

# Aquifer Storage and Recovery in Texas - Legislative Development and Status

AGI Managing Groundwater Storage Webinar  
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Presented by  
Van Kelley

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GEOSCIENCE & ENGINEERING SOLUTIONS

# Talk Outline

- **Introduction**
- **ASR Legislative History and Growth in ASR Use in Texas**
- **Current Status of ASR in Texas**
- **Future Opportunities for ASR in Texas**
- **Unresolved Issues Relevant to ASR Development in Texas**

# Who Owns Texas Source Water?

- **SURFACE WATER**

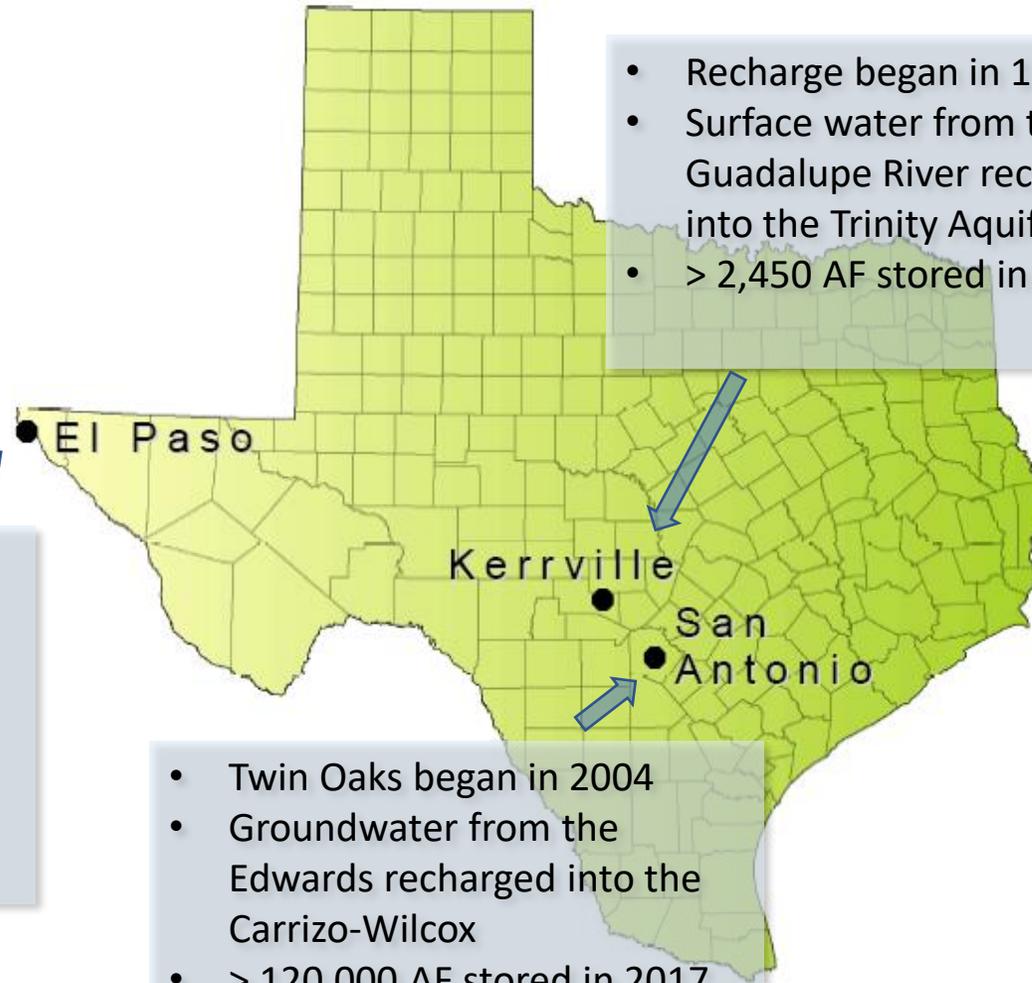
- Owned by the State
- Regulated by the Texas Commission on Environmental Quality (TCEQ) under the doctrine of **Prior Appropriation**

- **GROUNDWATER**

- Private Ownership – private property right
- Regulated by Groundwater Conservation Districts (GCDs) which can modify the underlying regulatory doctrine of the **Rule of Capture**

# Operating ASR Projects in Texas

- The Colorado River Municipal Water District operated an ASR project 1963 to 1970
- The City of Midland ran an ASR project for several years ending in 2002



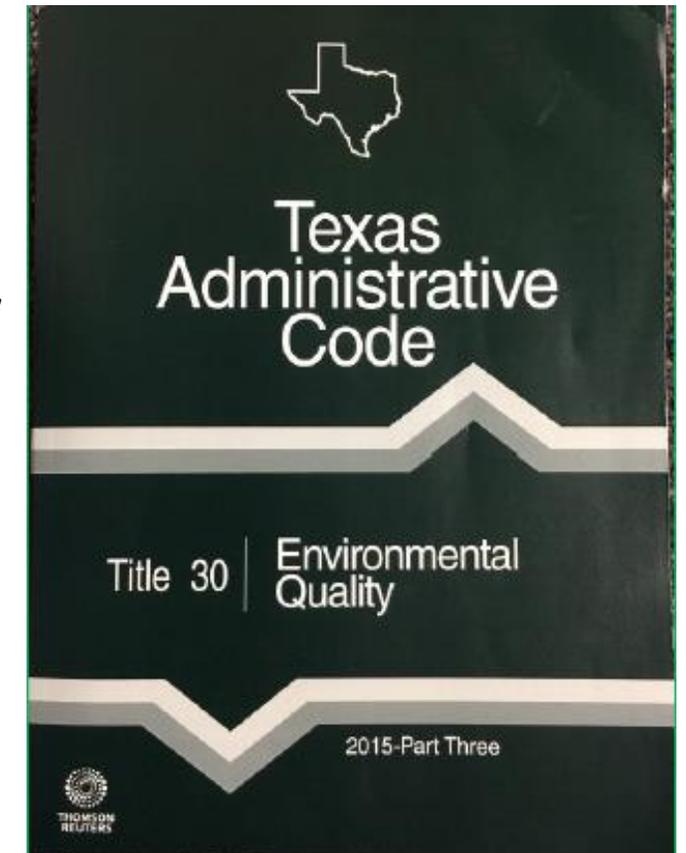
- Recharge began in 1993
- Surface water from the Guadalupe River recharged into the Trinity Aquifer
- > 2,450 AF stored in 2010

- Began in 1985
- Hybrid ASR and MAR
- Treated wastewater recharged into the Hueco Bolson Aquifer
- Spreading basins now the preferred recharge method

- Twin Oaks began in 2004
- Groundwater from the Edwards recharged into the Carrizo-Wilcox
- > 120,000 AF stored in 2017

# House Bill 1989 (Passed in 1995)

- This legislation was precipitated by a lawsuit associated with the Kerrville ASR Project and the lack formal statutory guidance to manage ASR
- Lawsuit was filed against the predecessor agency to the Texas Commission on Environmental Quality (TCEQ) challenging the permit because it illegally modified state surface water to privately owned groundwater
- HB-1989 was the first Texas legislation addressing ASR regulation from permitting through implementation



# Texas State Water Plan

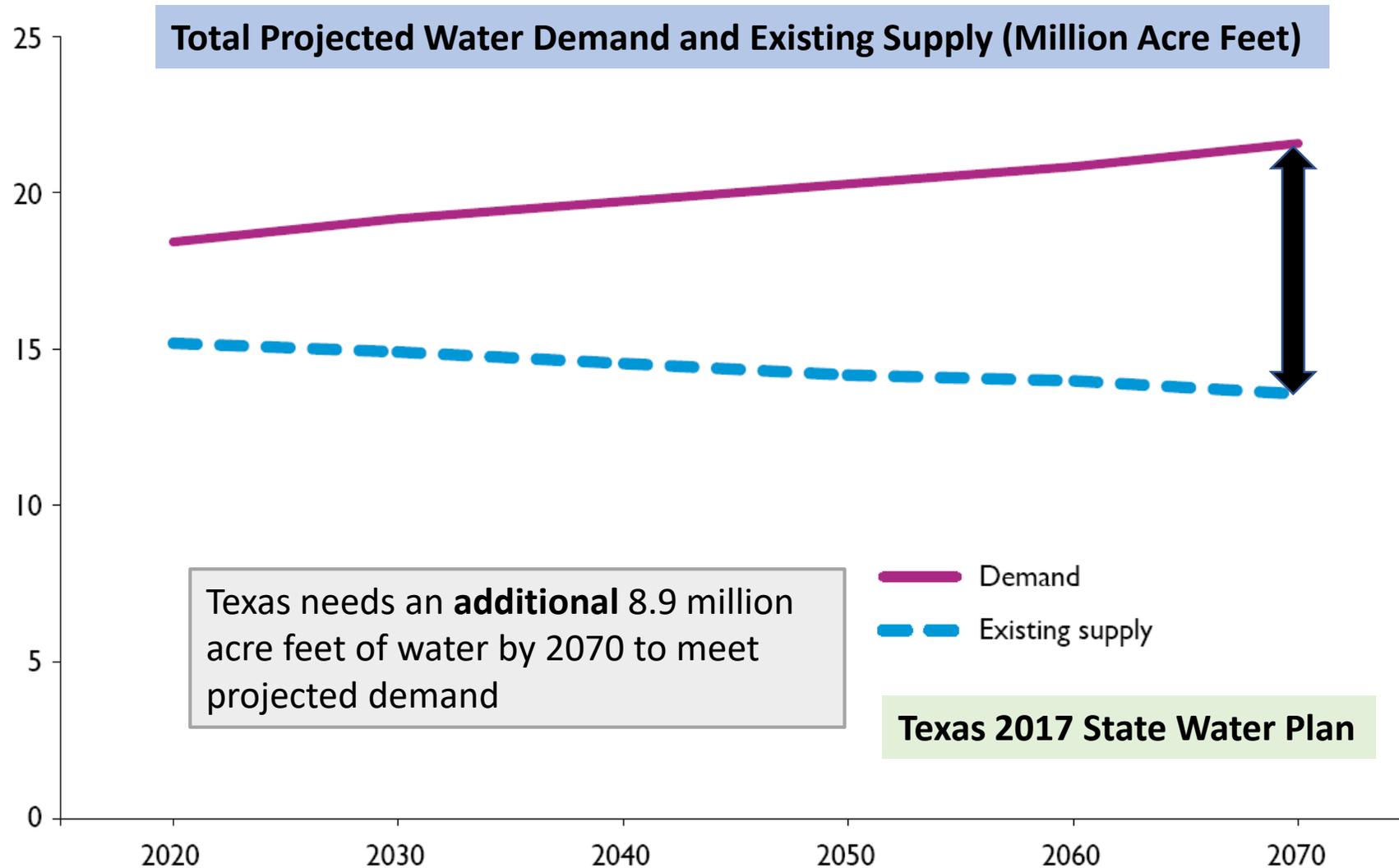
- Plans consider future demand, resource availability, deficits and water supply strategies to meet deficits
- The 16 Regional Water Plans, once approved by the TWDB, form the basis for the State Water Plan
- **TWDB financing of water supply projects only in the State Water Plan**



Texas 2017 State Water Plan

<https://www.twdb.texas.gov/waterplanning/swp/2017/index.asp>

# Texas Need for Additional Supply and Storage



# Growth in ASR in Texas - 1995 to 2015

- Even though the demand for additional storage grows with every planning cycle and State Water Plan – the growth of ASR as a storage strategy has been slow
- In the 2012 State Water Plan:
  - ASR was recommended as a water management strategy in 3 of 16 regions
- **Why was adoption of ASR as a water supply strategy not significant following HB-1989?**

# Texas Water Development Research on ASR in Texas

- In late 2008 the Texas Water Development Board funded a study on ASR in Texas
- The objectives of the study:
  - Determine why ASR has been successful in Texas where it has been applied;
  - Determine why ASR has not been implemented to a greater extent
  - Determine what unique aspects make ASR used in other states and;
  - Identify policy, technical, and legal changes to facilitate ASR use in Texas

## An Assessment of Aquifer Storage and Recovery in Texas



### Report

by  
 Malcolm Pirnie, Inc  
 ASR Systems, LLC  
 Jackson, Sjoberg, McCarthy & Wilson, LLP

In Cooperation with  
 El Paso Water Utilities Board  
 City of Kerrville, Texas  
 San Antonio Water System

## TWDB 2011 Report and 2016 Matching Grants

Project	Start Date	End Date	Total Cost	Keywords
<a href="#">Corpus Christi Aquifer Storage and Recovery Feasibility</a>	January 2016	August 2019	\$1,857,708	Gulf Coast Aquifer
<a href="#">New Braunfels Aquifer Storage and Recovery Demonstration Project</a>	January 2016	October 2017	\$563,000	Edwards Aquifer
<a href="#">Victoria Aquifer Storage and Recovery Demonstration Project</a>	January 2016	February 2019	\$570,225	Gulf Coast Aquifer

- **TWCA's mission is to be a trusted resource promoting sound water policy for Texas. We advocate priority water policies to state and federal decision makers through consensus in the water community**
- **Members represent diverse interests including: river authorities; municipalities, flood, subsidence, irrigation, utility and groundwater conservation districts; and all types of water users**
- **Purpose is to serve as a leader and advocate for water users:**
  - **Advisory capacity to inform Congress, the Texas Legislature and governmental agencies;**
  - **Stimulate public awareness of water issues and activities;**
  - **Provide opportunity for professional growth and recognition in water resources; and**
  - **Offer affordable insurance coverage for members**

TWCA has seven panels, one of which is the **Groundwater Panel**, that advise the Board and support legislative activities

# House Bill 655 (Passed in 2015)

- This legislation was drafted through the **TWCA Groundwater Users Panel (ASR Subcommittee)** and was in response to the several issues identified by potential ASR users and TWDB ASR Recommendations
- **Priority Issues addressed by HB 655:**
  - Establishes TCEQ as the sole regulatory authority
  - TCEQ water quality rules shall not be more restrictive than the Safe Drinking Water Act (US EPA)
  - Clarified that no additional surface water right amendment is required to store appropriated surface water prior to beneficial use so long as the is used in accordance with the terms of the surface water right
  - Directs TCEQ to permit ASR through general, individual and permit-by-rule
  - Establishes criteria to be considered during permit review

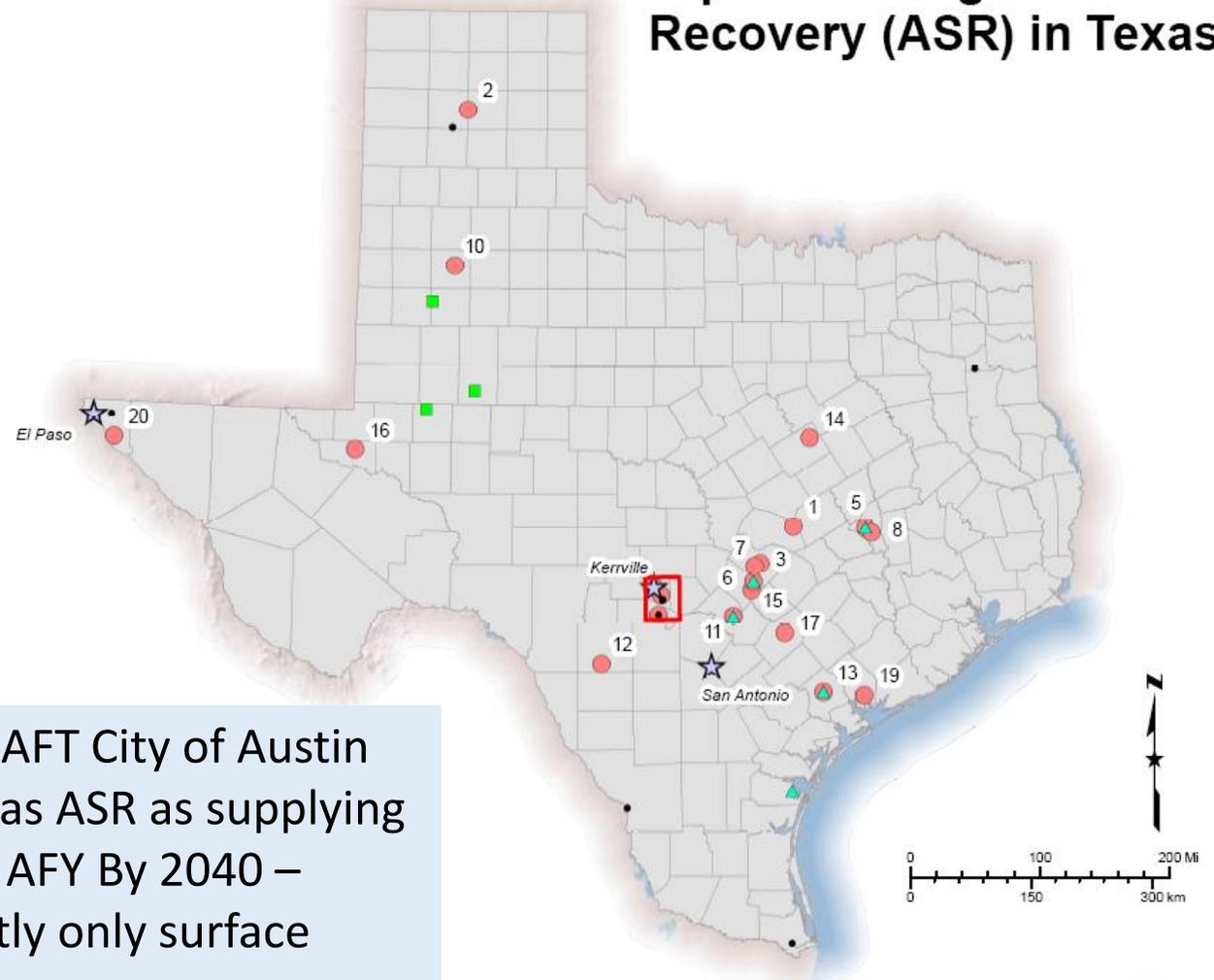
# Known Status of ASR Projects in 2017

ID	Project Sponsor
1	Brazos River Authority
2	Canadian River Municipal Authority
3	City of Austin
4	City of Bandera
5	City of Bryan
6	City of Buda, Hays County, and others
7	City of Buda, Hays County, and others
8	City of College Station
9	City of Kerrville
10	City of Lubbock
11	City of New Braunfels
12	City of Uvalde
13	City of Victoria
14	City of Waco
15	City of Wimberley, Hays County, and others
16	Colorado River Municipal Water District
17	Guadalupe-Blanco River Authority
18	Kerr County
19	Lavaca Navidad River Authority
20	Lower Valley Water District

In the 2017 State Water Plan ASR was recommended as a water management strategy in 7 of 16 regions

The DRAFT City of Austin IWSP has ASR as supplying 60,000 AFY By 2040 – Currently only surface water

## Aquifer Storage and Recovery (ASR) in Texas



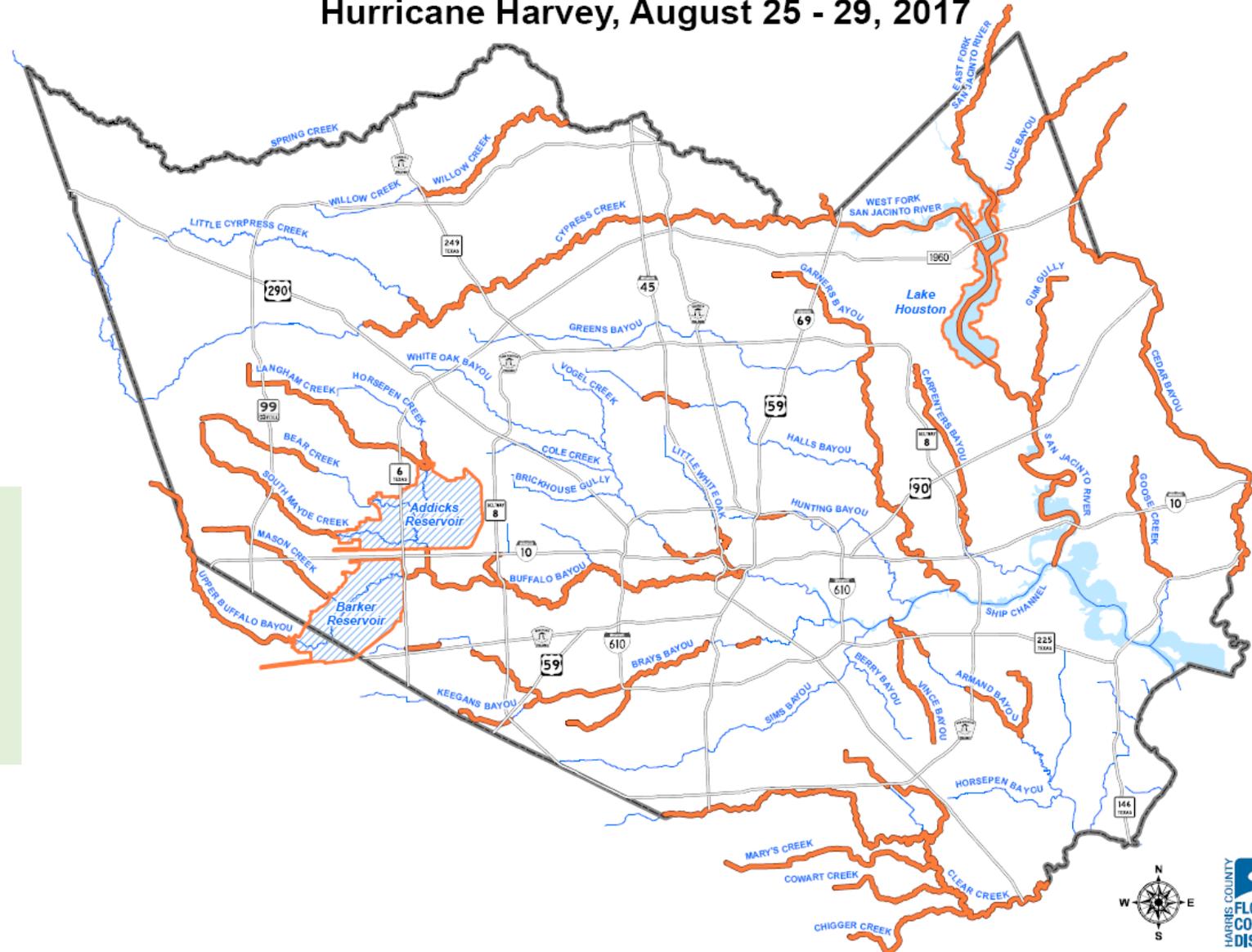
TWDB 2017

# Future Opportunities

- Texas is now looking into the potential for ASR or MAR to help control flood flows through storage of storm water

HB 655 & TCEQ rules establish the potential for use of water that may not meet primary drinking water standards

**Record Flood Levels**  
Hurricane Harvey, August 25 - 29, 2017



# Unresolved Issues Impacting ASR in Texas

- **What property rights are required to inject and store water under land and what rights does a project owner have to protect stored water?**
- **Who owns the pore space? Owner of the surface estate, the groundwater estate (if severed) or the owner of the mineral estate**
  - **At this point a project should obtain authorization from both the surface estate and the groundwater estate if severed**
- **Criminal Trespass**
  - **If the stored water crosses a property line it could be considered trespass**
- **How does an owner protect their stored water from other users?**



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