

Current Status of Water in Texas



20th Annual Bell County Water Symposium
"Changes in Texas Mean Changes in Bell County"

November 2021

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Texas State Water Plan

“Despite the water-development projects completed in the past, Texas' water problems continue to grow in magnitude and complexity. The population of Texas has continued to increase at a phenomenal rate, with a corresponding acceleration in the construction of highways, schools, hospitals, and other public works. However, to supply its necessary water, Texas is relying for the most part on facilities which were designed to meet future needs as anticipated 15 to 20 years ago, and these were often underestimated.”

Texas State Water Plan 1961

“Despite the water-development projects completed in the past, Texas' water problems continue to grow in magnitude and complexity. The population of Texas has continued to increase at a phenomenal rate, with a corresponding acceleration in the construction of highways, schools, hospitals, and other public works. However, to supply its necessary water, Texas is relying for the most part on facilities which were designed to meet future needs as anticipated 15 to 20 years ago, and these were often underestimated.”

Texas Board of Water Engineers, 1961 (p. 5)

Outline

- A Look Back
- A Look Forward
- The Challenge



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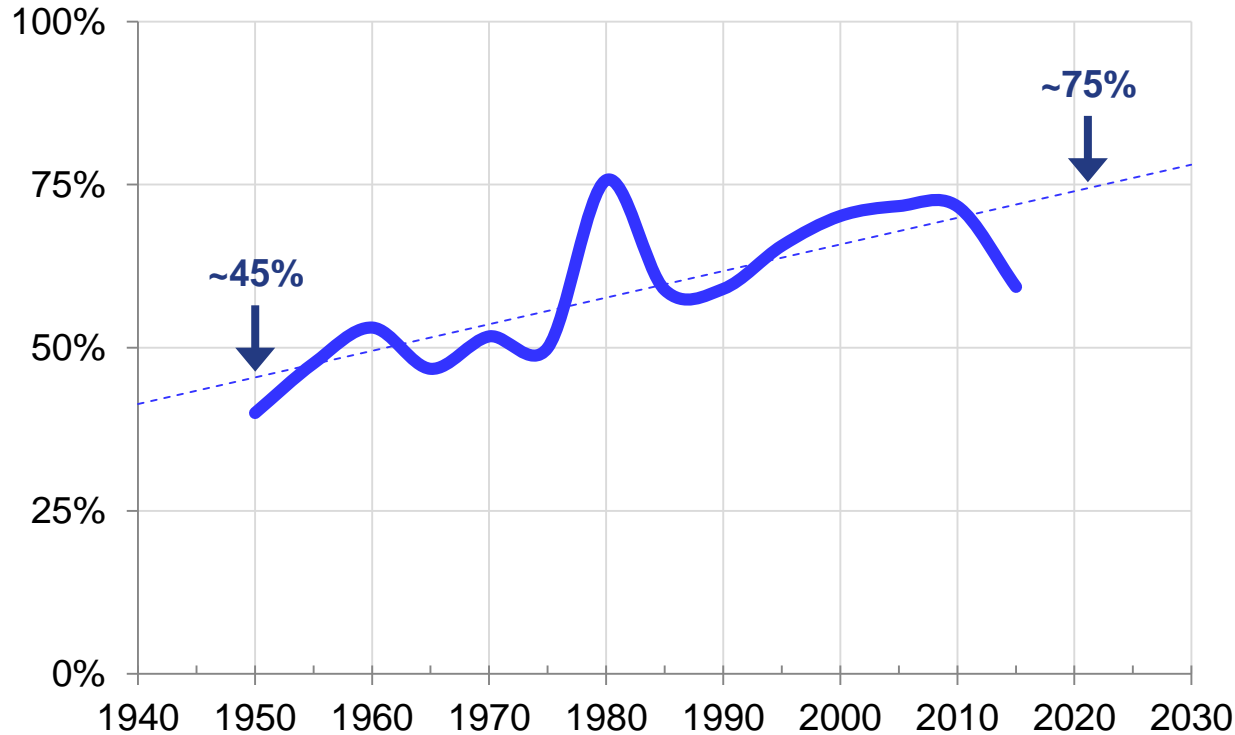
Photo courtesy of Austin American-Statesman

Looking Back

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Looking Back



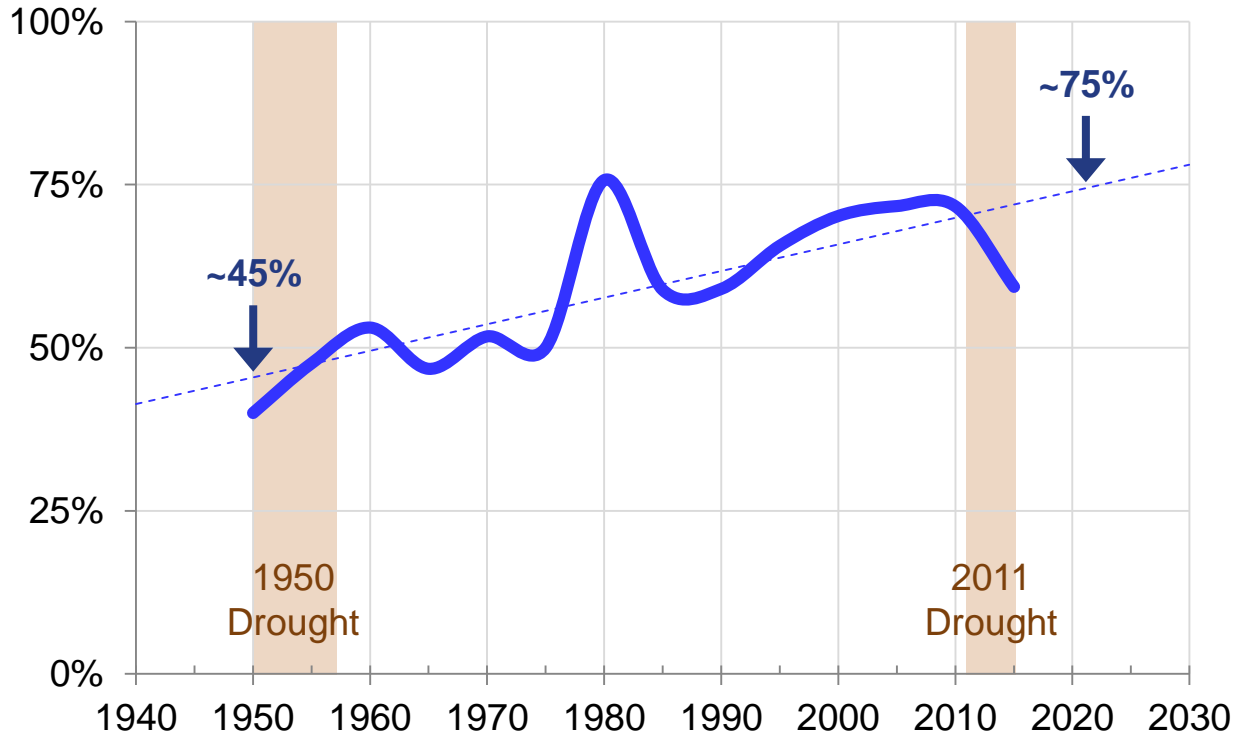
Texas Surface Water Withdrawals for Public Supply
Long-term trend is an increasing reliance on surface by Texas cities.

Source: USGS 2015

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Looking Back



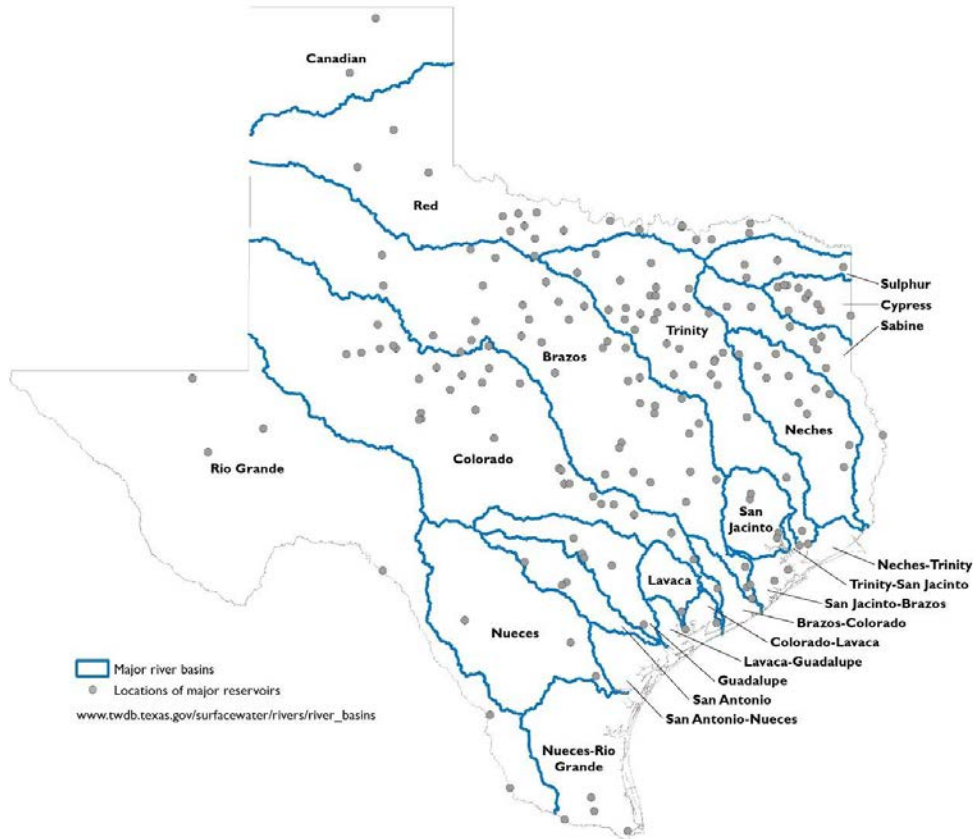
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Looking Back



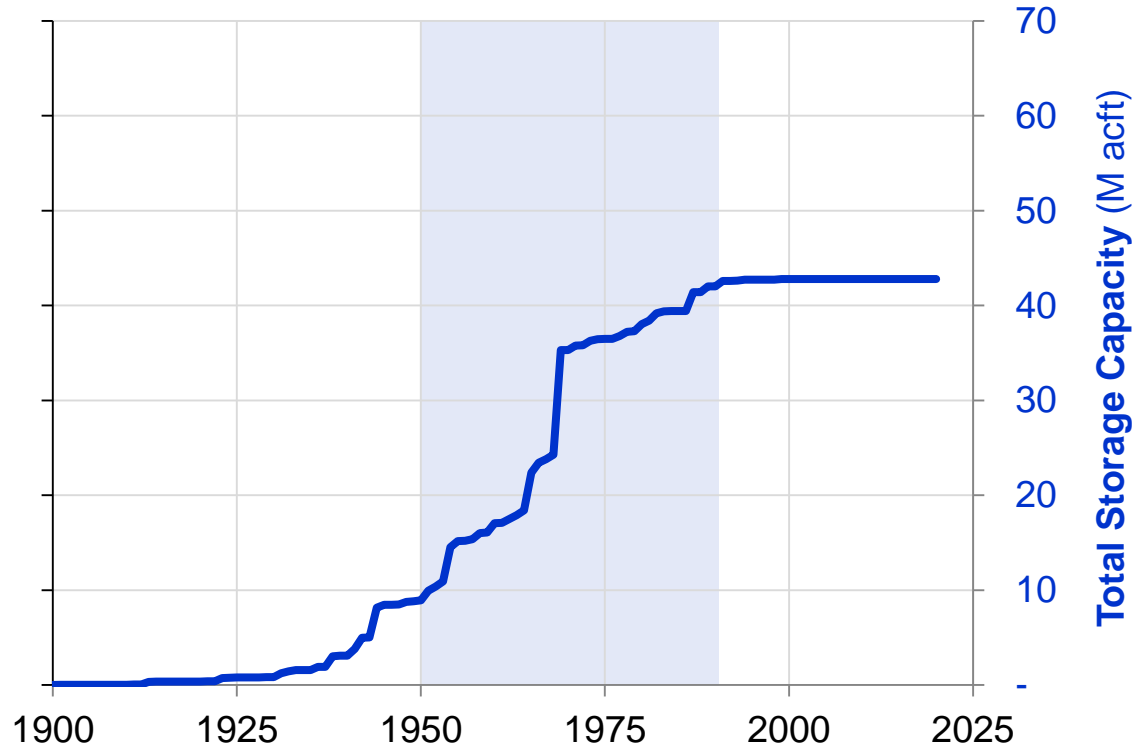
**Texas Has
>200 Major Dams**
Combined
conservation storage
capacity of 42.8M
acre-feet per year.

Source: TWDB

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Looking Back



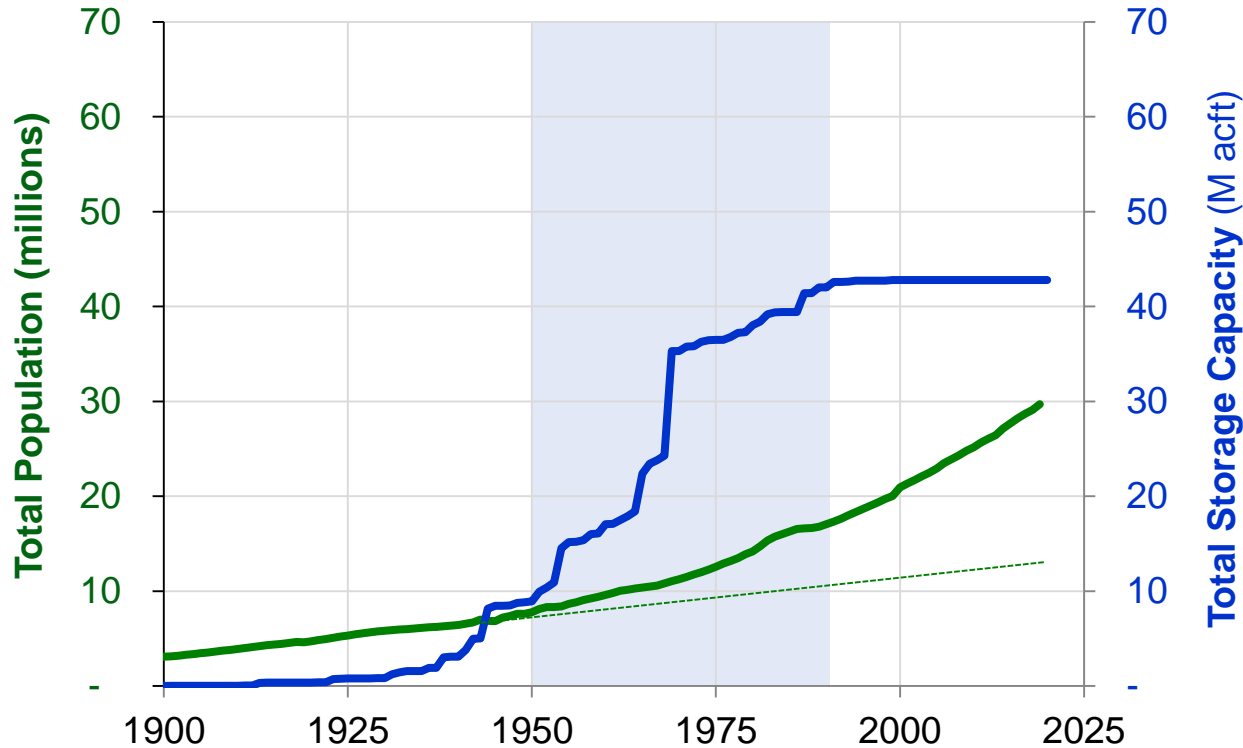
**Texas Reservoir
Storage Capacity**
75% of State's
storage capacity was
built from 1950 to
1990.

Source: TWDB 2017

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Looking Back



Texas Population and Reservoir Storage Capacity

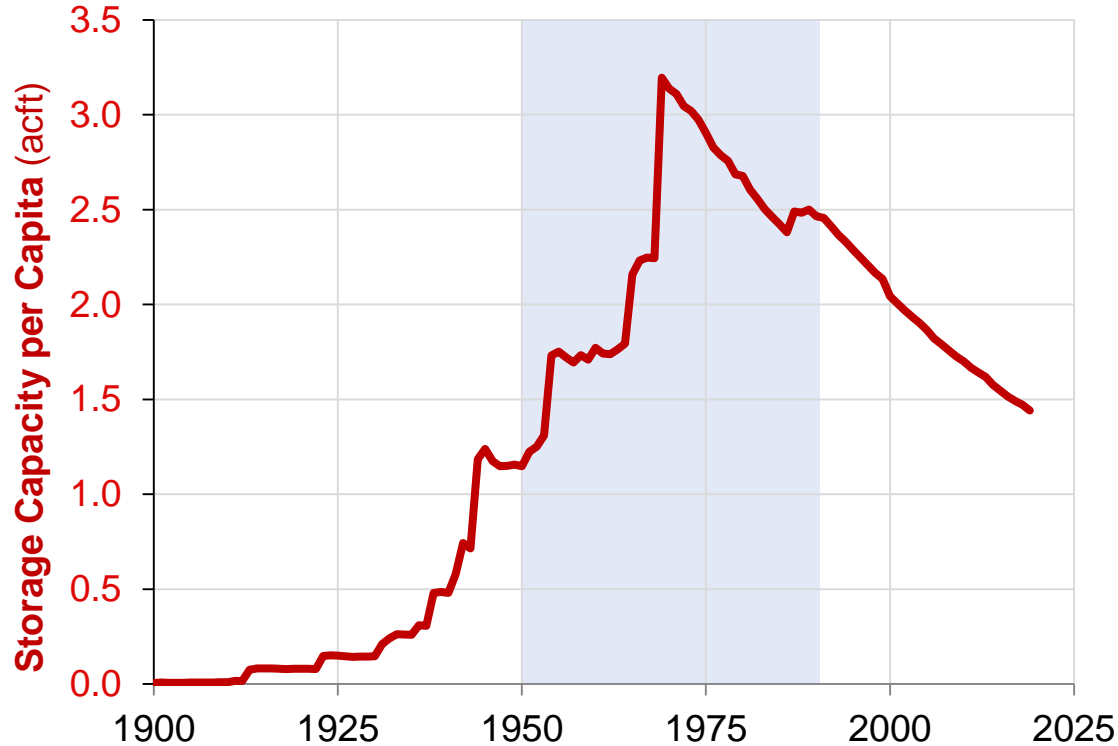
State's population has been increasing exponentially since about 1950.

Source: TWDB 2017 and US Census Bureau 2020

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Looking Back



Texas Reservoir Storage Capacity Per Capita

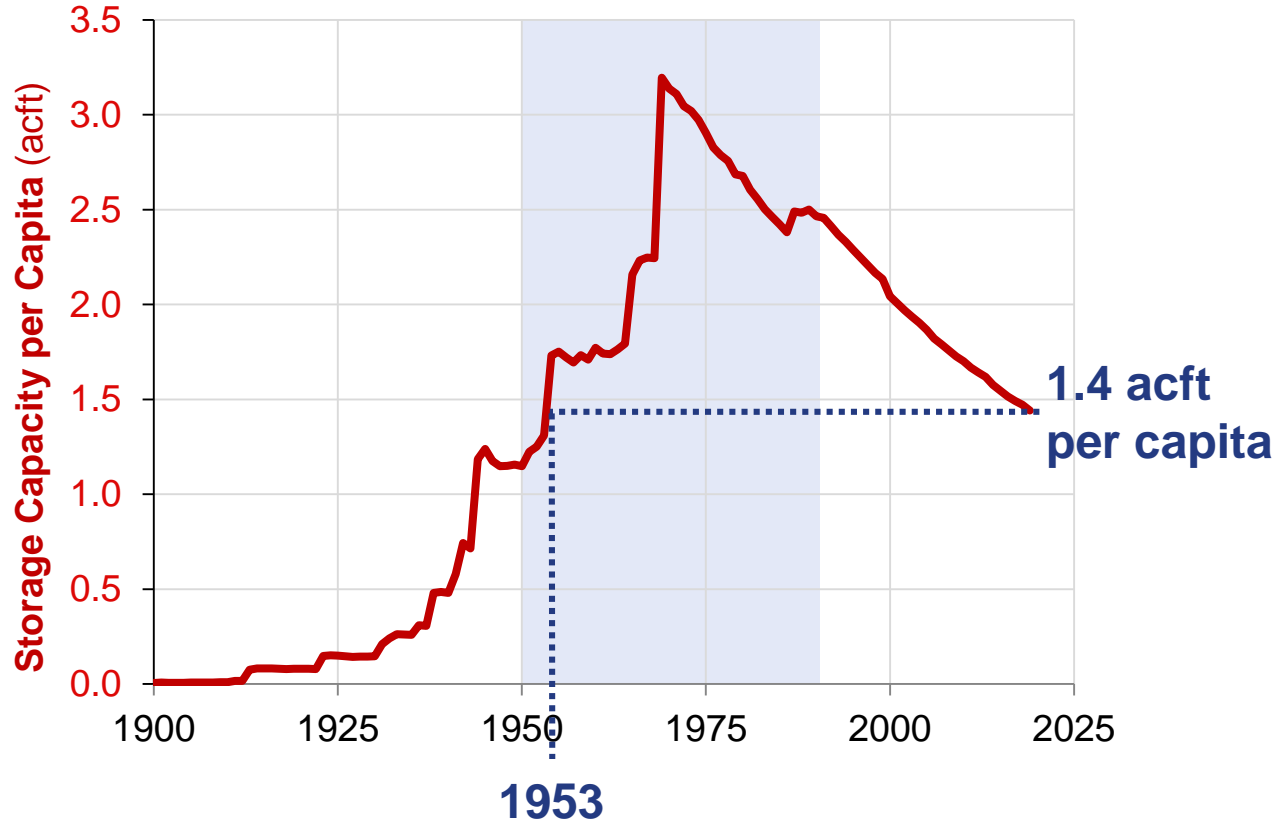
Since about 1970, Texas' relative insulation from drought events has continually declined.

Source: TWDB 2017 and US Census Bureau 2020

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Looking Back



Texas Reservoir Storage Capacity Per Capita

Today, Texas has the same relative insulation from drought events as it had in the 1950's.

Source: TWDB 2017 and US Census Bureau 2020

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2022
State Water Plan

WATER FOR TEXAS

Texas Water
Development Board

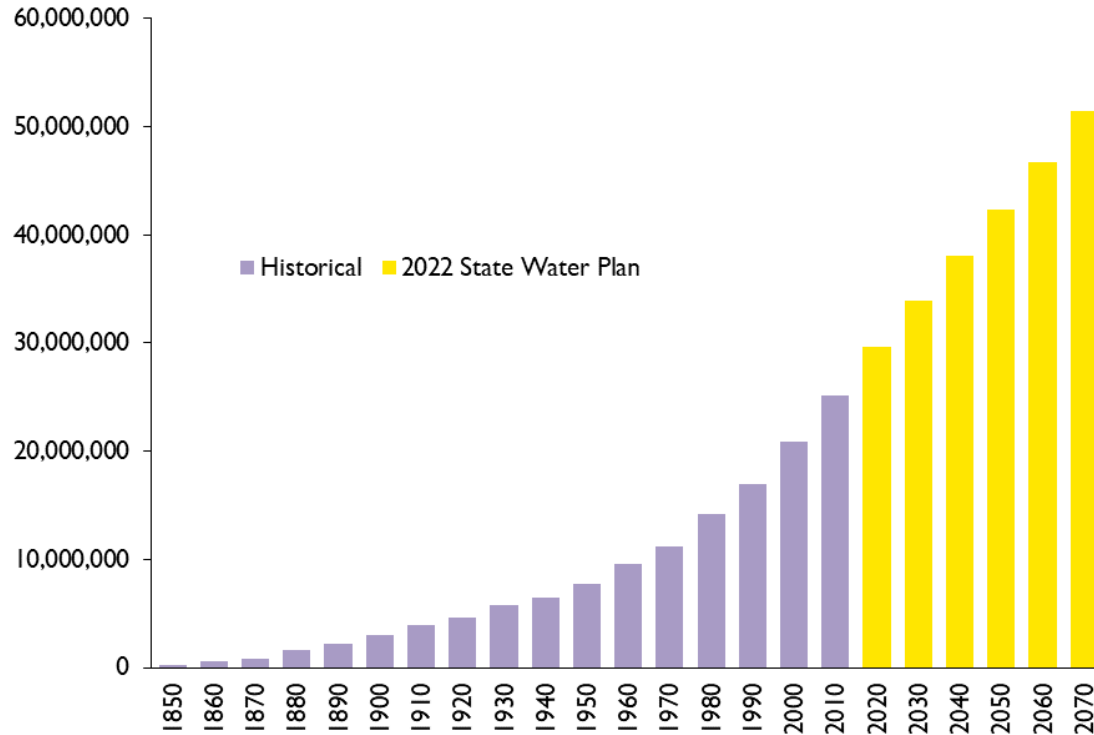


Looking Forward

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Looking Forward



Population Growth

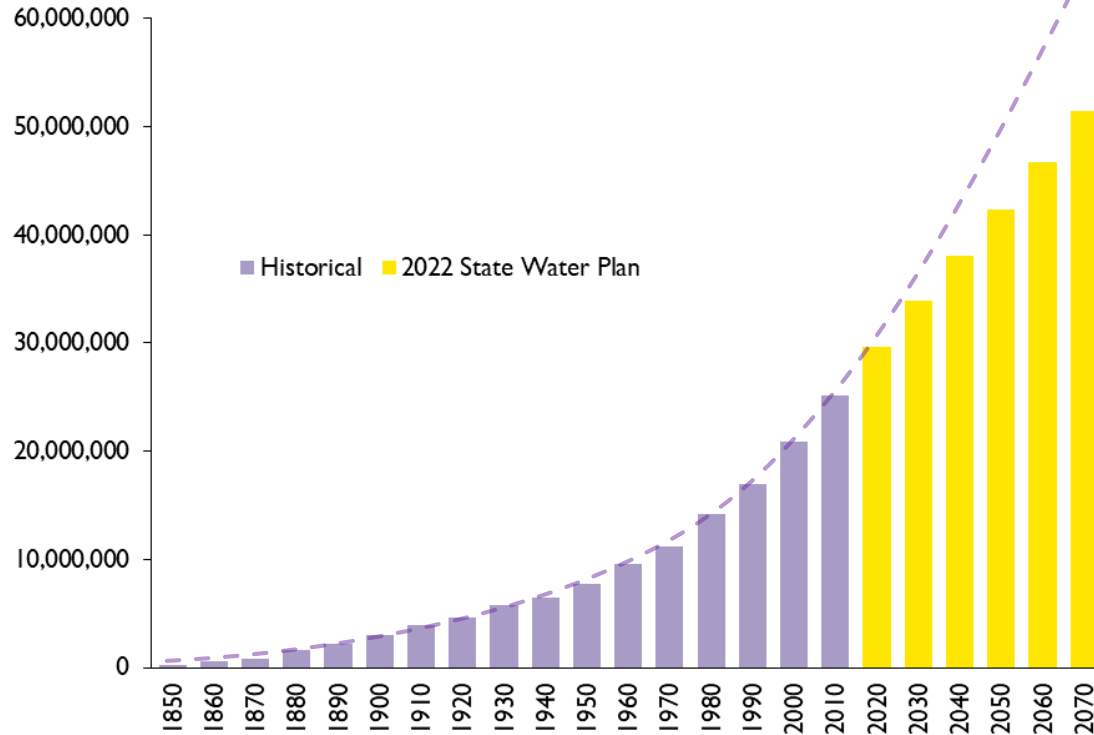
Texas' population is expected to increase 73 percent over the next 50 years (from 29.7M to 51.5M).

Source: TWDB 2022

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Looking Forward



Population Growth

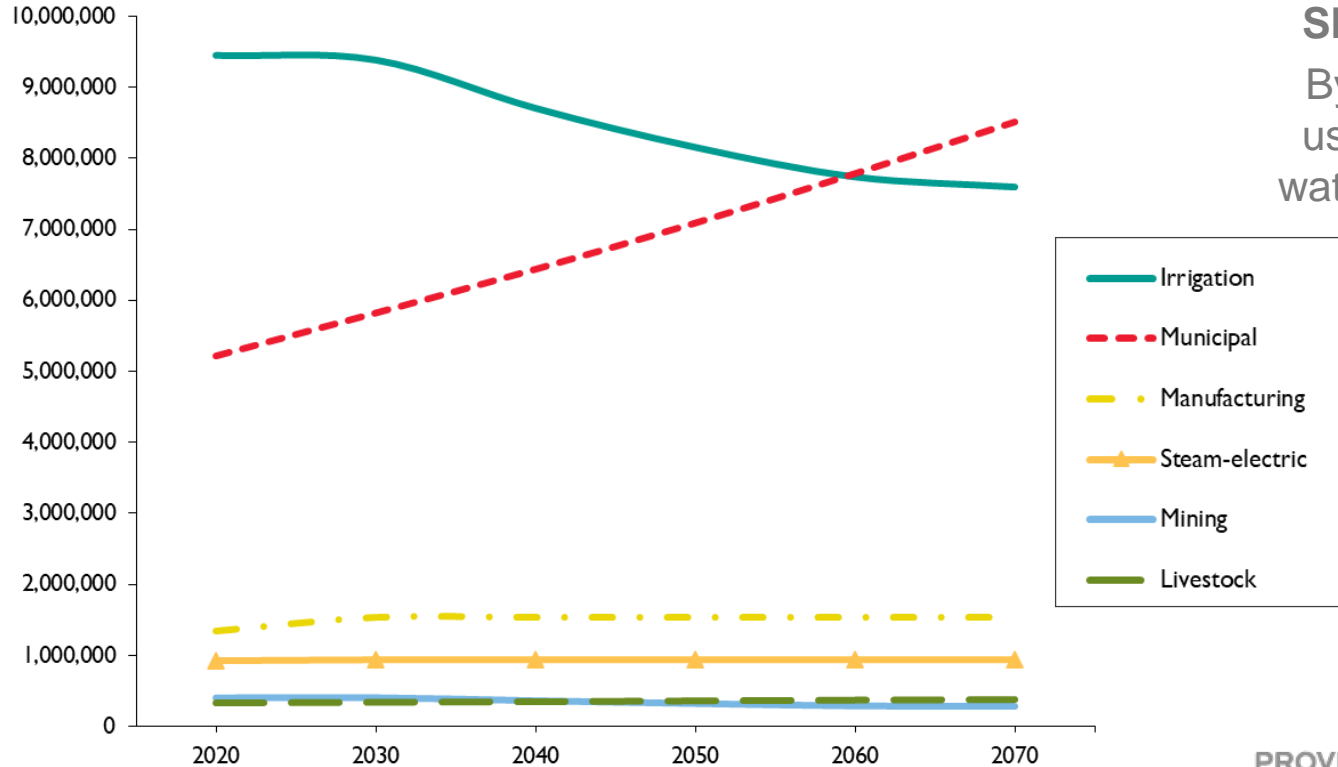
But if Texas' historical growth rate is assumed, the state's population will more than double by 2070 (>60M).

Source: US Census Bureau, 2021

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Looking Forward



Shift in Water Use
By 2060, municipal users will use more water than any other group.

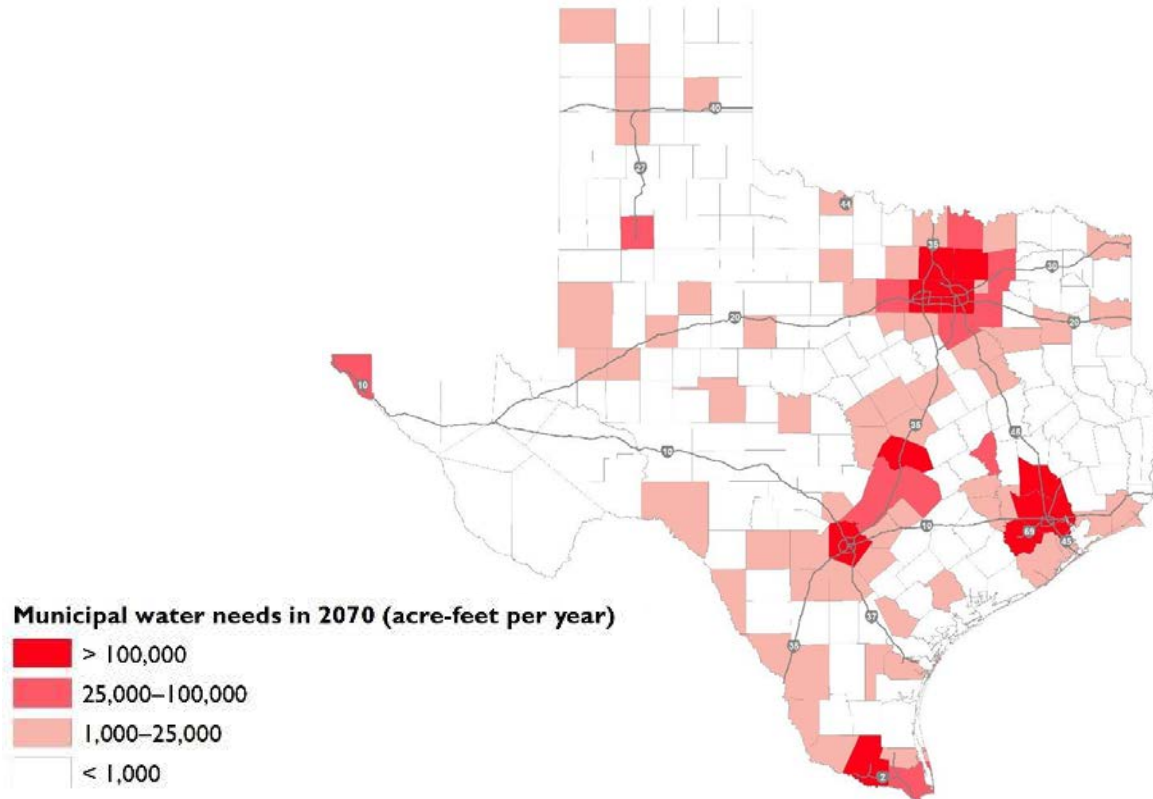
Source: TWDB 2022

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Looking Forward

Projected Municipal Water Needs by 2070

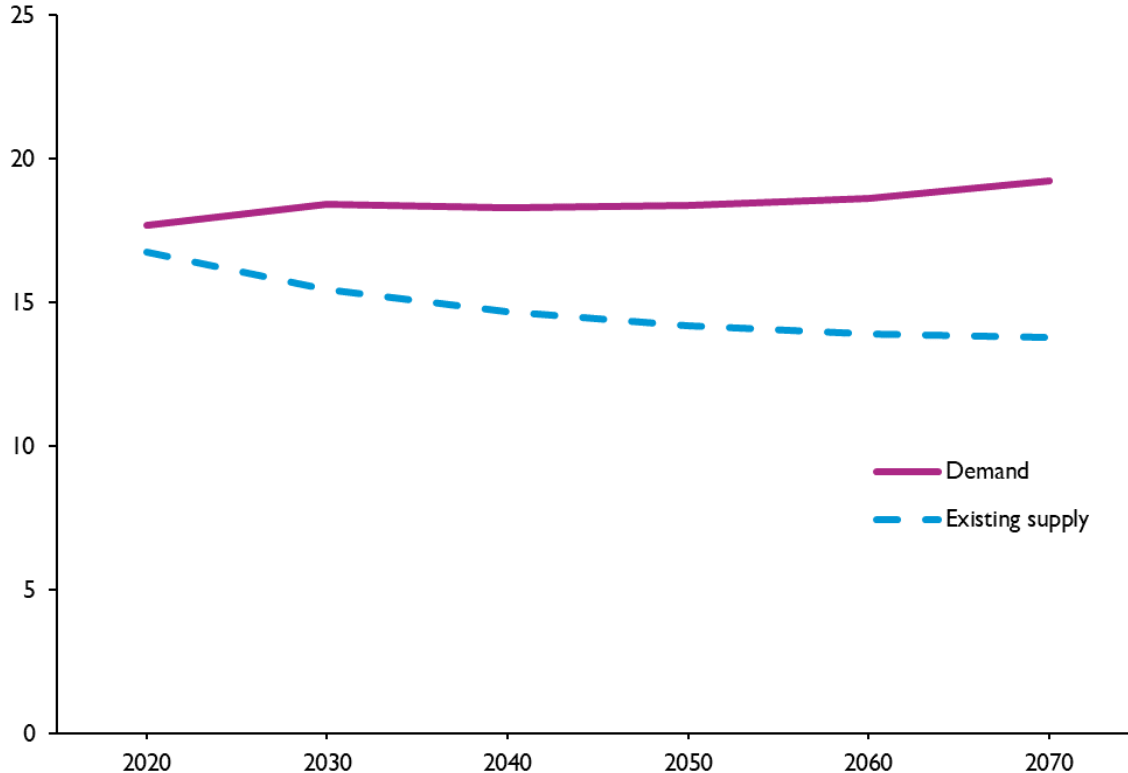


Source: TWDB 2022

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Looking Forward



Projected Supply and Demand

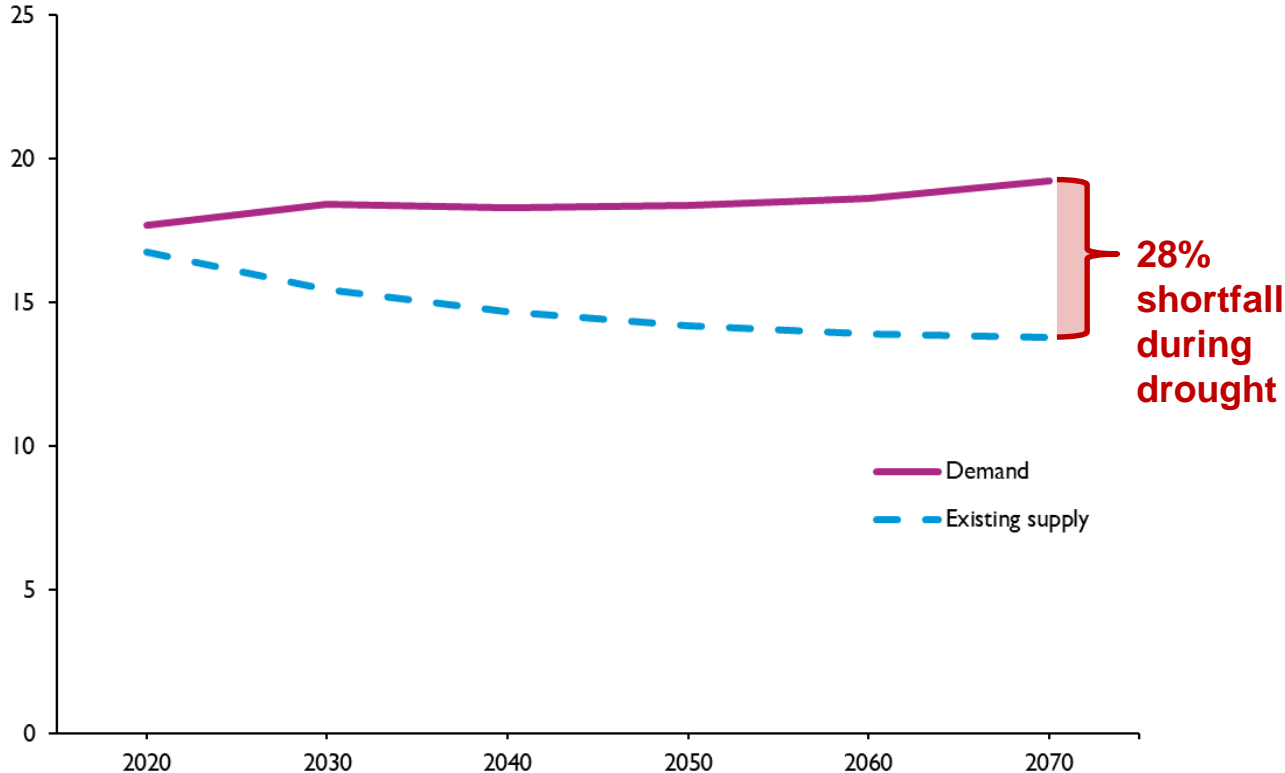
Texas does not have enough water supply to meet all demands in a drought.

Source: TWDB 2022

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Looking Forward



Projected Supply and Demand

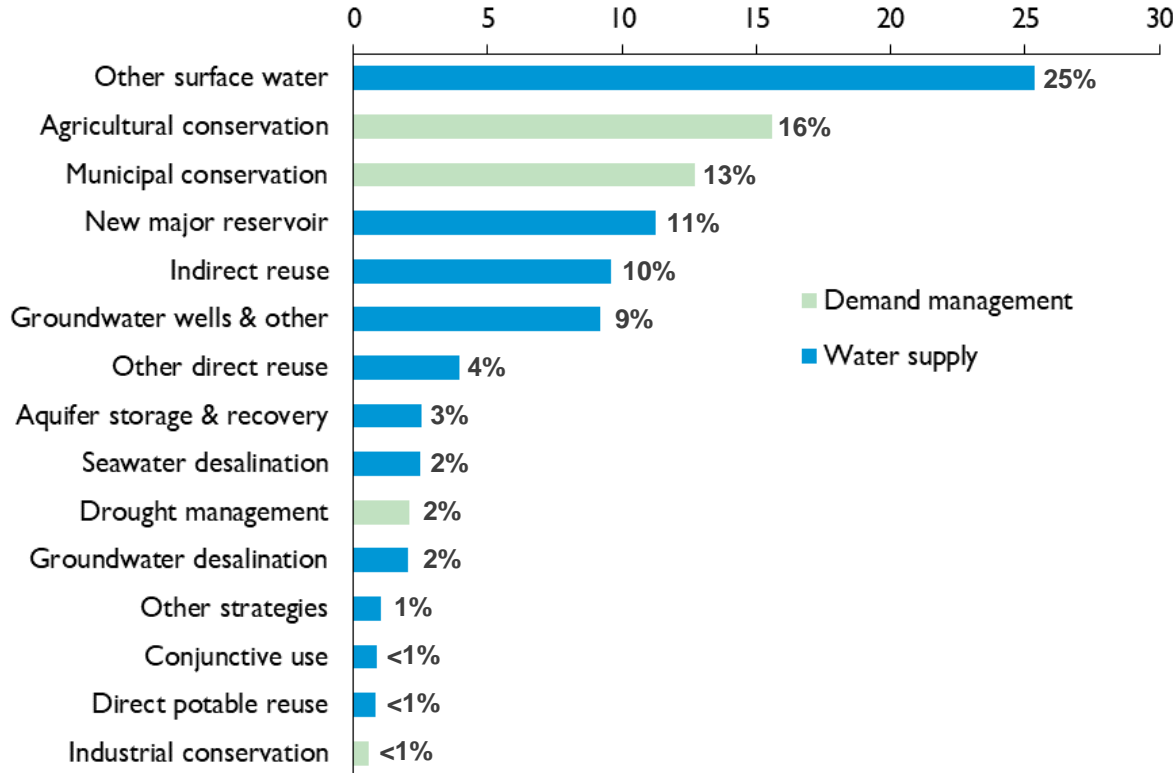
Texas does not have enough water supply to meet all demands in a drought.

Source: TWDB 2022

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Looking Forward



Recommended Water Supply Strategies by 2070

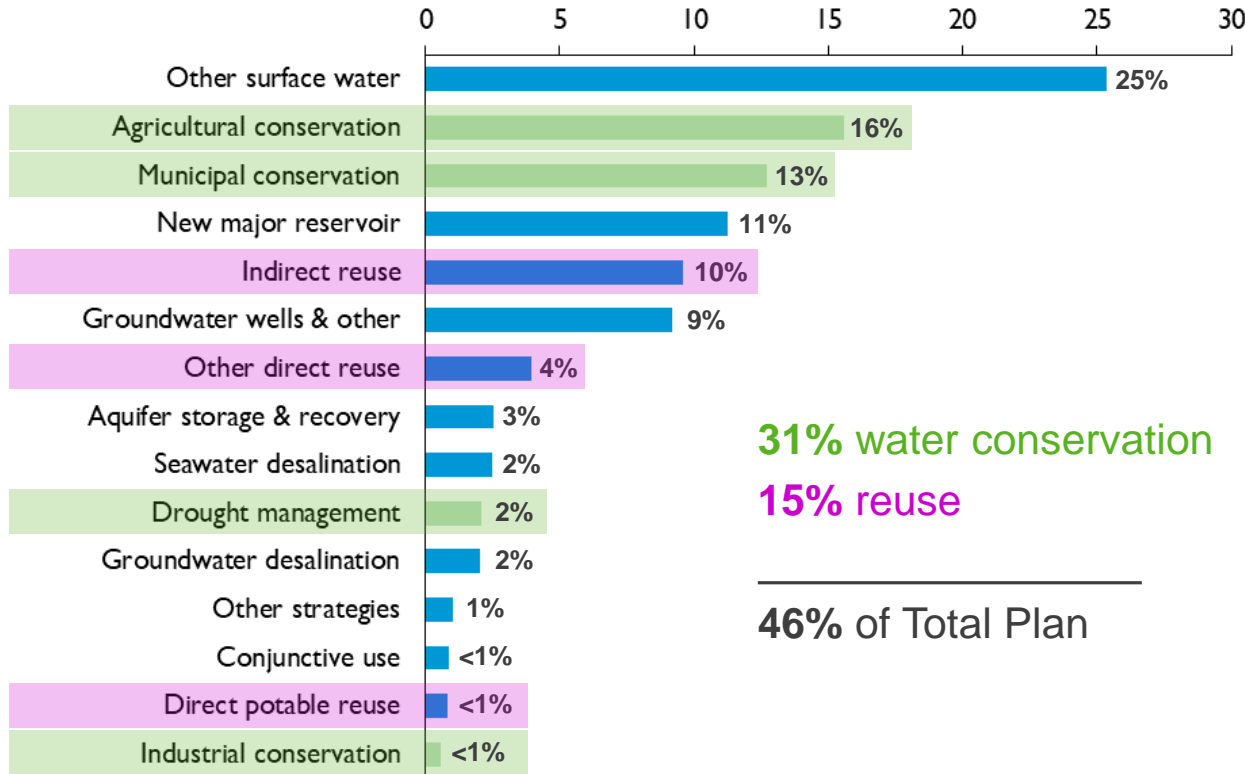
5,800 strategies are recommended to provide 7.7M AFY of supply at a total cost of \$80B.

Source: TWDB 2022

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Looking Forward



31% water conservation

15% reuse

46% of Total Plan

Recommended Water Supply Strategies by 2070

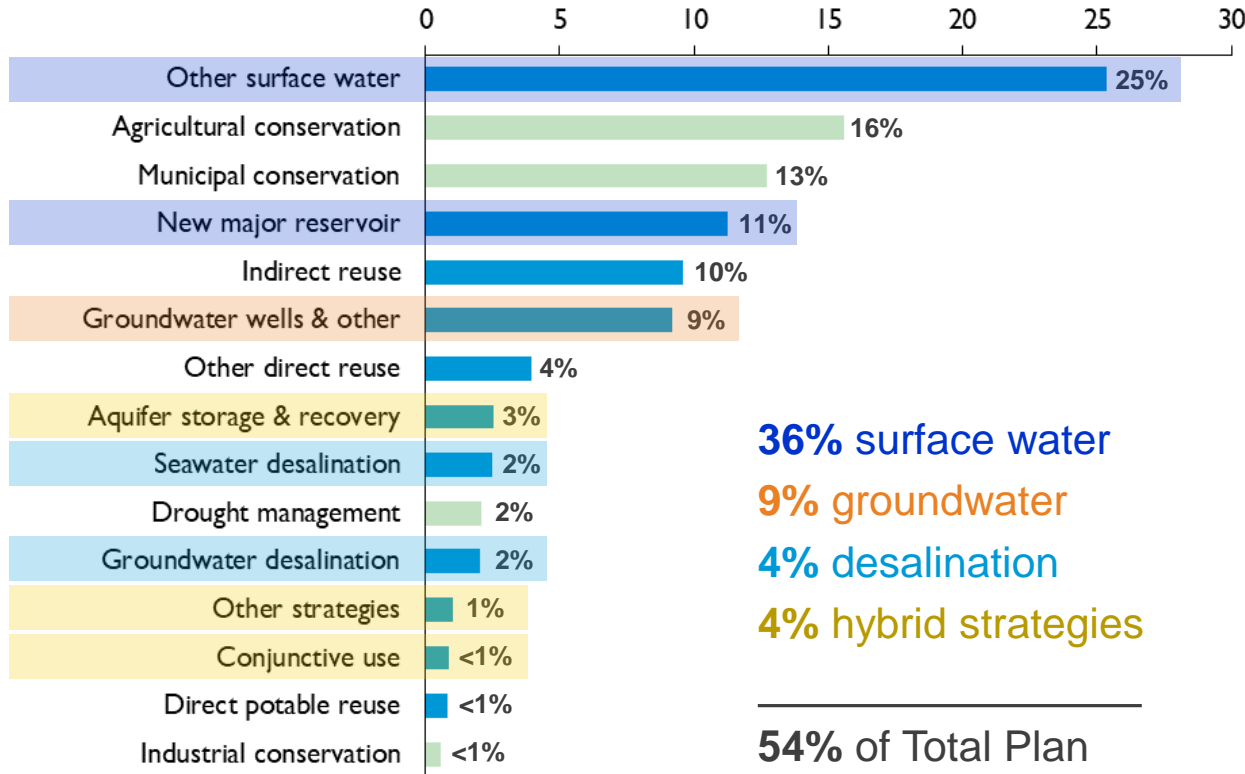
3.5M AFY of supply from making existing water supplies go farther.

Source: TWDB 2022

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Looking Forward



36% surface water

9% groundwater

4% desalination

4% hybrid strategies

54% of Total Plan

Recommended Water Supply Strategies by 2070

4.2M AFY of supply from developing new water supplies.

Plan continues to focus heavily on surface water.

Source: TWDB 2022

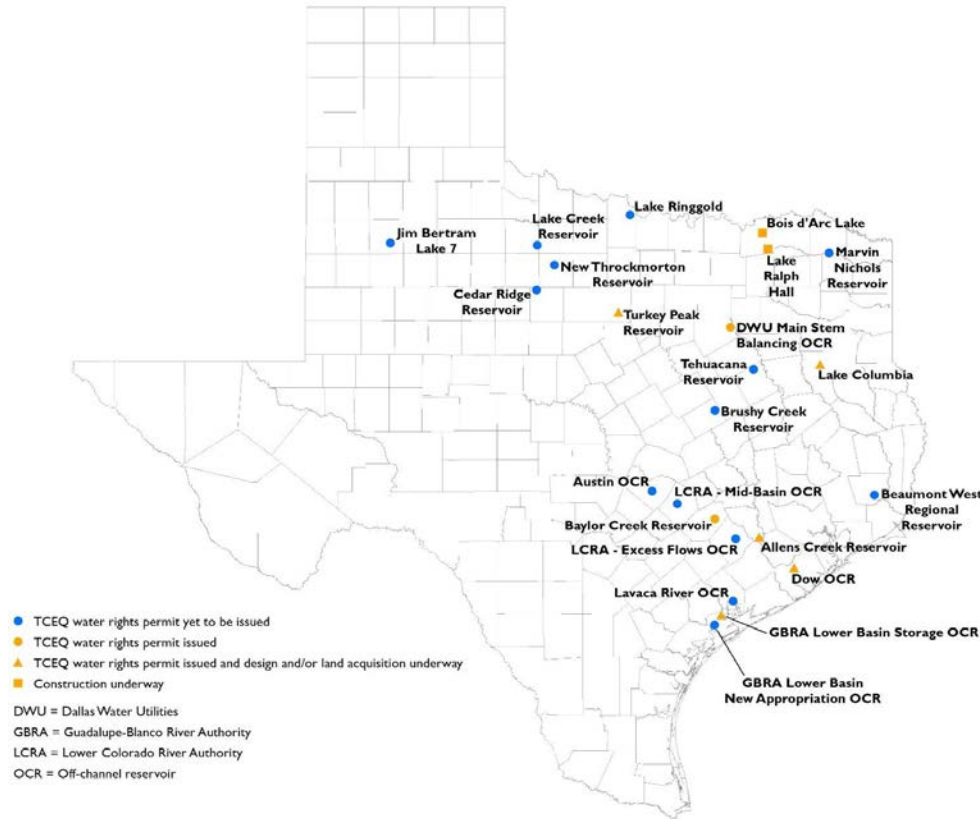
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Looking Forward

New Reservoirs

Texas plans to build
23 new major
reservoirs by 2070.



Source: TWDB 2022

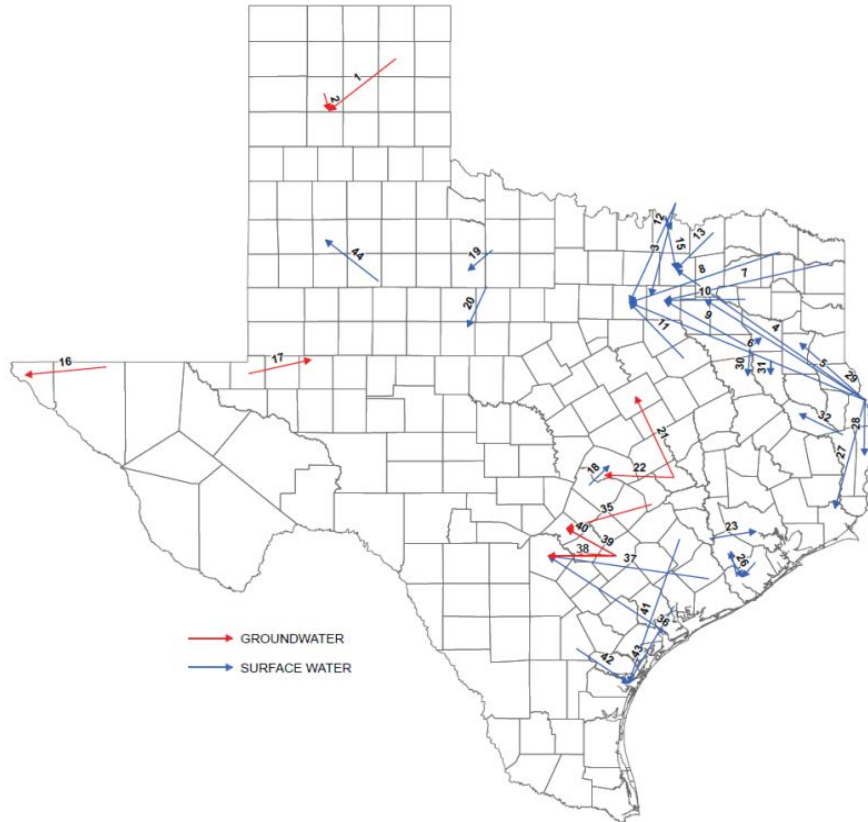
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Looking Forward

Pipelines

Texas plans to move surface water and groundwater from where it is to where it is needed.

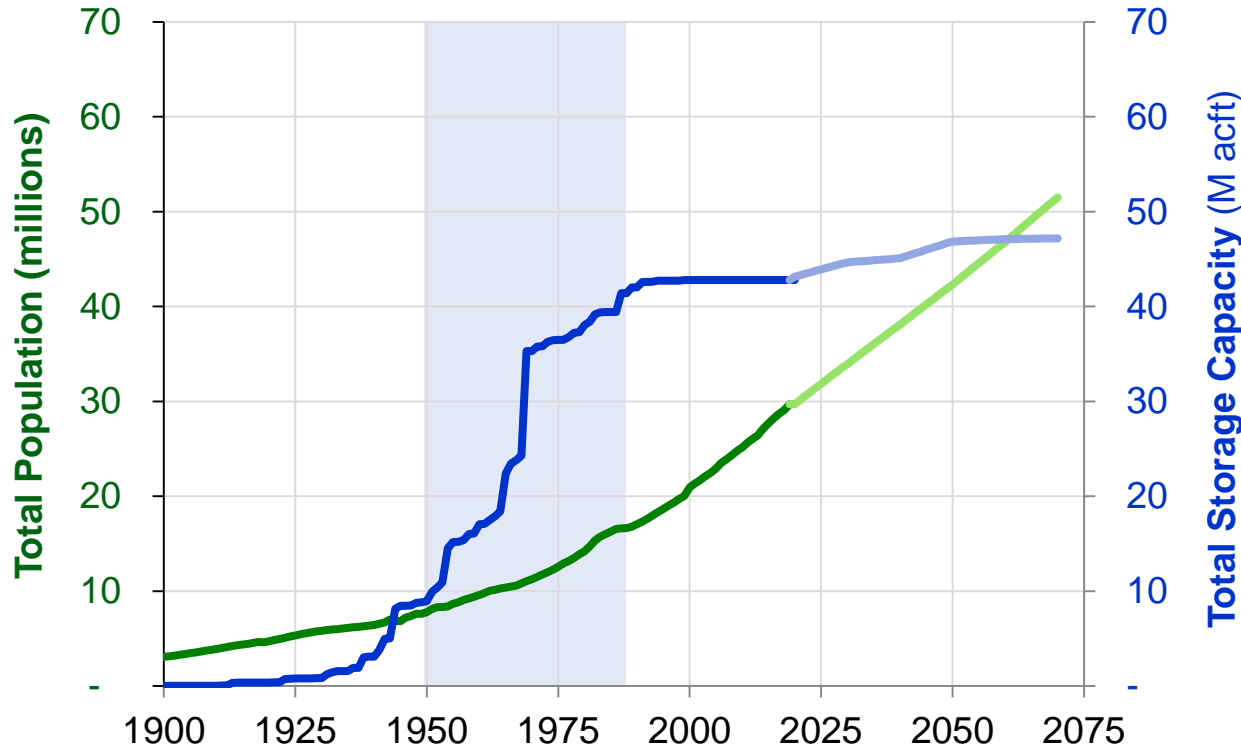


Source: TWDB

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Looking Forward



Future Texas Population and Reservoir Storage Capacity

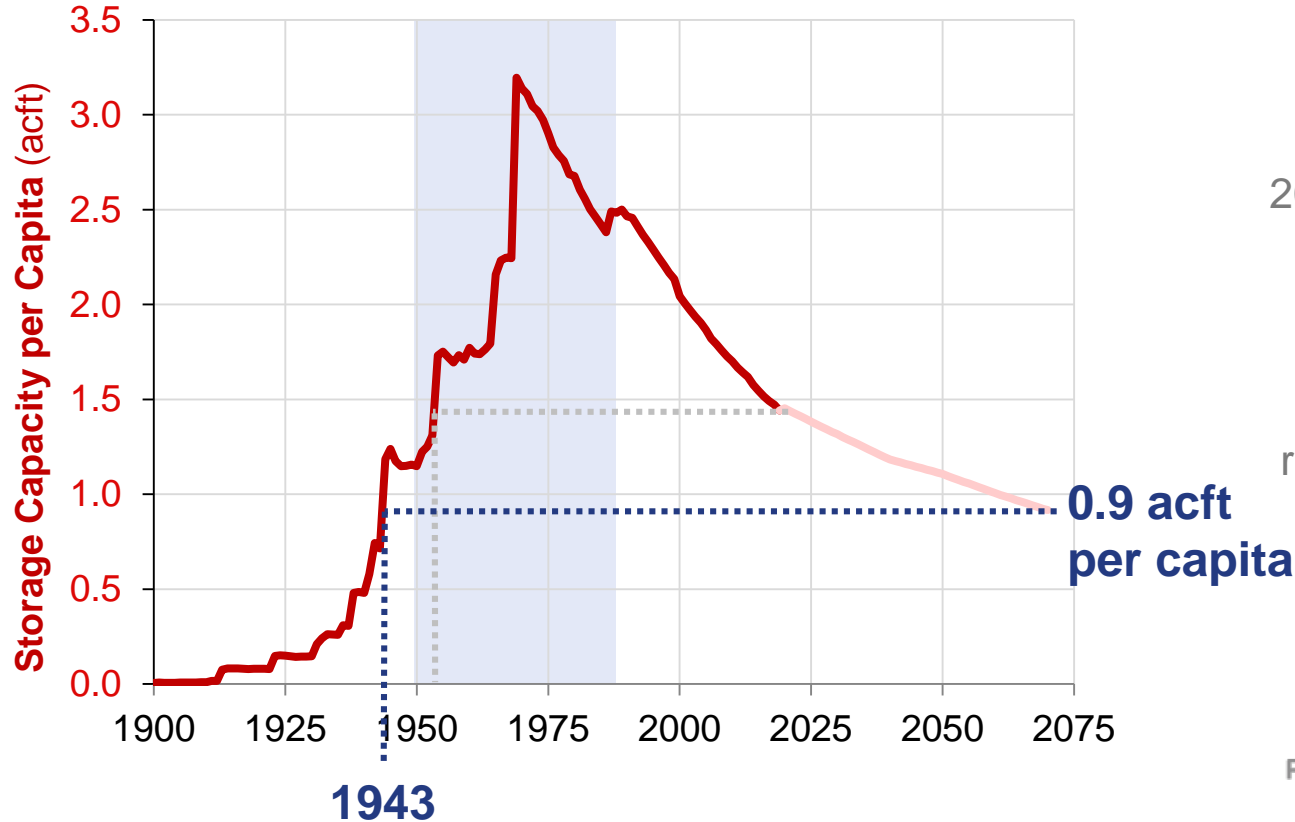
2022 State Water Plan best-case scenario: Texas adds 73% more people, but only about 10% new reservoir storage capacity.

Source: TWDB 2022 and US Census Bureau 2020

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Looking Forward

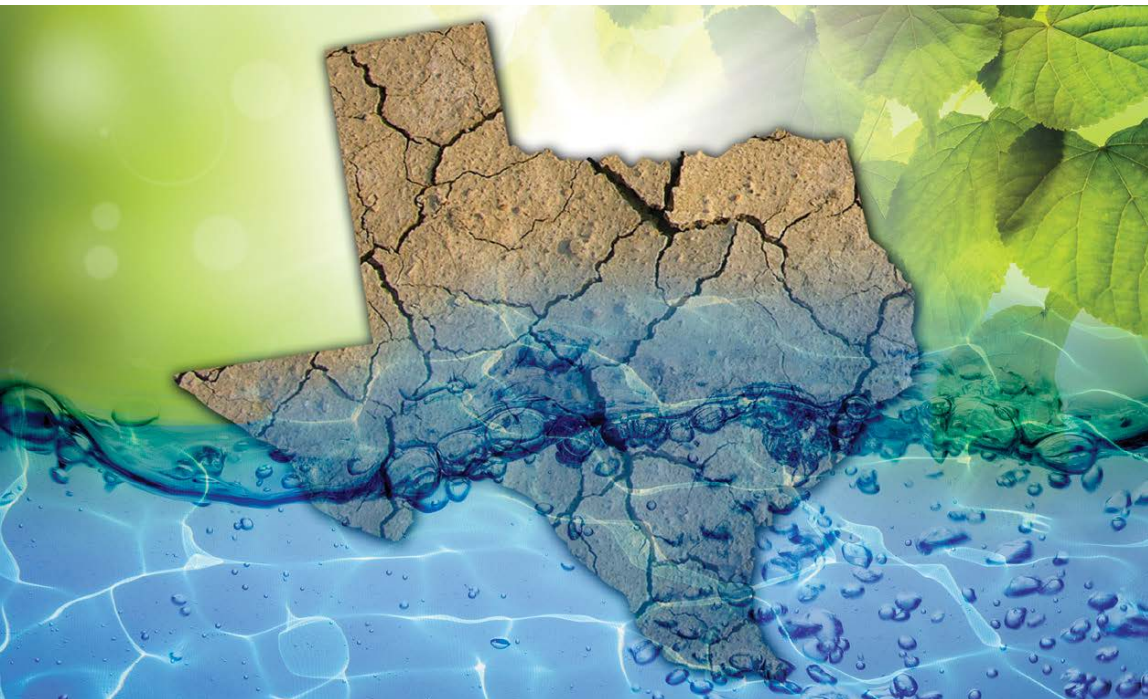


**Future Texas
Reservoir Storage
Capacity Per Capita**
2022 State Water Plan
best-case scenario:
Texas' relative
insulation from
drought events is
reduced by 1/3 to pre-
1950 conditions.

Source: TWDB 2022 and
US Census Bureau 2020

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The Challenge

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The Challenge

Municipal reliance on surface water is increasing

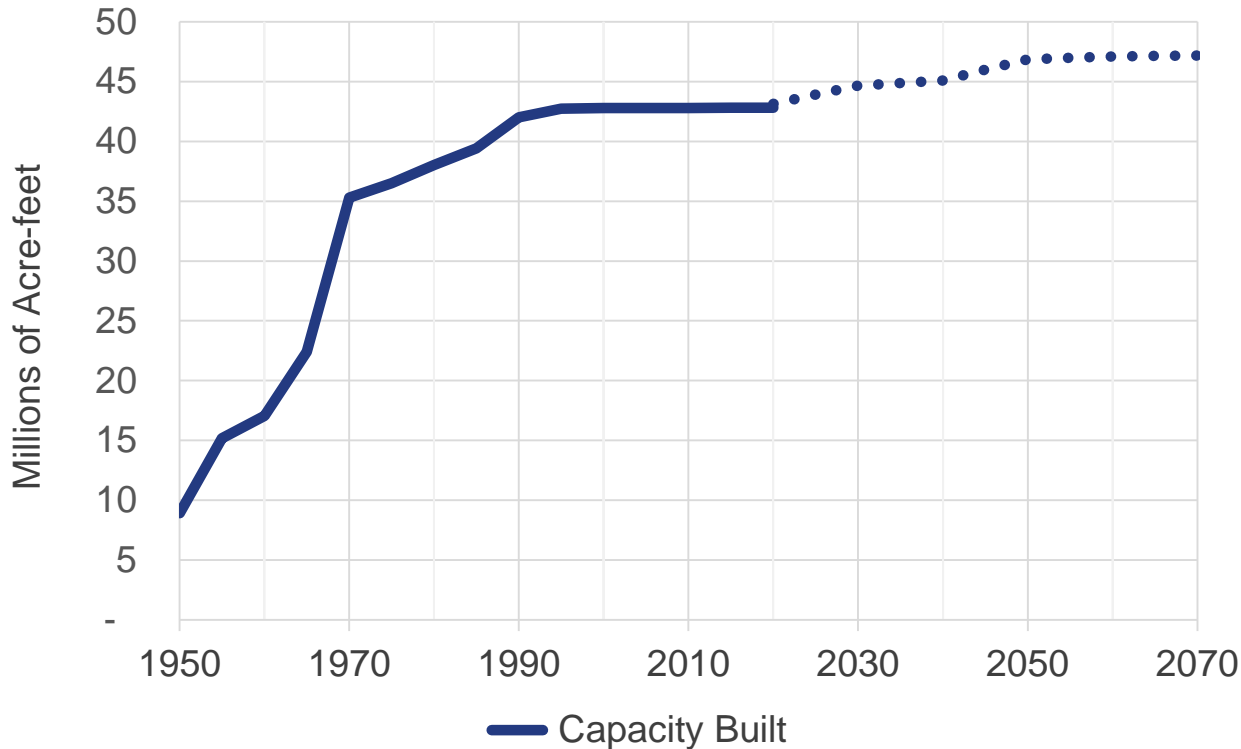
By 2060, Cities will replace Agriculture as Texas' largest water user group

The reliability of surface water supplies is decreasing (more new demand than new reservoirs)

Our dam infrastructure is getting old

The Challenge

Reservoir Conservation Storage Capacity in Texas



The Big Picture

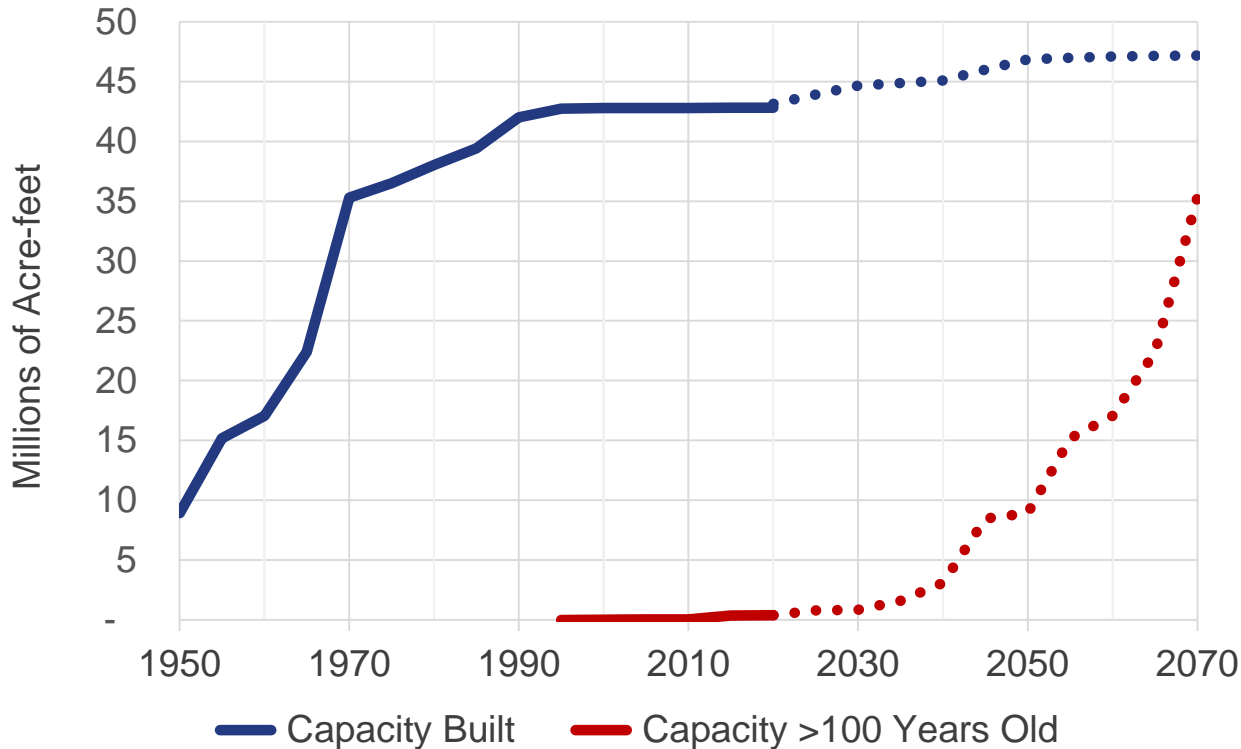
Source: TWDB

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The Challenge

Reservoir Conservation Storage Capacity in Texas



The Big Picture

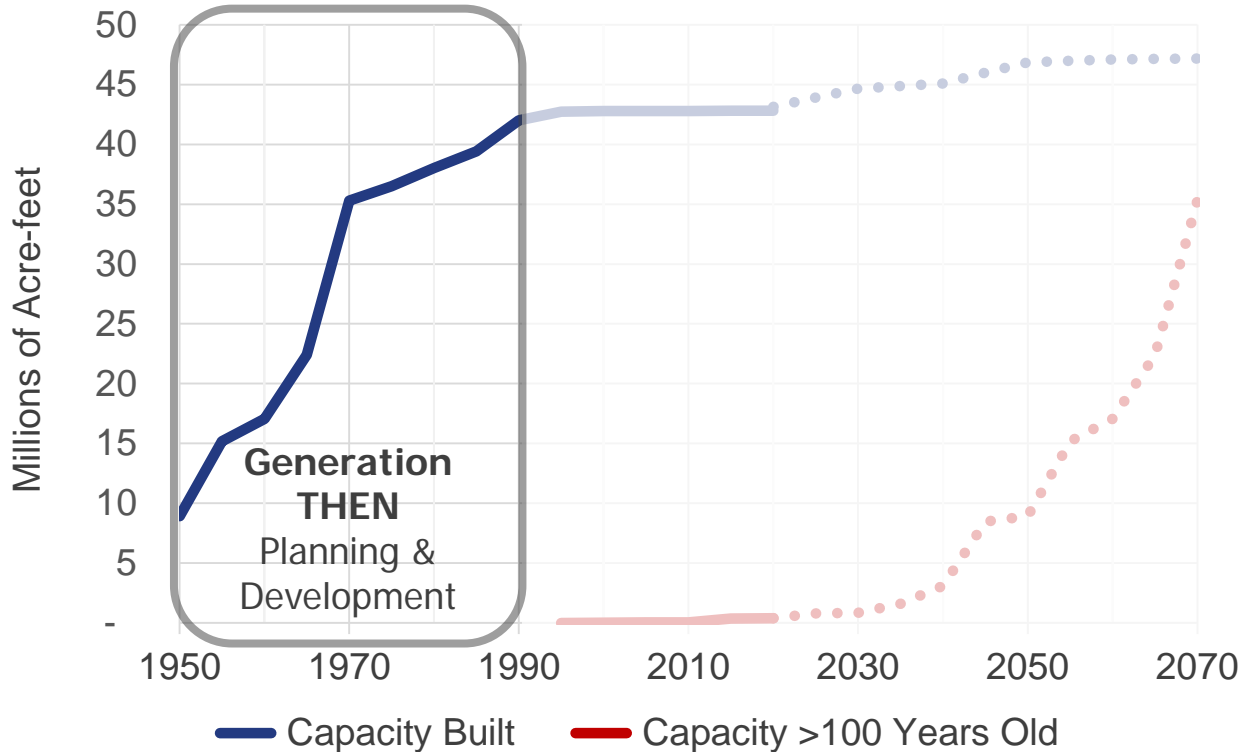
Source: TWDB

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The Challenge

Reservoir Conservation Storage Capacity in Texas



A Generational Perspective

1950-1990

Texas made an unprecedented investments to develop new surface water supplies by building dams.

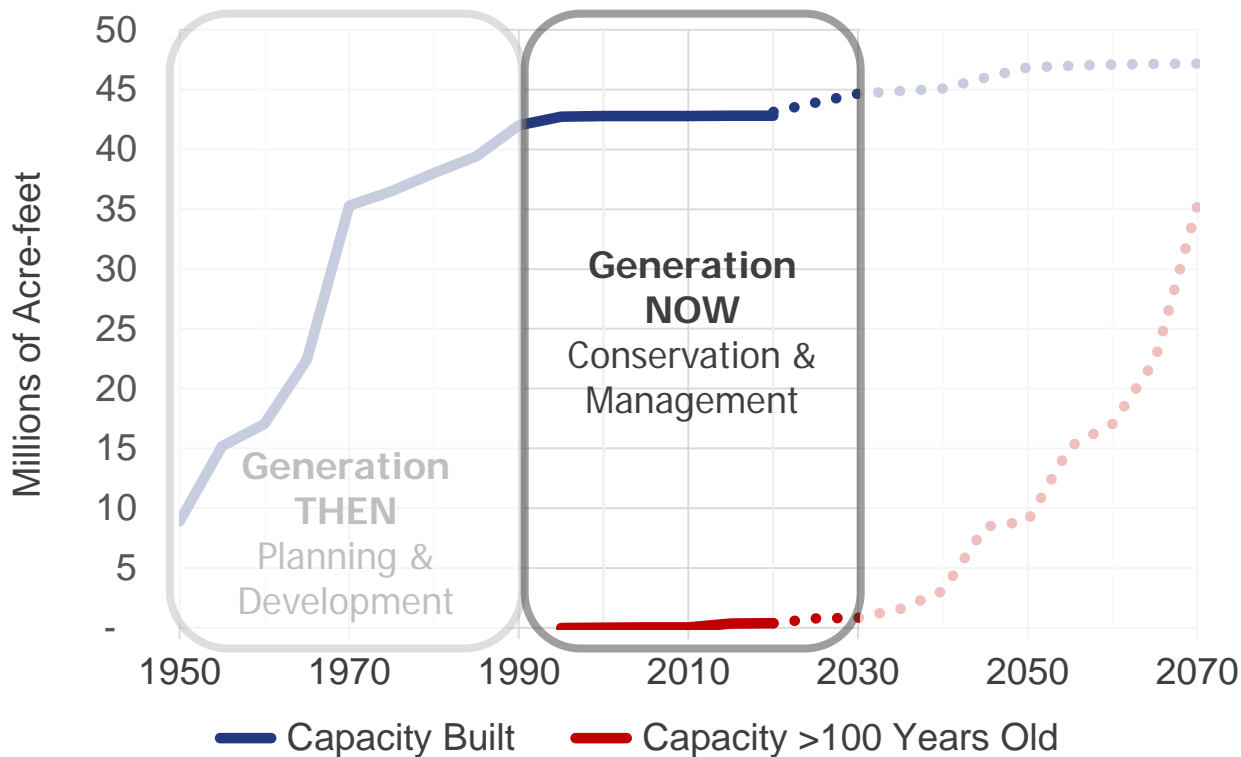
Source: TWDB

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The Challenge

Reservoir Conservation Storage Capacity in Texas



A Generational Perspective

1990-2030

Texas has primarily focused on conservation, reuse and demand management.

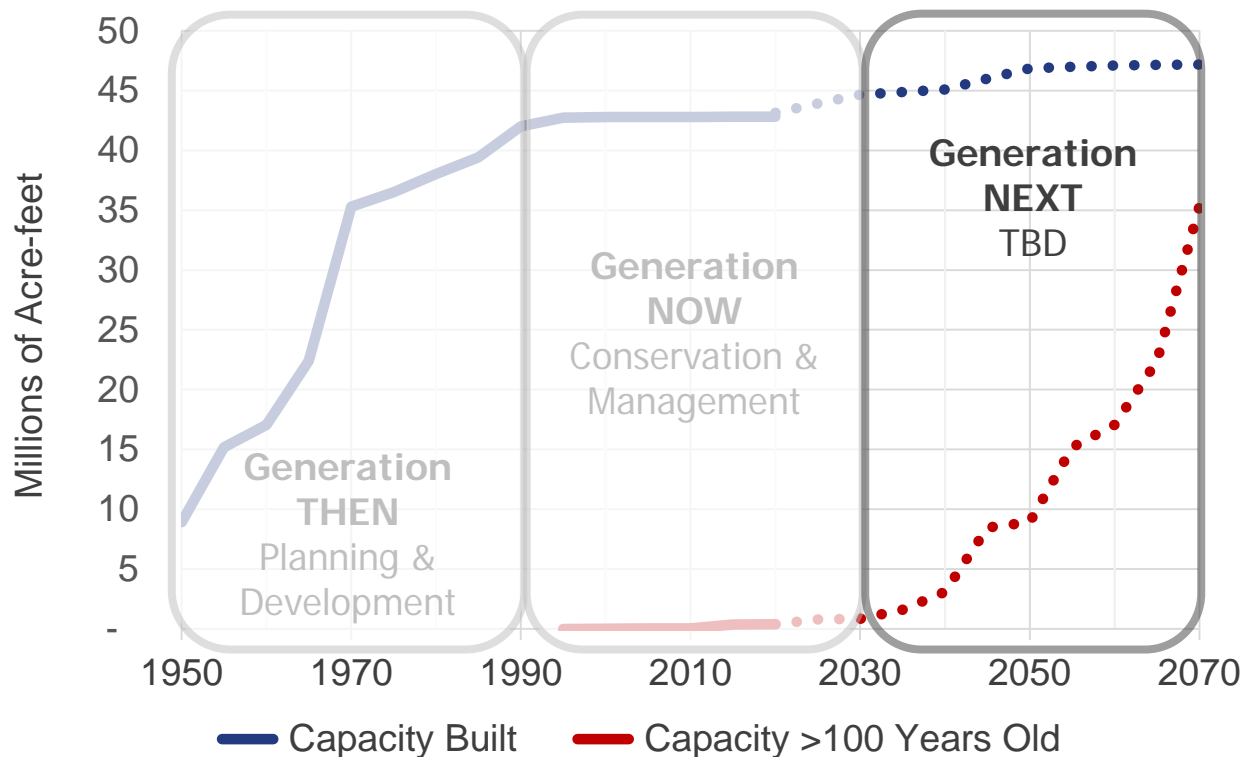
Source: TWDB

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The Challenge

Reservoir Conservation Storage Capacity in Texas



A Generational Perspective

2030-2070

By 2070, 82% of Texas' surface water supply will be impounded by dams that have exceeded their design life of 100 years.

Source: TWDB

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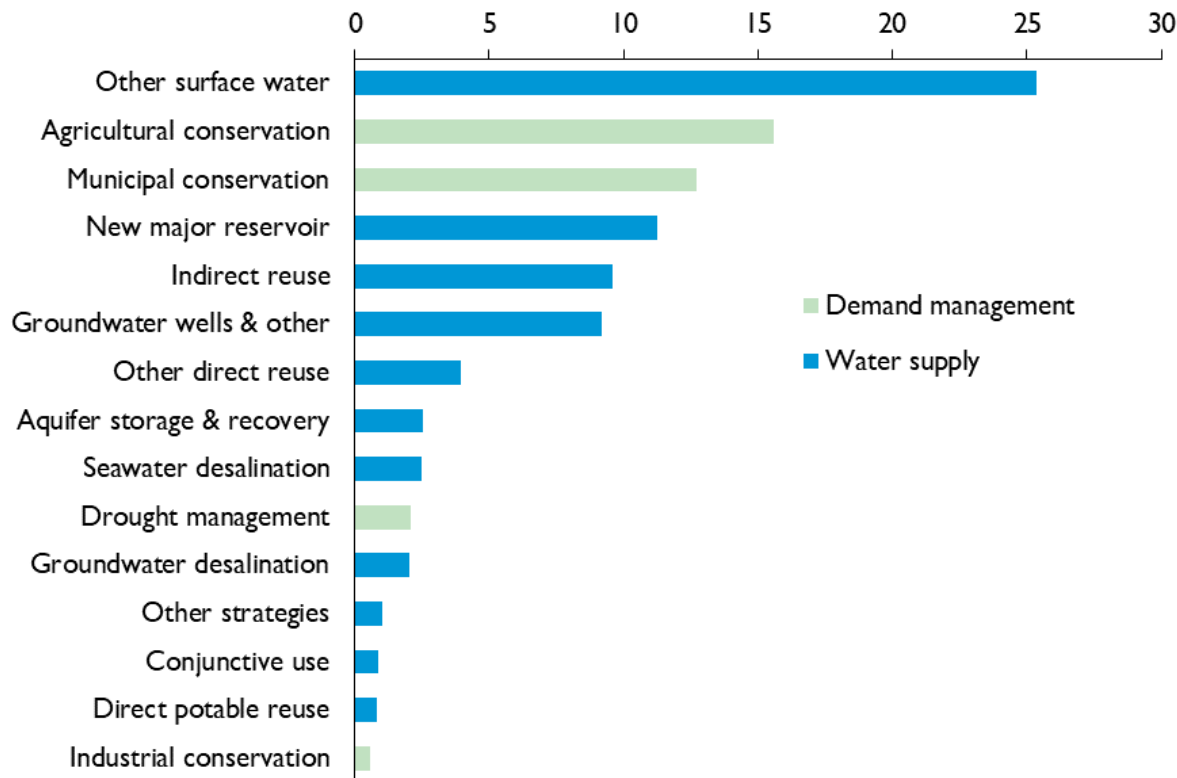
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Texas State Water Plan 2022

“If we do nothing,... approximately a quarter of all Texas’ municipal water users would have less than half of the water supplies that they require to live and work by 2070.”

Texas Water Development Board, 2022 (p. A-13)

Texas State Water Plan 2022



An Unprecedented Investment is Required (again)

Texas needs decades of implementation (not just planning) in order to provide sufficient water supply for its residents.

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