

A high-speed photograph of water splashing, creating a dynamic and energetic background. The water is captured in mid-air, with numerous droplets and bubbles visible, giving it a sense of movement and freshness. The color is a clear, bright blue.

The Widening Water Gaps of Texas:

Making the Case for Water Supply and Infrastructure Funding

Greater Edwards Aquifer Alliance

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Introduction

Texas is growing at a substantial rate. Predicted to be the most populous state in the nation by 2030, Texas has a reputation for being an economic powerhouse, providing opportunities for its roughly 30 million residents. But this economic boom, and the welfare of its residents, is threatened if the state's water infrastructure funding gap and water supply gap continue to widen.

Texas lawmakers have filed bills during the 89th Texas Legislative Session to attempt to respond to these gaps. Senator Charles Perry (R-Lubbock) has filed Senate Bill (SB) 7 and its associated resolution, Senate Joint Resolution (SJR) 66. Representative Cody Harris (R-Palestine) has filed House Bill (HB) 16 and its associated resolution, House Joint Resolution (HJR) 7. These legislative efforts are critical to ensuring Texas is able to respond to its growing water infrastructure funding and supply needs. If either of these bills are passed during this session, voters will have an opportunity to vote on the resolutions to provide critical water infrastructure and supply funding during the general election in November.

This report provides a brief overview of the water infrastructure funding and supply gaps, the impact of these gaps, opportunities to address water supply concerns, and recommendations for lawmakers and Texas residents to ensure our water needs are better met. Our goal is to highlight why passage of these bills and resolutions by lawmakers and the public is so critical to the future vitality of our state.

Background

Water is an essential component of all Texas communities and their ability to grow, but **Texas water faces a severe funding gap**. The Texas State Water Plan projects a need for at least \$80 billion in funding, but other estimates of funding needs are much higher.¹ Some estimates show that over the span of the next 50 years, Texas will **need approximately \$154 billion dollars' worth of funding** for addressing water supply shortages and for fixing both water and wastewater systems.²

With the projected estimated funding by 2070 from the State Water Implementation Fund for Texas and the Texas Water Fund (to date) clocking in at \$41.5 billion, there could be a **gap of at least \$110 billion dollars in need** for Texas' water infrastructure without the implementation of additional funding sources and amounts (see Figure 1).³

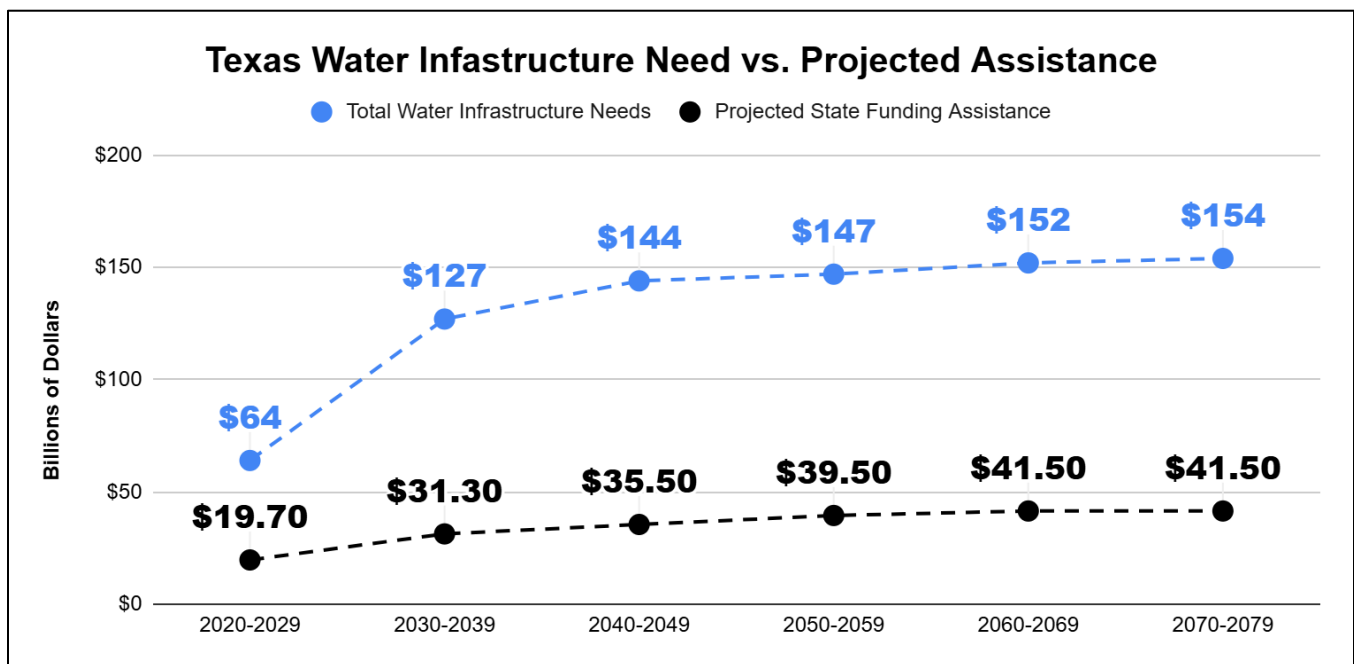


Figure 1. Graph showing projected gap in funding for Texas water needs without the passage of additional dedicated and recurring funding mechanisms.⁴

The state also currently **faces a water supply deficit**, with a greater than one million acre-feet negative difference between water demand and supply in 2020. The State Water Plan projects that this water supply deficit could reach 4.7 million acre-feet by the 2030s – which could supply nearly 11.75 million households – and **nearly 6.9 million acre-feet by the 2070s** – which could supply approximately 17.25 million households.⁵

¹ <https://comptroller.texas.gov/economy/in-depth/special-reports/water/96-1903.pdf>

² https://texas2036.org/wp-content/uploads/2024/10/TxWater-Infrastructure-Assessment_Texas-2036_2024.pdf

³ https://texas2036.org/wp-content/uploads/2024/10/TxWater-Infrastructure-Assessment_Texas-2036_2024.pdf

⁴ Data pulled from https://texas2036.org/wp-content/uploads/2024/10/TxWater-Infrastructure-Assessment_Texas-2036_2024.pdf

⁵ <https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp>

The 2022 State Water Plan shows Texas' current water supply at the precipice of a decline in all water supply resources, though declines in groundwater availability are leading this deficit (see Figure 2).⁶ Aquifers are directly responsible for 55 percent of Texas' water needs.⁷ Aquifers often continue to supply communities, industry, and agriculture even when, or especially when, surface water supplies dwindle under the strain of prolonged drought and increased population growth.

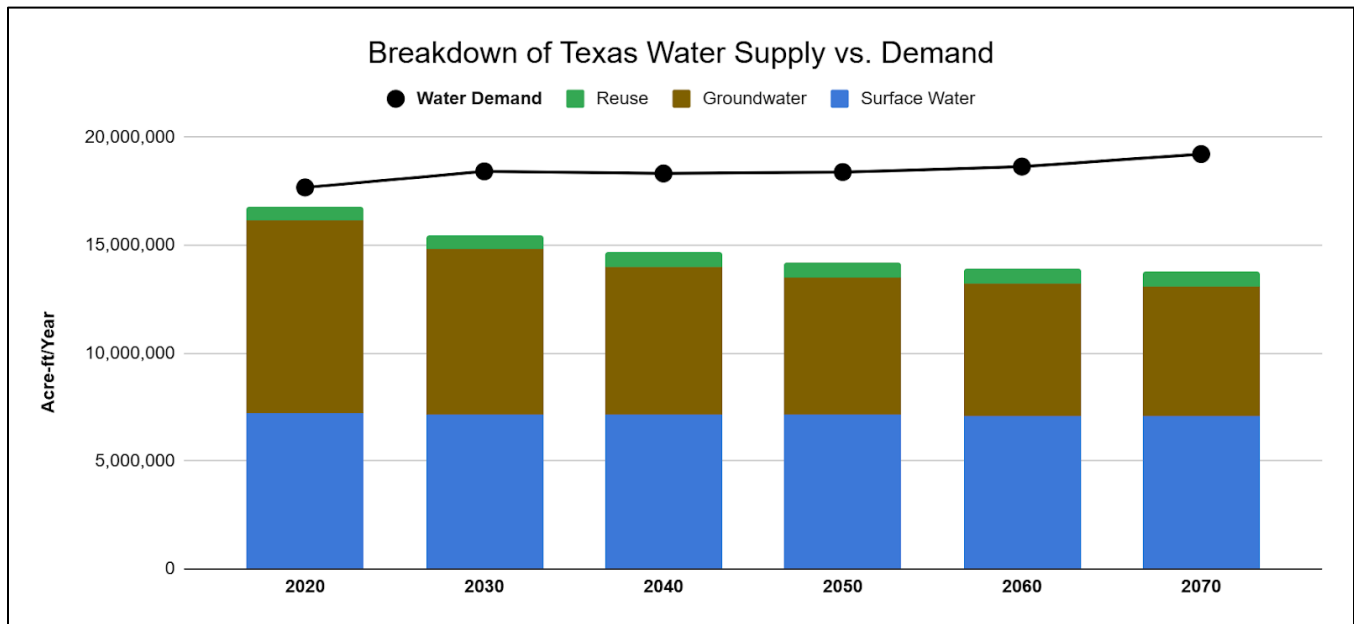


Figure 2. Graph showing the gap in supply and demand for water supplies between 2020 and 2070, with groundwater showing the largest decline.⁸

Impact

Not only will these gaps in funding and supply lead to obvious health and safety concerns, they will also severely hamper the “Texas Miracle,” creating **job loss and GDP loss at levels that surpass, on average, both the 2007-09 Recession and the Covid Pandemic recession** (see Figure 3).⁹

By not meeting demand, water shortages in the state will create a series of threats and obstacles to the health of our residents and to our economy. The State Water Plan predicts the economic losses of a severe drought could be at minimum \$153 billion by 2070, and other sources predict even higher losses.¹⁰ Water shortages mean economic loss in sectors requiring water supply, stunted economic growth overall, and the introduction of increased health risks in our communities.¹¹ This deficit means cities could be required to issue boil notices and respond to

⁶ <https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp>

⁷ <https://www.twdb.texas.gov/groundwater/aquifer/index.asp>

⁸ Data pulled from <https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp>

⁹ https://texas2036.org/wp-content/uploads/2024/10/TxWater-Infrastructure-Assessment_Texas-2036_2024.pdf

¹⁰ <https://comptroller.texas.gov/economy/in-depth/special-reports/water/96-1903.pdf>

¹¹ <https://comptroller.texas.gov/economy/fiscal-notes/archive/2023/sep/water.php>

costly public health threats that arise from water shortages or water quality impacts. A gap in supply also impacts essential industries, such as agriculture, oil and gas operations, healthcare, military operations, and major manufacturing.

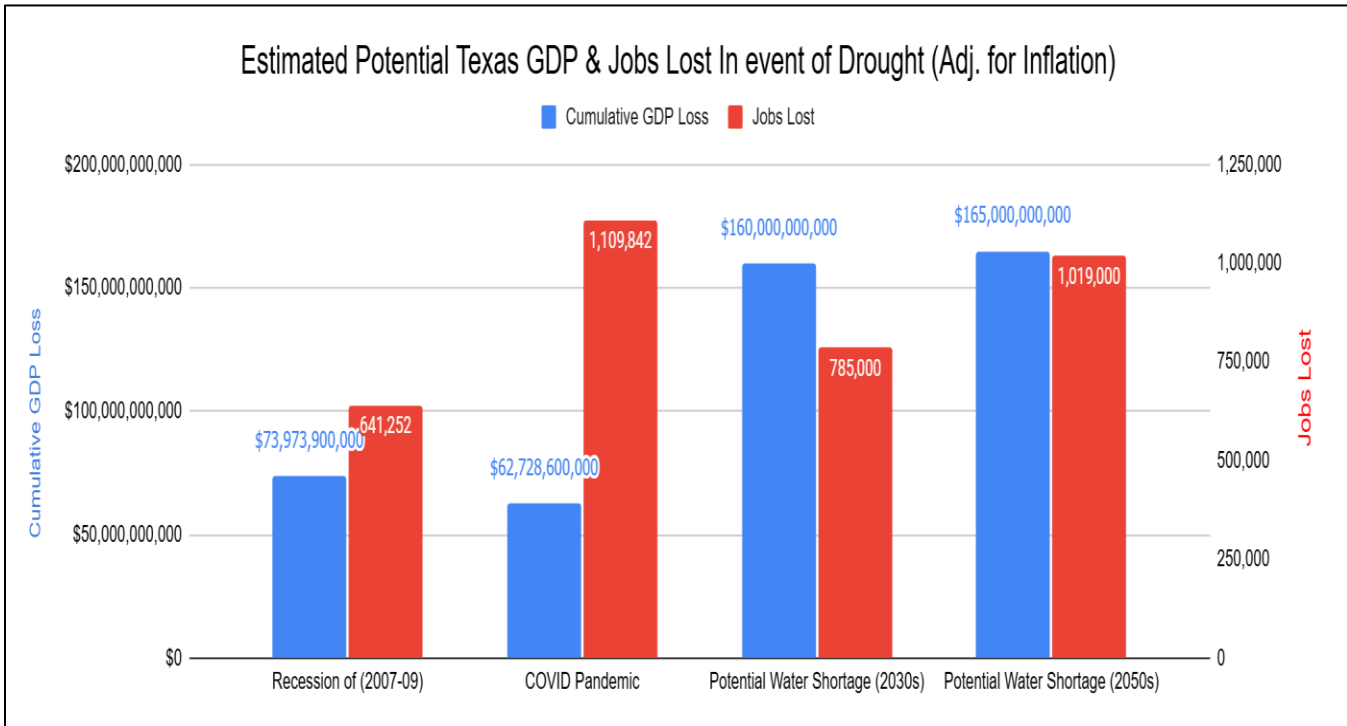


Figure 3. Graph showing the economic costs of potential water shortages in the near- and long-term compared to the Great Recession and COVID-19 Pandemic losses.¹²

Opportunities

The Greater Edwards Aquifer Alliance sees several opportunities to narrow the water supply gap in Texas – water loss mitigation and water recycling and conservation.

Water Loss Mitigation

By not properly funding Texas’ water infrastructure, the state is also overlooking water waste that affects nearly every household in Texas – aging infrastructure and leaky and broken pipes. This water loss is added on top of increasing demand, as the state’s population grows and droughts become more frequent and severe.

According to the State Comptroller, “In 2021, an estimated **130 billion gallons of water were lost** due to infrastructure issues. Of that total, 30 billion gallons of water loss can be attributed to broken pipes and water leaks – enough to provide a year’s supply of water to nearly 1.2 million average American households.”¹³ Texas is already seeing the economic and health

¹² Data pulled from https://texas2036.org/wp-content/uploads/2024/10/TxWater-Infrastructure-Assessment_Texas-2036_2024.pdf
¹³ <https://comptroller.texas.gov/economy/fiscal-notes/archive/2023/sep/water.php>

consequences of ignoring our failing water and wastewater systems. These costs will continue to increase if our failing systems are not addressed (see Figure 4).¹⁴

<u>Cumulative GDP Loss (2019-2039):</u>
\$317.9 Billion
<u>Annual Total Household Impact (2039):</u>
\$1.4 Billion
<u>Cumulative Health Care Costs (2019-2039):</u>
\$770 Million

Figure 4. Current and future costs to Texans due to aging and failing water and wastewater systems.¹⁵

Texas Living Waters estimates the state **loses on average around 572,000 acre-feet per year**, “more than enough water to meet the total current annual water demand of the cities of Fort Worth, Austin, El Paso, Laredo, and Lubbock combined.”¹⁶ If utilities achieve a “good performance level” for mitigating water loss, they could provide roughly double their municipal need. All of this could be achieved at a much lower cost per acre-foot of water than many other supply-side projects.¹⁷

Water Recycling and Conservation

Notably, recycled water makes up around 4 percent of the state’s supply and will need to make up around 15 percent of supply by 2070 to meet demands.¹⁸ There are two water use categories that could offset portions of their water use with recycled wastewater in order to decrease the water supply gap in the state – aggregate mining (quarries) and outdoor irrigation. Both of these categories can make use of non-potable recycled water, freeing up potable drinking supplies for other uses.

Aggregate mining is a vital and necessary industry that contributes to Texas’ economic well-being and by no means is the industry causing Texas’ water supply shortage. However, quarry water use has an outsize impact in Central Texas and represents an opportunity for decreasing

¹⁴ https://texas2036.org/wp-content/uploads/2024/10/TxWater-Infrastructure-Assessment_Texas-2036_2024.pdf

¹⁵ Data pulled from https://texas2036.org/wp-content/uploads/2024/10/TxWater-Infrastructure-Assessment_Texas-2036_2024.pdf

¹⁶ <https://texaslivingwaters.org/wp-content/uploads/Hidden-Reservoirs-Addressing-Water-Loss-in-Texas.pdf>

¹⁷ <https://texaslivingwaters.org/wp-content/uploads/Hidden-Reservoirs-Addressing-Water-Loss-in-Texas.pdf>

¹⁸ <https://www.twdb.texas.gov/waterplanning/swp/2022/index.asp>

demand.¹⁹ Quarries often use water pulled directly from underlying aquifers, though they do not require potable water to operate rock-crushing machines, aggregate washing machines, or for dust suppression.

Aggregate mining water use in Texas is projected to increase as the state's population and infrastructure needs increase. Over the next 60 years, the Texas Water Development Board projects aggregate mining water use is expected to increase by 70 percent.²⁰ Water use by this industry could **sustain thousands of Texan households if the industry switches to recycled water** rather than groundwater supplies (see Figure 5).²¹

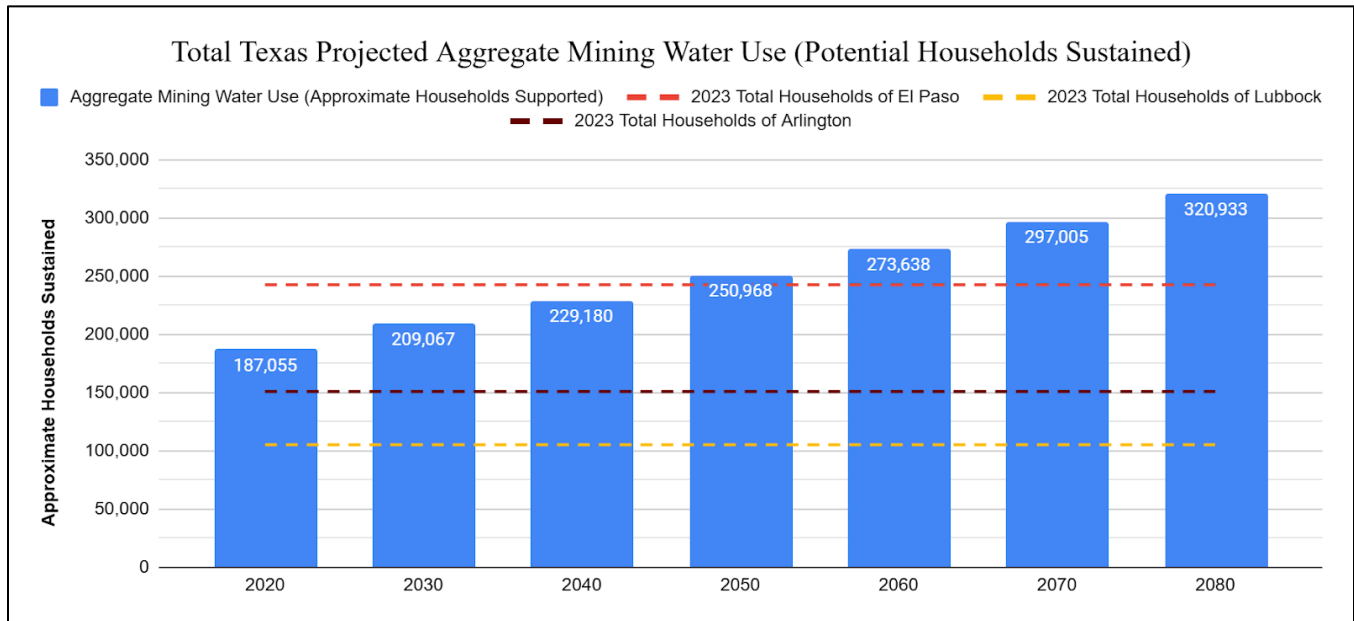


Figure 5. Graph showing how many households could potentially be supported with the same amount of water as is used by aggregate mining operations.²²

Outdoor water use is often estimated to make up between **30 and 50 percent of municipal water use**. Between 80 and 90 percent of this water use is dedicated to landscape irrigation.²³ This is another water use category that does not require potable water and could be offset through a combination of conservation and the use of recycled water.

¹⁹ <https://twj-ojs-tdl.tdl.org/twj/article/view/7170/6509>

²⁰ <https://www.twdb.texas.gov/waterplanning/data/projections/MiningStudy/doc/Final%20TWDB%20Mining%20Water%20Use%20Report.PDF>

²¹ <https://www.twdb.texas.gov/waterplanning/data/projections/MiningStudy/doc/Final%20TWDB%20Mining%20Water%20Use%20Appendix%20IV%20Jun%2015%202022.PDF>

²² Data pulled from <https://www.twdb.texas.gov/waterplanning/data/projections/MiningStudy/doc/Final%20TWDB%20Mining%20Water%20Use%20Appendix%20IV%20Jun%2015%202022.PDF>

²³ https://www.twdb.texas.gov/publications/reports/technical_notes/doc/SeasonalWaterUseReport-final.pdf#:~:text=Outdoor%20usage%20and%20lot%20size%2C%20another%20possible%20standard-of-living,more%20water%20than%20homes%20without%20installed%20irrigation%20systems.

The Texas Water Development Board has found that through the proper implementation of simple twice-per-week water restrictions in Texas cities, the state could save as much as 460,000 acre-feet of water per year. Through more robust educational efforts, these **savings could increase to as much as 760,000 acre-feet per year by 2070**, equivalent to roughly 1.52 million households that could be served with this saved water.²⁴

Outdoor watering restrictions in major Texas cities such as Dallas, Austin, Fort Worth, San Antonio, and Lubbock have already made significant strides in water conservation, though of course more can be done. For example, Dallas' irrigation ordinance, implemented in 2001, reduced per capita water use by 26% and saved over 22 billion gallons annually. That is an estimated 170,000 households that can be sustained through just those savings.²⁵

Reducing outdoor water use not only saves cities water, it also has a significant economic impact (see Figure 6).²⁶ Decreased water usage leads to lower monthly water bills for residents and lower treatment and energy costs for utilities, generating savings that benefit both households and local governments.

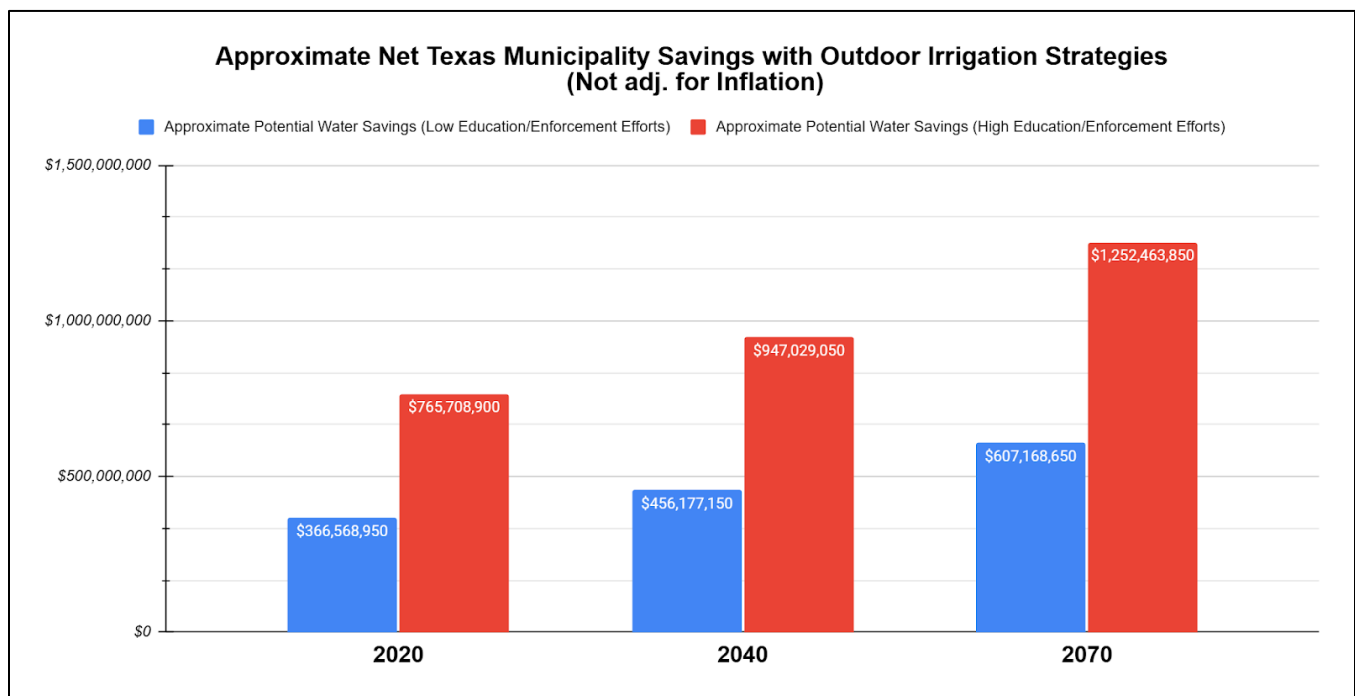


Figure 6. Graph showing approximate state-wide potential economic savings between 2020 and 2070 after implementation of education and enforcement strategies.²⁷

²⁴ https://texaslivingwaters.org/wp-content/uploads/2018/03/WCBTY-II_Final_031918.pdf?pdf=WCBTY-2018

²⁵ https://texaslivingwaters.org/wp-content/uploads/2018/03/WCBTY-II_Final_031918.pdf?pdf=WCBTY-2018

²⁶ <https://onlinelibrary.wiley.com/doi/full/10.1111/1752-1688.70001?msocid=3881b8a7bbda62aa365eab9fba2b634e>; https://texaslivingwaters.org/wp-content/uploads/2018/03/WCBTY-II_Final_031918.pdf?pdf=WCBTY-2018

²⁷ Data pulled from https://texaslivingwaters.org/wp-content/uploads/2018/03/WCBTY-II_Final_031918.pdf?pdf=WCBTY-2018 and cross referenced with data from <https://onlinelibrary.wiley.com/doi/full/10.1111/1752-1688.70001?msocid=3881b8a7bbda62aa365eab9fba2b634e>

Recommendations

It is clear that without further investment in Texas' water infrastructure and water supply sources, the state and its residents face very real economic and health impacts. SB 7 and HB 16 offer the opportunity to build a foundation for increased water funding in Texas to ensure these impacts are mitigated. We encourage lawmakers to pass a version of these bills.

As they stand at the time of publication, neither of these bills provides money for addressing water loss and only HB 16 provides an option for funding for water recycling. HB 16 only provides this option for potable water recycling and leaves out non-potable reuse sources. As demonstrated in this report, non-potable reuse can offset potable water supplies through its use in industries and water use sectors that do not require drinking water, such as mining or irrigation.

We highly encourage lawmakers to consider adding water loss mitigation and non-potable reuse as options that can receive funding under the new legislation.

Once these bills are passed – and we are optimistic they will be – voters will have the chance to vote in the November general election on the constitutional amendments, HJR 7 and SJR 66, that provide the funding mechanisms and lay out the funding amounts. We encourage Texans to vote for whichever version of these two proposed constitutional amendments ends up on the ballot, though we strongly prefer HJR 7, which provides more flexibility to meet Texas' water needs. All Texans will face the impacts of insufficient water funding and water supply shortages; **voting for increased funding in November is a critical step every Texan can take to improve our state's water future.**