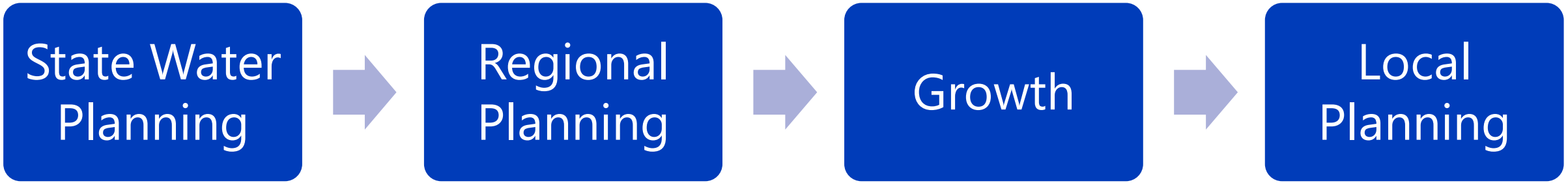
Understanding Today and Tomorrow's Water Needs

Tony L. Smith, P.E.

Belton, TX | November 14, 2023

Overview

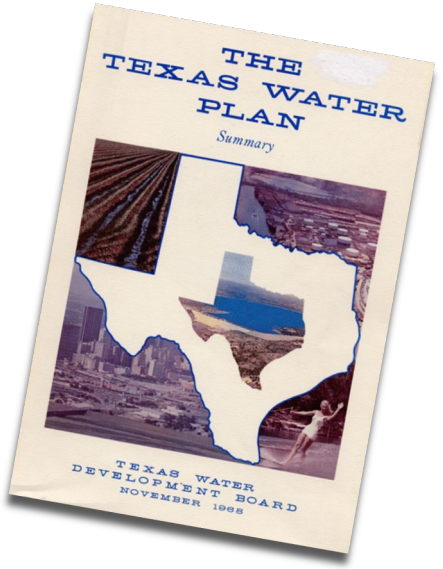

State Water Planning
Regional Planning
Growth
Local Planning

01

State Water Planning

Macro-level

State Water Planning



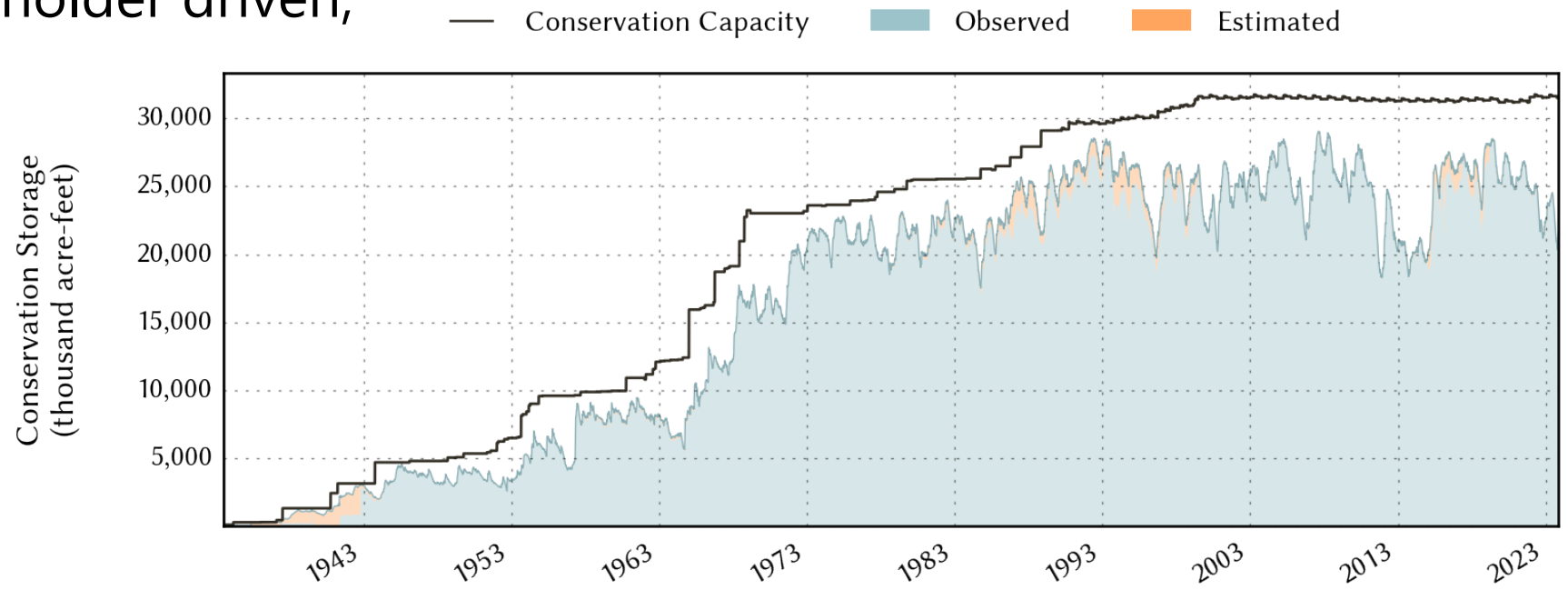
Origin

- State driven with stakeholder input
- Lack of implementation
- Drought of mid-1990s
- Redesign to stakeholder driven, regional process

Broad Objectives

- Consistent state-wide process
- Development
- Management
- Conservation

➢ **11 State Water Plans (1961 – 2022)**



From: Water Data for Texas

Stakeholder Process

Transparent and public

Developed every 5-years

- High-level snapshot in time

Planning for water needs

- Drought focused

Needs are shortages

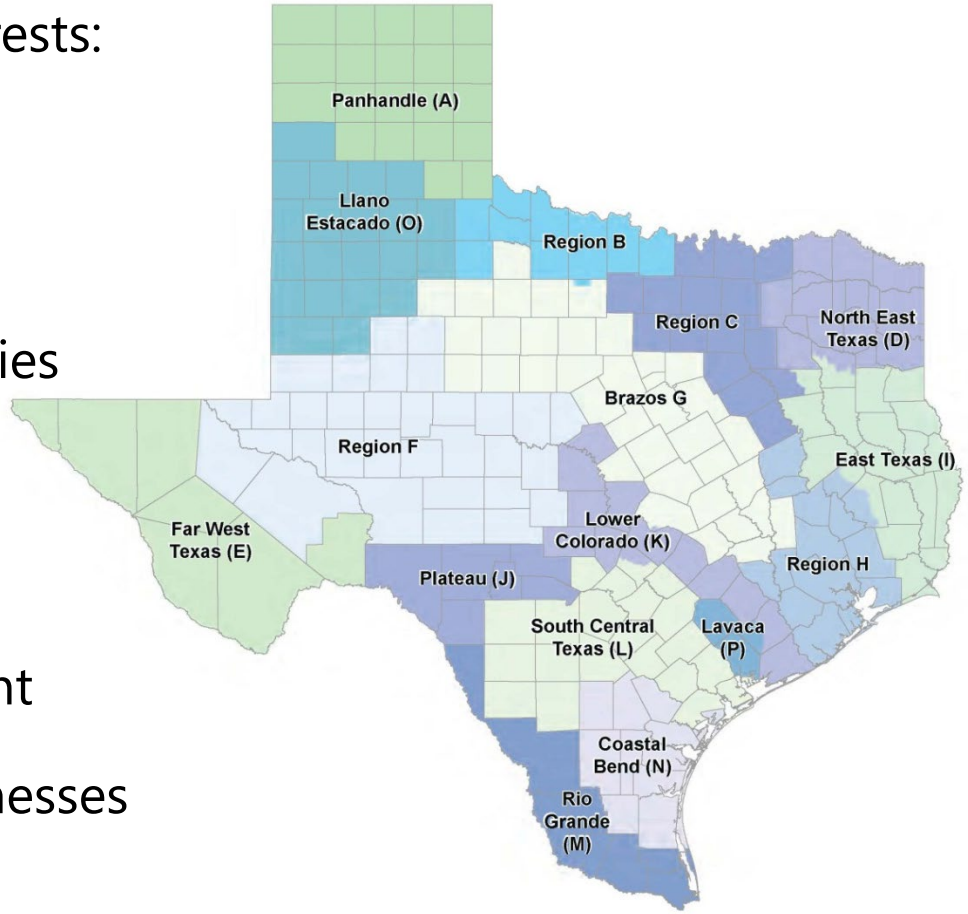
- What supplies do we have?
- What water demand will there be?

Assure sufficient water will be available at a reasonable cost to ensure public health, safety and welfare, further economic development and protect agriculture and natural resources.

Water Supply Planning Regions and Composition

Statutory interests:

- Public
- Counties
- Municipalities
- Industries
- Agriculture
- Environment
- Small businesses



- Electric-generating utilities
- River authorities
- Water districts
- Water utilities
- Groundwater management areas

Why does the State Water Plan Matter?

Regional and State Water Plans are considered in:

- Permitting (including amendments)
- Funding assistance
- Broad-scale resource to support future growth
  - Evidence of water supply and capability to support economic development
  - High-level base to support additional necessary detailed studies
- Rural water providers with limited funding for individual long-term planning studies

Consistency

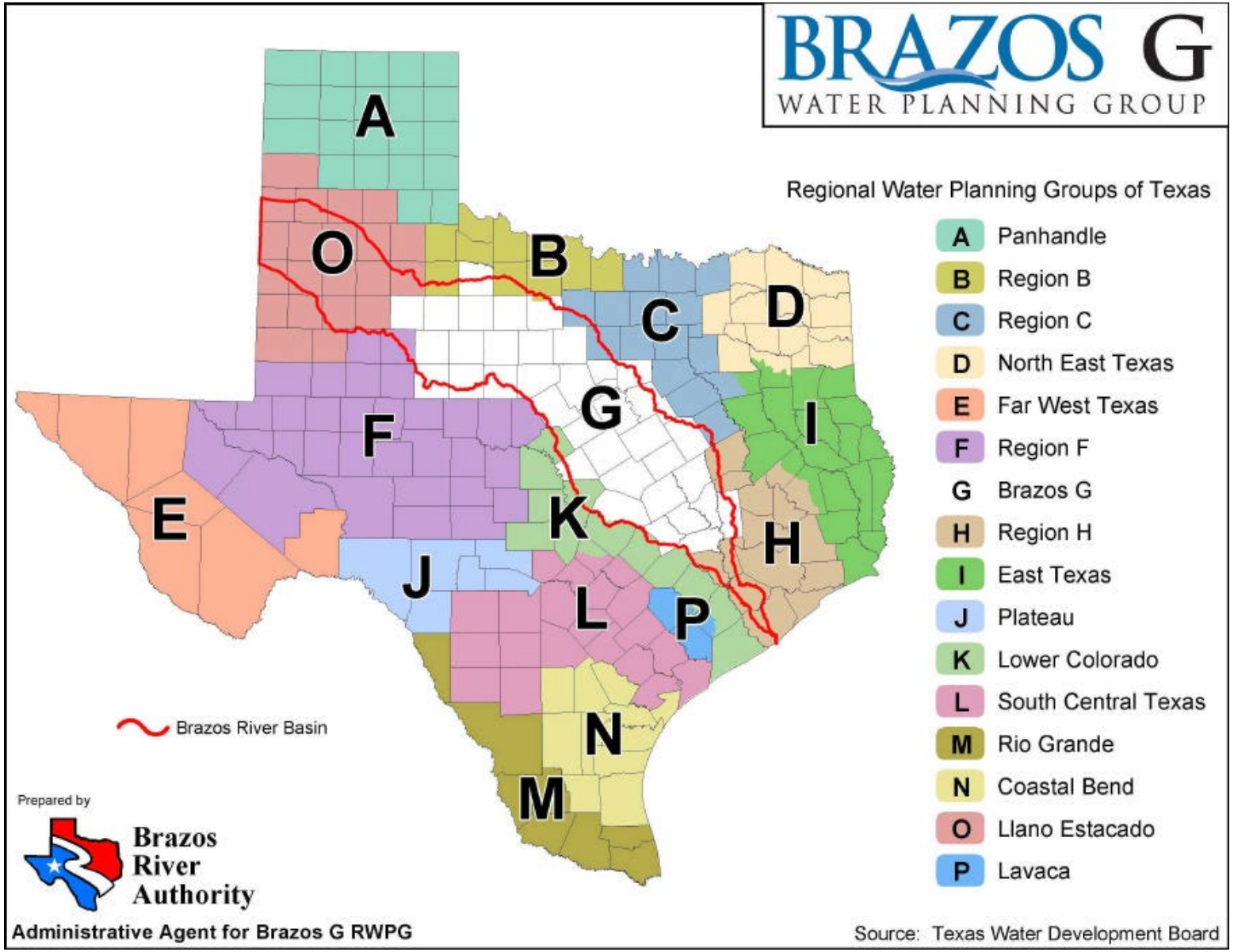
- Consistency is achieved when a proposed project will use the **same source of water** as currently used or recommended in the water plan
- A project does not have to be in the water plan **unless** certain state financing is used (SWIFT, etc.)
- Private projects, treatment, and distribution infrastructure usually not included in plans

02

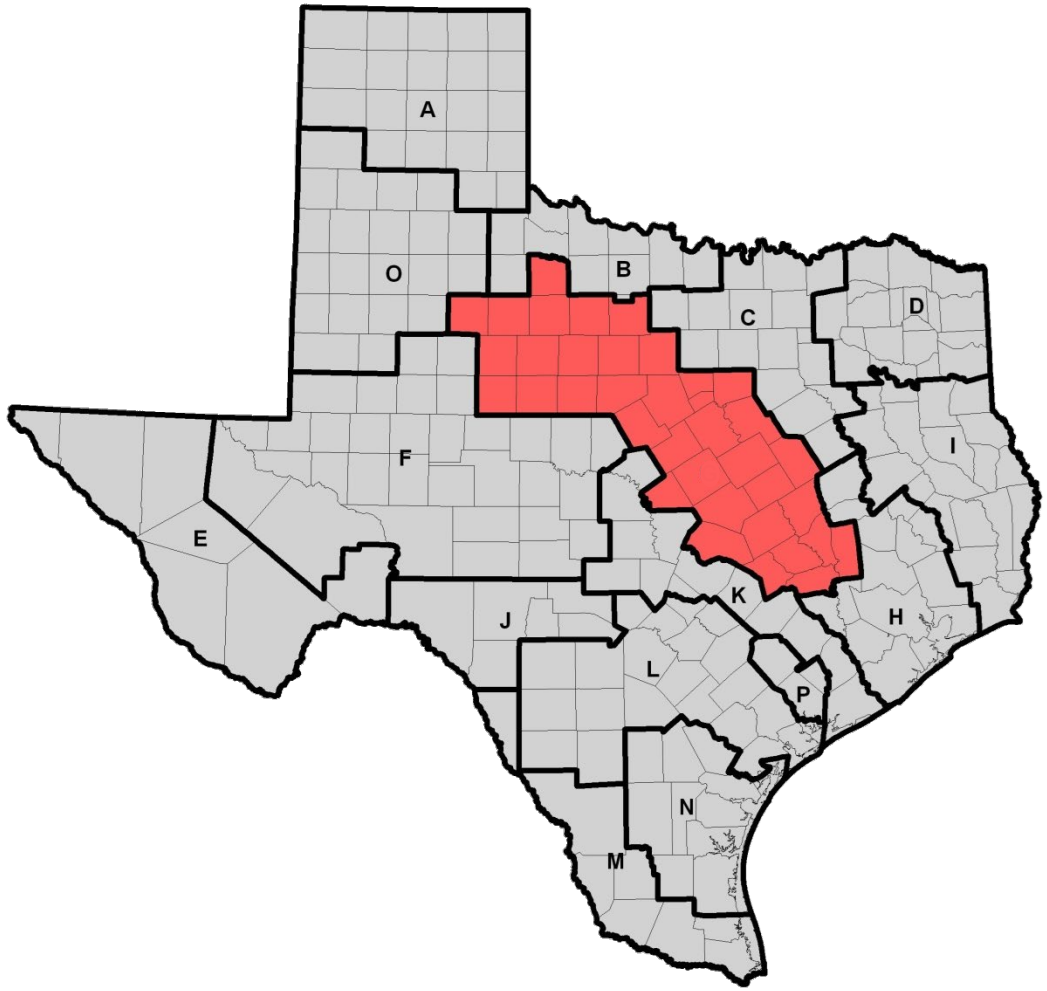
Regional Water Planning

Where we've been...

Brazos River Basin
Region G

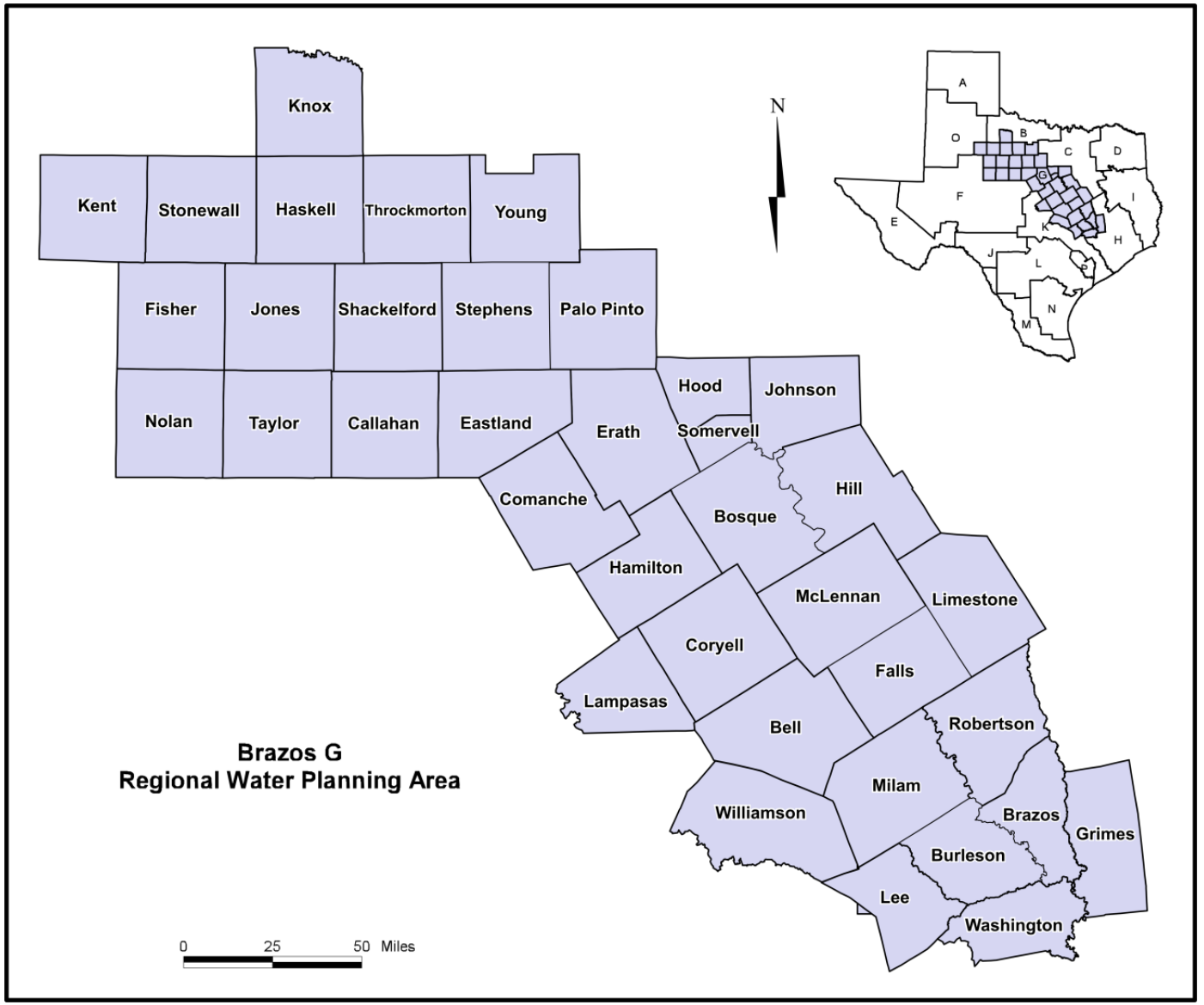


BRAZOS G
WATER PLANNING GROUP



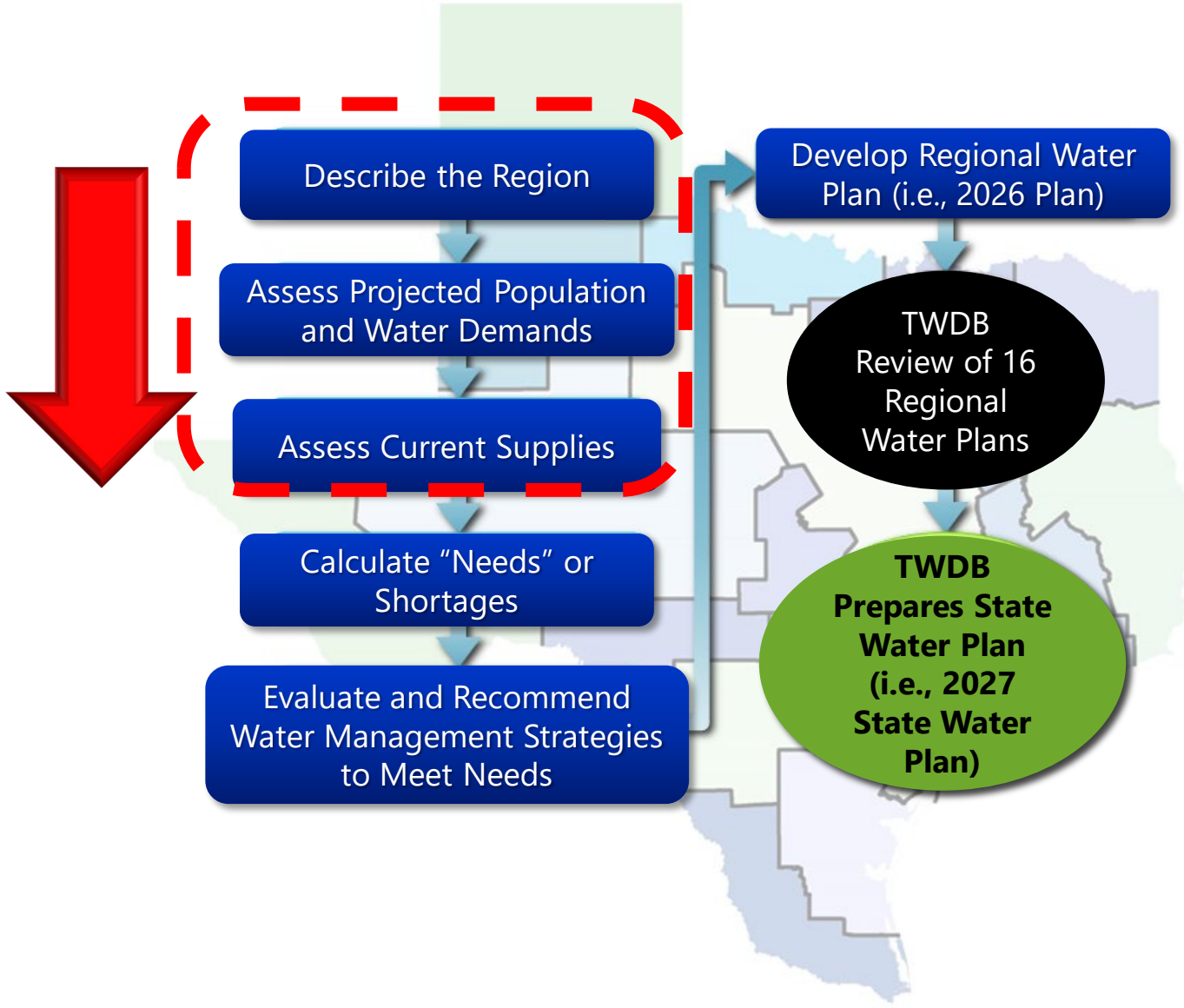
- 37 Counties
- 527 Water Users
  - 279 Municipal Groups
  - Other Uses
    - Manufacturing (30)
    - Steam Electric (12)
    - Irrigation (36)
    - Livestock (37)
    - Mining (36)
- 97 Wholesale Providers

Brazos G Counties



Steps to Regional Planning

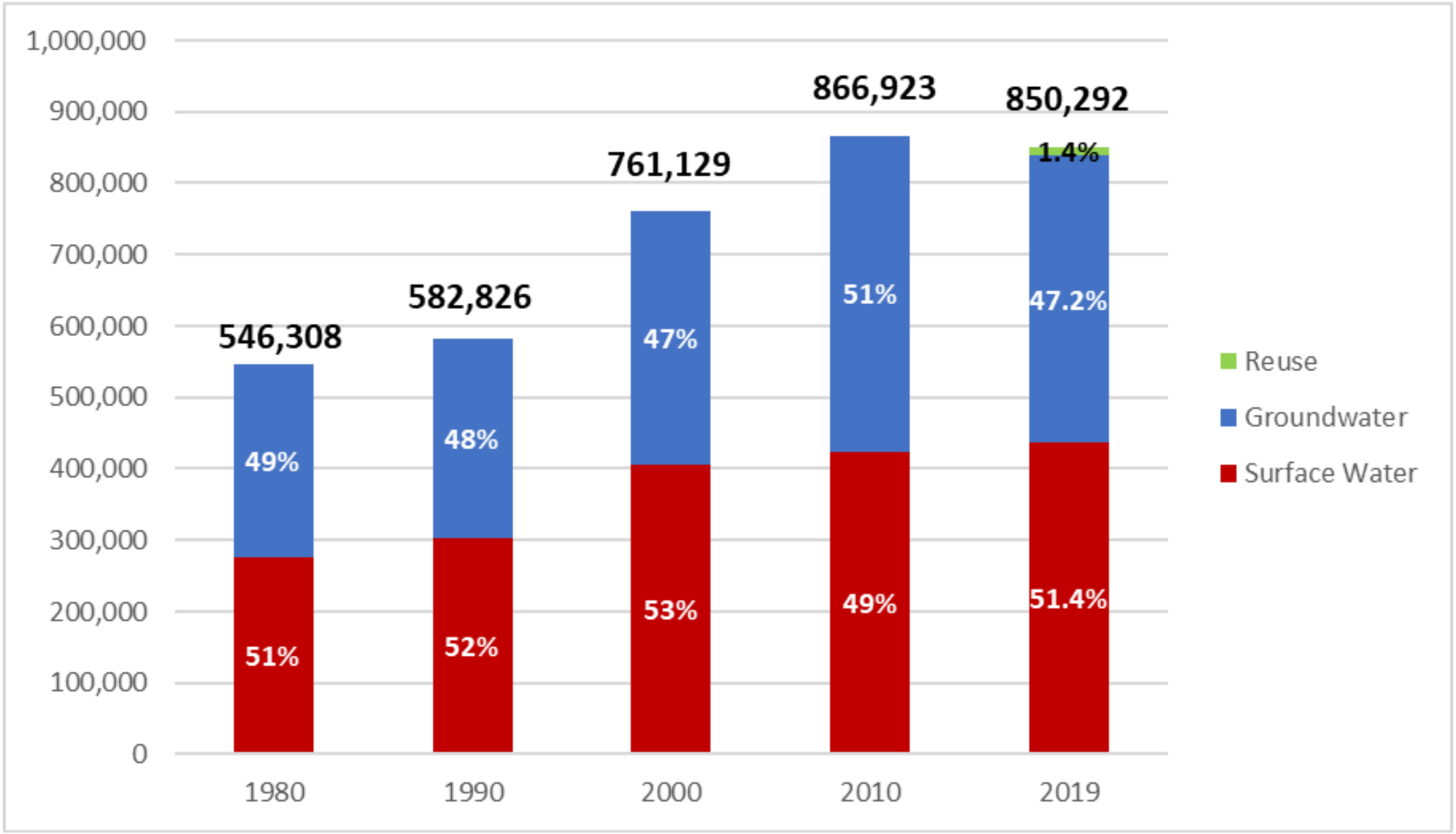
We are here.



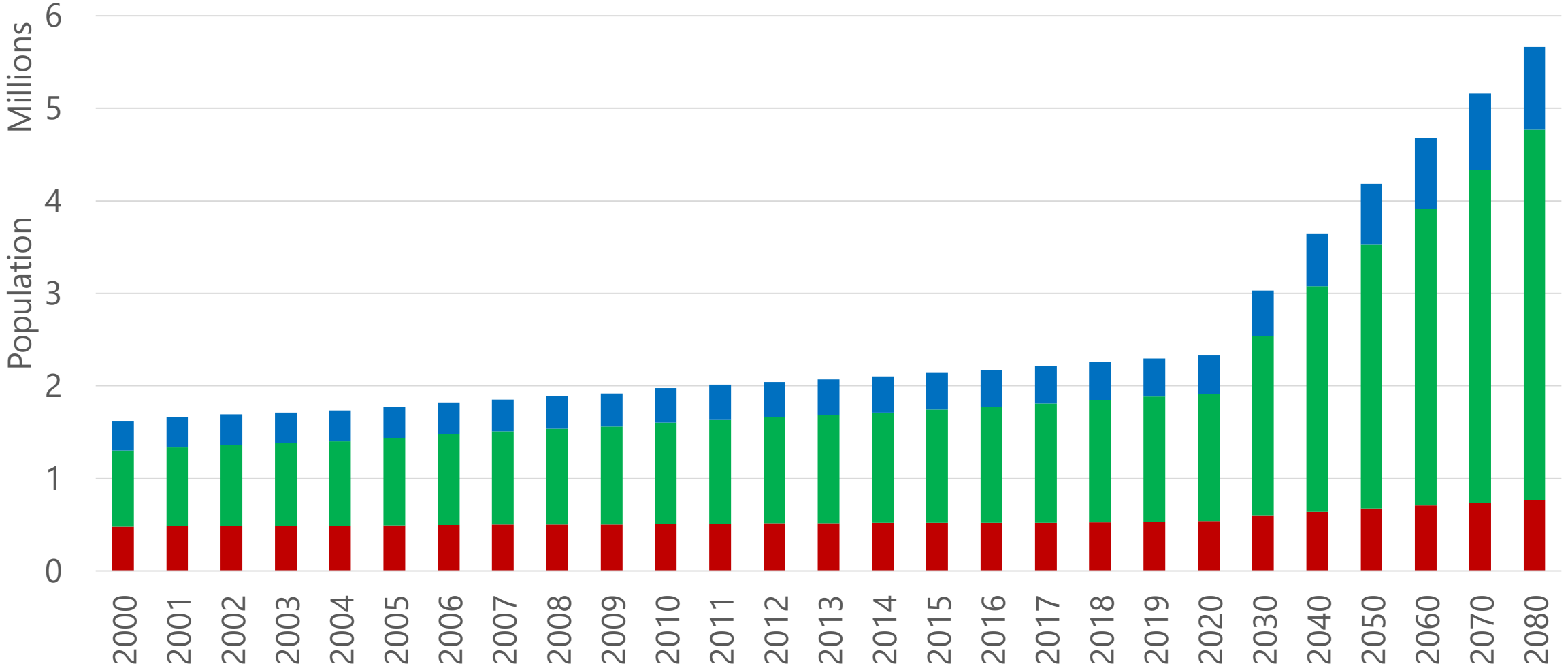
03

Growth

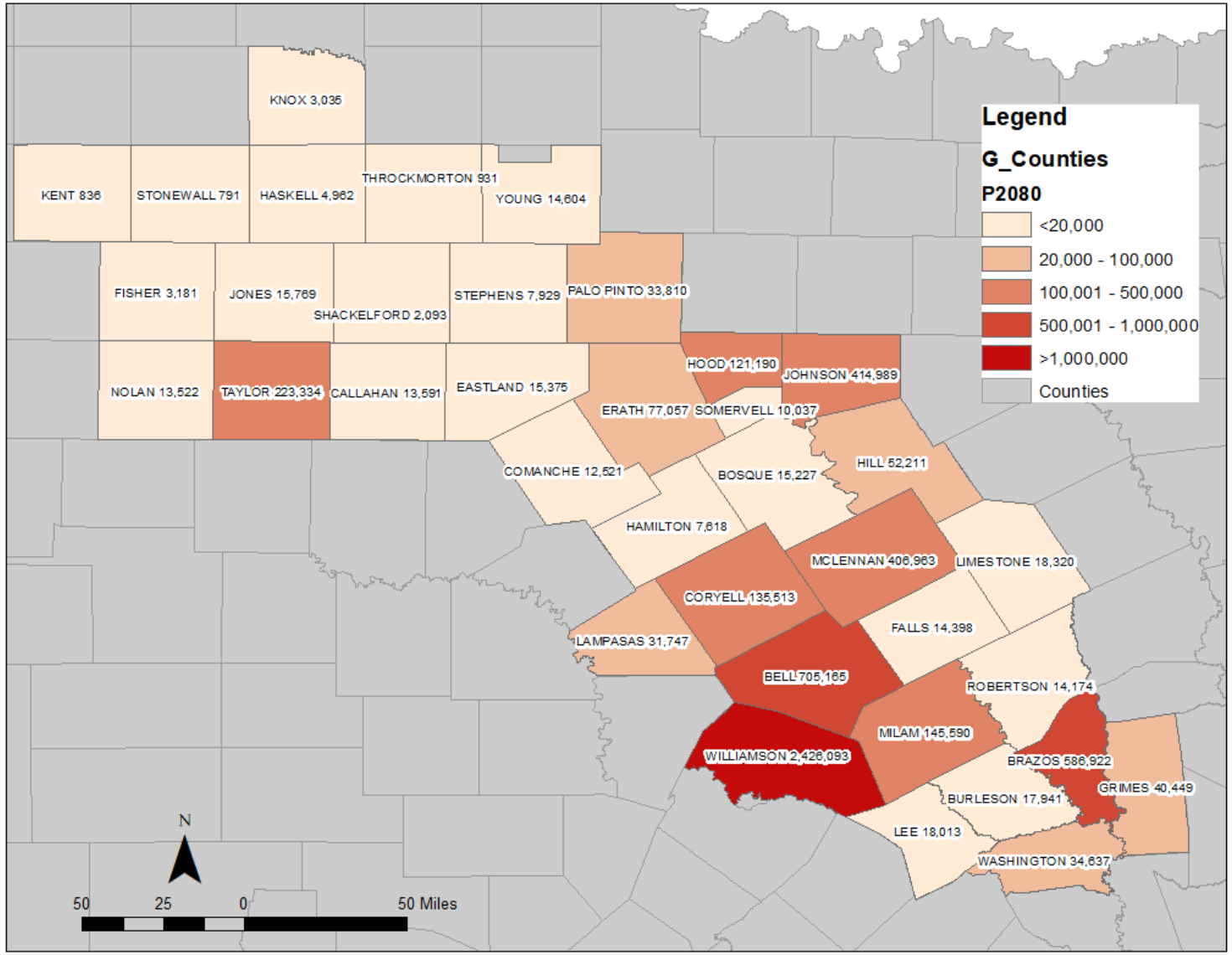
Historical Regional Water Use by Source



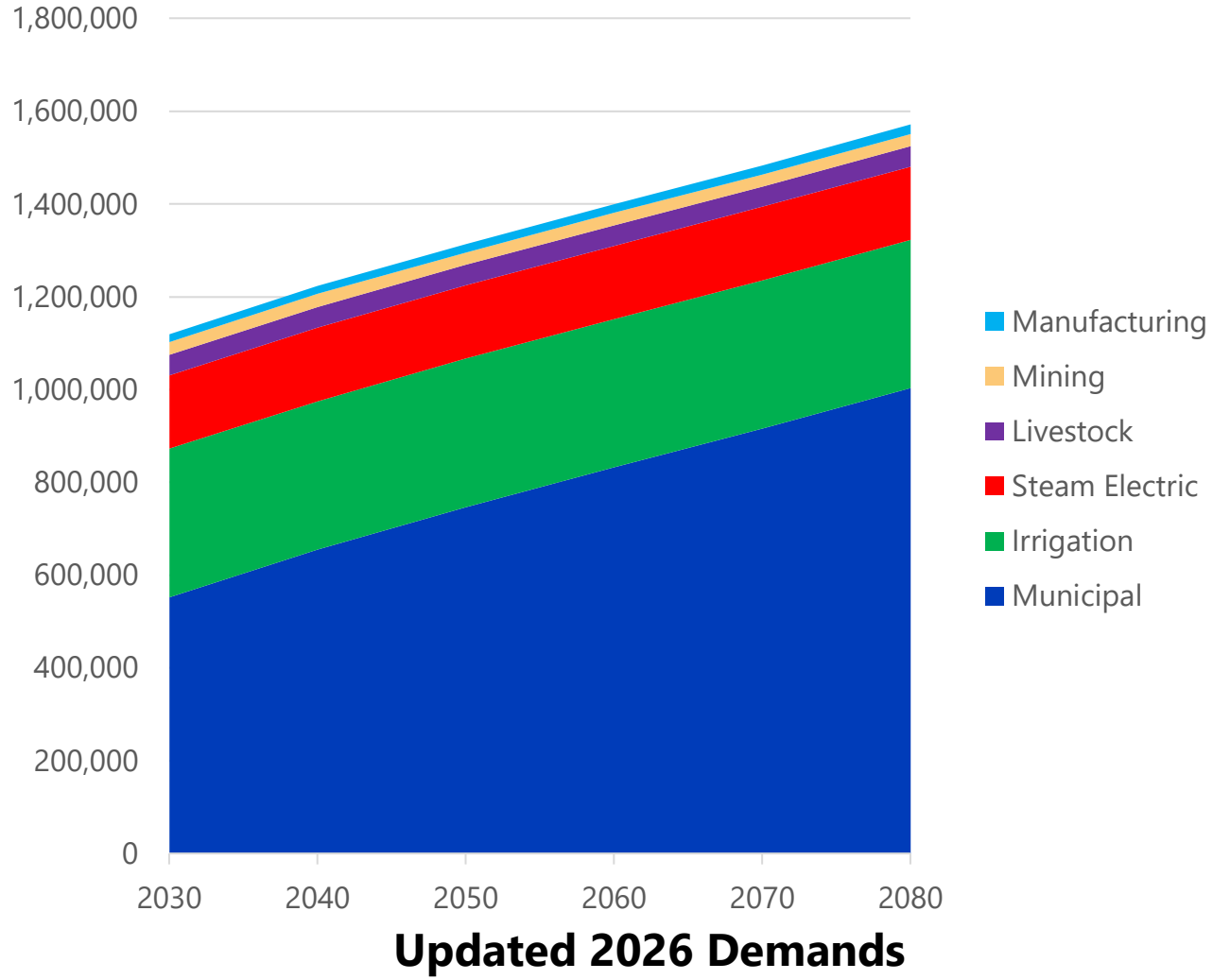
Region's Historical Population Growth and Recommended Projections for 2026 Plan



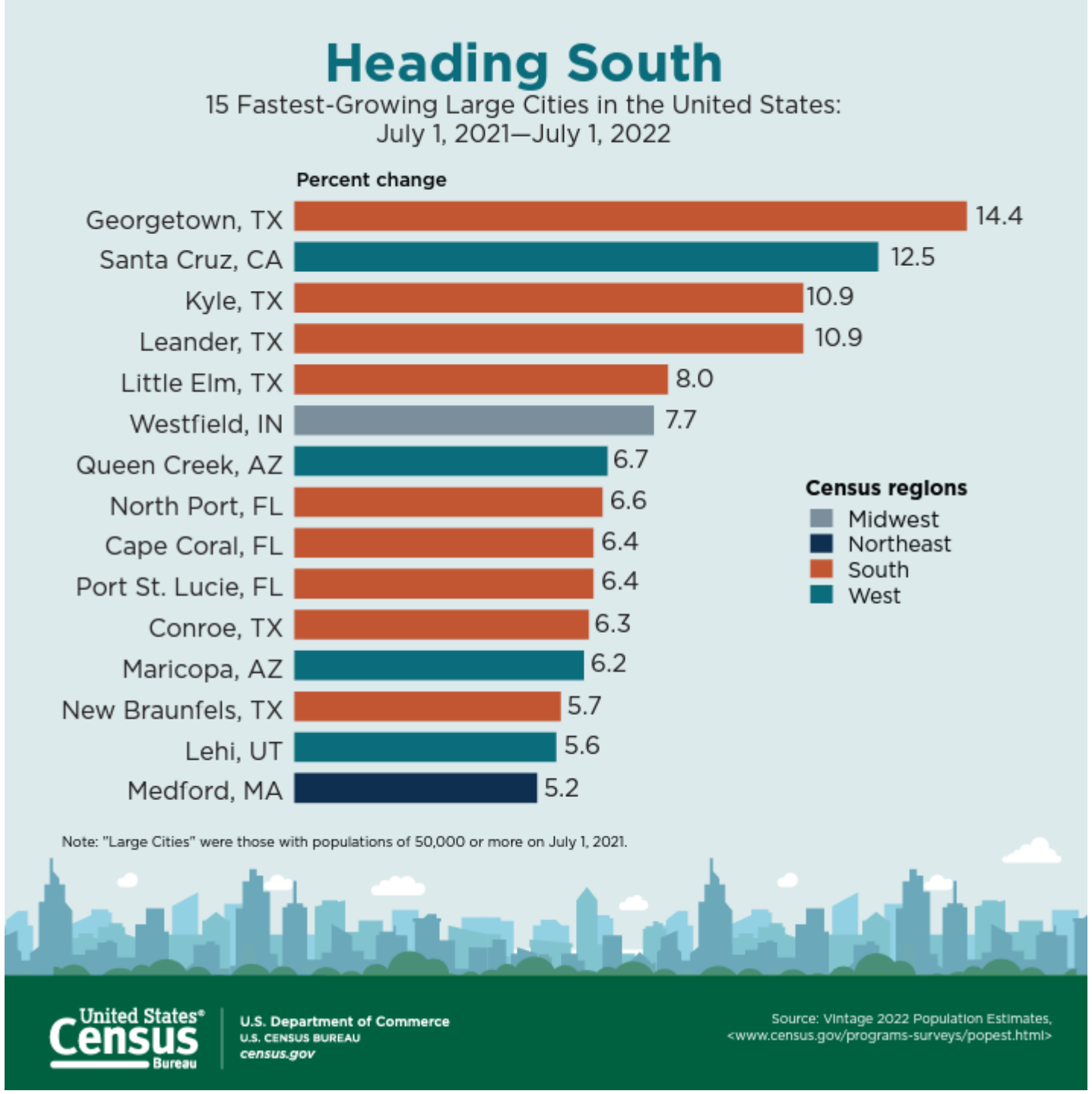
Future 2080 Population Growth (2026 Approved)



Municipal and Non-Municipal Projected Growth in Water Demand



- Decreased projections of steam-electric power generation
- Pending manufacturing demand
- Significant population growth

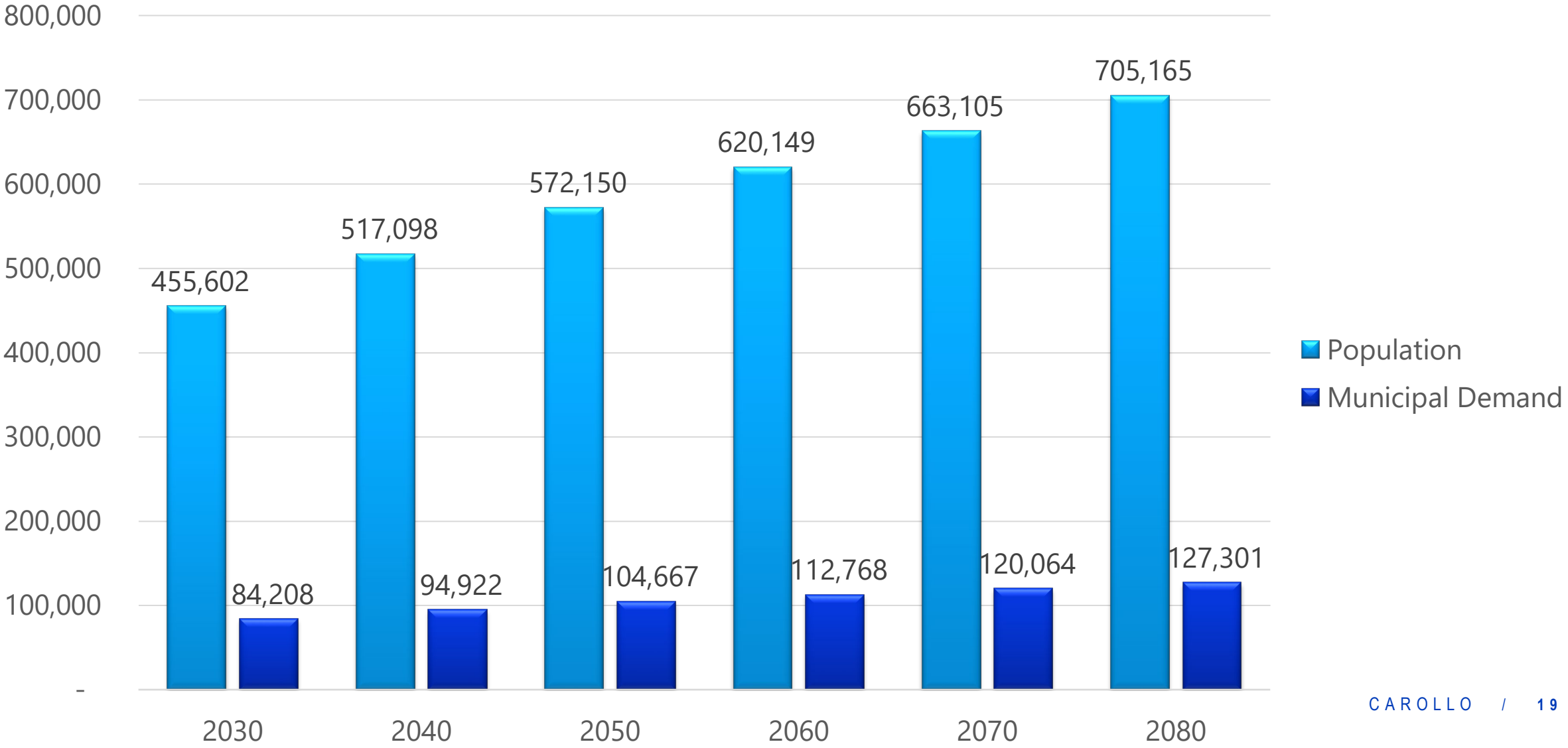


Georgetown was also #1 in the previous year.

7 years of growth in 1 yr.

If occurring three years in a row, a project you thought you needed in *two decades* you will need in *~three years*.

Bell County Population and Demand Projections



Growing Population vs. Water Demand

Not a 1-to-1 relation

- Increased efficiencies
- Implementation of conservation measures

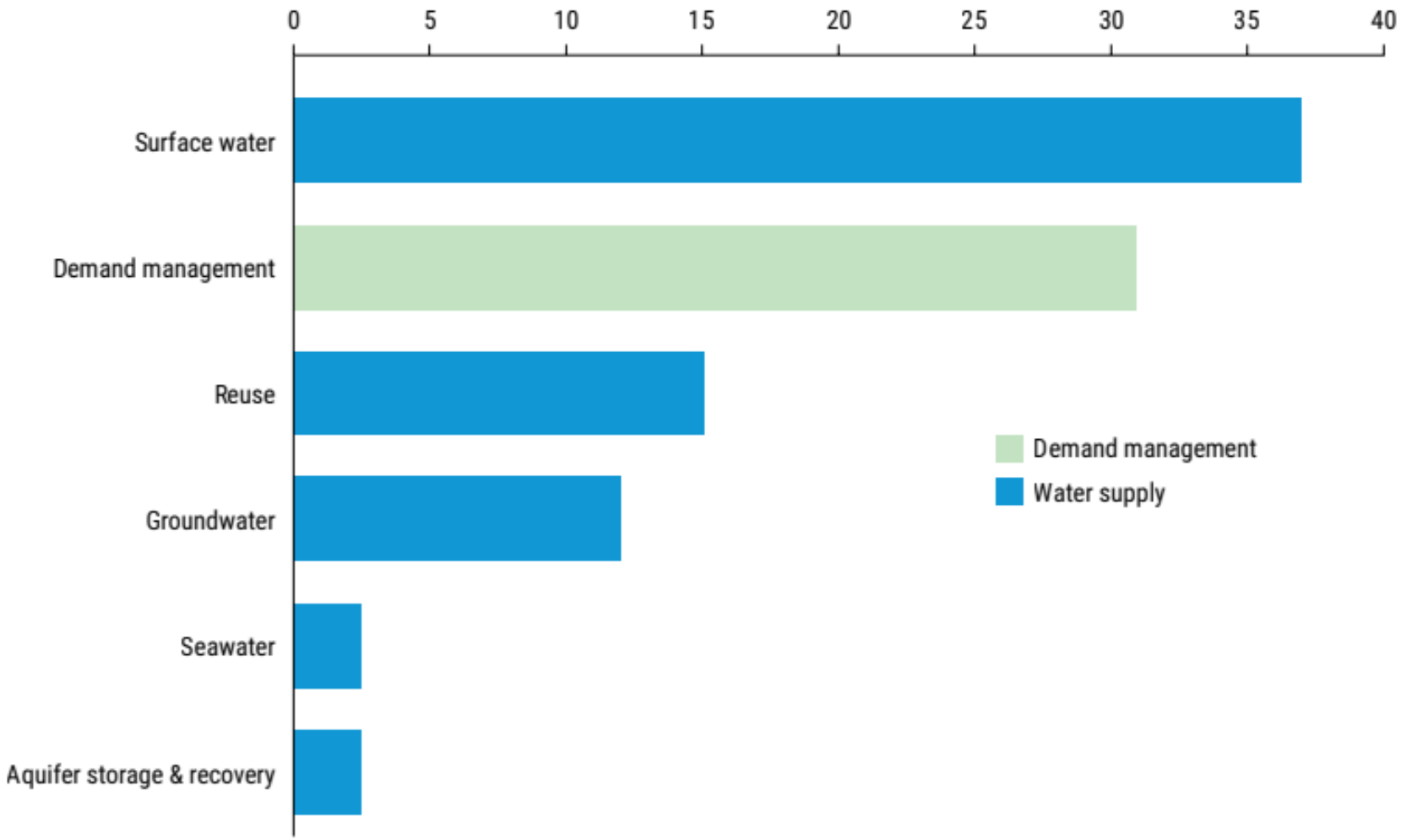
Water Conservation

- Drought Contingency Plans
- Improvements resulting in decreased water use per person
  - "GPCD – gallons per capita daily"

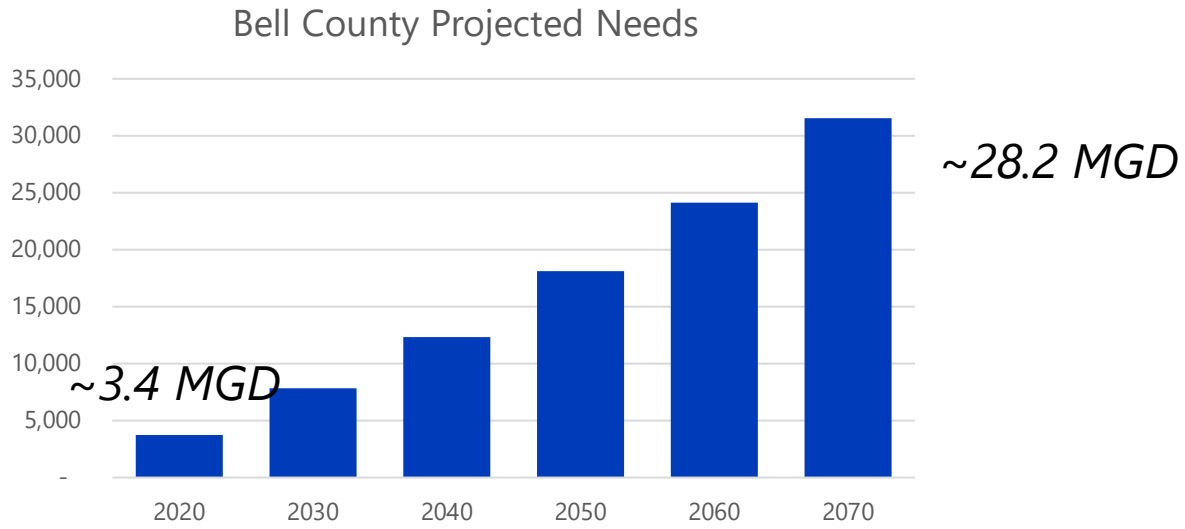
Water demand projections for regional planning reflect

- Plumbing code efficiency savings
- Trends in per capita usage
- Worst-case "drought" GPCD

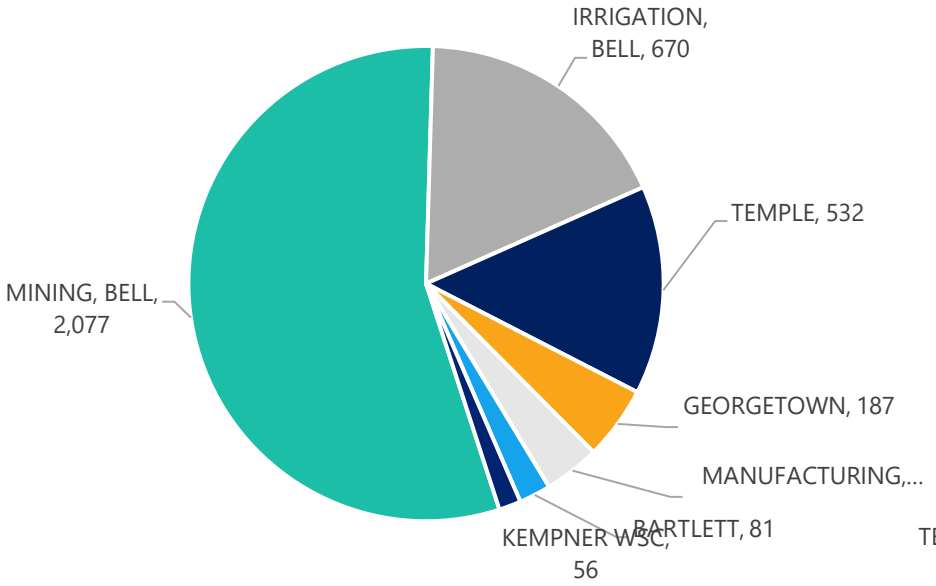
2022 State Water Plan - Share of recommended water management strategies by water resource in 2070 (percent)



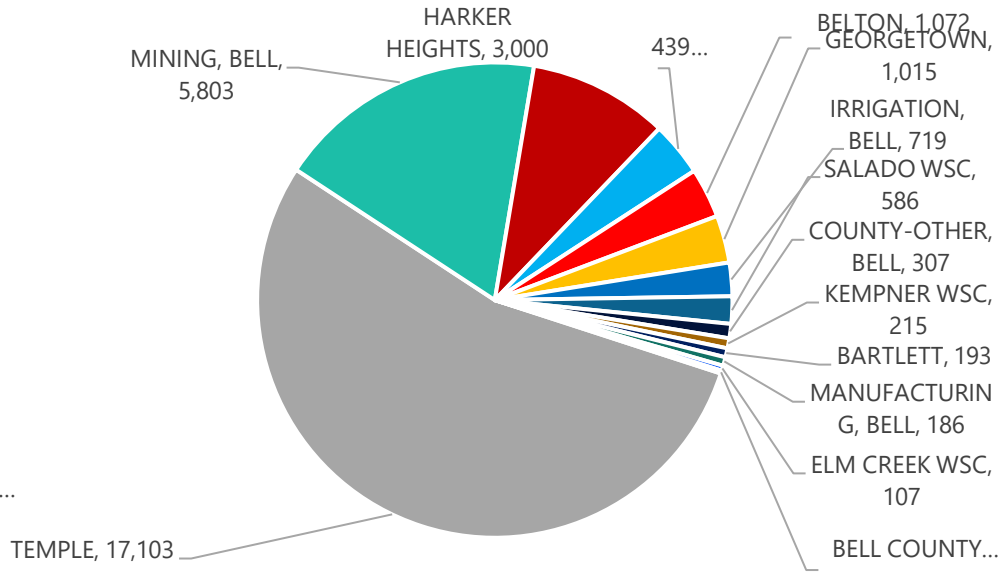
Remember:
Projects do occur outside of state planning.



3,745 ac-ft in 2020



31,530 ac-ft in 2070



From 2021 Brazos G Plan

Feasible and Infeasible Water Management Strategies

- Statutory and Rule Requirements
  - TWC §16.053(h)(10) and 31 TAC §357.12 (b)
- RWPG shall:
  - Hold a public meeting to determine the **process for identifying potentially feasible WMS**s;
    - Process shall be documented, and
    - Shall include input received at the public meeting;
  - After reviewing the potentially feasible strategies using the documented process, the RWPG shall **list** all possible WMSs that are potentially feasible for meeting a water need in the region.
  - The public meeting shall also include a presentation of the results of the analysis of **infeasible** WMSs or WMSPs, as defined by Texas Water Code §16.053(h)(10), included in the most recently adopted RWP.
    - Include list of Infeasible WMSs and WMSPs in Technical Memorandum
    - Infeasible WMSs or WMSPs shall be identified based on:
      - Project sponsor provided information
      - Local knowledge, as acquired through plan development activities such as surveys, and as determined based on implementation schedules consistent with implementation by the project sponsors.
  - The group shall provide notice to all associated project sponsors and amend its adopted RWP as appropriate based upon the analysis.

2021 Recommended Water Management Strategies to meet projected needs in Bell County

- Alcoa Property Supply (Alcoa Lake & Brazos ROR)
- Alcoa Property Supply (Milam Sep Little River)
- Belton to Stillhouse Pipeline – BRA
- Belton WTP Expansion
- Edwards Aquifer Development
- Georgetown WTP Expansion
- Industrial Water Conservation
- Irrigation Water Conservation
- Kempner WSC WTP Expansion
- Killeen Reduction to Harker Heights
- Lake Granger ASR
- Lake Granger Augmentation-Ph 2 (GW)
- Municipal Water Conservation
- Purchase from Bell County WCID 1
- Purchase Raw Water from Fort Hood
- Purchase supply from Jarrell-Schwertner WSC
- Purchase treated SW from Central Texas WSC
- Reallocation of Supply from Moffat WSC
- Reuse
- Temple WTP Expansion
- Trinity Aquifer Development
- Trinity – Lake Georgetown ASR
- Williamson County Groundwater – South Option

04

Local Planning

Drivers for Local Planning

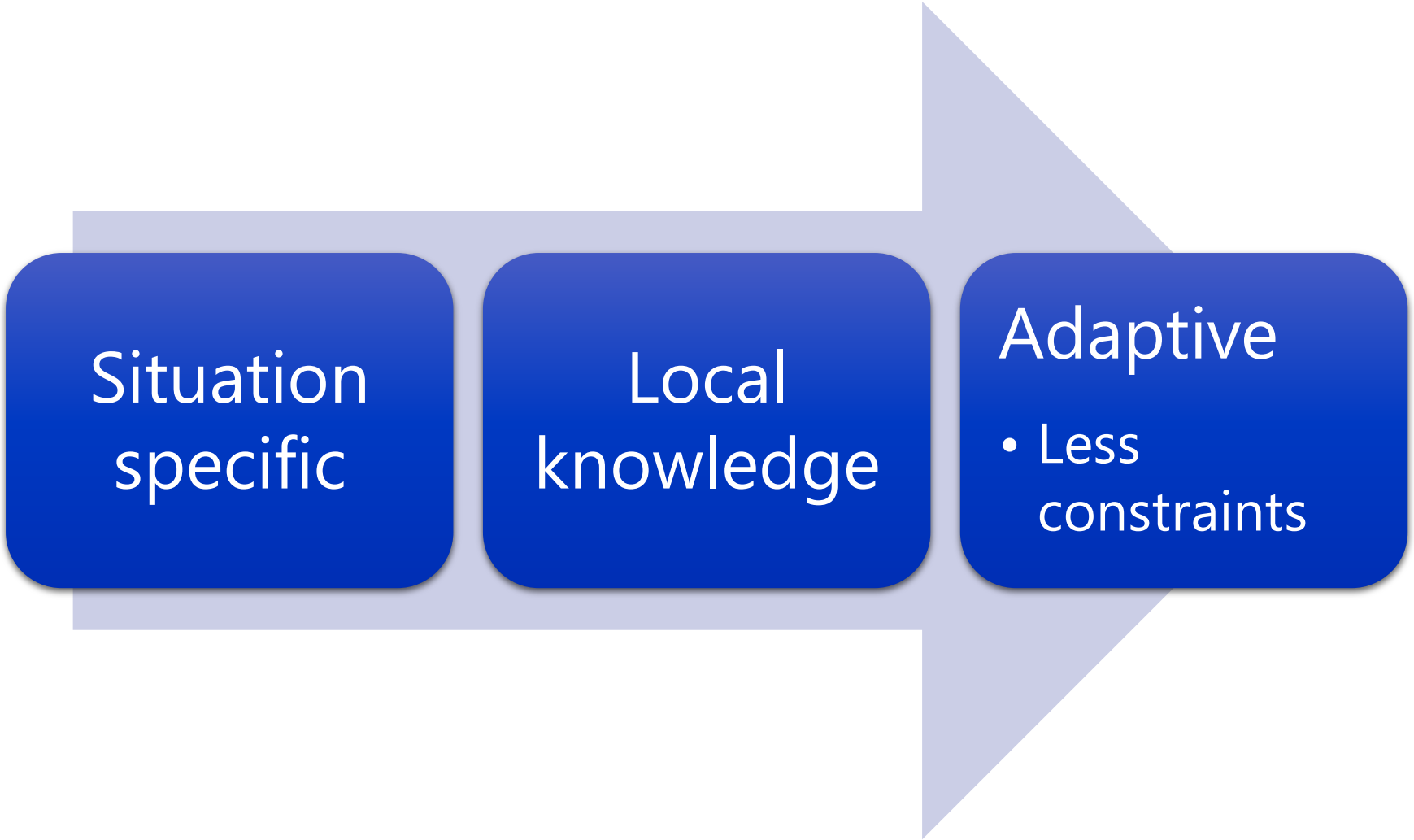
State/Regional Plans

- 5-year Cycle
- Large-scale
- Consistency across the state

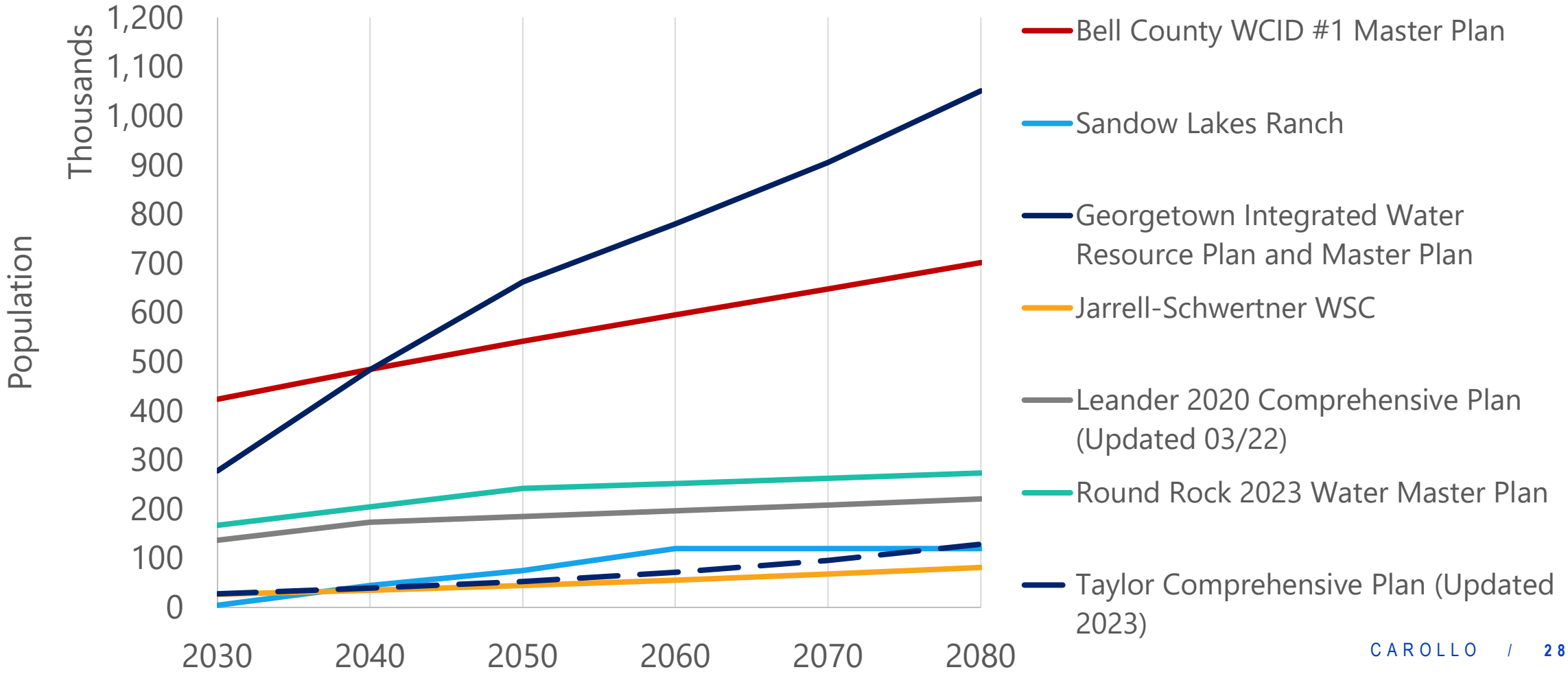
Texas Dynamics

- Rapid population growth
- Business climate
- Associated development

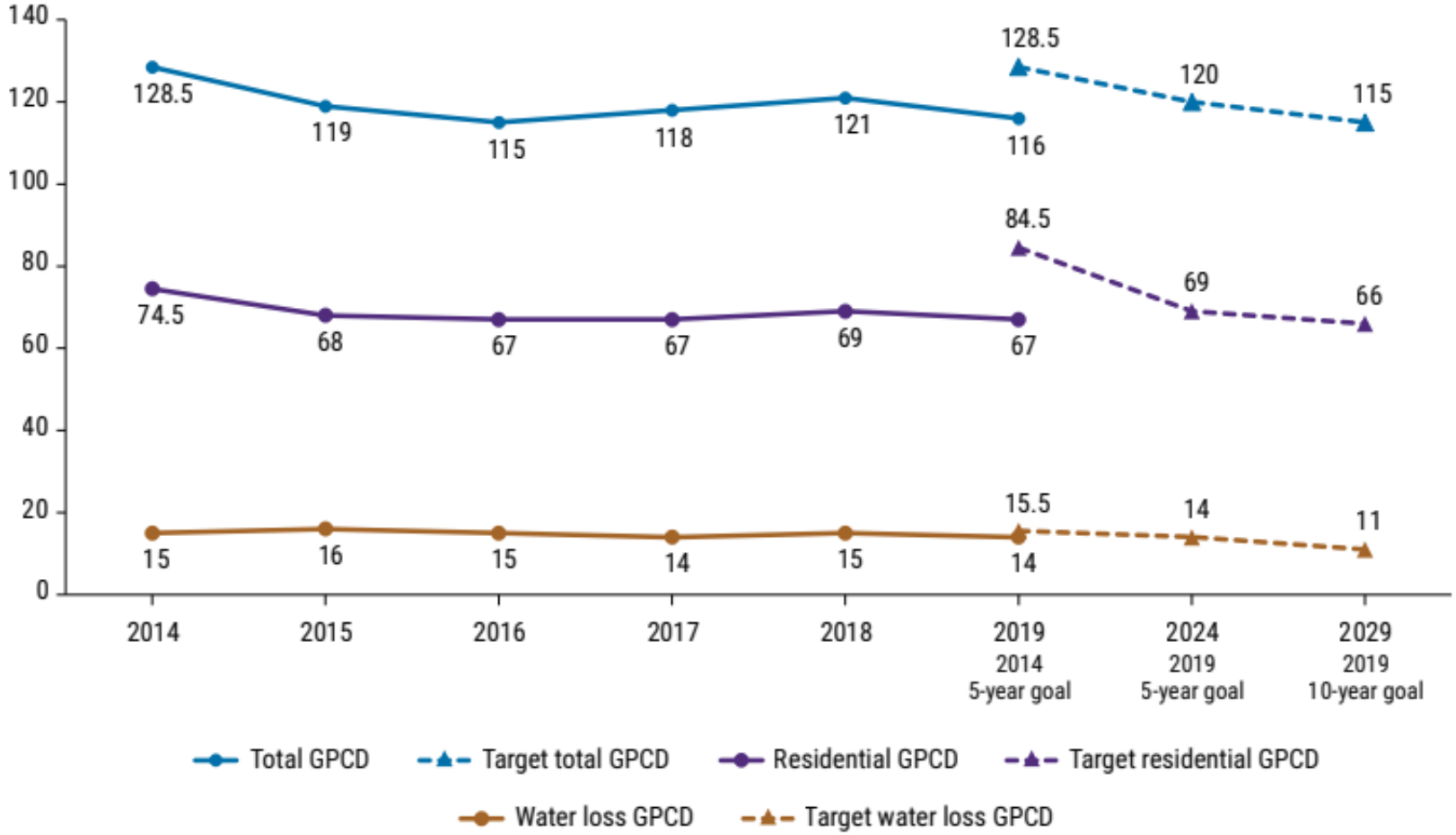
Benefits of Local Planning



Population Projections from Local Plans from Bell, Milam, and Williamson Counties



2022 State Water Plan – Statewide historical median GPCD and 5- and 10-year goals for total water use, residential water use, and water loss



Putting all the tools in the Toolbox.

Conservation

- Demand management
- Water loss

Surface Water

- Leveraging existing supplies

Groundwater Permitting and Pipelines

- Permit for 25,000 ac-ft/yr contracted for E. Williamson County
- 15,000 ac-ft/yr for Milam County, with additional 9,000 ac-ft/yr permitting being sought, all contemplated for residential/commercial uses.
- Consistent rather than seasonal

Reuse

- Samsung goal in Austin is to reuse more than 1 billion gallons of water in 2023.
- At new Taylor facility, goal is to reclaim more than 75% of the water used.

Disclaimer: I'm not involved in permitting.

Groundwater Management Strategies are not new

PROPOSED AND EXISTING WATER PIPELINE PROJECTS OF THE CARRIZO-WILCOX AQUIFER

LEGEND

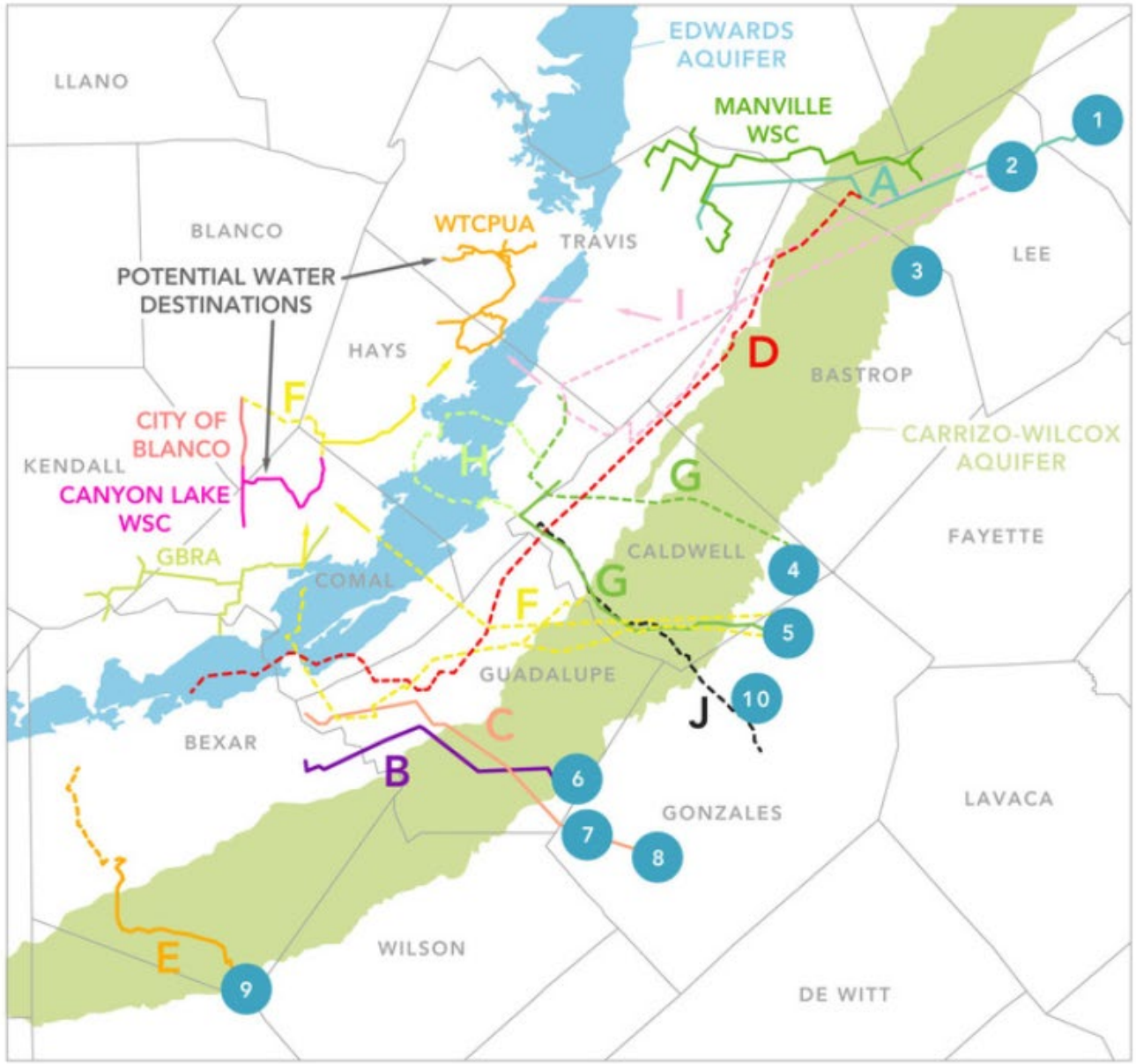
WATER SOURCES

	PROJECT NAME	PERMITTED/ AUTHORIZED (ACRE-FEET)	PROPOSED (ACRE-FEET)
1	BLUE WATER SYSTEMS	71,000	-
2	FORESTAR	12,000	45,000
3	ENDOP	-	56,000
4	HCPUA	10,300	35,690
5	TWA	-	15,000
6	CRWA	5,200	-
7	SSLGC	19,363	-
8	SAWS - REGIONAL CARRIZO PROJECT	11,687	-
9	SAWS - EXPANDED LOCAL CARRIZO PROJECT	21,000	-
9	SAWS - CARRIZO ASR PRODUCTION	7,400	-
9	SAWS - WILCOX DESALINATION	33,600	-
10	GBRA - SURFACE AND GROUNDWATER	-	49,777

PIPELINES

- (A) BLUE WATER SYSTEM
- (B) CANYON REGIONAL WATER AUTHORITY
- (C) SCHERTZ-SEGUIN LOCAL GOVERNMENT CORPORATION/ SAN ANTONIO WATER SYSTEM
- (D) SAN ANTONIO WATER SYSTEM/VISTA RIDGE PIPELINE PROJECT
- (E) SAN ANTONIO WATER SYSTEM
- (F) TEXAS WATER ALLIANCE
- (G) HAYS CALWDWELL PUBLIC UTILITY AGENCY
- (H) PROPOSED, WIMBERLEY
- (I) FORESTAR
- (J) GUADALUPE BLANCO RIVER AUTHORITY

WELL FIELDS



Local Planning for Smart Water Management

Higher Demands

Increasing Commitment to Stewardship of Resources

- Water Conservation
- Reuse
- Efficiency

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