

OCT 21, 2025

Texas Water Planning: Preparing for Future Droughts



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In 2011, statewide rainfall totaled only 14.7 inches, and many Texans feared the water shortage would hinder the state's growth. Subsequent years brought more normal amounts of moisture, and those worries faded. This trend has continued to play out in the state: When rainfall reaches an acceptable level, concerns over water availability dwindle.

Historically, dry spells have prompted people to obsess over water policy because they see shortages as threatening long-term prosperity. What many don't realize is that Texas is at the forefront when it comes to planning for the future.

Why Texas Tracks Its Water Supply

Texas has a long history of water planning, mostly out of necessity due to severe droughts. Scant rain in 1917 produced a meager 14.06 inches, falling far short of the 1895-2019 Texas average of 26.79 inches. Ranking as the driest year in that 125-year span, the 1917 drought devastated agriculture and inflicted pain in much of rural Texas. Responding to this disaster, Texas added Article 16, Section 59 to the Constitution, declaring “preservation and conservation of ...natural resources ...are public rights and duties...” This provision gave the state legislature responsibilities to conserve natural resources, including water. River authorities and conservation and reclamation districts followed from this measure, marking the beginning of statewide plans to deal with water.

The 1950s saw a seven-year drought hit Texas, with 1957 providing only 14.98 inches of rain, the third driest year on record. The 14.7 inches measured in 2011 eclipsed the 1957 amount to claim the spot for the second driest year on record. Because each year from 1950 to 1957 fell well short of the long-term average, Texas water planners regard that period as the drought of record for planning purposes. The legislature responded by creating the Texas Water Development Board (TWDB) to plan and finance water supply projects.

Creation of Regional Water Planning Groups

In 1961, TWDB published the first state water plan. The 1980s saw long-term supply and demand forecasting added to the planning process. Then a less severe drought struck in 1996, prompting the legislature to enact Senate Bill (SB) 1 in 1997, creating a bottom-up planning process focused on 16 regional water planning groups composed of local stakeholders in the supply of and demand for water.

A regional framework recognizes demographic, economic, geological, and climactic diversity that drives the supply and demand for water. These groups plan for Texas water users to survive a drought of record in each decade for 50 years into the future. The groups use projected demand based on population growth and projected supplies based on currently available sources adjusted to forecast developments such as aquifer depletion. Given those statistics, the groups identify “needs,” defined as the shortfall of supplies in meeting demands in the future. The groups then devise strategies designed to augment forecast supplies to fulfill those needs. These strategies frequently include projects requiring substantial capital investment.

Each group adopts bylaws designed to meet the responsibilities imposed by state laws and the rules of the TWDB. Groups typically have approximately 20 voting members representing a variety of interests, including agriculture, industry, environment, public, municipalities, business, water districts, river authorities, water utilities, counties, groundwater management areas, and power generation.



The San Antonio Water System uses calcite contactors to condition water after the desalination process to make it compatible with other sources. (Photo courtesy of San Antonio Water System.)



Water Supply and Demand

Every five years, the TWDB approves each regional plan and consolidates them into the state water plan. The tenth and current plan was published in 2022 with the next scheduled for publication in 2027. The TWDB provides both PDF and interactive versions of the 2022 plan on its website.

The data shows that currently, in a drought of record, Texas would fail to provide for all users. In the next decade, the gap narrows, but some users will not have enough water. By the 2040s, the gap narrows such that supplies from recommended strategies meet all demands. The same applies to ensuing decades with strategy supplies growing enough to meet forecast demands. Still, some users will likely face shortages. Specifically, irrigation strategy supplies fall far short of needs in every decade. Steam electric power, livestock, and mining uses also face modest shortfalls.

All projections depend on implementing the envisioned supply strategies. The largest contribution comes from demand reduction, mostly achieved through conservation. Those reductions depend on finding more efficient ways to use water in agricultural, municipal, and industrial activities for 46 percent of envisioned savings. Adding reservoirs, drilling new wells, and reusing supplies contributes 48.7 percent of strategy supplies while desalination of seawater contributes 0.2 percent.

What Happens Without Action?

The plan anticipates a 73 percent expansion in population by 2070, meaning Texans will demand water with most growth occurring in Regions C, which includes the Dallas-Fort Worth Metroplex, and H, which includes Houston. This growth would see these urban uses rising to the largest use category, exceeding today's leader, irrigation for crop production.

While population grows, the amount anticipated to come from existing supplies declines from 16.8 million acre-feet to 13.8 million acre-feet per year, creating a shortage of 6.9 million acre-feet per year by 2070 during a repeat of the drought of record. Nearly 5,800 strategies proposed by the plan would require 2,400 projects at a cost of \$80 billion to add 7.7 million acre-feet per year in 2070. Failure to implement these strategies would leave nearly 25 percent of Texans with only half of the municipal water they would need in 2070 and inflict \$153 billion in economic damages.

Funding Water Infrastructure

The State Water Implementation Fund for Texas (SWIFT) was established in 2013 in response to the 2012 state water plan, which identified critical water supply, conservation, and flood control needs for the state. This was accomplished through a constitutional amendment (Proposition 6) that authorized the transfer of \$2 billion from the state's Economic Stabilization Fund (also known as the Rainy Day Fund) to SWIFT. The objective is to provide affordable, ongoing financial assistance for projects included in the state's water plan. It provides low-interest loans and other financial assistance to political subdivisions and non profit water supply corporations undertaking projects identified in the state's water plan.

According to the Texas comptroller of public accounts in 2023, "the Texas Water Development Board projects that the state's population will increase from 29.7 million in 2020 to 51.5 million in 2070, an average annual increase of 1.1 percent." In addition to population growth and aging water infrastructure, industrial needs will contribute greatly to demands on Texas' water supply. Water demand for manufacturing and power generation will continue to increase. Also, proliferation of data centers, which require significant amounts of water for cooling, will add to the demand.

In 2023, Governor Greg Abbott signed several water-related bills, including SB 28, SB 30, and Senate Joint Resolution 75, which created the Texas Water Fund (TWF) and authorized funding for it. TWF is a special account in the state treasury for water projects. SB 30 authorized a one-time \$1 billion supplemental appropriation to the TWF.

Jeremy Mazur, director of infrastructure and natural resources policy for Texas 2036, testified to the House Natural Resources Committee in 2024 that, "While commendable, this \$1 billion falls short of what Texas needs to invest in water infrastructure. These challenges here are twofold. First, Texas must invest in a broad, diversified water supply portfolio to improve our resilience to future severe droughts. Second, we need to fix our aging, deteriorating drinking water and wastewater systems that are fast becoming liabilities to the communities that they serve." Mazur said they project "the state's long-term price tag for addressing these issues equals nearly \$154 billion."

Texas 2036 is one of over 70 members of the Texas Water Fund Coalition, a statewide alliance formed to advocate for long-term investment in Texas' water infrastructure. Member

organizations include Texas Association of Business, Texas Farm Bureau, Texas Chemistry Council, Texas Water Foundation, Texas Rural Water Association, and Water Environment Association of Texas. The coalition also includes numerous local and regional chambers of commerce, industry and infrastructure groups, and several other advocacy organizations.

In 2024, the legislature put additional emphasis on water planning and funding with House Joint Resolution 7 (HJR 7). The resolution, which has been signed by the governor and will be on the November ballot, allocates \$1 billion a year starting in 2027 until 2047, \$20 billion in total, to secure the state's water supply. This would provide a long-term, stable funding source for water infrastructure projects. The funding will be split between repairing aging water systems and developing new water sources. This includes projects like desalination and wastewater treatment facilities.

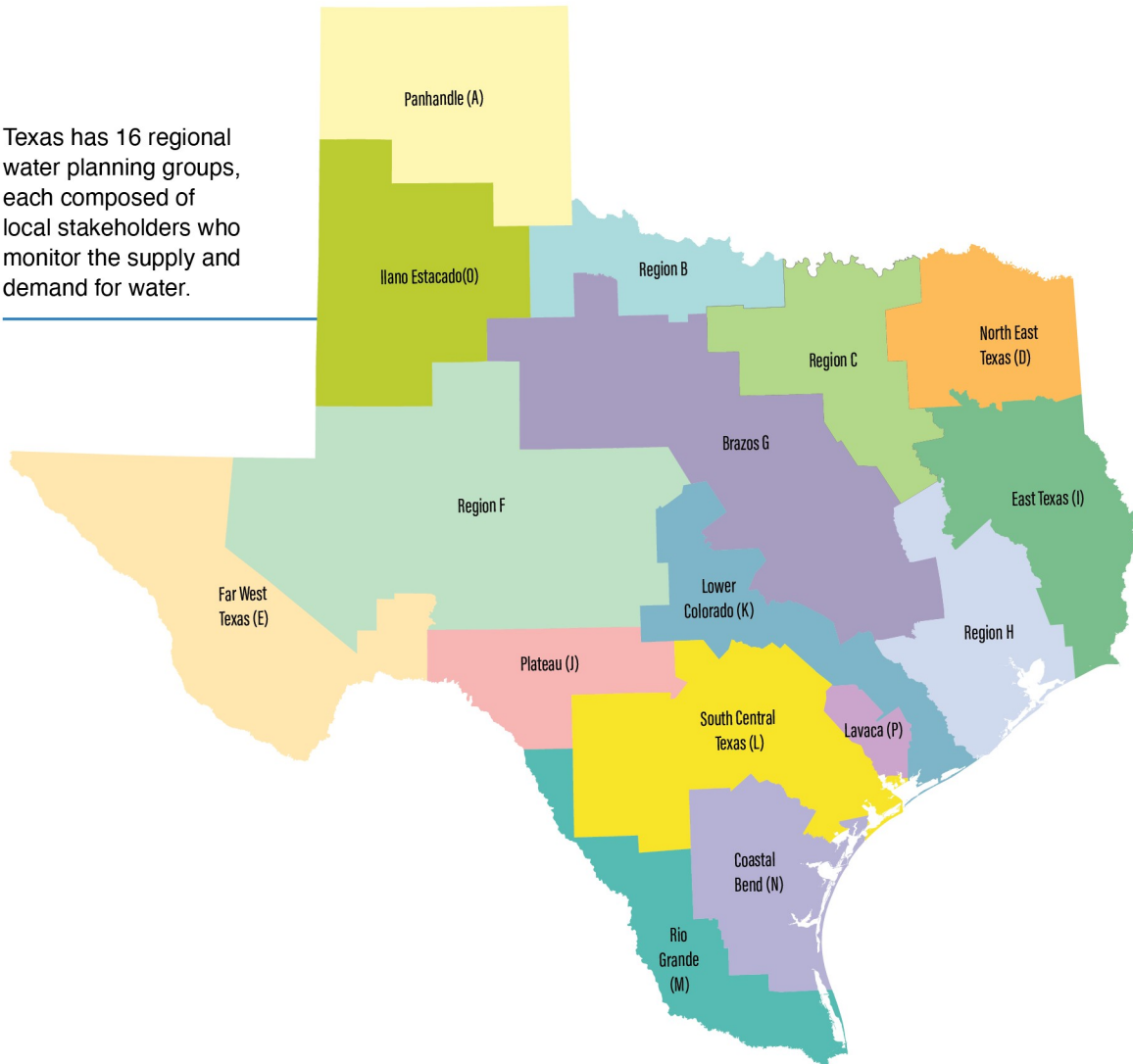
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Additionally, Governor Abbott signed SB 7, also known as the "generational investment in water" bill, which lays out the administrative framework for funding water projects through the TWDB. It assigns the TWDB responsibility to coordinate water supply conveyance and expands the uses of the New Water Supply for Texas Fund. This includes project selection and funding allocation as the state moves to a coordinated, regional strategy for water management. In addition to the previously mentioned Texas 2036, other nonprofit organizations like Texas Water Foundation and Texas Living Waters Project strongly supported HJR 7 and SB 7.

On June 2, 2025, Governor Abbott "commended the Texas Legislature for making a Texas-size investment in the state's water infrastructure," regarding passage of SB 7 and HJR 7. He added, "I look forward to swiftly signing Senate Bill 7 into law, and I encourage Texans to pass the constitutional amendment this November to put Texas on a path to have plenty of water for the next 50 years."

Finally, the supplemental budget (HB 500) includes a one-time investment of \$2.5 billion to the water fund. These funds were taken from the current budget surplus. About \$880 million of that is already in the fund, so more than \$1.6 billion is allocated this year and available for spending during the 2025-27 biennium. Clearly, Texas is running out of cheap water.

Texas has 16 regional water planning groups, each composed of local stakeholders who monitor the supply and demand for water.



Who is Responsible for Future Water Demands?

When it comes to planning for future water demands, Texas has an ongoing process making the state a national leader in water planning with its proactive approach and transparent process. Every regional water planning group conducts public hearings and publishes meeting times and agendas, welcoming participation from the public. In addition to the TWDB, the Texas Commission on Environmental Quality (TCEQ), river authorities, water utilities—like the San Antonio Water System (SAWS)—and groundwater conservation districts all participate in the planning process. Additional entities like the Texas Water Resources Institute at Texas A&M University, the Bureau of Economic Geology at the University of Texas, and the nonprofit Texas Water Foundation contribute to this ongoing process.

Lynn D. Krebs, Ph.D. (lkrebs@tamu.edu (<mailto:lkrebs@tamu.edu>)) is a research economist with the Texas Real Estate Research Center, and Charles E. Gilliland, Ph.D. (c-gilliland@tamu.edu (<mailto:c-gilliland@tamu.edu>)) is a research economist with the Texas Real Estate Research Center.

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