

# **Regional Water Planning and the Implementation of the State Water Plan in the Canadian Basin**

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for Regions A, B and F  
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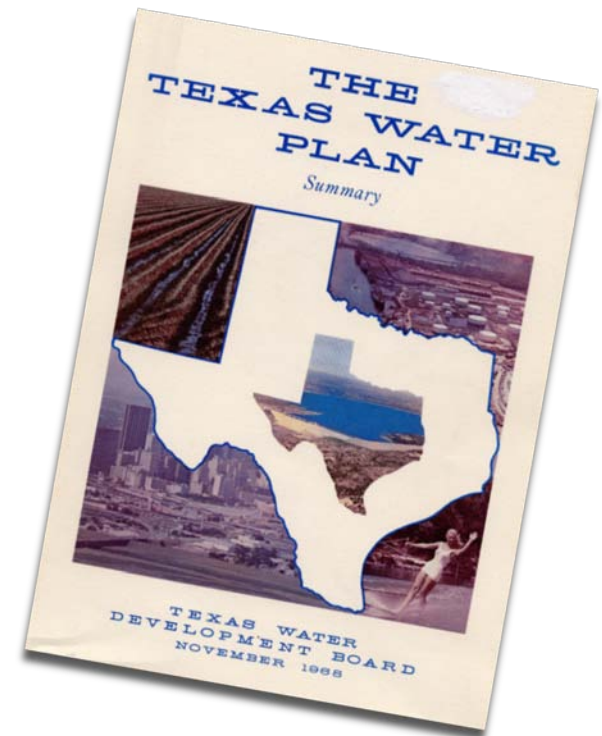


# Outline

- History of Water planning in Texas
- 2011 Panhandle (Region A) Regional Water Plan
- Update on the 4<sup>th</sup> round of Regional Planning
- Legislative update

# Water Planning: Legislative Response to Drought

- Late 1950s Drought of Record
  - 1957: Creation of TWDB
  - \$200 million Water Development Fund
  - 9 State Water Plans, 1961-2012
- Late 1990s: Potential New Drought of Record
  - ~\$6 billion economic losses in '96 (mostly agriculture)
  - ~300 entities with threat to water supplies
  - 1997 & 2001: Implementation of SB 1 & 2 which created & refined regional water planning



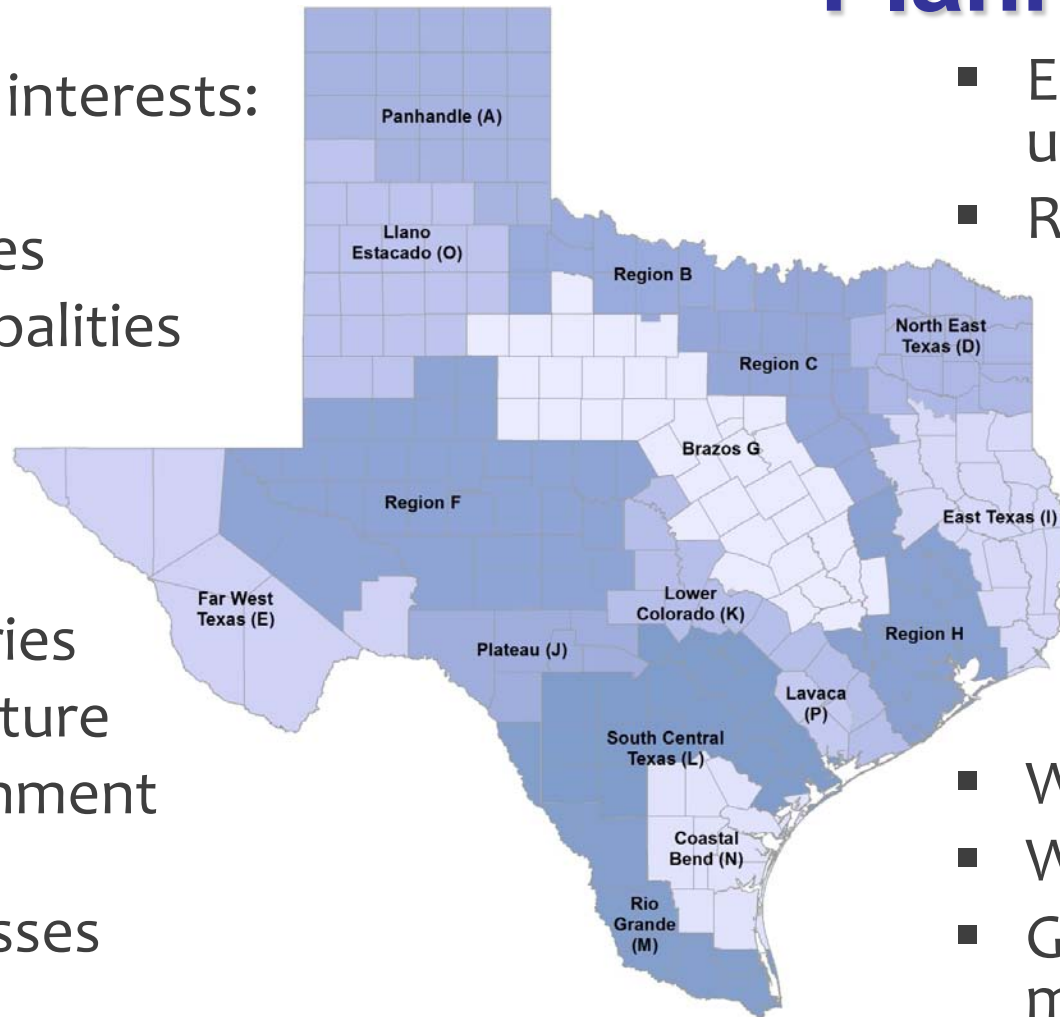
# Regional Water Planning

Statutory interests:

- Public
- Counties
- Municipalities

- Industries
- Agriculture
- Environment
- Small businesses

- Electric-generating utilities
- River authorities



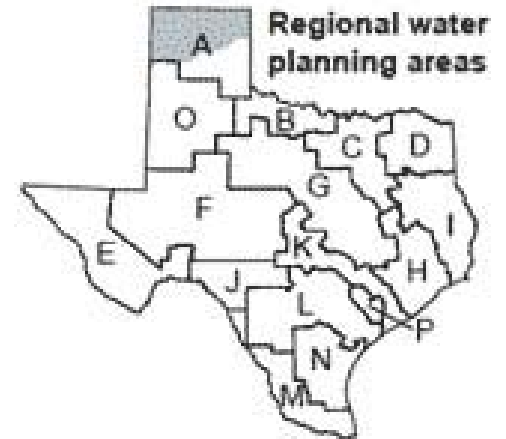
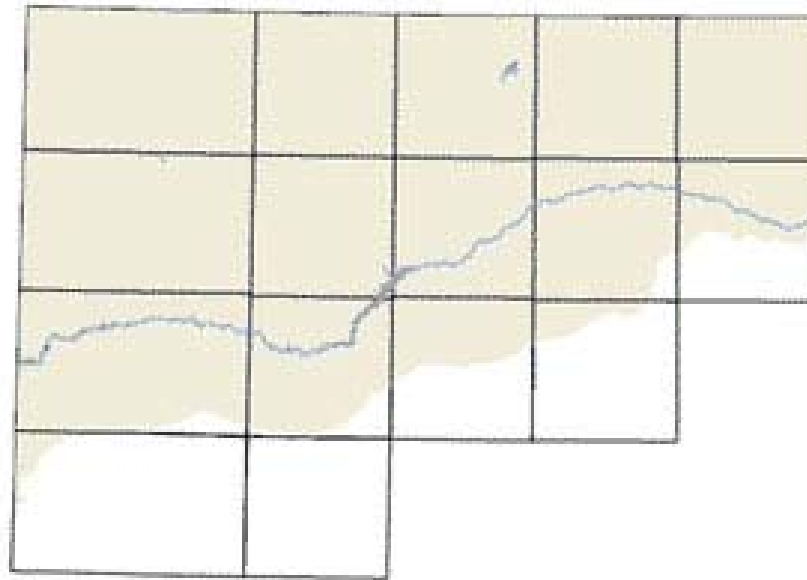
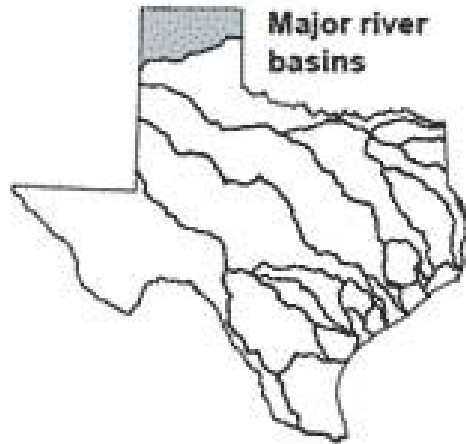
- Water districts
- Water utilities
- Groundwater management areas

# Regional Water Planning

- Project future population and water demand
- Quantify existing and future water supplies
- Identify surpluses and needs
- Evaluate and recommend water management strategies
- Make policy recommendations
- Adopt the plan

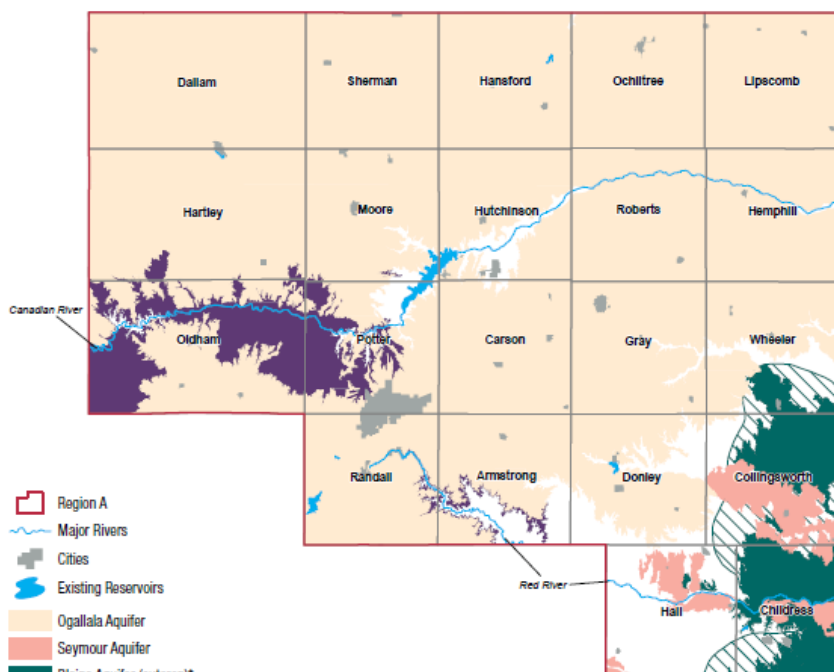


# The Canadian River Basin



# 2011 Panhandle (Region A) Regional Water Plan

The Panhandle Regional Water Planning Area includes 21 counties split between the Canadian and Red River basins.



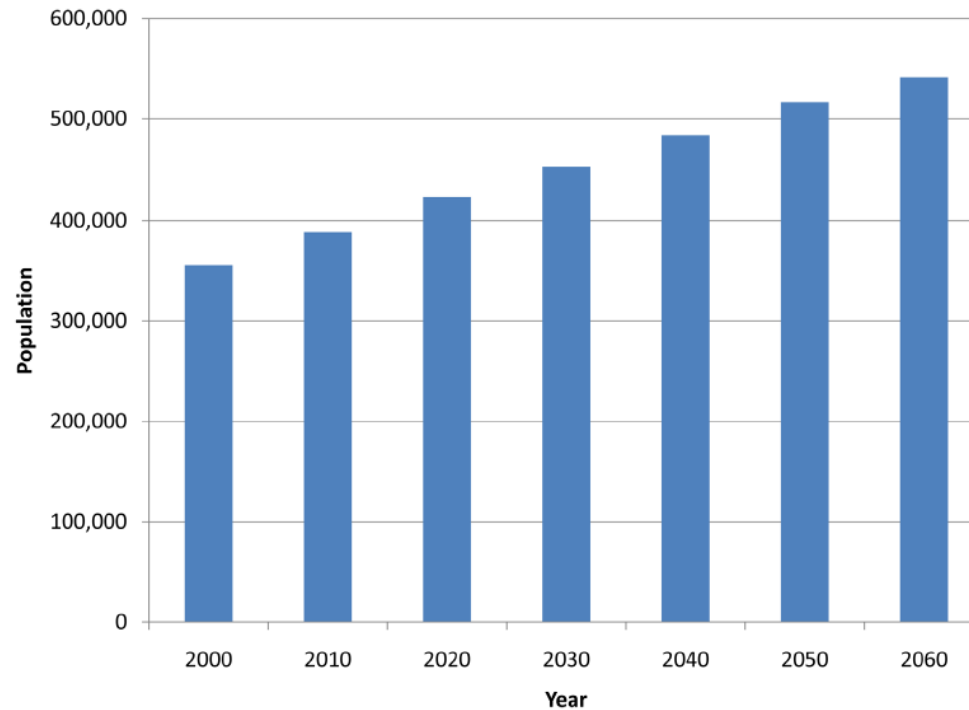
- Region A
- Major Rivers
- Cities
- Existing Reservoirs
- Ogallala Aquifer
- Seymour Aquifer
- Blaine Aquifer (outcrop)\*
- Blaine Aquifer (subsurface)\*
- Dockum Aquifer\*

\* Minor aquifer (only shown where there is no major aquifer)

## Plan Highlights

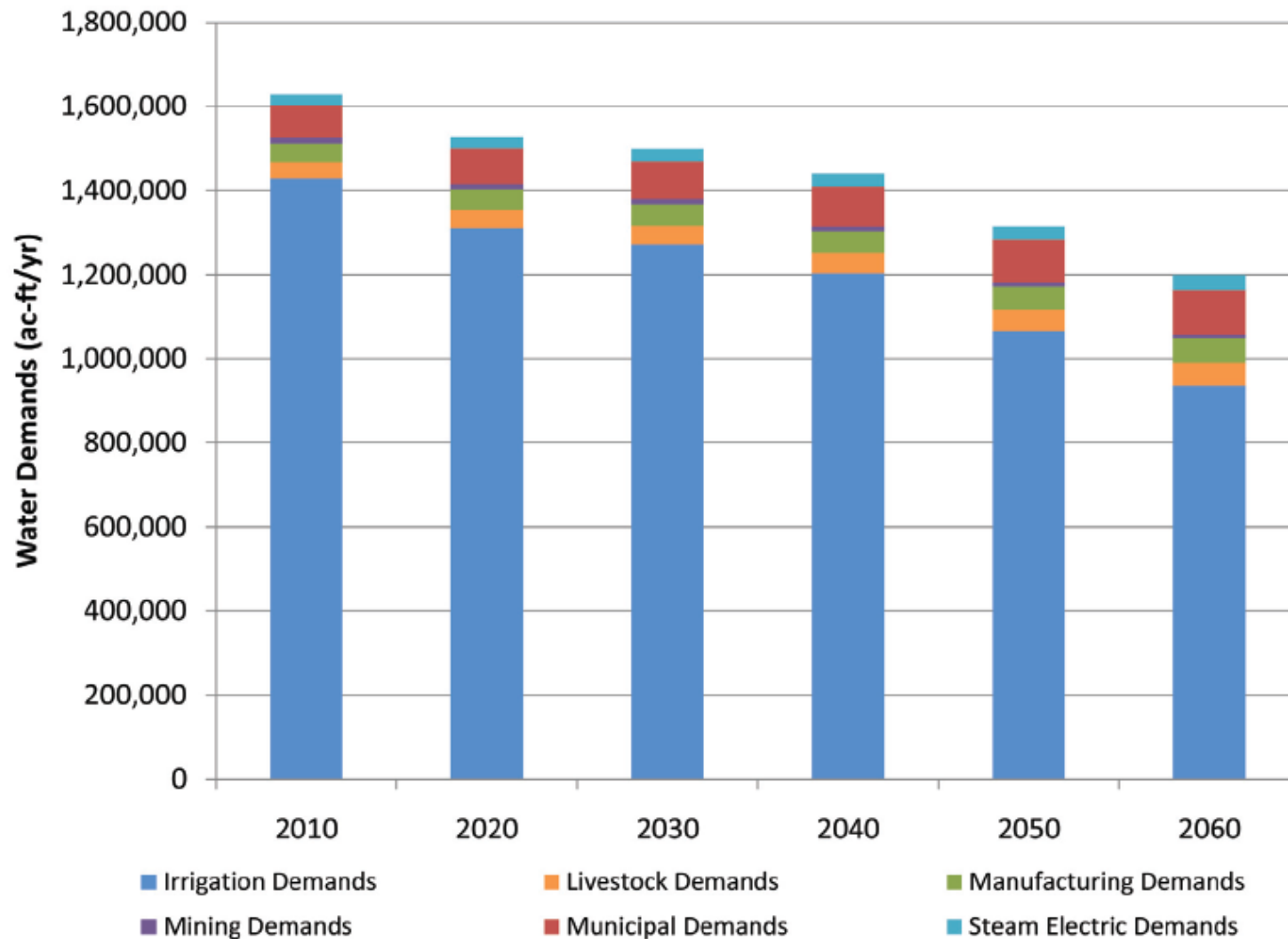
- Additional Supply needed in 2060 – 418,414 acft/year
- Recommended water management strategy volume in 2060 – 648,221 acft/year
- Total capital cost - \$739 Million
- Conservation accounts for 86 percent of 2060 strategy volumes, primarily associated with irrigation
- Significant groundwater development

# Projected Population

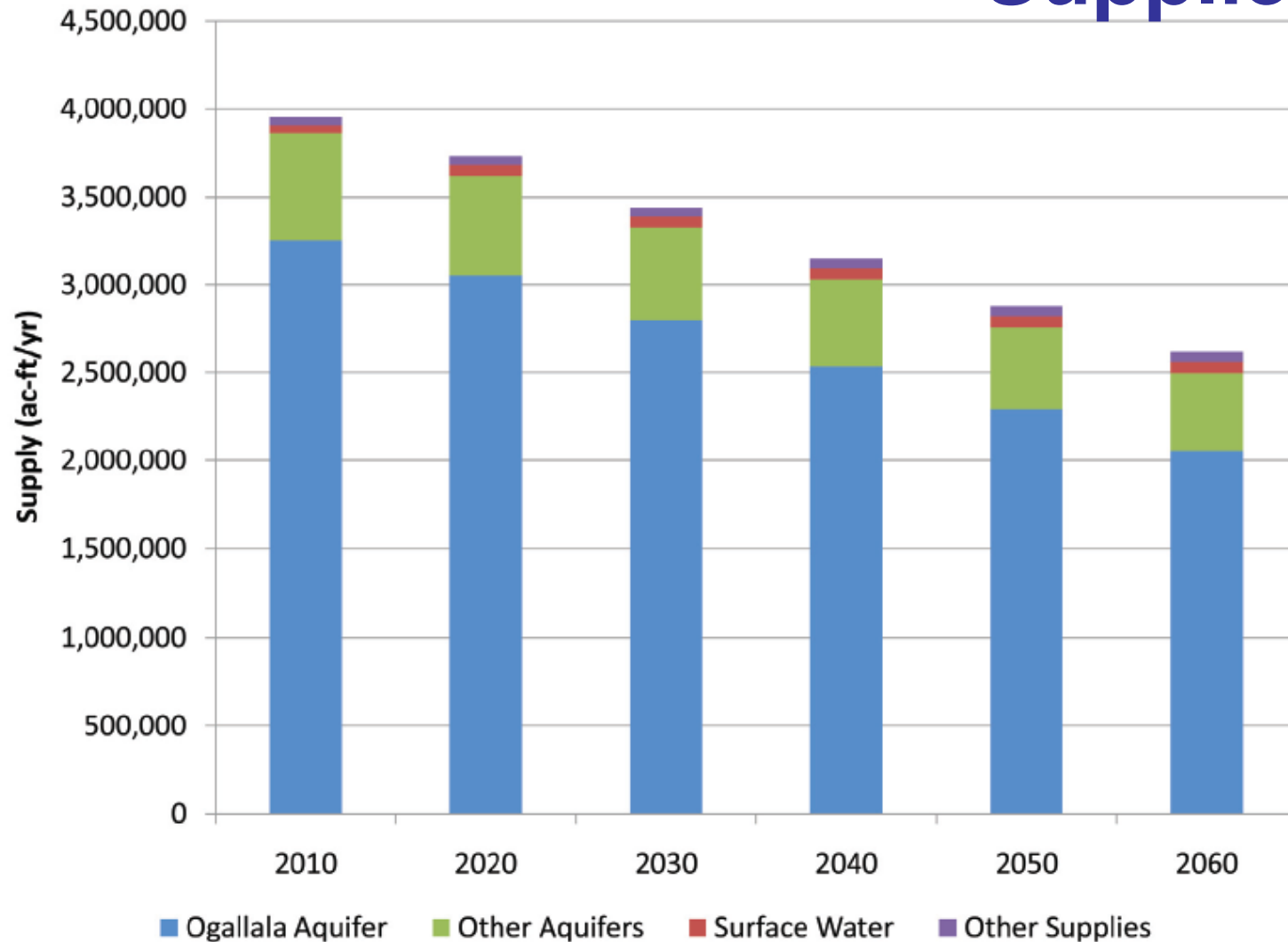


Basin	2010	2020	2030	2040	2050	2060
Canadian	184,269	198,954	210,248	220,845	229,837	236,008
Red	203,835	224,426	243,106	264,109	286,892	305,027
<b>TOTAL</b>	<b>388,104</b>	<b>423,380</b>	<b>453,354</b>	<b>484,954</b>	<b>516,729</b>	<b>541,035</b>

# Projected Water Demands



# Existing Water Supplies

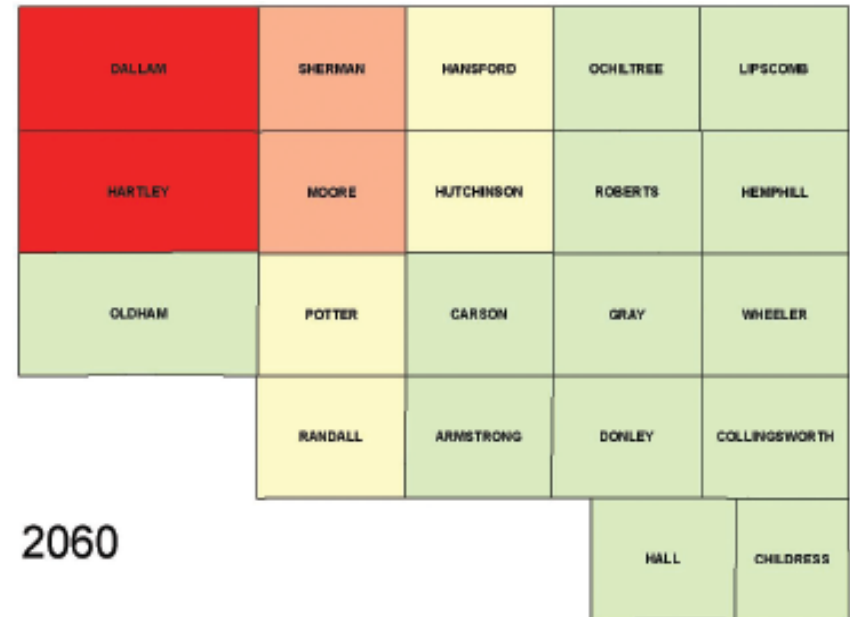
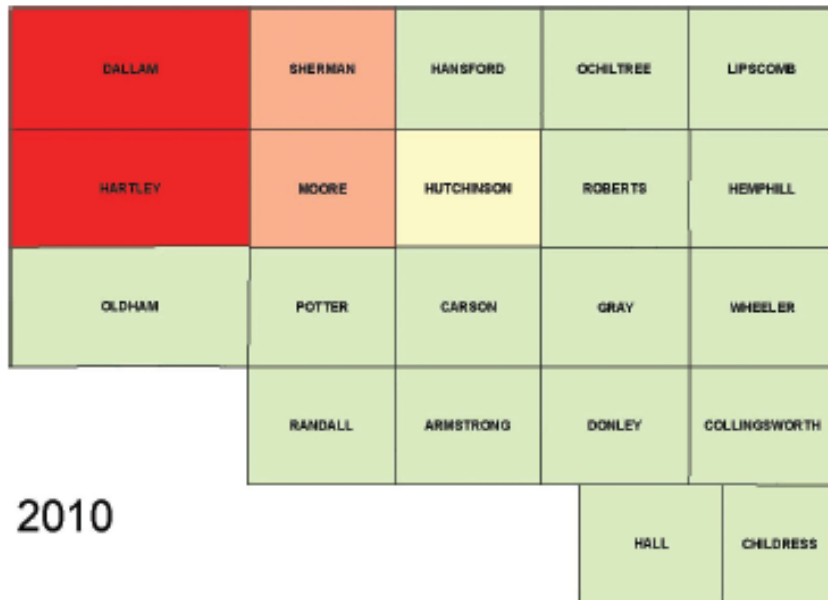


# Water Supply Needs

- The Regional Water Planning Group has identified the following Needs, or potential shortages, if no strategies are implemented

Water Use Category	Decade of Need (acre-feet per year)					
	2010	2020	2030	2040	2050	2060
Irrigation	454,628	452,144	477,338	482,226	433,155	381,180
Municipal	0	1,075	8,544	16,631	24,727	31,214
Manufacturing	173	800	1317	2845	4212	5866
Steam-Electric	75	99	117	128	136	154
Mining	0	0	0	0	0	0
Livestock	0	0	0	0	0	0
<b>Total</b>	<b>454,876</b>	<b>454,118</b>	<b>487,316</b>	<b>501,830</b>	<b>462,230</b>	<b>418,414</b>

# Needs: 2010 vs 2060



## Shortages (Acre-feet per year)





# Recommended Water Management Strategies

All potentially feasible strategies for each individual water use were evaluated with respect to:

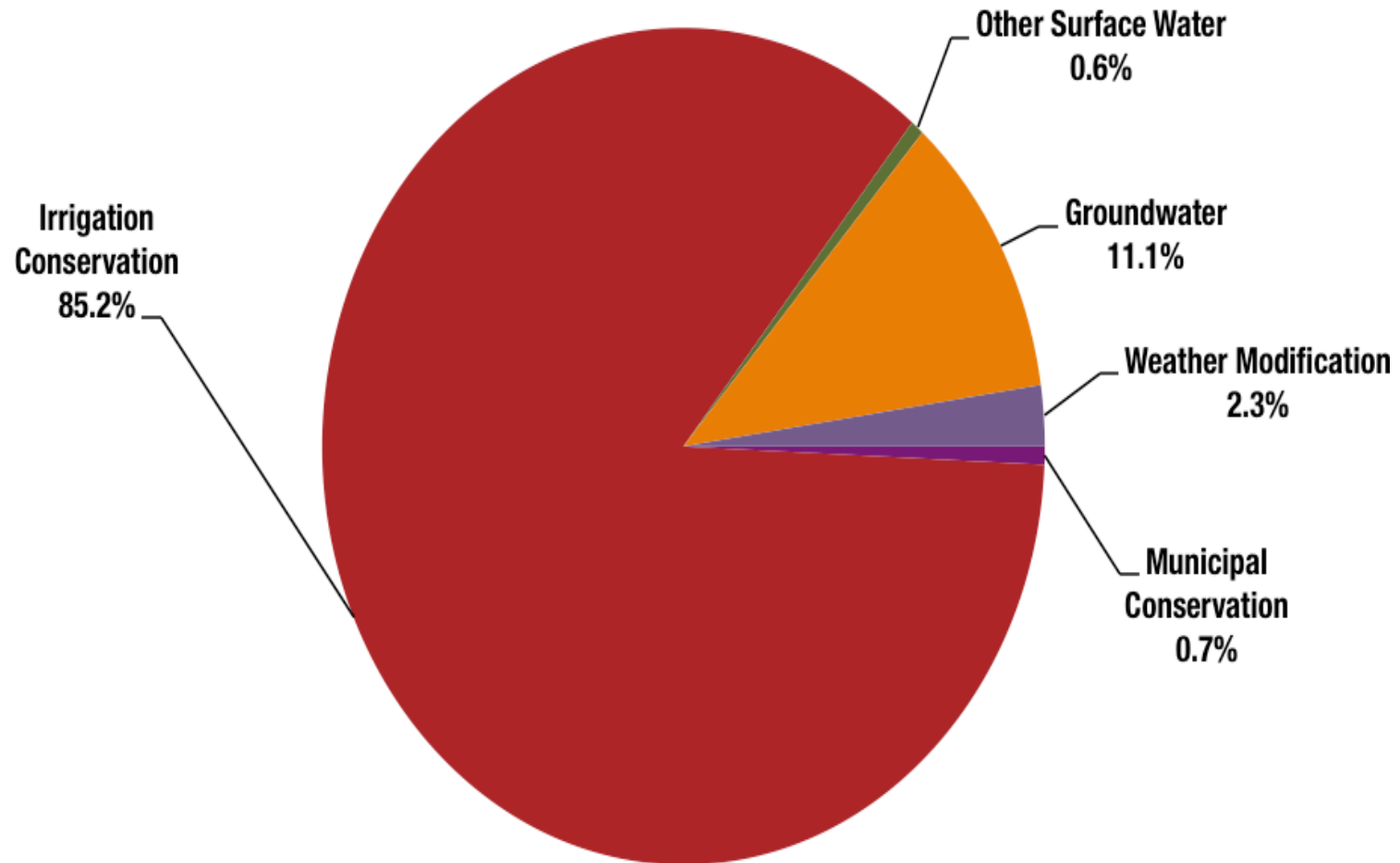
- Quantity, reliability and cost;
- Environmental factors;
- Impacts on water resources and other water management strategies;
- Impacts on agriculture and natural resources; and
- Other factors including, regulatory requirements, political and local issues, implementation time, recreational
- impacts and socioeconomic benefits or impacts.

In addition, each water shortage considered conservation as a first strategy to offset the water need for that user.

# Impact of Selected Strategies on Water Quality

- Water quality plays an important role in determining the availability of water supplies to meet current and future water needs in the region
- All groundwater contains minerals carried in solution and their concentration is rarely uniform throughout the extent of an aquifer
- Groundwater quality issues in the region are generally related to Elevated concentrations of:
  - Nitrate
  - Chloride
  - Total dissolved solids
- Recommended water management strategies limited groundwater production to the Planning Groups recommended availability in order to limit potential impacts to water quality in the aquifers.

# Recommended Water Management Strategies





# Select Major Water Management Strategies

- **Roberts County Well Field** (City of Amarillo) would provide up to 22,420 acre-feet per year of groundwater in the year 2060 with a capital cost of \$287 million
- **Roberts County Well Field** (Canadian River Municipal Water Authority) would provide 15,000 acre feet per year of groundwater starting in 2030 with a capital cost of \$22 million
- **Potter County Well Field** would provide up to 11,182 acre-feet per year starting in 2020 with a capital cost of \$129 million

# Implementation



- Lake Meredith has served as a Major Water Source for Amarillo
- The City had not drilled a major well field since 1956
- Lake Meredith is now 0.0 percent full.
- The Potter County Well Field, a project that was funded, in part, with more than \$86 million in financial assistance from the TWDB

# Select Policy Recommendations From the 2011 Region A Water Plan

## **Regulatory Recommendations:**

- *Continue to evaluate the rules governing reuse to encourage the use of wastewater effluent.*

## **Legislative Recommendations:**

- *Expand funding for implementation of water supply strategies.*
- *Provide funding for continuation of the High Plains-PET.*

## **General Planning Recommendations:**

- *Salinity and brush control projects for the Canadian River and/or Red River Basin.*
- *Include projects for future groundwater quality in the region.*
- *Brush control.*





## **Update on the 4<sup>th</sup> Round of Regional Planning (2011 – 2016)**

- Non-Municipal Demand Projections – Fall 2011
  - Update to Mining Water Use Study by Bureau of Economic Geology (BEG)
- Population and Municipal Demands – Spring 2013
- Technical Memorandum - May 2014
- Initially Prepared Plan (IPP) – May 2015
- Adopted Regional Plan – November 2015

# 2012 - Rule Revisions

**§355**



**§357**



**§358**





# Revised Rules

**incorporated new statutes**

**reorganized existing rule content**

**emphasized existing  
requirements**

**added new requirements**



# Revised Rules

**Rule changes will require RWPGs to:**

- a) report additional (existing) information in plans**
- b) collect, analyze, and consider additional information**
- c) make additional recommendations**

# Revised Rules

## By Regional Water Plan Chapter:

- |                    |                                  |
|--------------------|----------------------------------|
| 1* description     | 7 * <b>NEW</b> drought response  |
| 2 demands          | 8 policy recommendations         |
| 3* supply          | 9 financing of plan              |
| 4* needs           | 10* plan adoption                |
| 5* WMS evaluations | 11* <b>NEW</b> impl & comparison |
| 6* plan impacts    |                                  |

\* *new requirements*

# Legislative Updates

## Current Proposed Legislation:

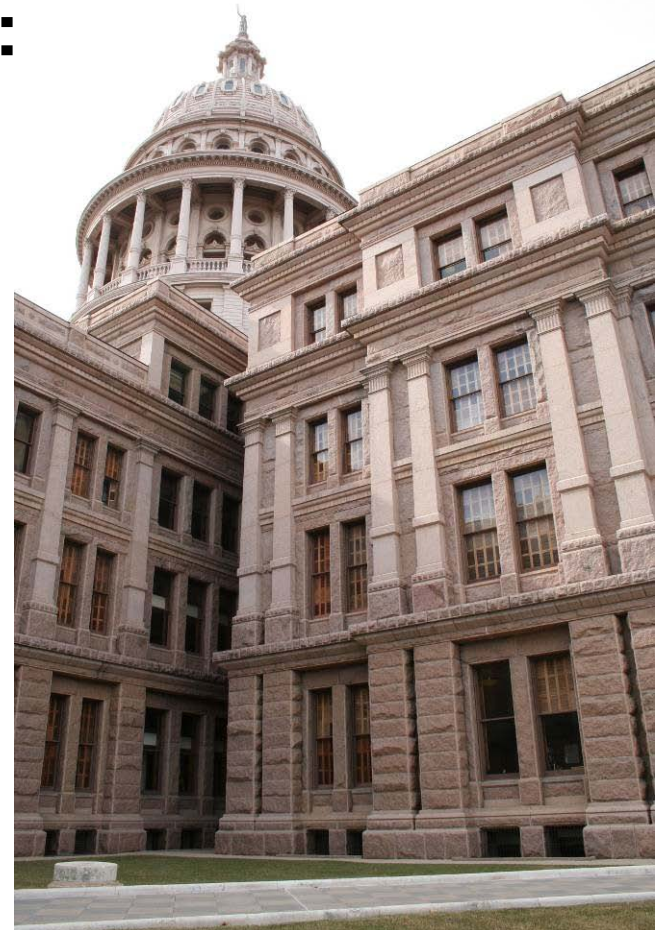
\*as of February 28, 2013

### Senate

- SB 4
- SB 22
- SB 224
- SB 235
- SB 272
- SB 302
- SB 385

### House

- HB 4
- HB 11
- HB 227
- HB 857
- HB 867
- HB 998
- HB 1317



# Questions and Comments

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**Texas Water**  
Development Board

