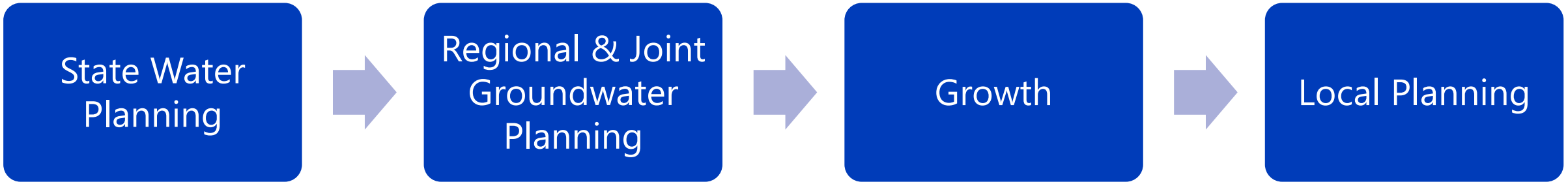
State of Water in Texas: Trends and Future Outlook

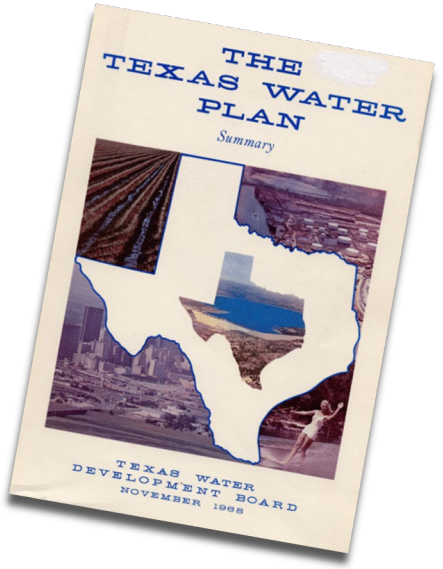
Tony L. Smith, P.E.

Caldwell Civic Center | July 18, 2024

Overview


State Water Planning
Regional & Joint Groundwater Planning
Growth
Local Planning

State Water Planning



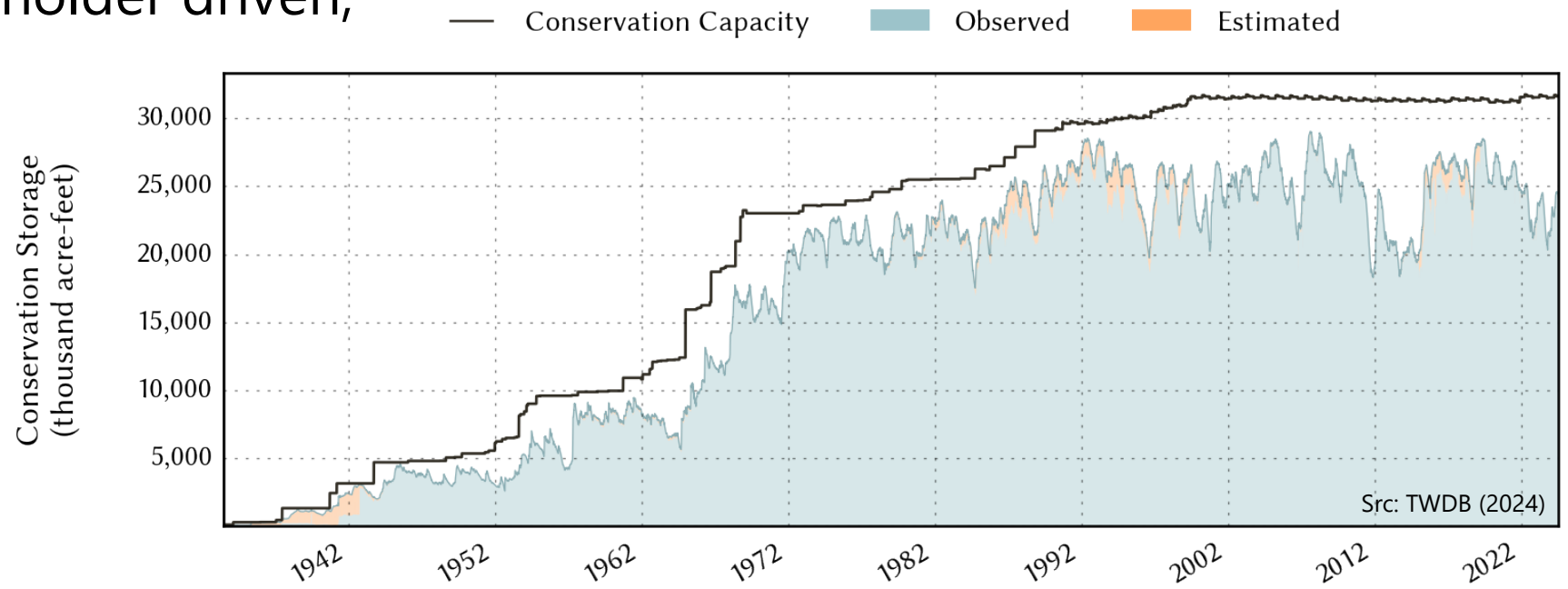
Origin

- 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)**



Stakeholder-driven 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.

Why does the State Water Plan Matter?

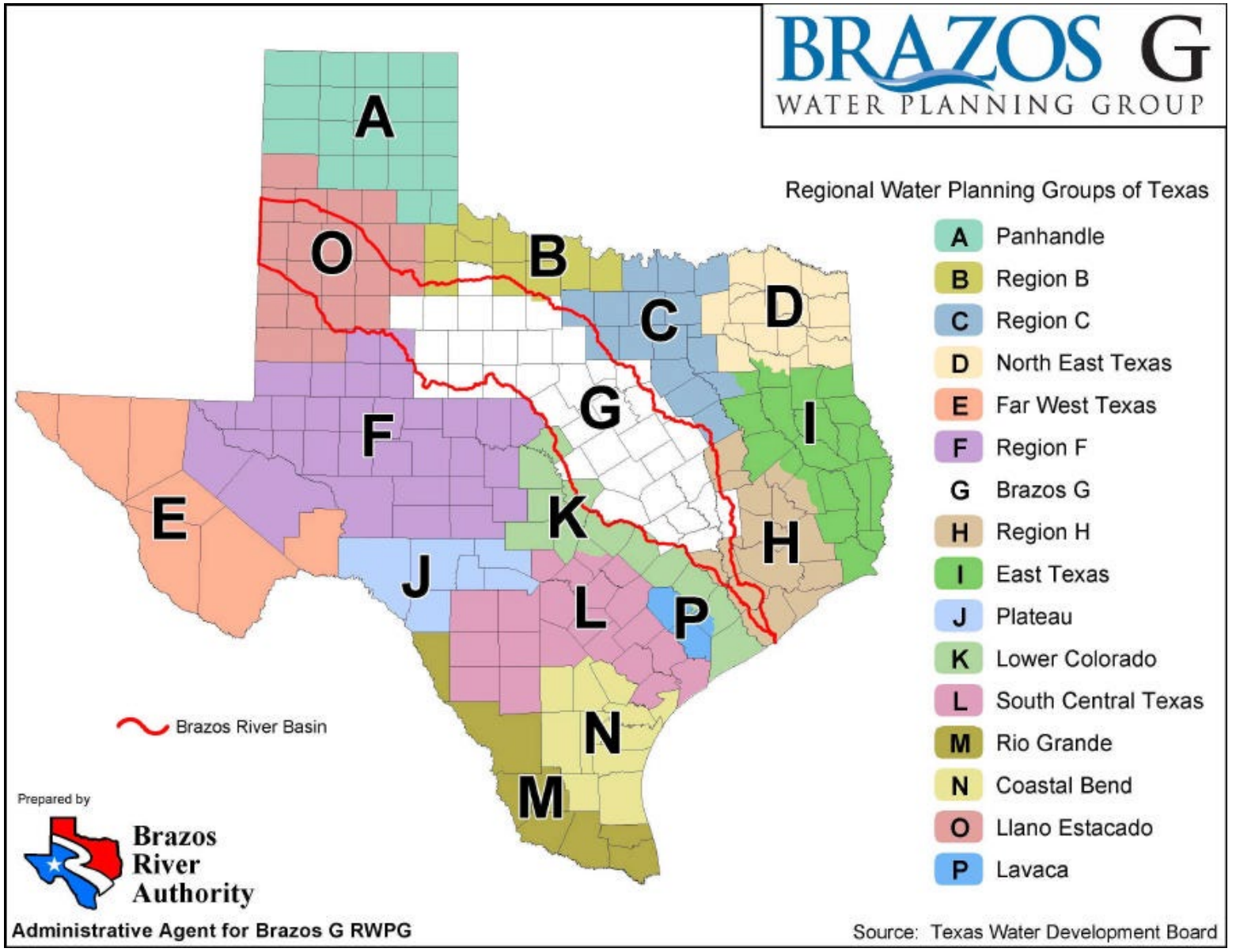
Regional and State Water Plans are considered in:

- 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
- Supports 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

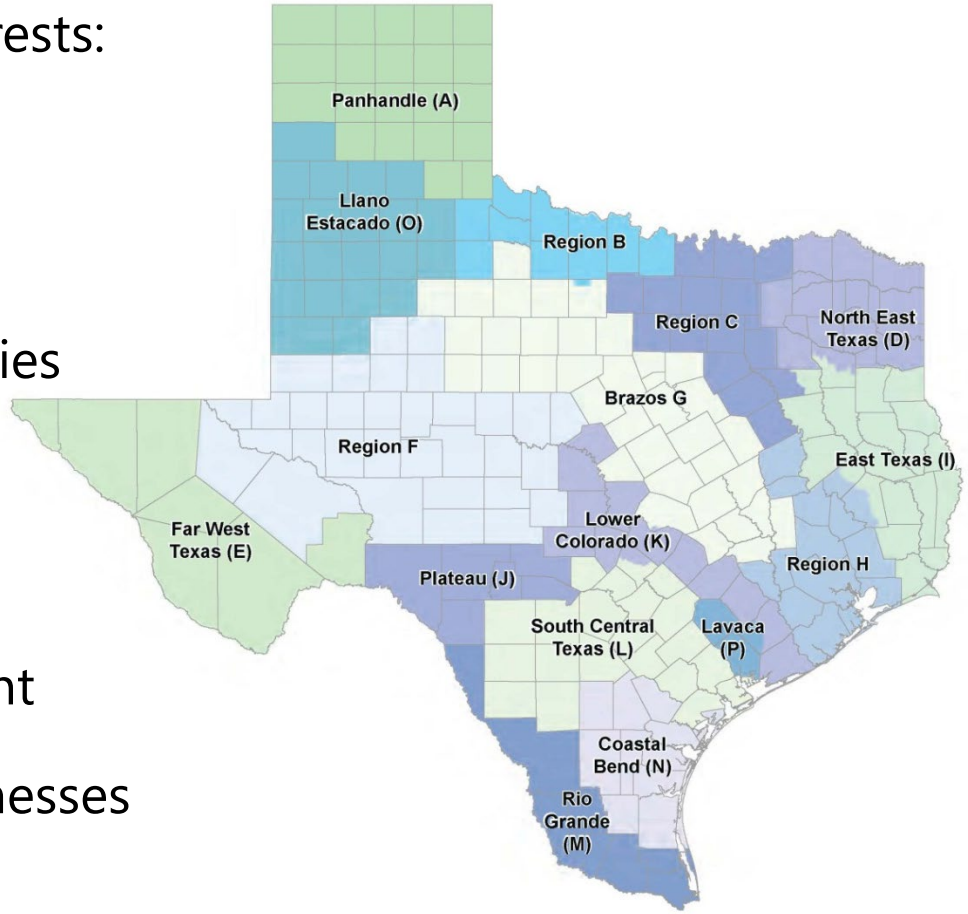
Regional Planning



Composition of Regional Water Planning Groups

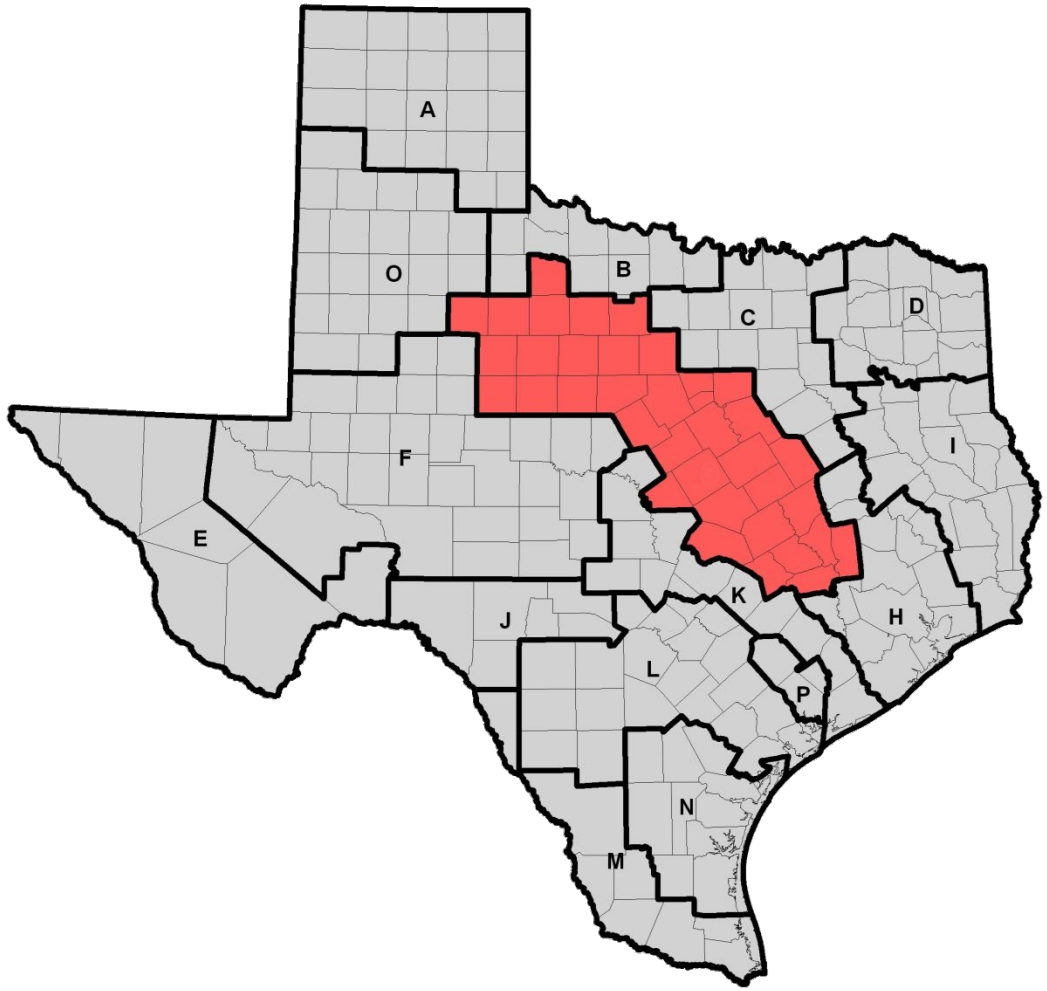
Statutory interests:

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



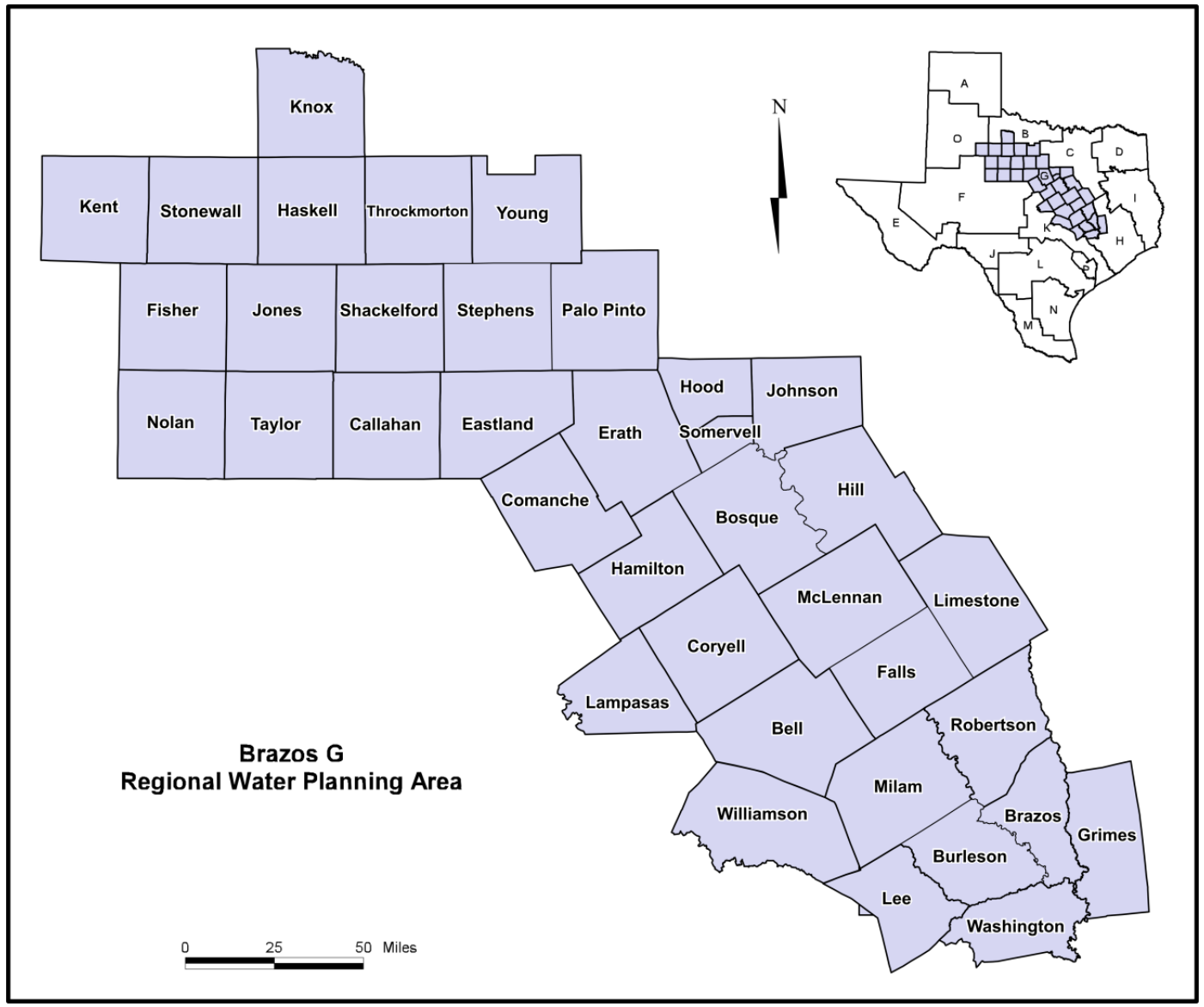
- Electric-generating utilities
- River authorities
- Water districts
- Water utilities
- Groundwater Management Areas (GMAs)
- Groundwater Conservation Districts (GCDs)

BRAZOS G
WATER PLANNING GROUP



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

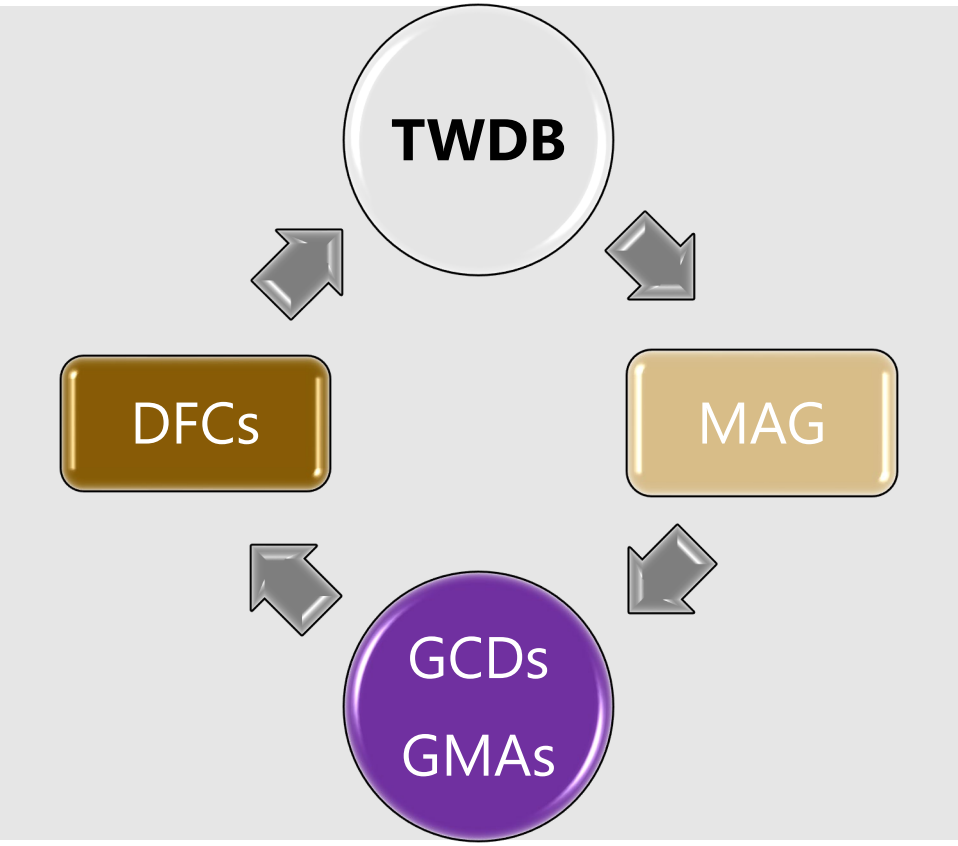
Brazos G Counties



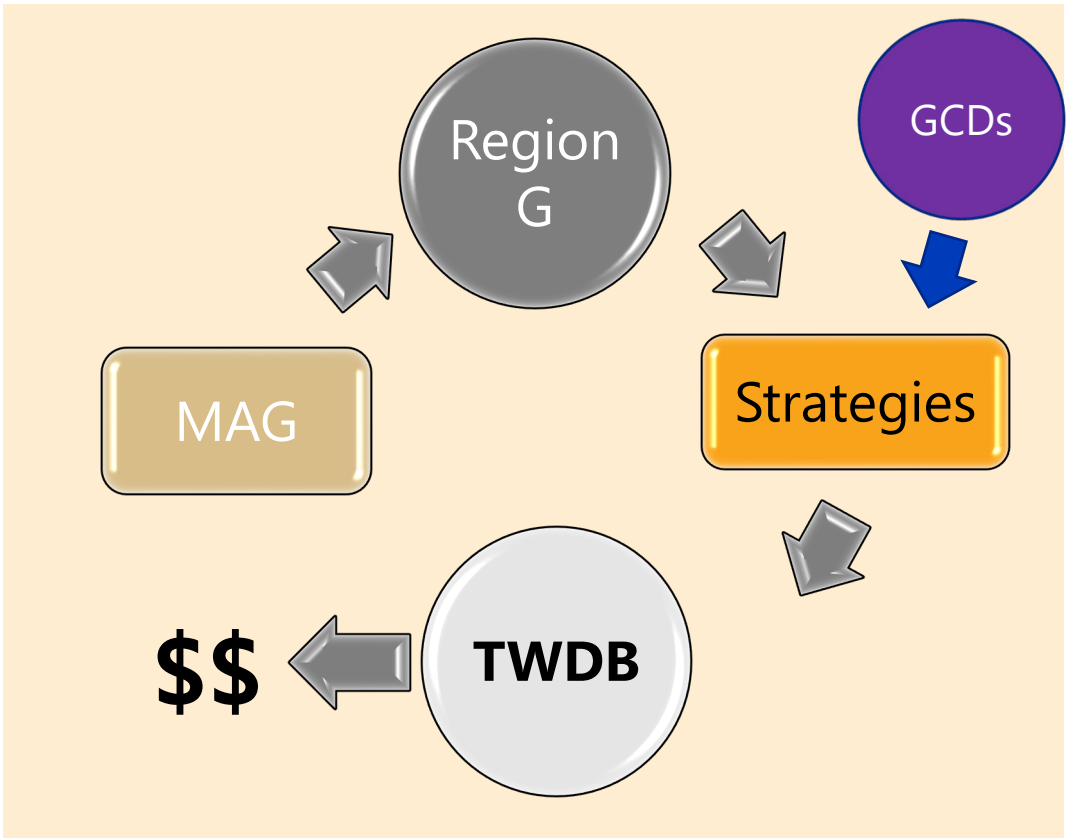
- **37 Counties**

Texas Groundwater Planning Cycle

Joint Groundwater Planning



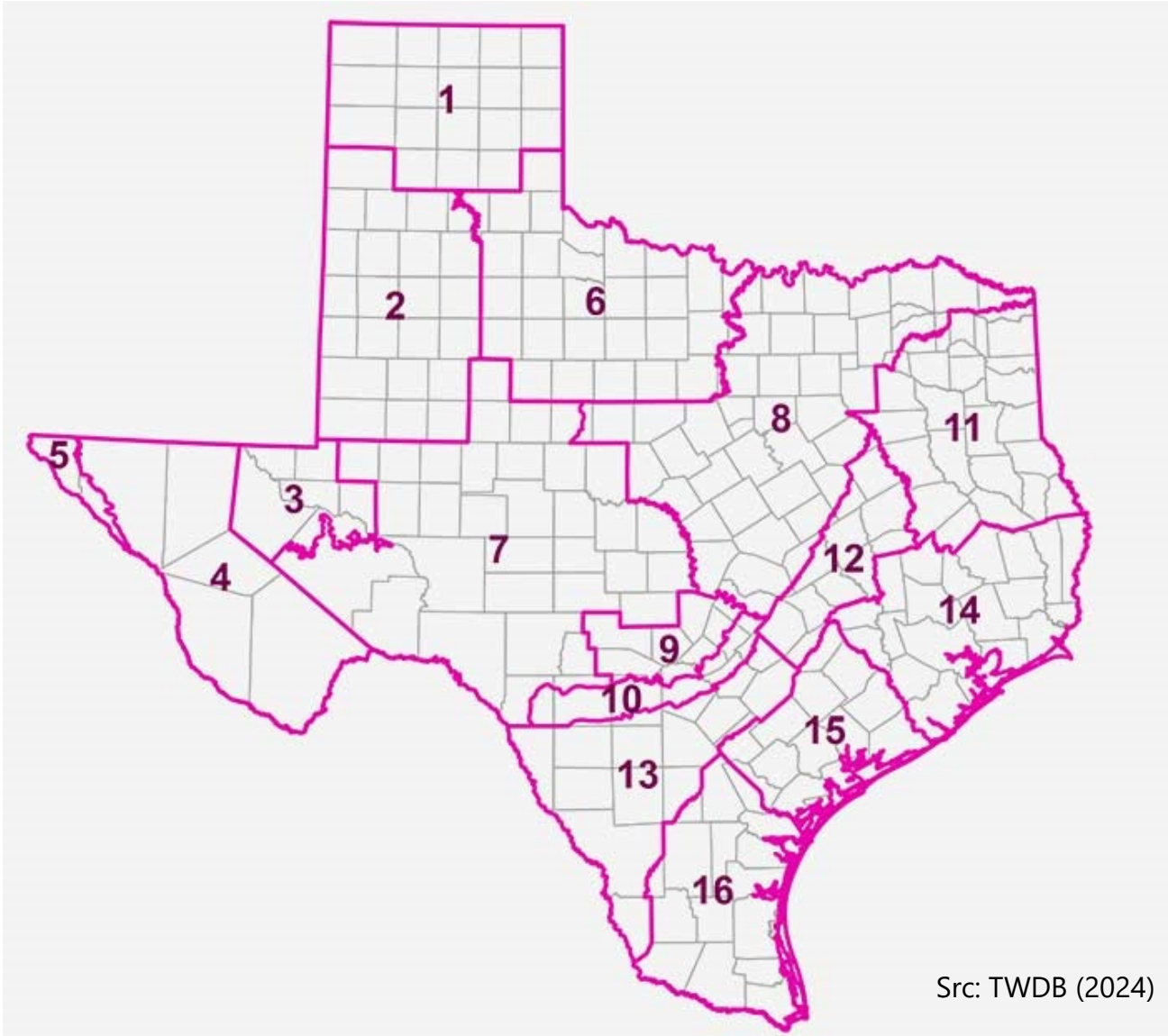
Regional Water Planning



MAG: Modeled Available Groundwater

Joint Groundwater Planning and Region G

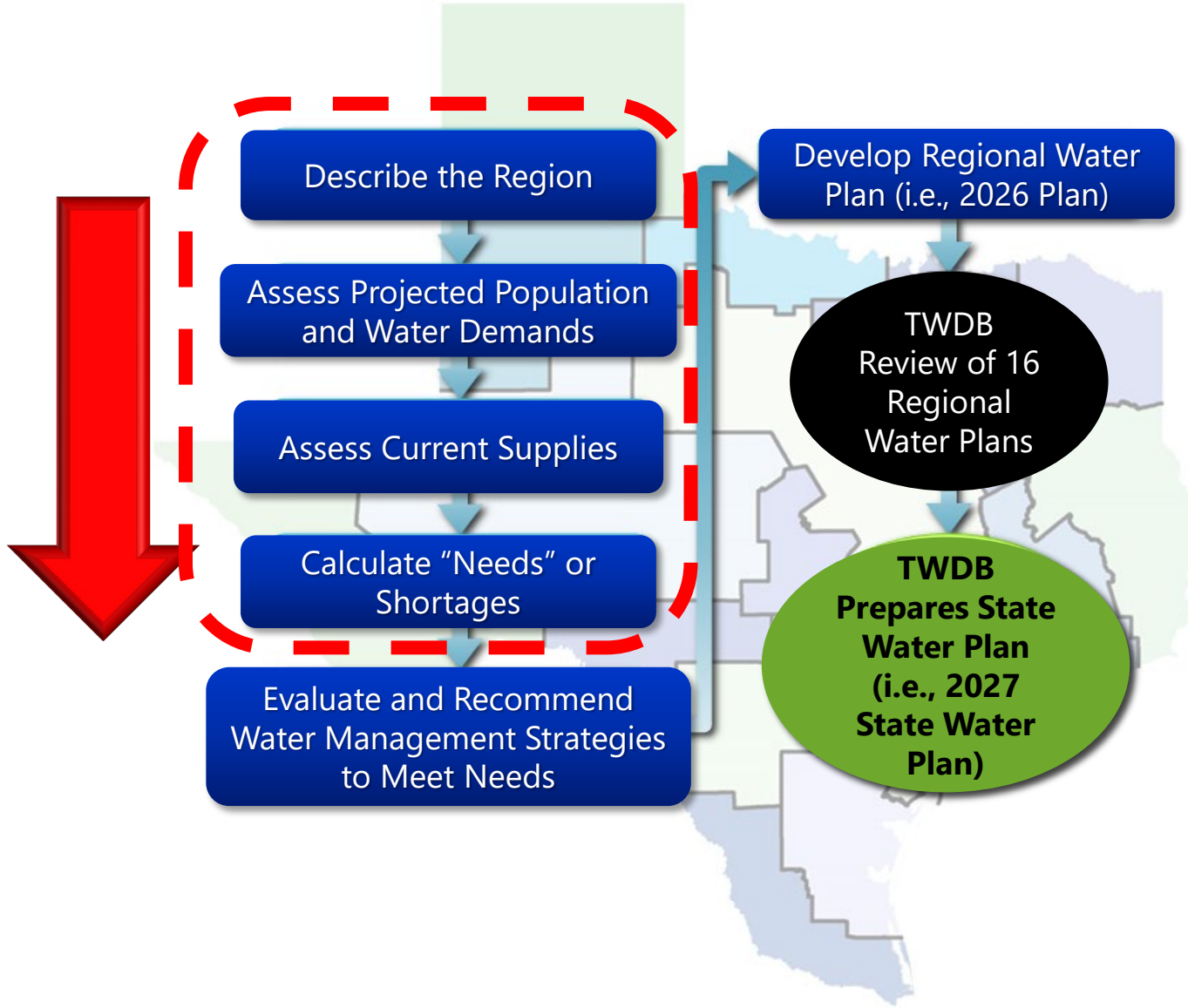
- Region G includes 5 GMAs: 6, 7, 8, 12, and 14
- Region G includes 13 GCDs
- 16 of 37 counties within Region G do not have a GCD
- Region G includes 6 major aquifers and 11 minor aquifers, and several “other” aquifers
- Groundwater accounts for 800,000 to 900,000 afy of availability for Region G



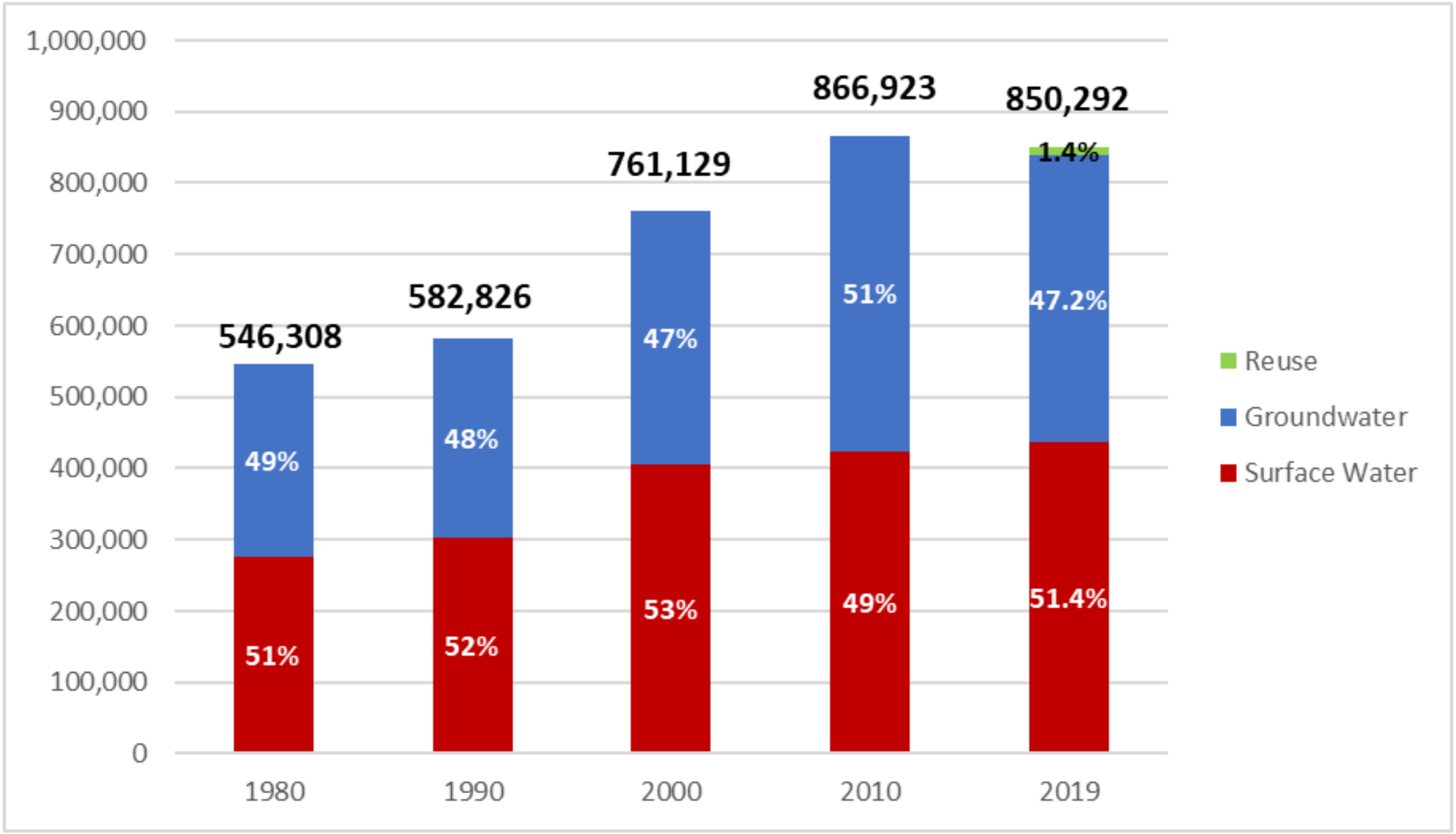
Src: TWDB (2024)

Steps to Regional Planning

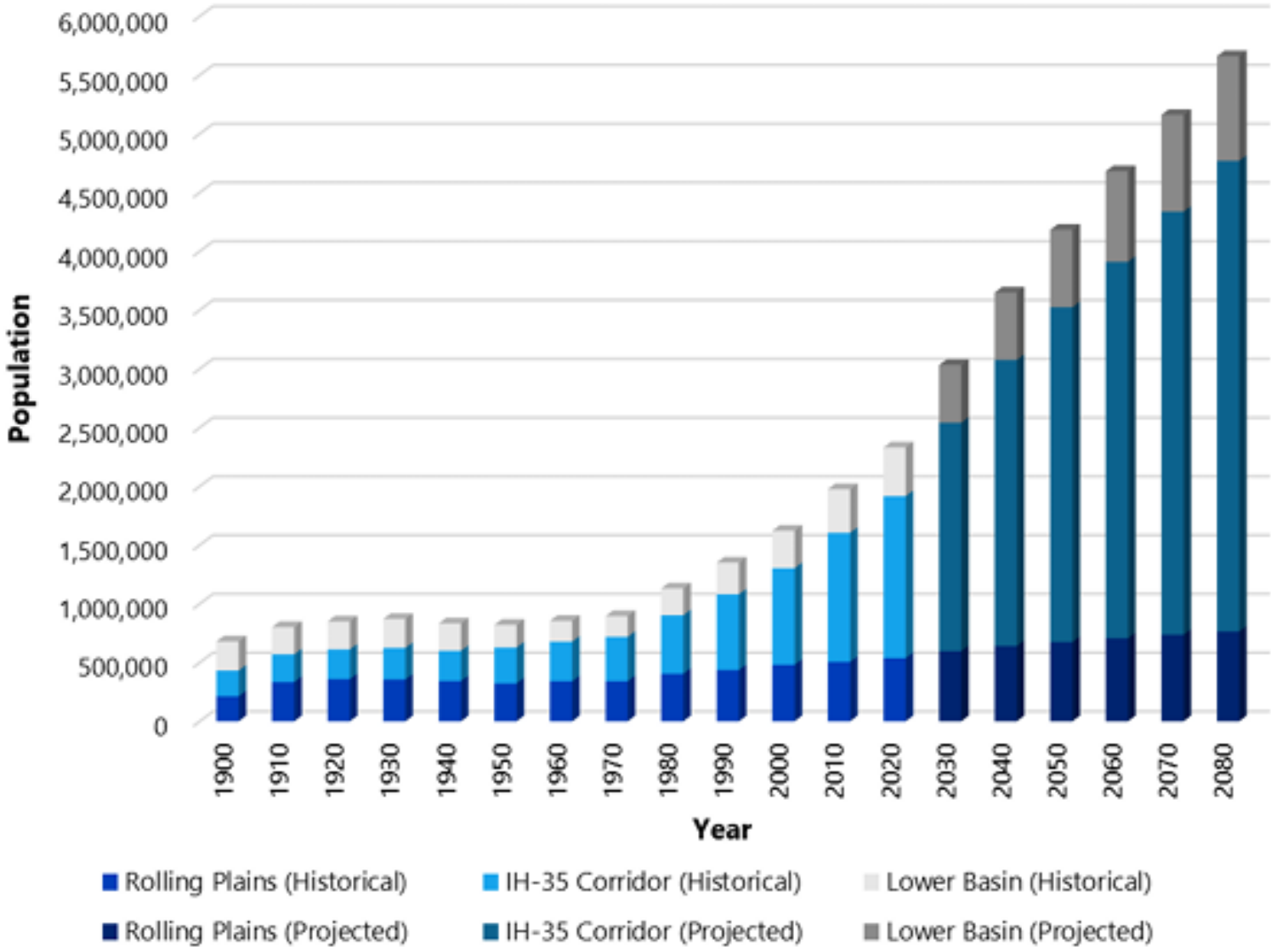
We are here.



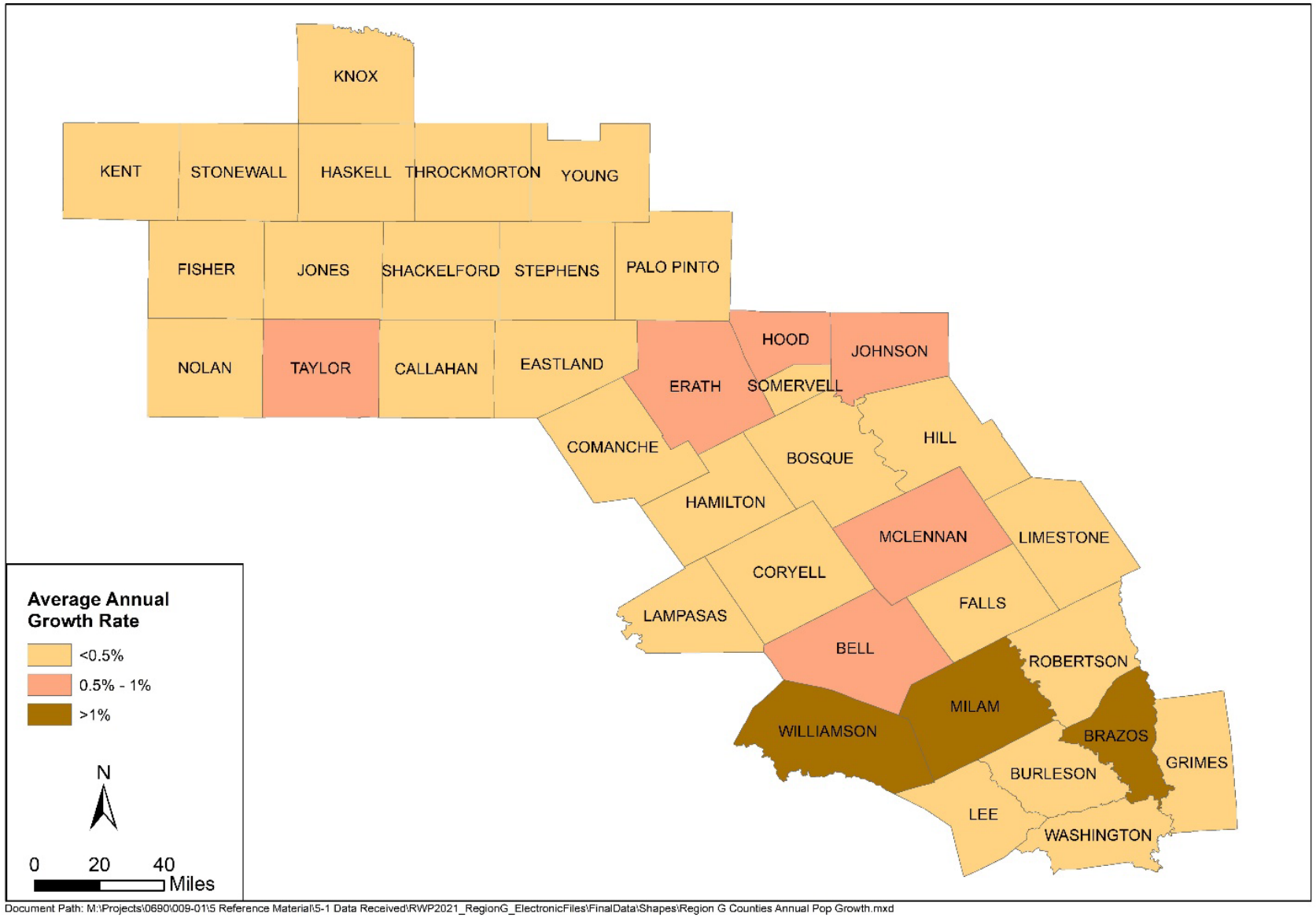
Historical Regional Water Use by Source



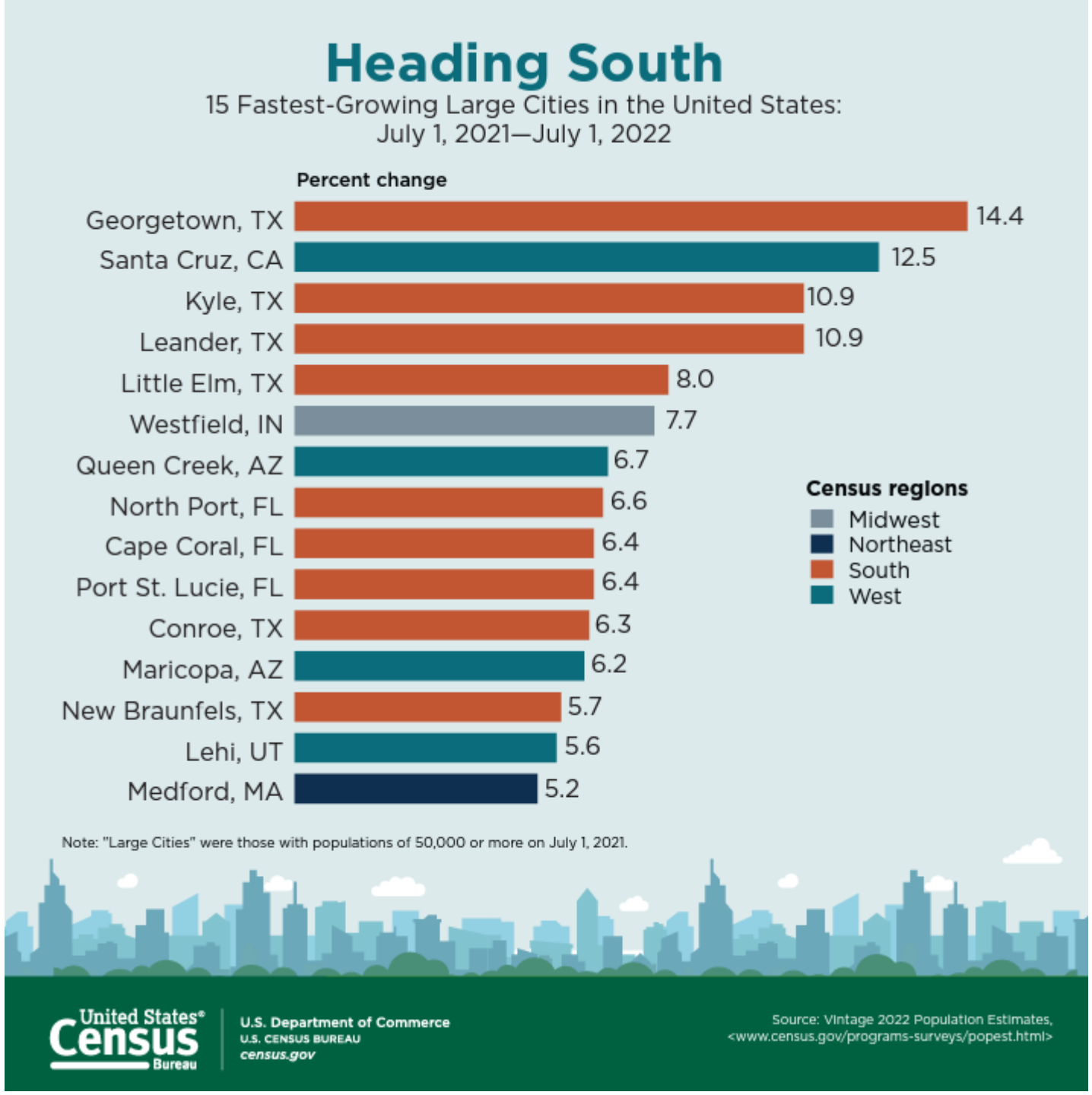
Region's Population Growth (Historical & 2026 Plan)



Geographic Distribution of Average Annual Population Growth



Document Path: M:\Projects\0690\009-01\5 Reference Material\5-1 Data Received\RWP2021_RegionG_ElectronicFiles\FinalData\Shapes\Region G Counties Annual Pop Growth.mxd



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*.

Growing Population vs. Water Demand

Not a 1-to-1 relation

- Increased efficiencies
- Implementation of conservation measures

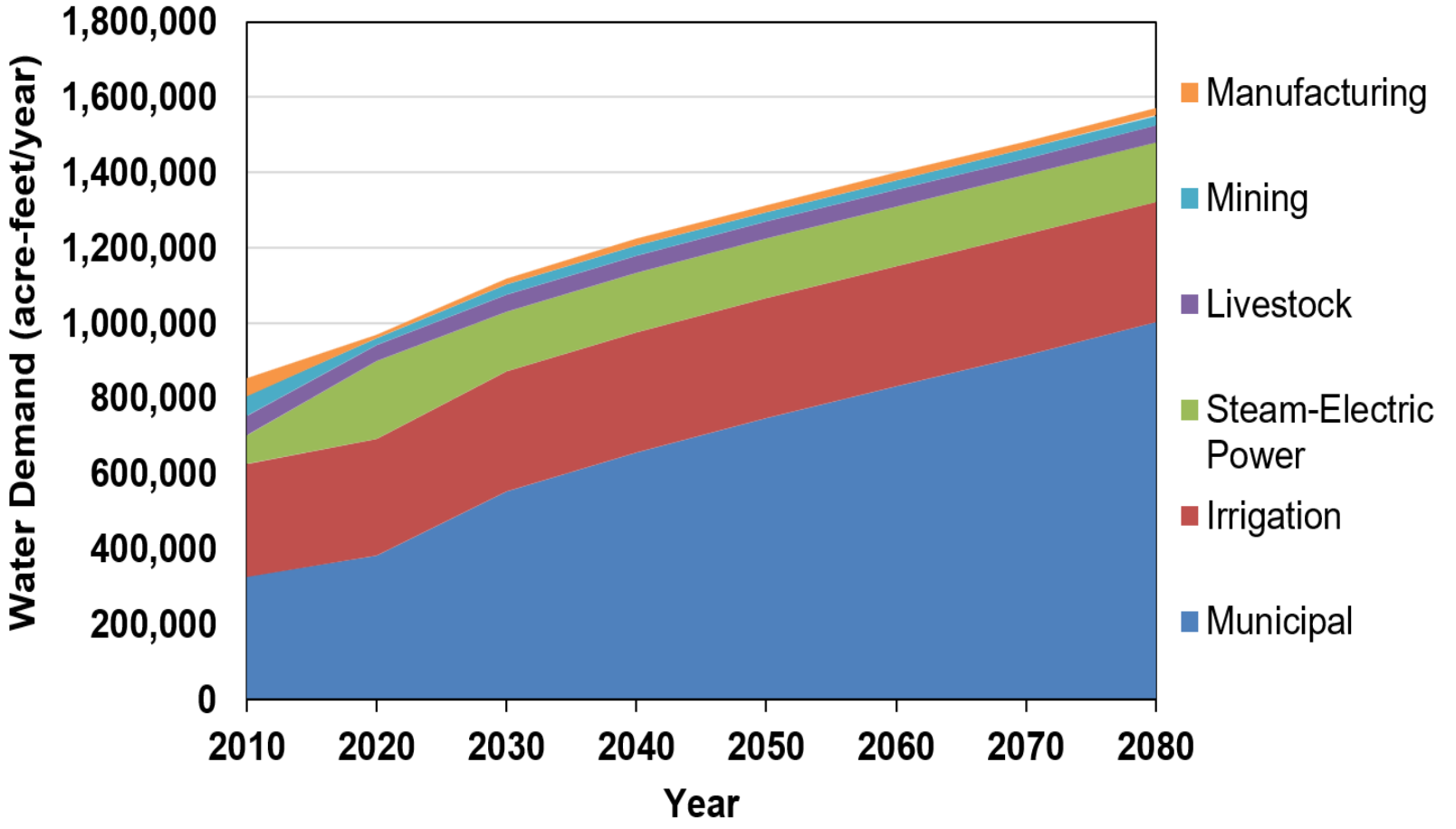
Water Conservation

- 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

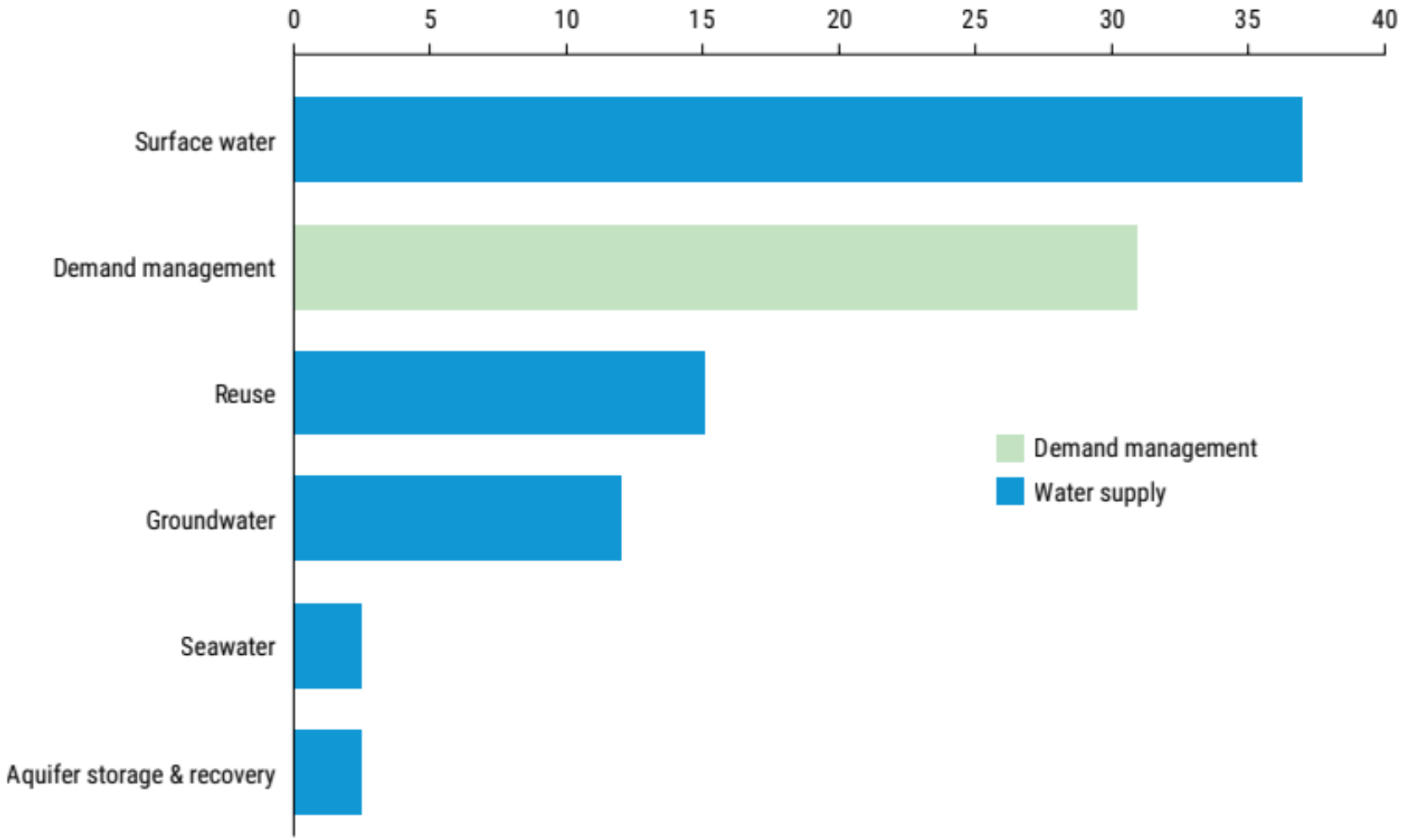
Municipal and Non-Municipal Projected Growth in Water Demand



Adopted 2026 Water Demands

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

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



Remember:
Projects do occur outside of state planning.

Local Planning

Drivers for Local Planning

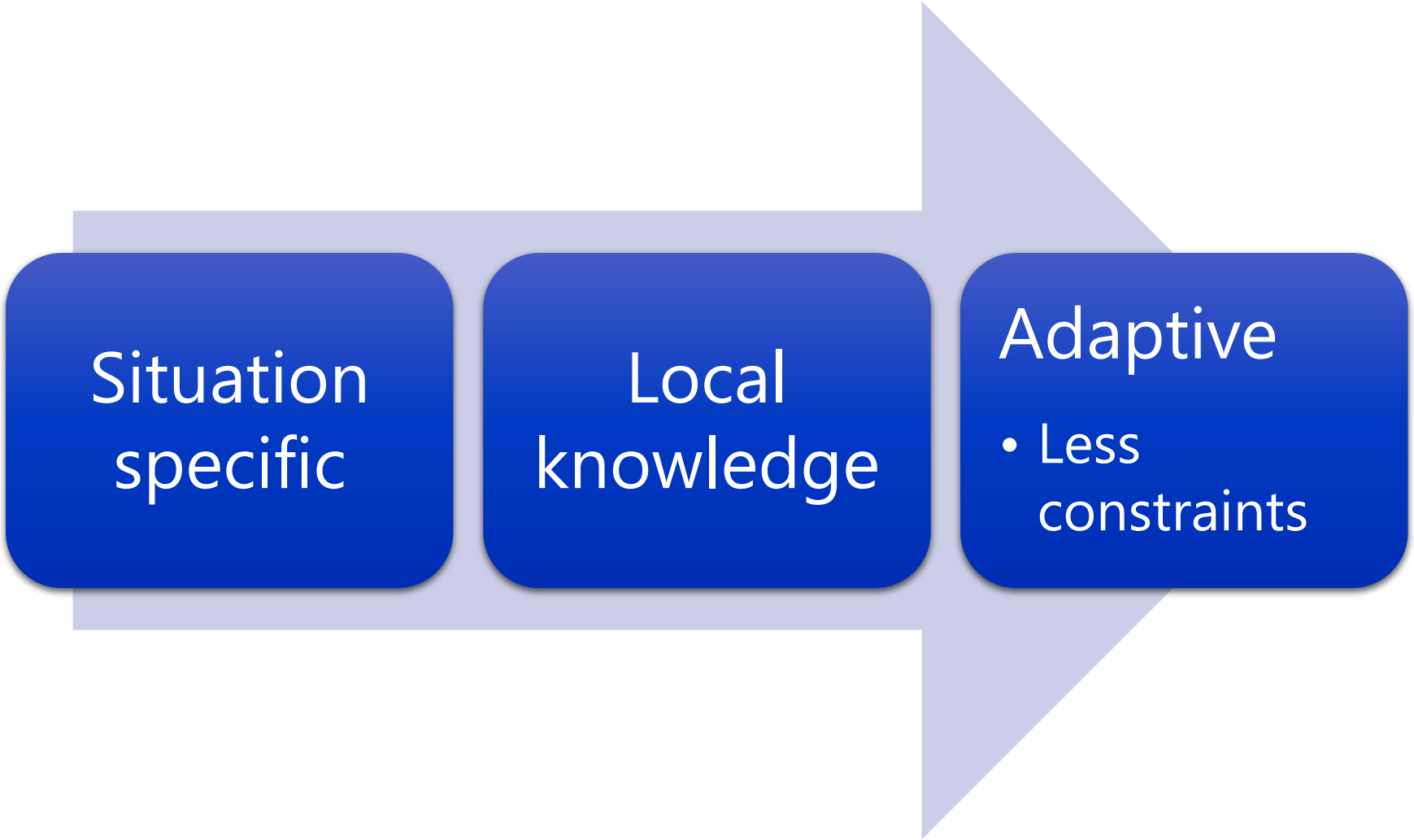
State/Regional Plans

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

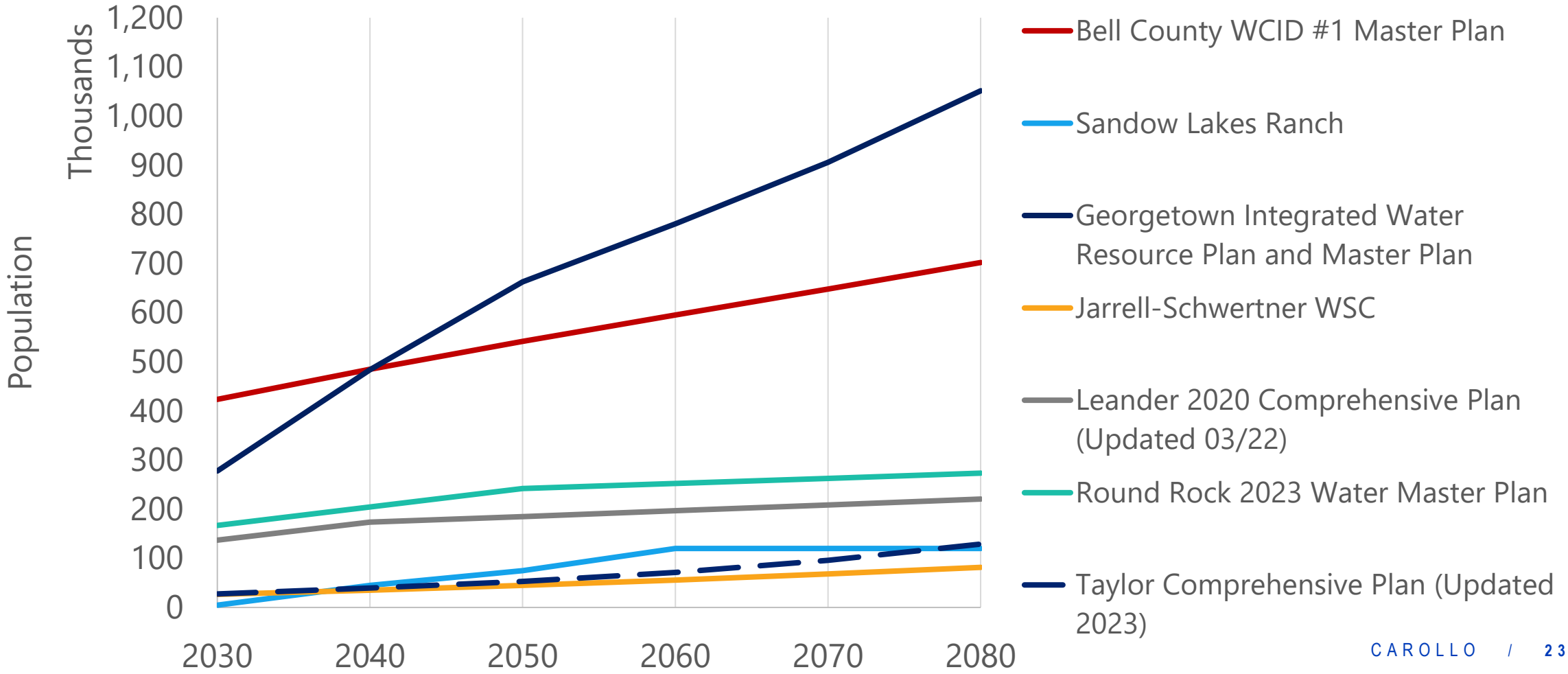
Texas Dynamics

- Rapid population growth
- Business climate
- Associated development

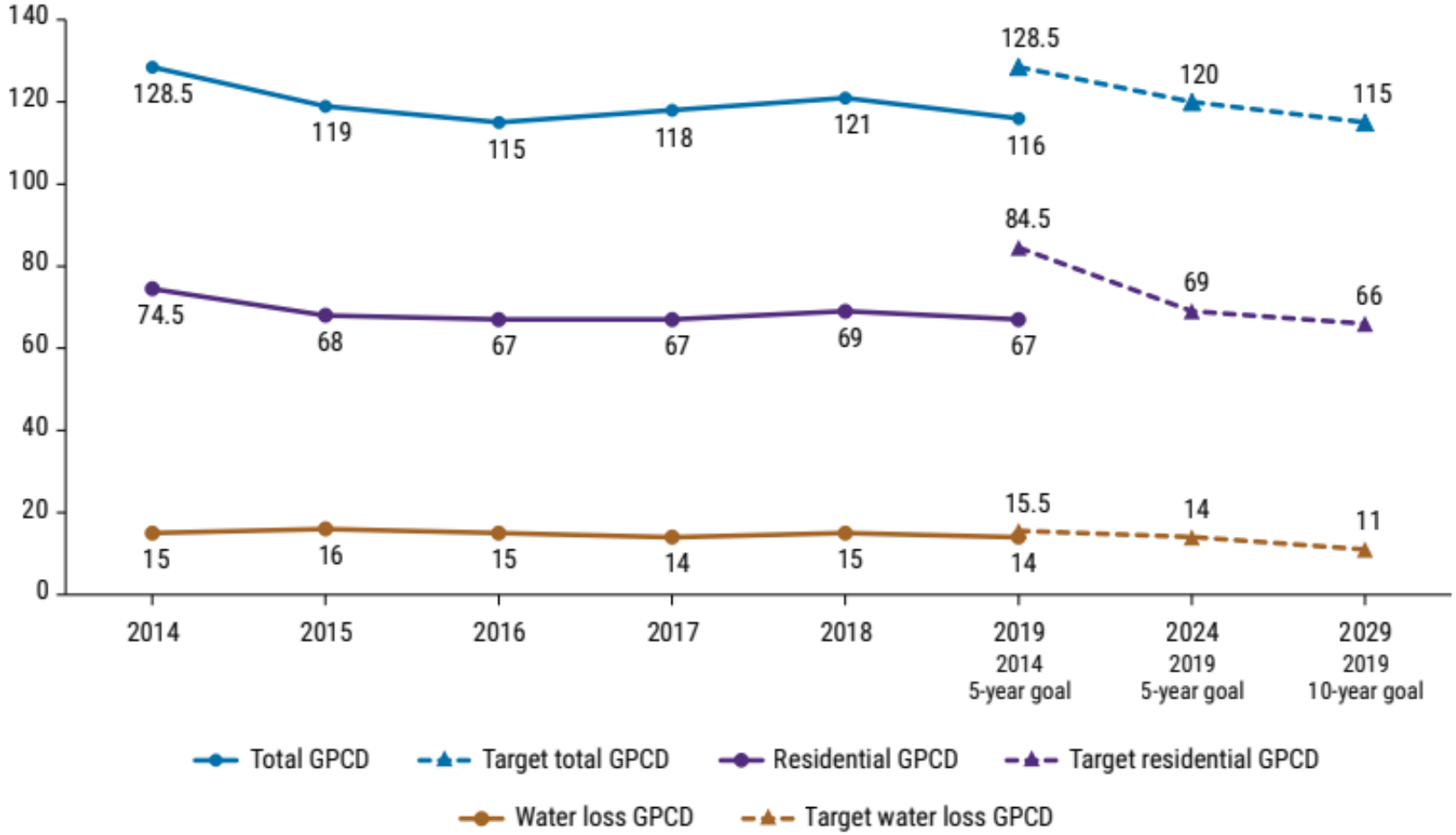
Benefits of Local Planning



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

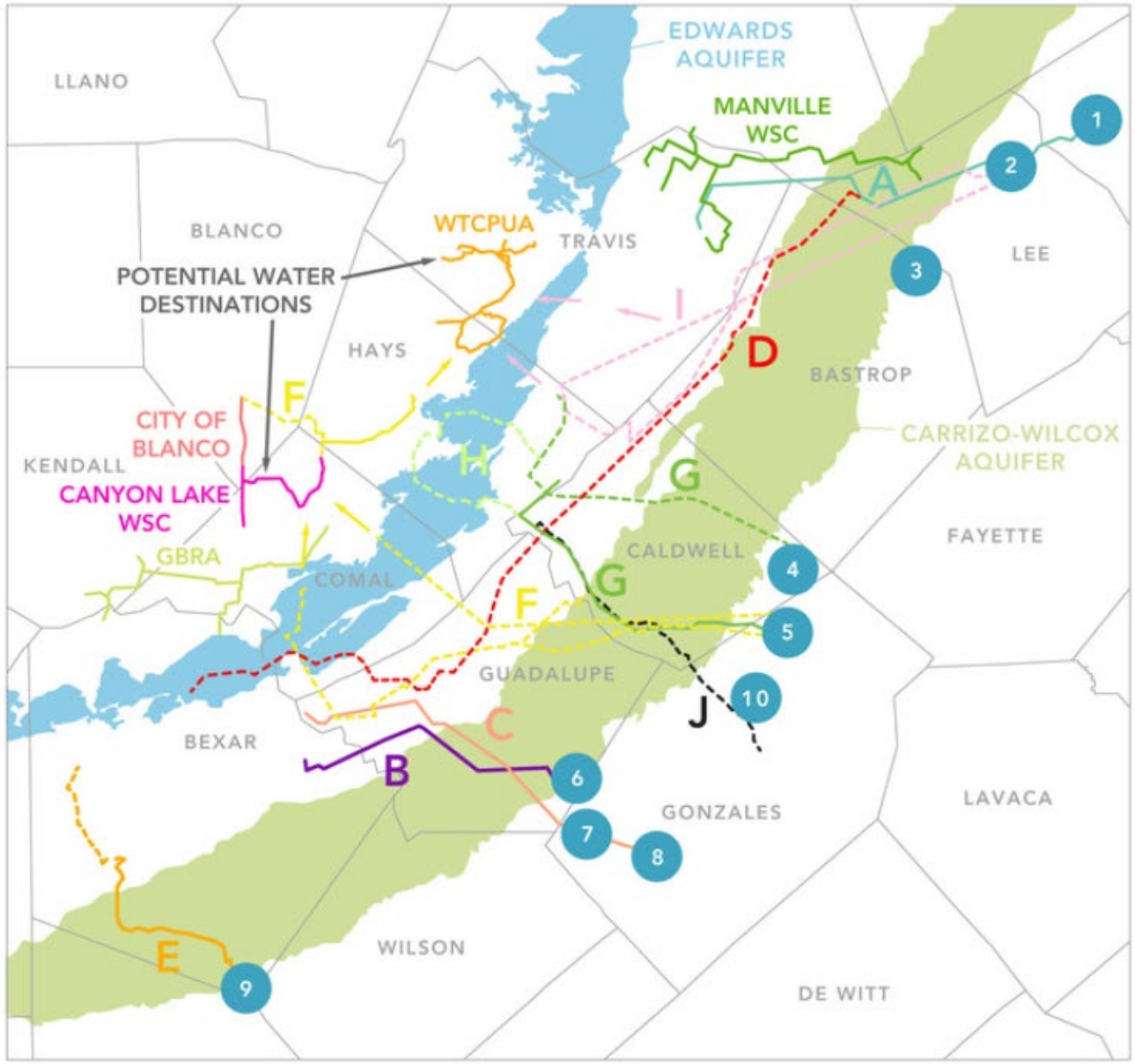
WATER SOURCES

	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 Water Management

Higher Demands

Water Supply Portfolios

Increasing Commitment to Stewardship of Resources

- Water Conservation
- Reuse
- Efficiency

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