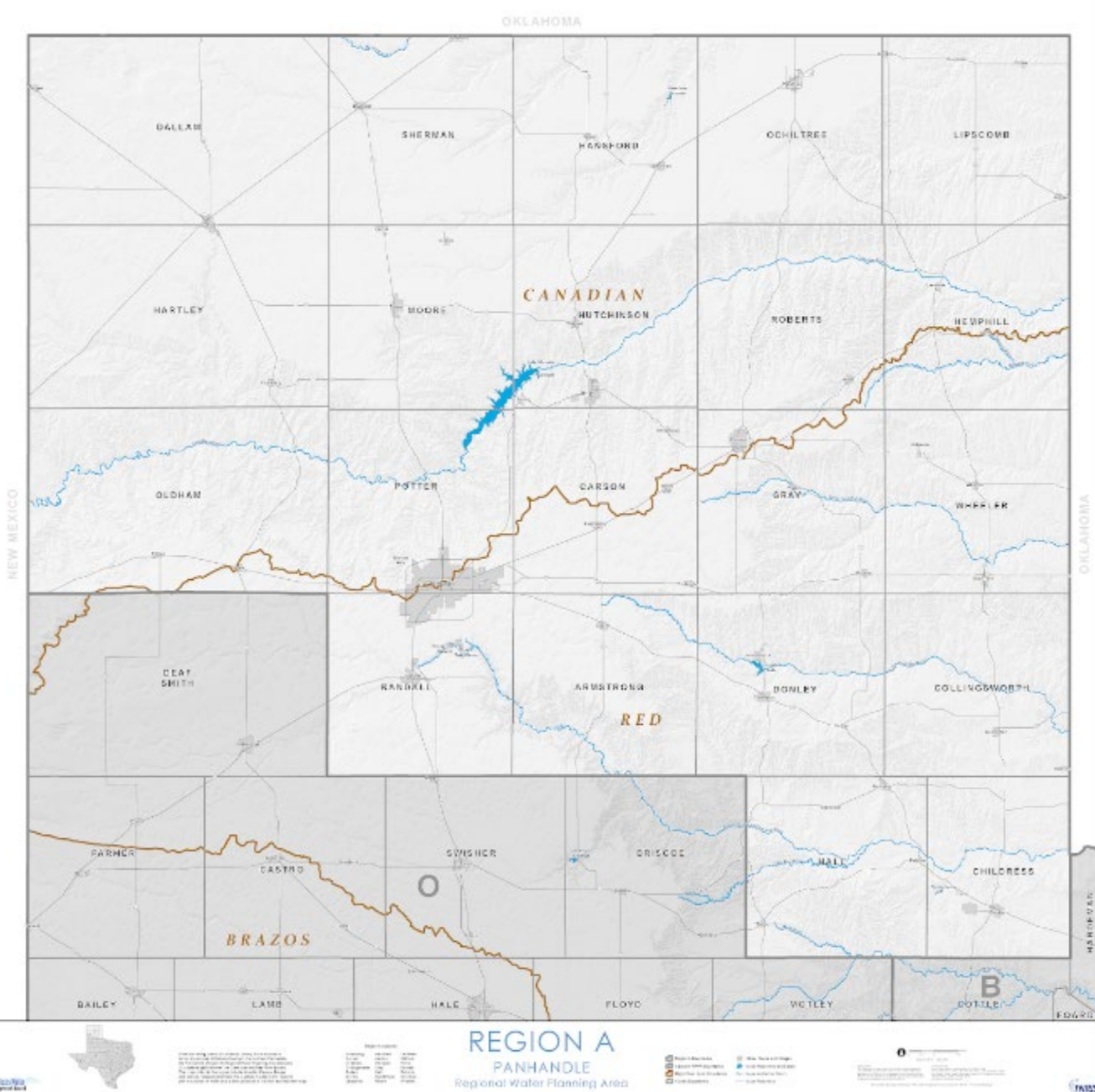




# Panhandle Regional Water Planning Group

Presentation by: Chairman Ben Weinheimer, P.E.

# About Us



- Region A Panhandle Water Planning Group
  - Intense drought conditions in the 1990s
  - Texas Legislature passed **Senate Bill 1 in 1997**
  - Vision of a grass-roots, regional effort to improve the water planning process.
- 21 Counties
  - Armstrong, Carson, Childress, Collingsworth, Dallam, Donley, Gray, Hall, Hansford, Hartley, Hemphill, Hutchinson, Lipscomb, Moore, Ochiltree, Oldham, Potter, Randall, Roberts, Sherman, and Wheeler.
- 23 Members
  - Agriculture, industry, environment, public, municipalities, business, water districts, river authorities, water utilities, counties, groundwater management areas, and power generation.



# Beginnings of Water Planning



- Texas Has Traditionally Been an Agriculture State
- The Dust Bowl and Drought of the 50's Significantly Affected Texas
- First State Water Plan Adopted in 1961  
**Largely Relied on Reservoirs**
- Famous Plan Adopted in 1968  
**Proposed moving water from the Mississippi River**
- Water Planning in Texas Focused More on Surface Water & Cities Historically
- **Grassroots Planning vs. Top Down**



# Water Planning Today

## SB 1 of 75th TX Legislature (1997)

- In Response to Drought & Changing Demographics
- Created grassroots water planning process
- Allocated Fiscal Resources to Regions
- Ensured Broad Planning Representation

## Regional Plans Adopted Every 5 Years

- 2001, 2006, 2011, 2016, 2021

## Compiled into A State Plan

- 2002, 2007, 2012, 2017, 2022

## Regional Groups Identify

- Engineers, Modelers, Economists, Stakeholders



# What does PWPG do?



## Data Collection

Assesses where water is in the Panhandle Region.



## Tracking

Assesses where water is being expended.



## Planning

Establishes a long term goal for water resources.



## Identifying Shortages

Addresses shortages and best practices for drought and conservation.



## Management

Provides access to water management strategies, plans, and resources throughout the region.



# Key Areas of Focus



## Identify Water

- Aquifers
- Surface
- Reuse



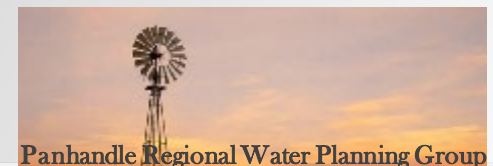
## Establish Demand

- Agriculture
- Municipal
- Manufacturing
- Electric Generation
- Oil/Gas



## Develop Strategies

- Conservation
- Technology
- Tapping Resources



# 2021 Panhandle Water Plan

## Chapter 1 – Planning Area Description

- 21 Counties
- Canadian and Red River Basins
  - 3 major reservoirs
- 2 major and 3 minor aquifers
- Economic Drivers
  - Agriculture & Agribusiness
  - Manufacturing
  - Energy
  - Tourism



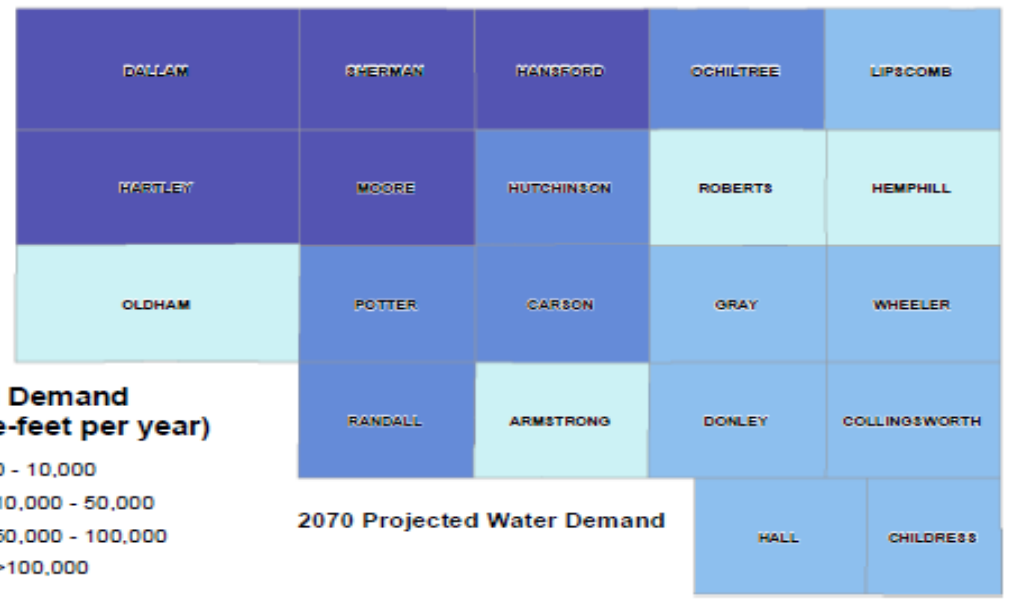
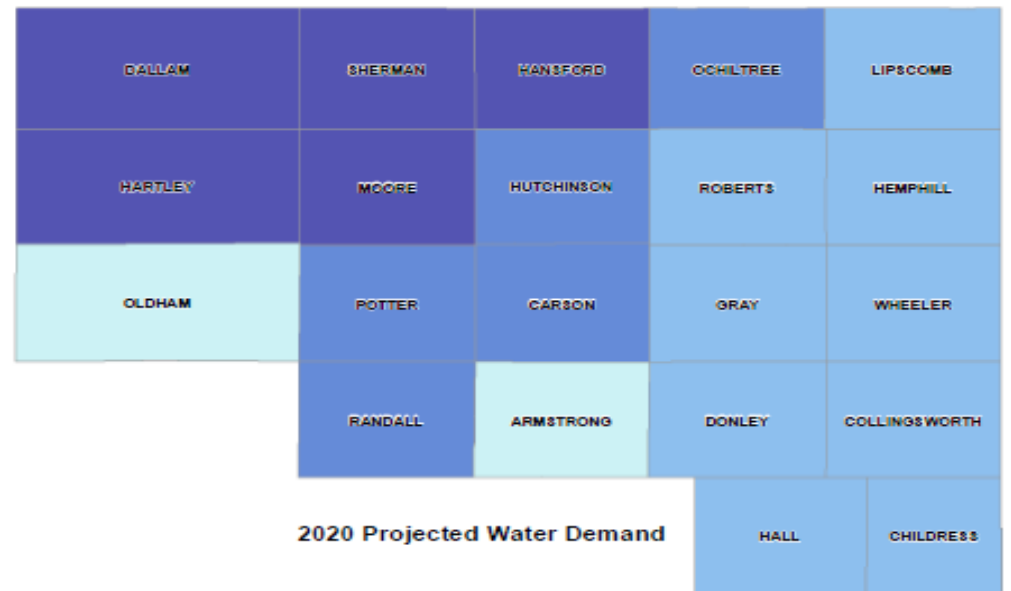
# Chapter 2 – Population & Demands

## ➤ Water User Groups

- Municipal > 500
- Irrigation
- Livestock
- Manufacturing
- Mining
- Steam Electric Power

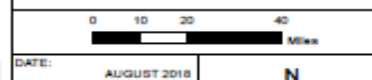
## ➤ Wholesale Water

- CRMWA
- Greenbelt M&IWA
- Palo Duro RA
- Amarillo
- Borger
- Cactus



**Total Demand (Acre-feet per year)**

- 0 - 10,000
- 10,000 - 50,000
- 50,000 - 100,000
- >100,000



**PANHANDLE WATER PLANNING AREA**

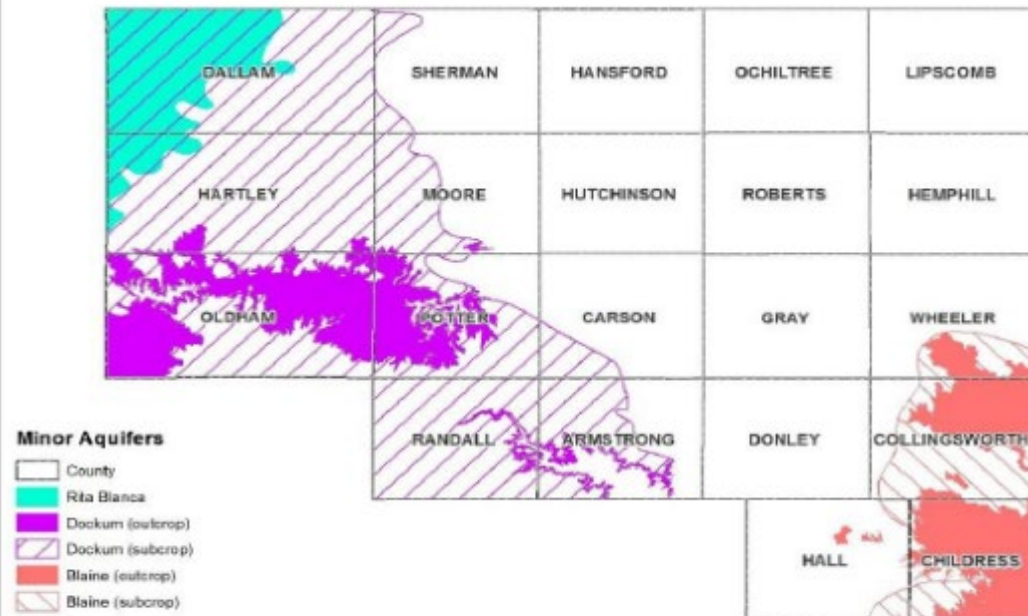




# Chapter 3 – Evaluation of Water Supply

➤ Two major aquifers, the Ogallala and Seymour, and three minor aquifers, the Blaine, Dockum, and Rita Blanca.

➤ Ogallala aquifer supplies the predominant share of groundwater.

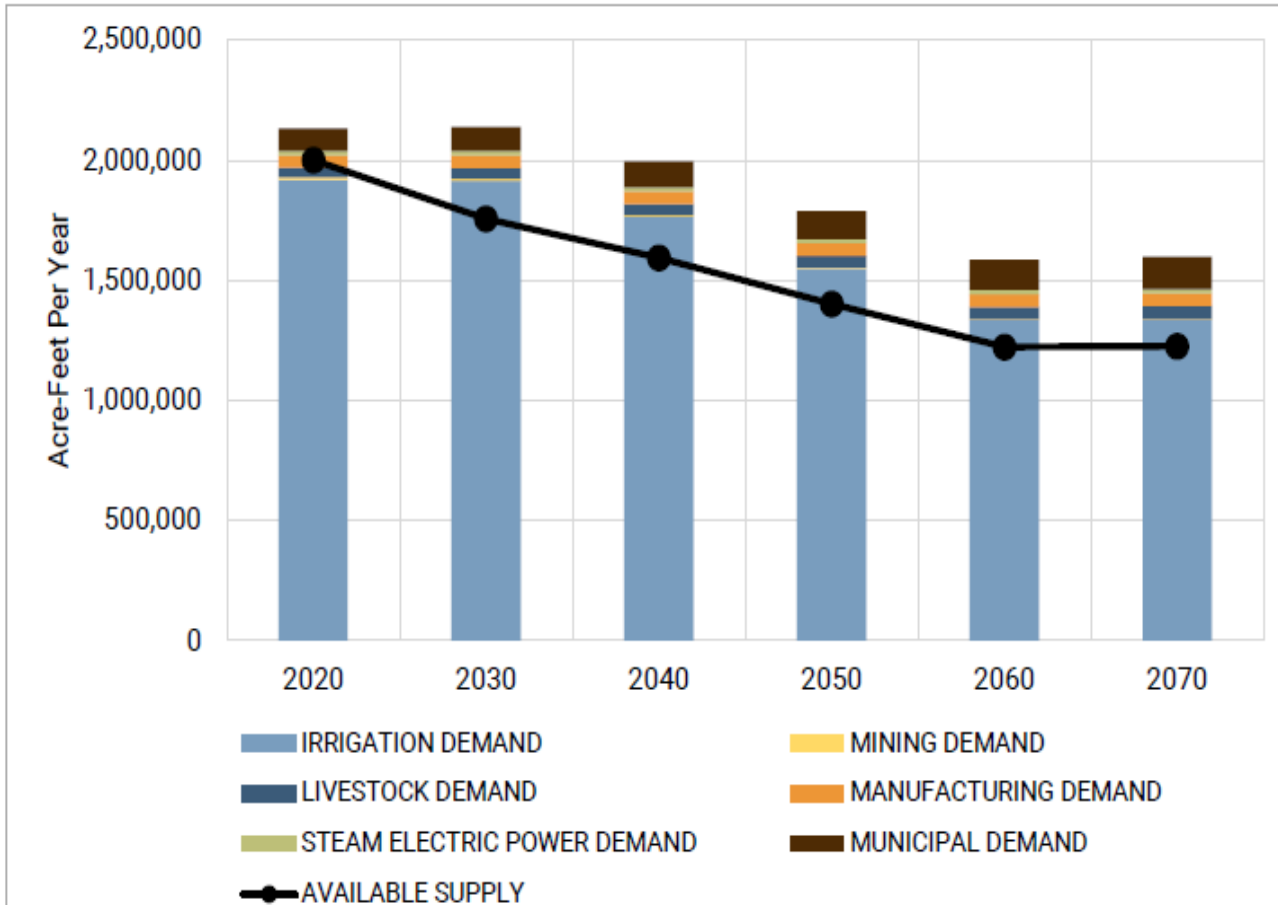


# Chapter 4 – Identification of Water Needs

**Table 4-1: Comparison of Supplies and Demands for the PWPA (acre-feet per year)**

	2020	2030	2040	2050	2060	2070
Supply	2,000,083	1,755,862	1,594,386	1,402,963	1,224,710	1,227,242
Demand	2,130,529	2,138,483	1,995,398	1,788,541	1,585,584	1,598,115
<b>Surplus/Need</b>	<b>(130,446)</b>	<b>(382,621)</b>	<b>(401,012)</b>	<b>(385,578)</b>	<b>(360,874)</b>	<b>(370,873)</b>

Note: This calculation aggregates surpluses and needs for all water users across the region. Consideration of only the needs for individual entities will be higher.



# Chapter 5 – Water Management Strategies

## ➤ Water Management Strategies

- Water Conservation
- Drought Management Measures
- Wastewater Reuse

## ➤ Management and/or Expanded Use of Existing Supplies

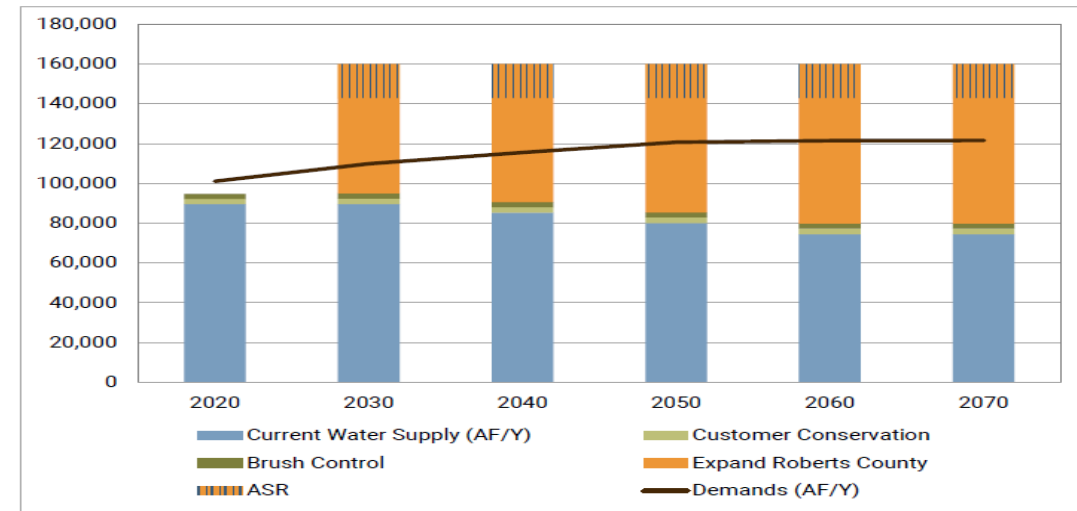
- System Operation
- Conjunctive Use of Groundwater and Surface Water
- Reallocation of Reservoir Storage
- Voluntary Redistribution of Water Resources
- Voluntary Subordination of Existing Water Rights
- Yield Enhancement
- Water Quality Improvement

## ➤ New Supply Development

- Surface Water Resources
- Groundwater Resources
- Brush Control
- Desalination
- Water Right Cancellation
- Rainwater Harvesting
- Aquifer Storage and Recovery (ASR)
- Precipitation Enhancement
- Interbasin Transfers
- Emergency Transfers of Water

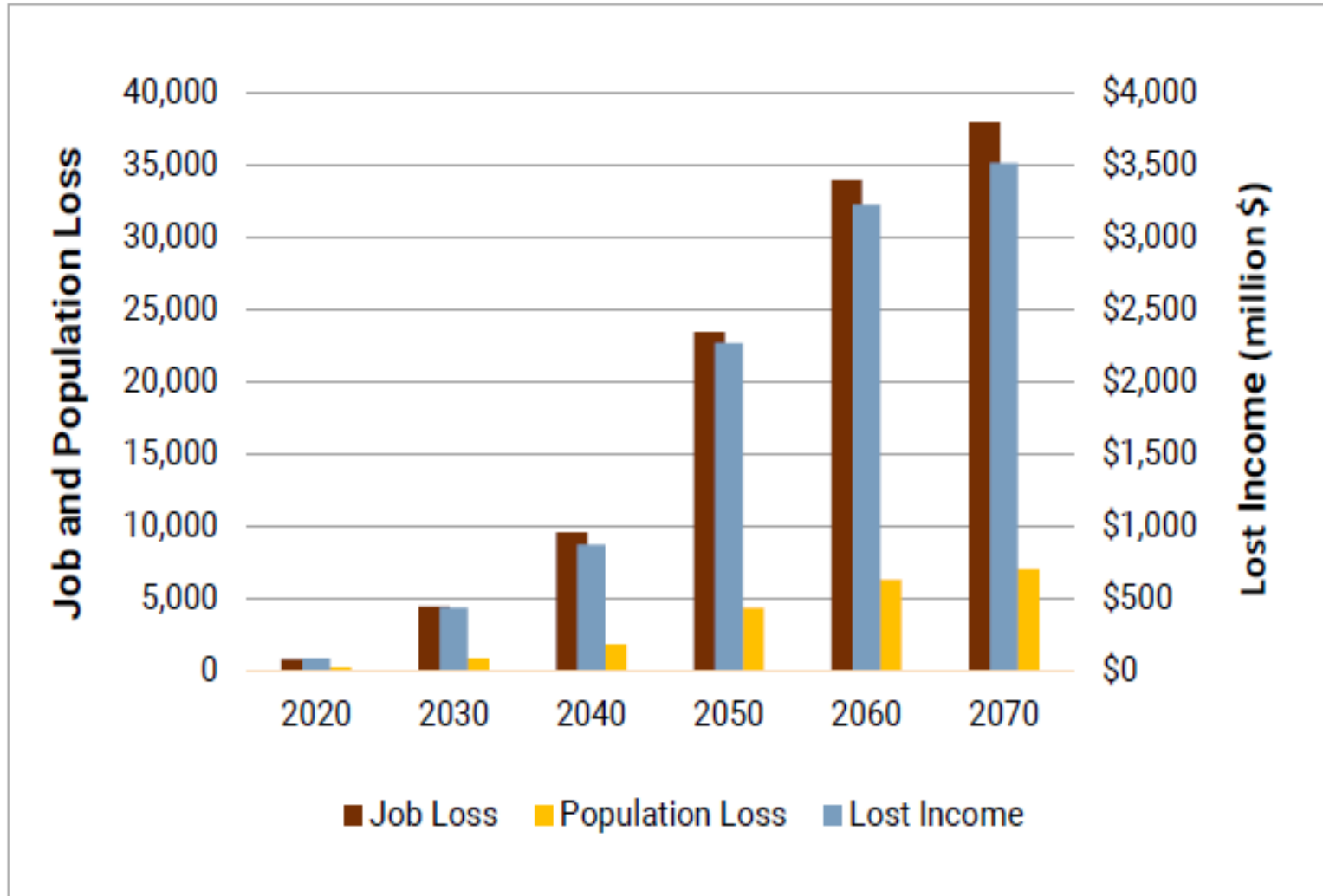
**Table 5C-2: Recommended Water Management Strategies for CRMWA (Ac-Ft/Yr)**

	2020	2030	2040	2050	2060	2070
<b>Need</b>	<b>(11,402)</b>	<b>(20,230)</b>	<b>(30,247)</b>	<b>(40,673)</b>	<b>(47,093)</b>	<b>(47,264)</b>
<b>Recommended Strategies</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
PWPA Customer Conservation	2,541	2,814	2,866	2,913	2,988	3,021
Replace Well Capacity for CRMWA I and II <sup>1</sup>	0	0	4,326	9,524	19,493	24,691
Expand GW and delivery capacity (CRMWA II) <sup>1</sup>	0	65,000	65,000	65,000	60,674	55,476
ASR <sup>2</sup>	0	17,000	17,000	17,000	17,000	17,000
Brush Control	2,500	2,500	2,500	2,500	2,500	2,500
<b>Total from Strategies</b>	<b>5,041</b>	<b>70,314</b>	<b>74,692</b>	<b>79,937</b>	<b>85,655</b>	<b>85,688</b>
<b>Alternate Strategy</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
Advanced Treatment of Lake Meredith Supplies		10,000	10,000	10,000	10,000	10,000



**Figure 5C-1: Recommended Strategies for CRMWA**

# Chapter 6 – Socio-economic impacts of Not Meeting Water Needs



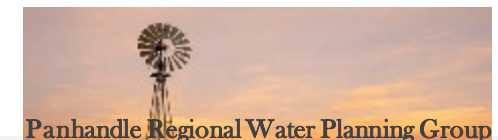
- TWDB socio-economic impacts of not meeting projected water needs.
- What is the estimated impact if water shortages in the region are not met or no actions are taken to address the shortages?
- Analyzed through the Impact for Planning Analysis Model (IMPLAN) - economic impact modeling software.

# Chapter 7 – Drought Response & Conditions

- PWPG recognizes that the initiation of drought response is the decision of the manager of the source and/or user of the source. Staged implementation of Drought Contingency Plans (DCP).

**Table 7-9: Drought Severity Classification**

Category	Description	Possible Impacts	Palmer Drought Severity Index
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water needs developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9
D2	Severe Drought	Crop or pasture losses likely; water needs common; water restrictions imposed	-3.0 to -3.9
D3	Extreme Drought	Major crop/pasture losses; widespread water needs or restrictions	-4.0 to -4.9
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; needs of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less



# Chapter 8 – Regulatory Recommendations

- Planning groups are required to evaluate and make recommendations regarding:
  - Ecologically unique river and stream segments
  - Unique sites for reservoir construction
  - Regulatory, administrative, or legislative actions to facilitate development, management, and conservation of water resources.
  
- Over 15 regulatory, legislative, and state water planning recommendations:
  - **Reuse**
  - **Groundwater**
  - **Conservation**
  - **Brush Control**
  - **Data Collection and Updates**
  - **Funding**





## ➤ Infrastructure Financing Report (IFR)

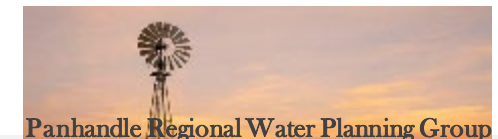
- Required in the Regional Water Plan
- Funding needed to implement the water management strategies/projects

## ➤ TWDB financial assistance

- Planning, design and construction of projects
- State Participation Program (**SP**) – large regional projects
- Rural and Economically Distressed Areas Program (**EDAP**)
- State Water Implementation Fund for Texas (**SWIFT**) – low-interest loans / extended repayment

# Chapter 10 – Plan Adoption

- Texas Administrative Code Chapter 357 governs the water planning process
- PWPG conducted a formal process for the adoption of the Regional Water Plan
  - PWPG planning group meeting **February 18, 2020**.
  - PWPG conducted a public hearing on **April 23, 2020**.
  - Initially Prepared Regional Plan was placed in all County Clerk offices.
  - Notice of hearing in the newspaper **30 days prior** to the Hearing.
  - Oral and written comments from the public were accepted for **60 days**.
  - Initially Prepared Plan was provided to the TWDB by the **March 3, 2020** deadline.
  - Comments were accepted from the TWDB and other state and federal agencies.
  - Final 2021 Panhandle Water Plan was adopted by the PWPG on **September 25, 2020**.





# Chapter 11 – Comparison to Previous Regional Water Plan

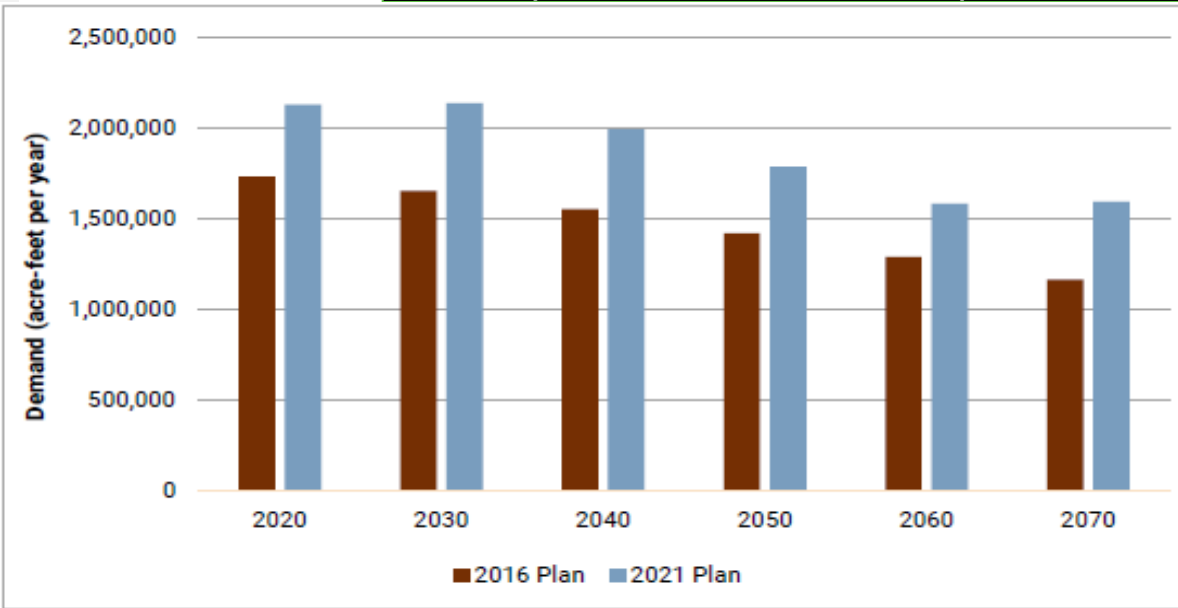


Figure 11.2: Comparison of PWPA Water Demand

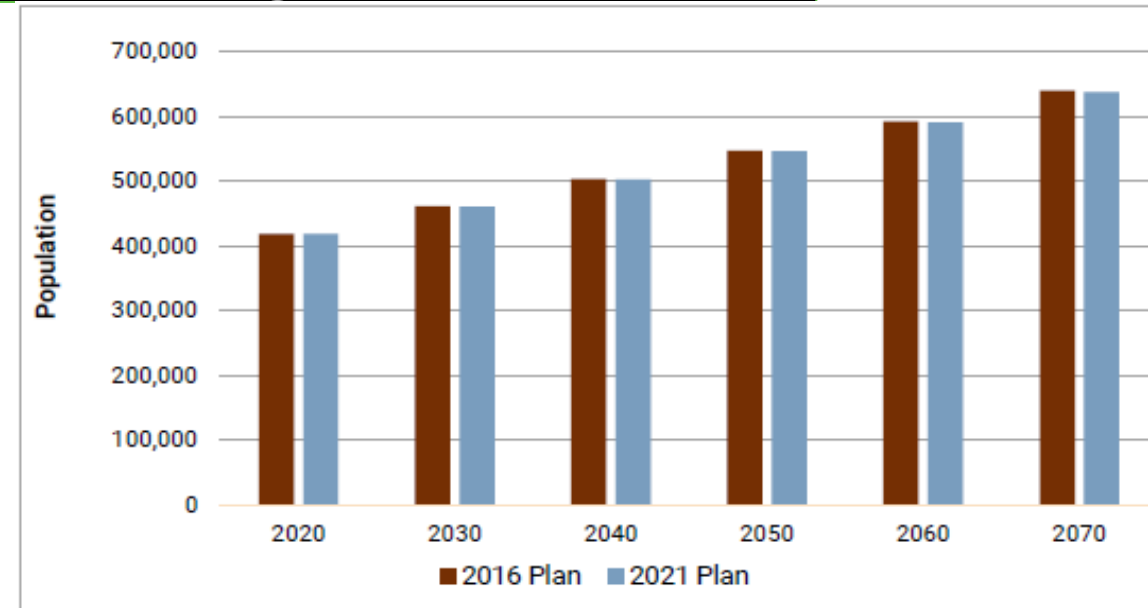


Figure 11.1: Comparison of PWPA Population

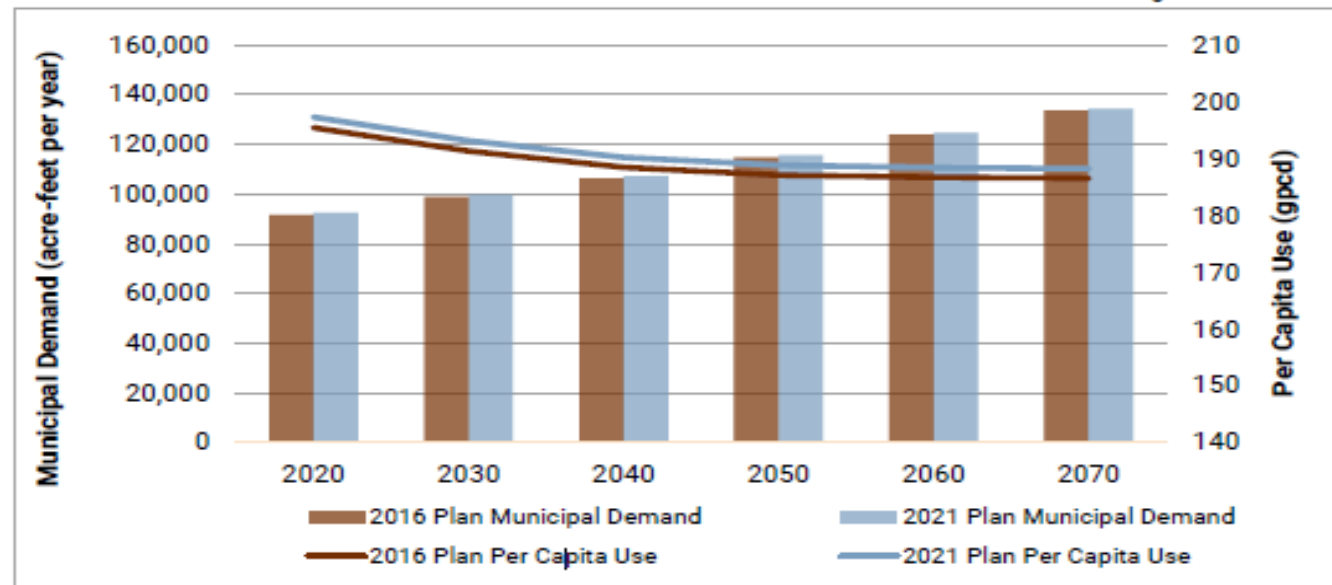


Figure 11.4: Comparison of Projected Per Capita Use and Municipal Demand

# County Summaries

## ARMSTRONG COUNTY SUMMARY PAGE



Who are my representatives?

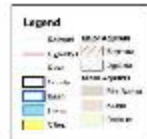
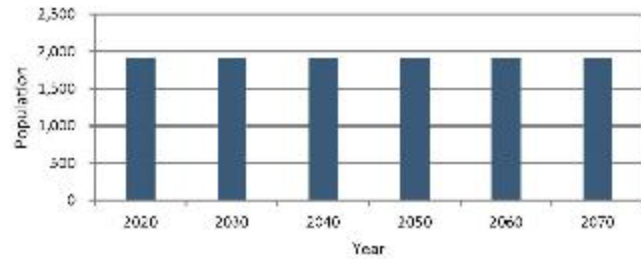
Dr. Nolan Clark - Retired (USDA-ARS)  
 Ben Weinheimer - Texas Cattle Feeders Association  
 Brent Auvermann - Texas A&M AgriLife  
 Glen Green - Xcel Energy  
 Rick Gibson - Environmental Consultant  
 C.E. Williams - Panhandle GCD  
 Danny Krienke - GMA #1

County Seat: City of Claude

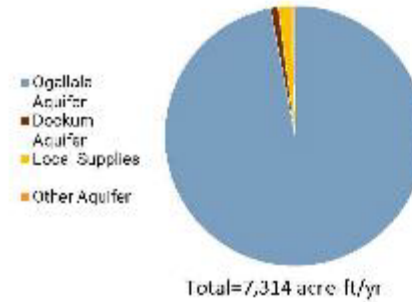
Economy: Agribusiness, Tourism

What is the source of my water? Ogallala, Dockum Aquifers

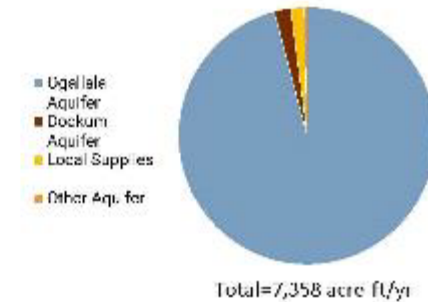
Armstrong County Population



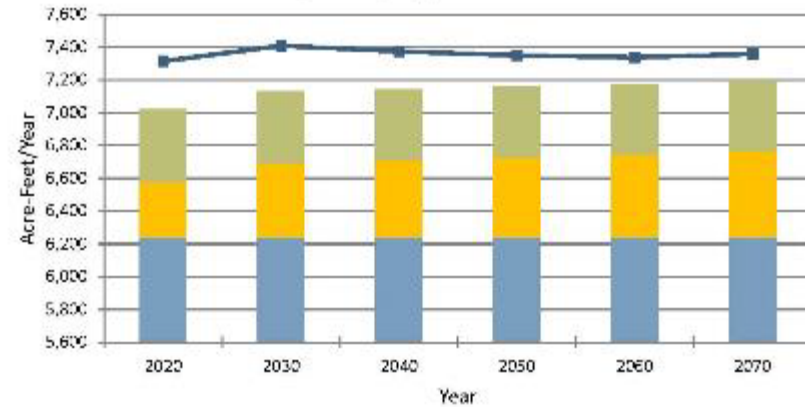
2020 Armstrong County Water Sources



2070 Armstrong County Water Sources



Armstrong County Supplies and Demands



Irrigation Livestock Municipal

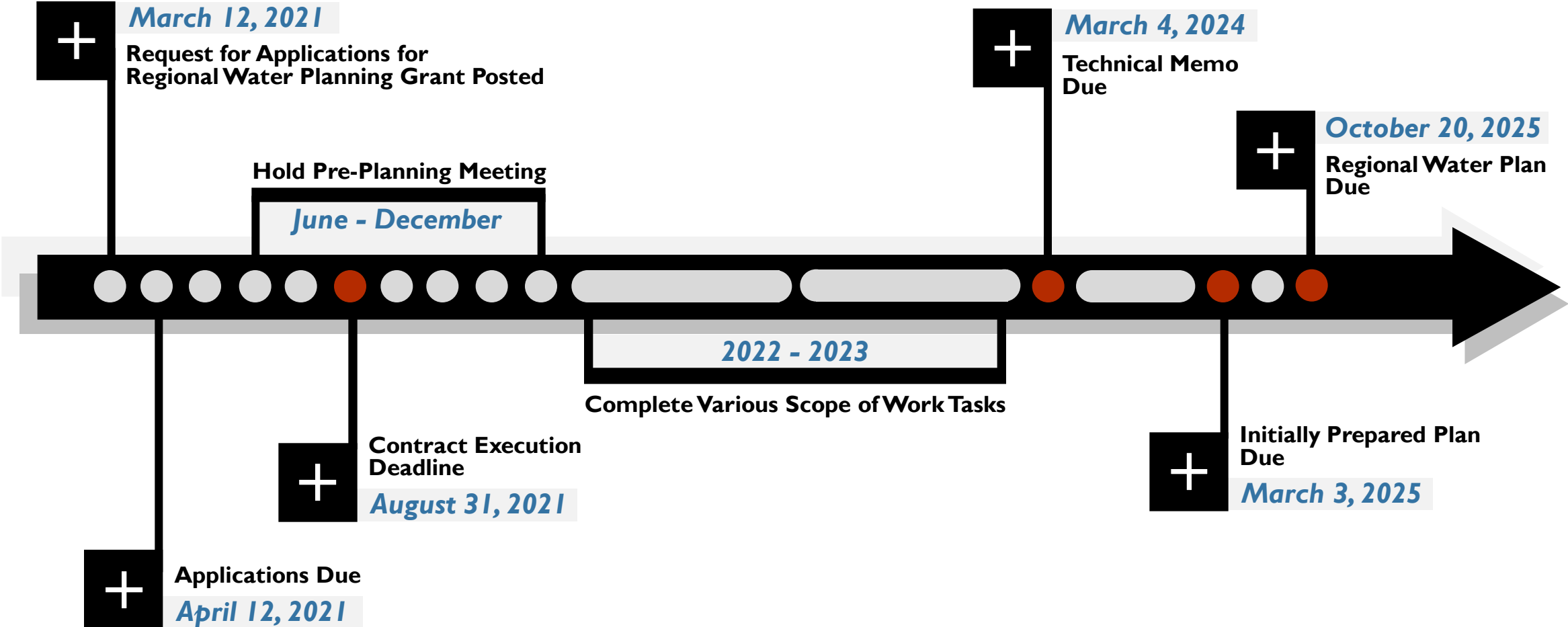
WATER USER GROUP STR

Claude	Conservation
County Other	No Water Need
Irrigation	Conservation



# Future 2026 Regional Water Plan

## Sixth Cycle of Regional Water Planning



Ben Weinheimer, P.E.

Chairman

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