Fort Bend County, land subsidence is the decrease in land-surface elevation caused by aquifer compaction due to substantial, long-term groundwater withdrawals.

This compaction is seen at the surface as subsidence and has contributed to increased flooding, road damage, and infrastructure issues in our area.



## A HISTORY OF SUBSIDENCE IN THE HOUSTON AREA

Subsidence was first observed in the Houston region around 1918 when the Goose Creek Oil Field near Galveston Bay began to display surficial fissures due to oil and water extraction beneath the surface. In the 1940s, research conducted by local universities, the State of Texas, and the U.S. Geological Survey continued to identify the correlation between groundwater withdrawal for municipal, industrial, and agricultural supply and subsidence.

In 1961, Hurricane Carla hit Texas' Gulf Coast causing devastating storm surges and flooding. As a result, local area governments began to analyze the severe and very real impact subsidence could have on the area's potential economic growth and began to determine how best to reduce the region's reliance on groundwater.

In 1989, Texas Legislature created the Fort Bend Subsidence District (FBSD) to regulate groundwater withdrawal within Fort Bend County to cease ongoing and prevent future subsidence.



Historical photos of surficial fissures near Baytown, TX.



**HOW TO  
PRONOUNCE  
SUBSIDENCE:**

[SUB] sigh [DENS]



FORT BEND  
SUBSIDENCE DISTRICT

## WHAT DOES THE FORT BEND SUBSIDENCE DISTRICT DO?

### REGULATION



Regulates groundwater use through well permitting, monitoring, and enforcement, creating real disincentives for those who rely too heavily on groundwater.

### PLANNING



Determine growth and water demand projections for the region to develop an obtainable regulatory framework addressing future water needs and minimizing subsidence risks.

### COLLABORATION



Works with regional water providers to reduce groundwater withdrawal within the District, including the conversion to treated surface water, which has already significantly reduced subsidence rates.

### SCIENCE & RESEARCH



Conducts science and research programs to obtain the most accurate and up-to-date data on subsidence, water demands, aquifer water levels, alternative water sources, and special studies utilizing extensometers, GPS monitoring stations, Interferometric Synthetic Aperture Radar (InSAR) satellite technology, and traditional surveying while collaborating with local, state, federal, and academic partners.

### WATER CONSERVATION



Provides water conservation programs, including a school education program that provides teachers with educational materials to teach students about Texas water, while empowering them through hands-on activities that save water and help prevent land subsidence.

## WATER CONSERVATION SCHOOL PROGRAM



The water conservation school program provides education to 3rd-6th grade students in Fort Bend County with fun, hands-on activities and a take-home water conservation kit designed to engage families with water-saving projects that support and reinforce lessons taught at school. Learn more about the program by scanning the QR code.



# REGULATORY PLANNING



- 1990** The initial regulatory plan was adopted and focused on collecting water usage information, water demand projections, water-level data from wells, and subsidence data within Fort Bend County.
- 2003** A new regulatory plan was adopted, dividing FBSD into two regulatory areas and one subarea and designated timing and conversion requirements. The requirements contained within the 2003 Regulatory Plan were based on the most current data and provided permittees organizational flexibility in meeting the regulatory goals.
- 2013** FBSD organized a detailed study to 1) update population and water demand projections and 2) update and recalibrate the parameters in the groundwater and subsidence models that were then used to evaluate the existing plan's regulations and make necessary changes establishing the 2013 Regulatory Plan.
- 2022** The 2013 plan was amended, extending the District's groundwater reduction timeline by two years.

## REGULATORY AREAS

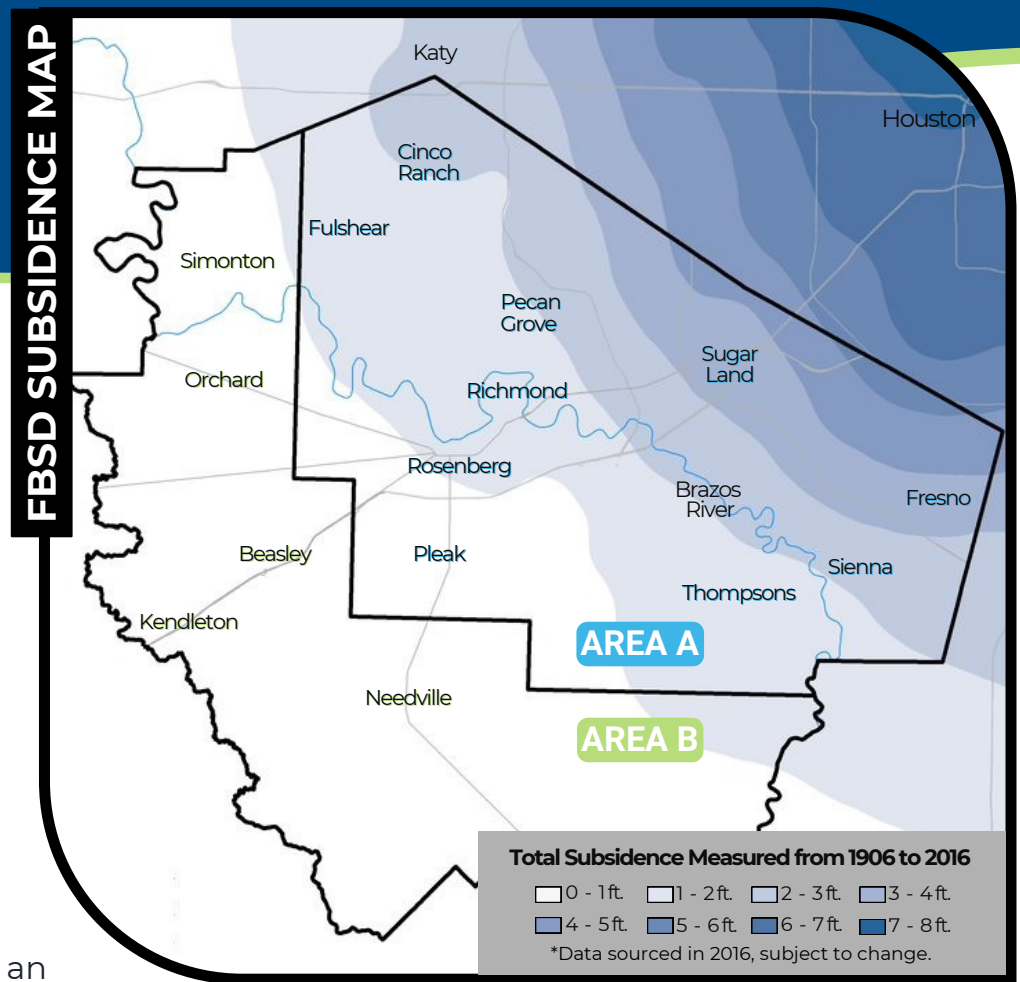
A Regulatory Area is defined as a geographic subdivision of the District in which goals are established to reduce groundwater withdrawals by specific deadlines.

### AREA A

Groundwater withdrawals for each permittee must comprise no more than 40% of the permittee's total water demand unless they are operating under an approved groundwater reduction plan (GRP). Permittees operating within an approved GRP are allowed to utilize groundwater for no more than 70% of their annual total water demand. Beginning in 2027, permittees within a GRP will be allowed to utilize groundwater for no more than 40% of their yearly water demand.

### AREA B

Permittees within Area B are not subject to groundwater reduction requirements or disincentive permit fees at this time. The District will continue to evaluate water-level and subsidence conditions within the boundaries of Area B and may adopt groundwater reduction requirements in the future as necessary.



# THE FUTURE OF SUBSIDENCE IN FORT BEND COUNTY

As we continue to reduce our reliance on groundwater resources and further our efforts to educate the community on water efficiency and conservation, we anticipate reduced subsidence rates in our area. An alternative water supply assessment has been completed as part of Fort Bend Subsidence District and Harris-Galveston Subsidence District's ongoing Joint Regulatory Plan Review. It evaluates alternative water supply strategies, including treated surface water, aquifer storage and recovery strategies, brackish groundwater development, and seawater desalination. Although subsidence rates have been reduced considerably for much of eastern Fort Bend County through the efforts of the permitted community, the District will continue monitoring water use, aquifer water levels, and land surface deformation throughout the Fort Bend region.

The District will continue its mission to prevent subsidence in our area by enforcing reasonable groundwater regulation, promoting water conservation, and conducting science-based water planning. This approach will ensure that future water demands can be fulfilled while minimizing the risk of subsidence.

Visit [fbsubsidence.org](http://fbsubsidence.org) or scan the QR code below for more information regarding subsidence, groundwater regulation, planning, research, and more.



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SUBSIDENCE DISTRICT**



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