

History and Status of ASR in Texas

*American Ground Water Trust
Texas Aquifer Conference*

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Texas Water 
Development Board

The logo for the Texas Water Development Board features the text "Texas Water" in a blue serif font and "Development Board" in a black sans-serif font. To the right of the text is a stylized graphic of three curved, overlapping lines in shades of blue and grey, resembling a wave or a fan.

Texas Water Development Board

The following presentation is based upon professional research and analysis within the scope of the Texas Water Development Board's statutory responsibilities and priorities but, unless specifically noted, does not necessarily reflect official Board positions or decisions.

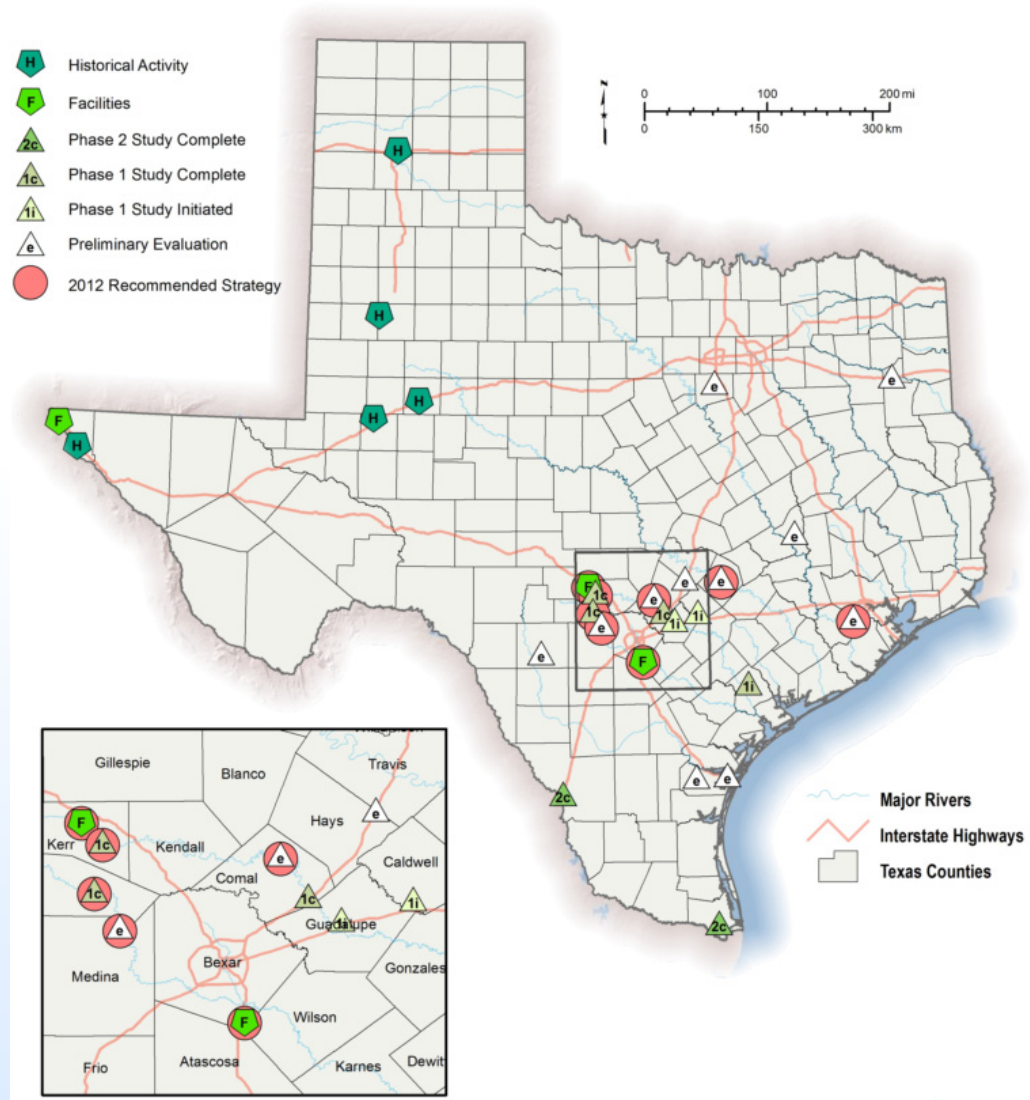


Technical Note 15-04

Aquifer Storage and Recovery in Texas: 2015

- Published in June 2015
- Snapshot as of December 2014
- Descriptions of benefits, challenges and regulatory requirements
- Study of 27 historical, current, and proposed ASR programs
- Program map and associated table
- Program summaries, evaluation maturity, funding
- Updated periodically to incorporate new information
- Available at www.twdb.texas.gov
 - Innovative Water\ASR TWDB Documents\Technical Reports

Map of ASR in Texas



Very Early Days

- Early “Artificial Recharge” experiments
 - USGS, Texas Board of Water Engineers, and partner cities
 - City of El Paso; 1947 to 1952
 - Alleviate groundwater declines in the Hueco Bolson Aquifer
 - Source was treated Rio Grande water
 - Four recharge/recovery cycles
 - Good aquifer response and no well clogging
 - City of Amarillo; 1954/1955
 - Mitigate need for pipeline expansion
 - Source was distant Ogallala well field
 - Target was Ogallala field near the city
 - Single season, two-well experiment
 - Good aquifer response and no well clogging
 - No known additional actions taken by the cities

Early Applications

- Colorado River Municipal Water District; 1963 to 1970
 - Goal to utilize excess transmission capacity from J.B Thomas reservoir
 - Storage target was Ogallala; recovered to meet peak demand for Odessa
 - Injected raw water
 - Distribution system redesign in 1969 removed excess capacity
 - Region considering ASR in upcoming RWP
- High Plains; early 1970's to mid 1980's
 - Lamesa, Levelland, and Lubbock
 - Goal to maximize purchase under take-or-pay contract from Lake Meredith
 - Storage was in the Ogallala
 - Demand growth eventually outstripped excess contracted supply
 - Region considering ASR in upcoming RWP

Early Applications (2)

- City of Midland; early 1970's to mid 1990's
 - Sources vary somewhat in description
 - Goal to increase well yield near Midland
 - Nearby field used (Ogallala or Antlers) was less productive
 - Remote field (Ogallala) was more productive
 - Seasonal injection to closer field was used to meet peak demands
 - Ceased due to demand outstripping excess transmission capacity
 - OR
 - Concern with stored water protection and possible perchlorate contamination

TWDB Involvement

- HB 1989 in 1995 by 74th Legislature
 - Among other actions, authorized pilot projects
 - TWDB, federal, and in-kind support of \$877,000
 - Brownsville – completed in 1997; TWDB funded \$342,000
 - Potential existed, but highly variable transmissivity
 - Laredo – completed in 1999; TWDB funded \$299,000
 - Potential existed, but transmissivity and well plugging were noted concerns
 - Sabine River Authority – completed in 1999; TWDB funded \$36,000
 - Towns of Kilgore and Canton
 - Promising potential, but no known follow up
 - San Antonio – completed in 1998; TWDB funded \$200,000
 - Supported development of current Twin Oaks ASR facility

Current Projects

- As of December 2014
- Current El Paso, Kerrville, and SAWS facilities summarized
- Updated periodically to incorporate new information
- Many received TWDB funding
- Several “Other” to be included in the 2016 Regional Water Plans

2012 Recommended Water Management Strategies	
Missouri City	Lower Colorado River Authority
City of Kerrville	San Antonio Water System
Kerr County	Medina Lake Firm Up
Bandera County	Storage above Canyon Lake
Other ASR Programs Being Monitored	
Barton Springs/Edwards	GBRA Mid-Basin
City of College Station	GBRA Luling
City of Corpus Christi	New Braunfels
City of Uvalde	Robstown-Driscoll Regional
City of Victoria	Trinity Aquifer in Johnson County

Growth in Interest*

- 2007 State Water Plan - one ASR project as a Recommended Water Management Strategy (RWMS)
 - 2,240 ac-ft first decade of use; 2,240 ac-ft fifth decade



* Excludes infiltration basin projects

Growth in Interest*

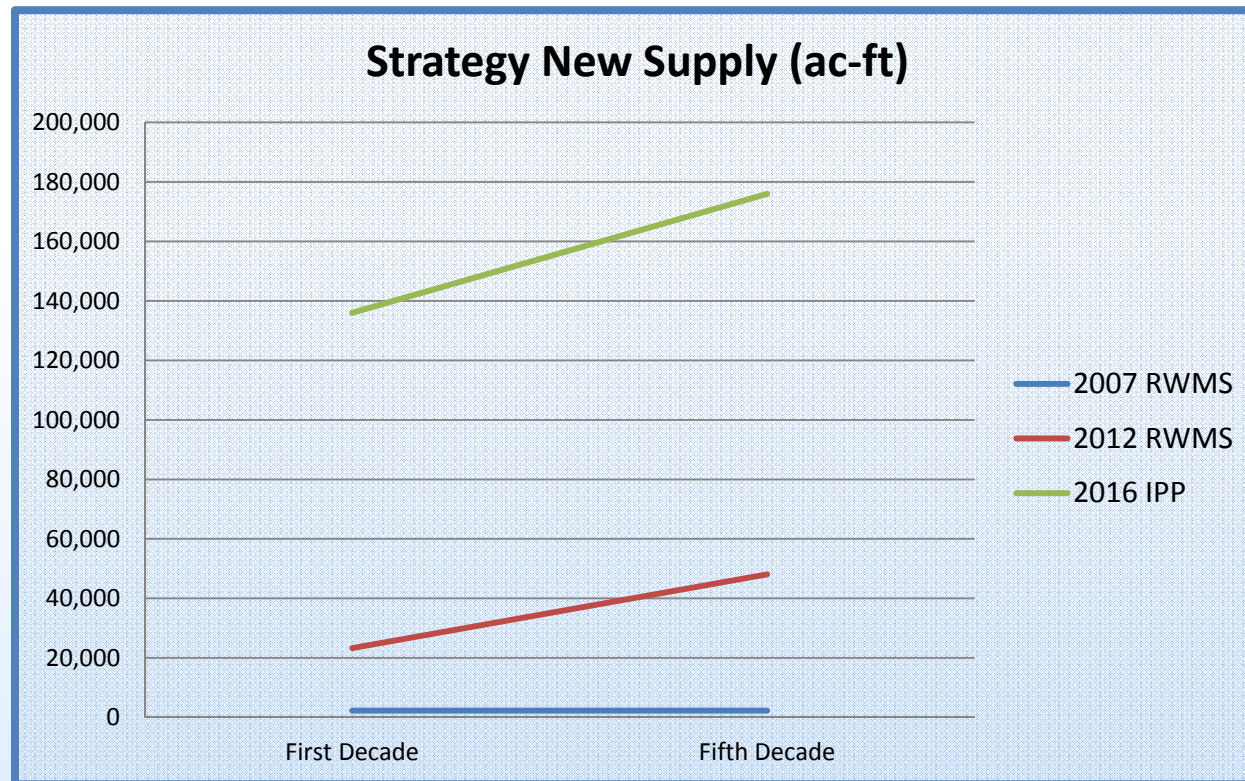
- 2012 State Water Plan – eight ASR RWMS projects
 - 23,260 ac-ft first decade of use; 48,084 ac-ft fifth decade



* Excludes infiltration basin projects

Growth in Interest*

- 2015 Initially Prepared Plans – 15 ASR RWMS projects
 - Preliminary and subject to change
 - 135,992 ac-ft first decade; 175,992 ac-ft fifth decade



* Excludes infiltration basin projects

Growth in Interest*

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- 2012 – eight ASR RWMS projects
 - 23,260 ac-ft first decade; 48,084 fifth decade
- 2015 Initially Prepared Plans – 15 ASR RWMS projects
 - Preliminary and subject to change
 - 135,992 ac-ft first decade; 175,992 fifth decade
 - Fifth decade supply of 80x the 2007 State Water Plan
 - Fifth decade supply of 3.7x the 2012 State Water Plan
- Interest is strong!

* Excludes infiltration basin projects

Development Funding

- House Bill 1, Rider 25
 - \$1,000,000 state budget allocation to TWDB
 - Grant for ASR projects/studies or other innovative storage approaches that improve operational efficiencies
 - Competitive grant application process
 - Mandated to go to groundwater conservation districts
 - GCD and partners must provide matching funds
 - Probable request for applications in September
 - Probable acceptance of applications until November
 - Probable grant award(s) early 2016
 - Project completion deadline Aug 31, 2019

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