

Development and Implementation of Texas' Water Shortage and Drought Planning Effort

**Presented to:
Indiana Water Shortage Task Force
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Indianapolis, Indiana**

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Texas Water Development Board**

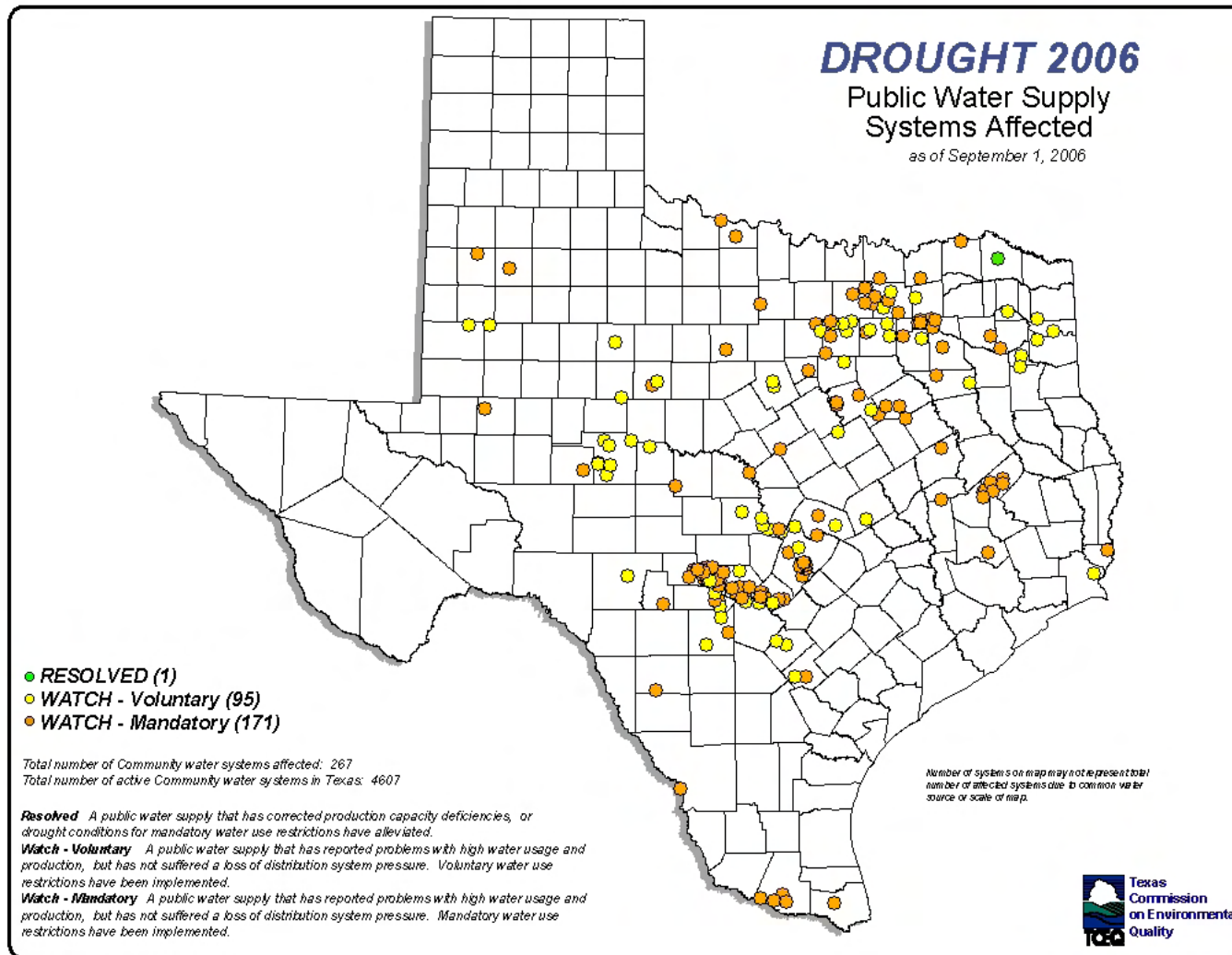




Why Plan? Lake Lavon -2006



Public Water Supply Systems Affected by Drought



Legislative Response to Drought

- Late 1950's Drought of Record
 - 1957: Creation of TWDB
 - \$200 million Development Fund
 - 8 State Water Plans

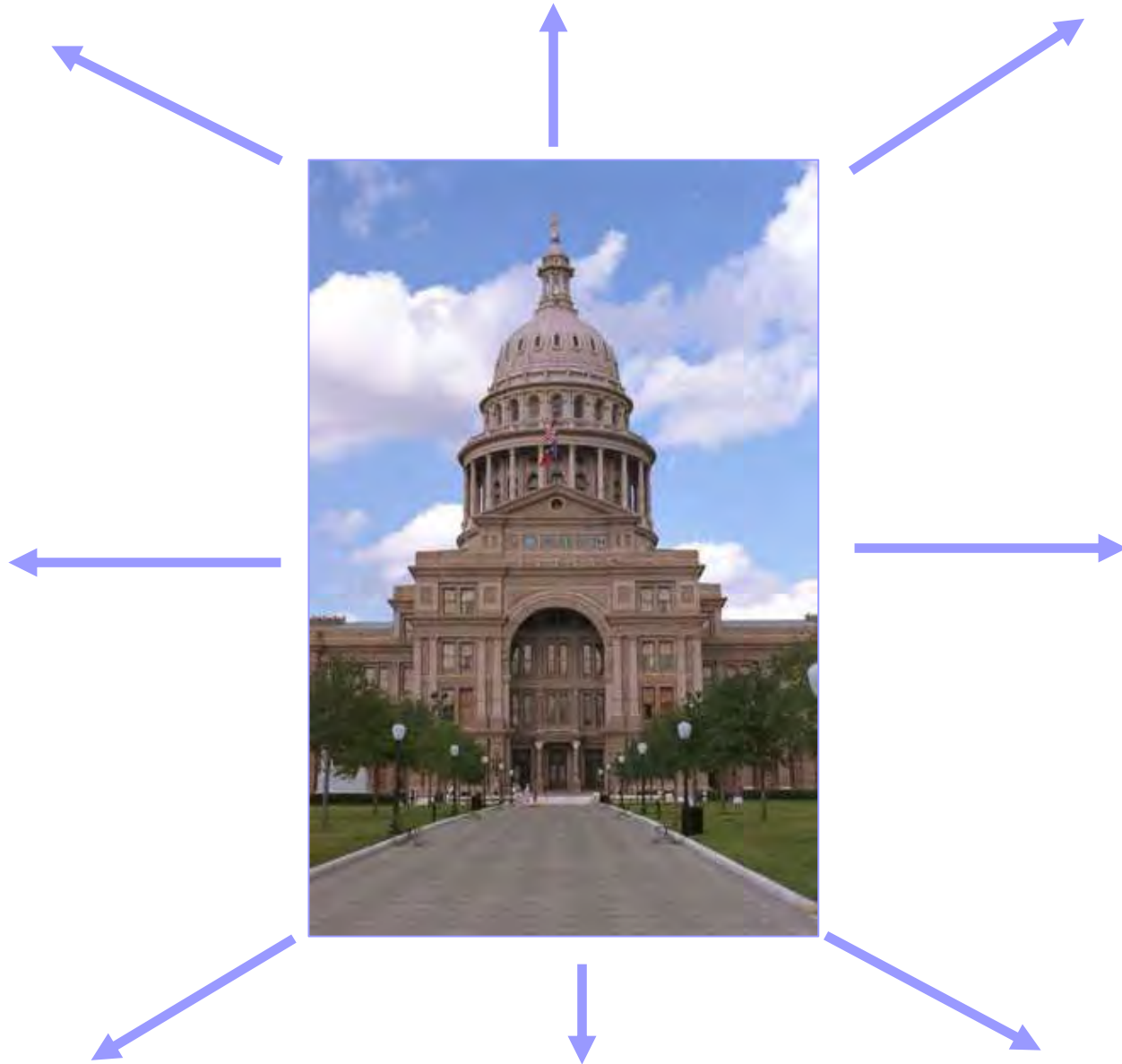
Legislative Response to Drought

- Late 1990's: Potential New Drought of Record
 - \$6 billion estimated economic losses in 1996 - most in agriculture
 - Approximately 300 entities with threat to water supplies
 - 1997: Implementation of Senate Bill 1

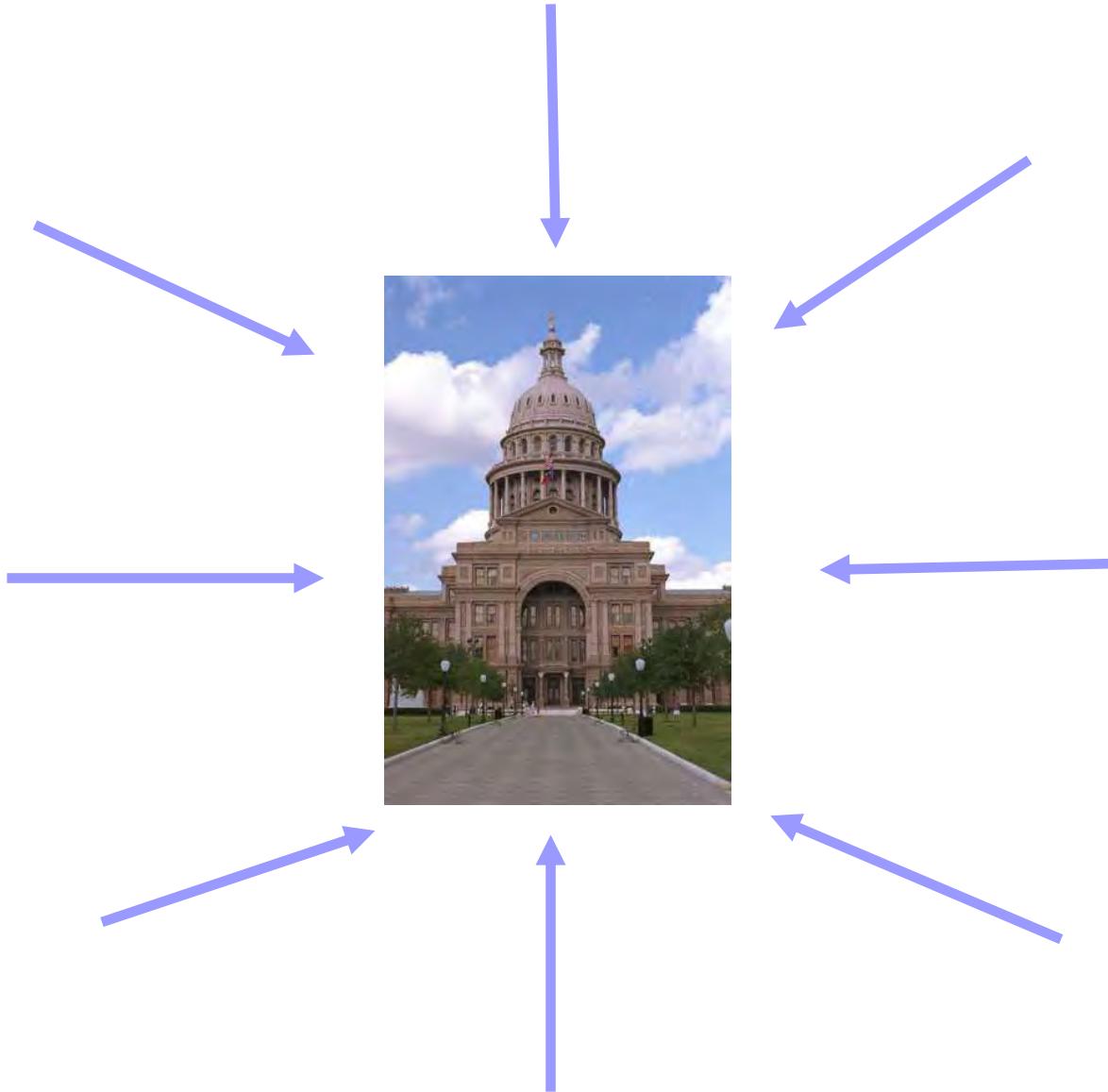
What We Would Do Different

- First round of regional planning would focus on data
 - Demands
 - Supplies
 - Surface Water Availability Models
 - Groundwater Availability Models
- Expedited amendment process
- Develop mechanism to better involve small communities

Water Planning Prior to SB 1



Water Planning Post SB 1



Regional and State Water Planning Under SB 1

- Development, management, and conservation of water resources
- Drought preparation and response
- Regional Water Plans foundation for State Water Plan
- Ensure sufficient water supplies to meet needs of ALL users

Incentives to Participate

- Surface water permits for municipalities only in areas with approved regional water plans.
- TWDB loans only in areas with approved regional water plans.
- Projects must be consistent with regional and state water plans to obtain surface water permits or TWDB financial assistance.
- May waive these requirements.



Diverse Interest Groups Represented



Memberships Required by Statute

- Public
- Agricultural Interests
- County
- Small Business
- Water Utilities
- Electric Generating Utilities
- Municipal
- Industries
- Environmental Interests
- River Authorities
- Water Districts

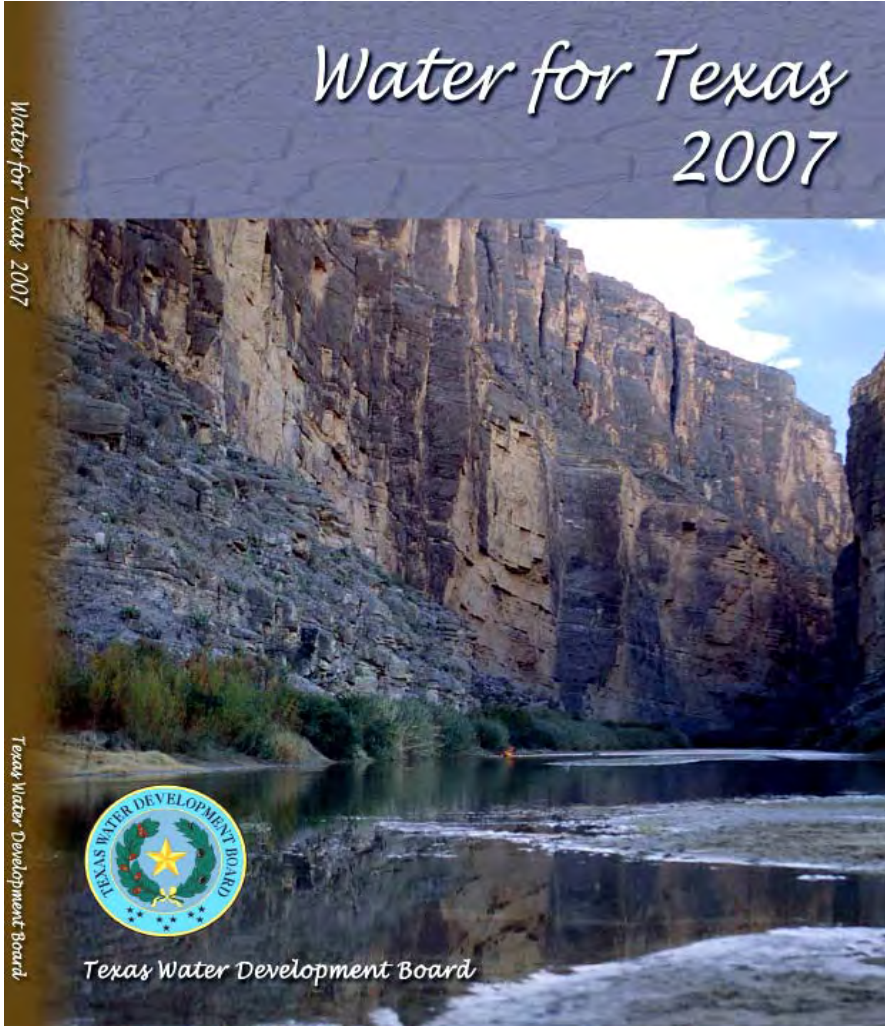
Basic Steps in Texas Water Planning

- 50 year planning period
- Projection of population
- Projection of water demands
- Determine existing supplies
- Determine future surplus or needs
- Evaluate and select water management strategies

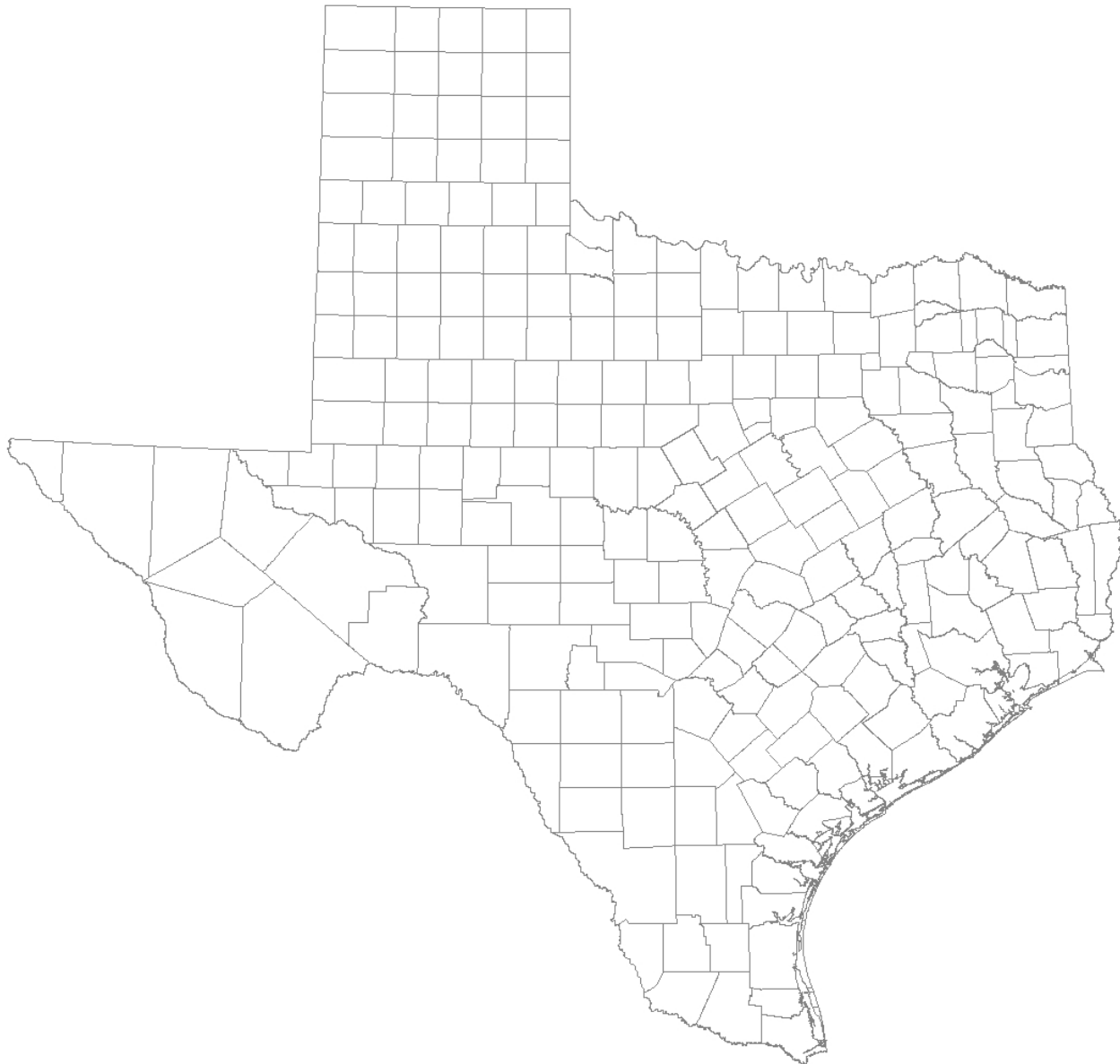
Basic Steps in Texas Water Planning

- TWDB resolution of interregional conflicts
- TWDB approval of regional water plans
- TWDB develops and adopts State Water Plan

2007 Texas State Water Plan

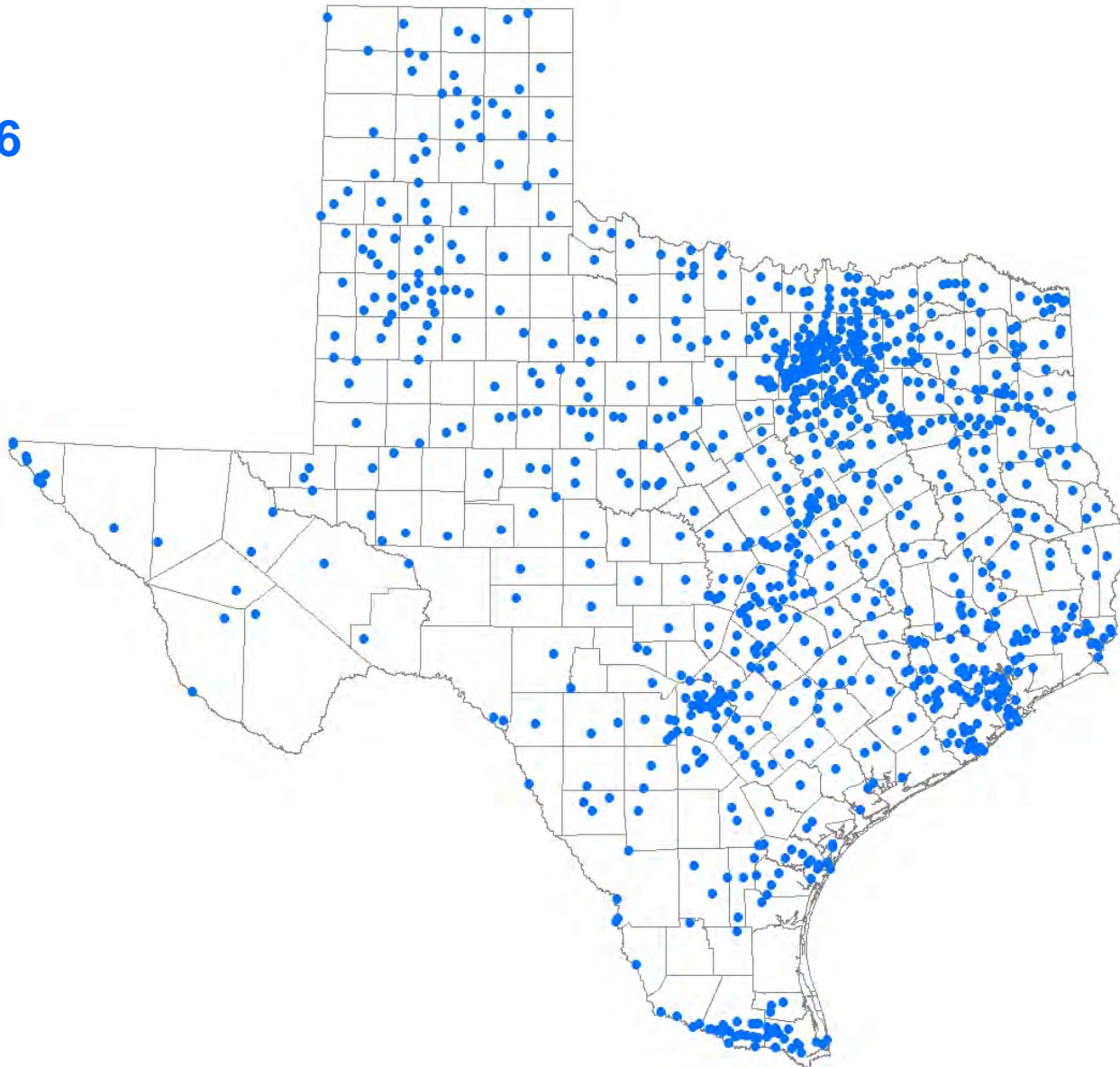


Water User Groups



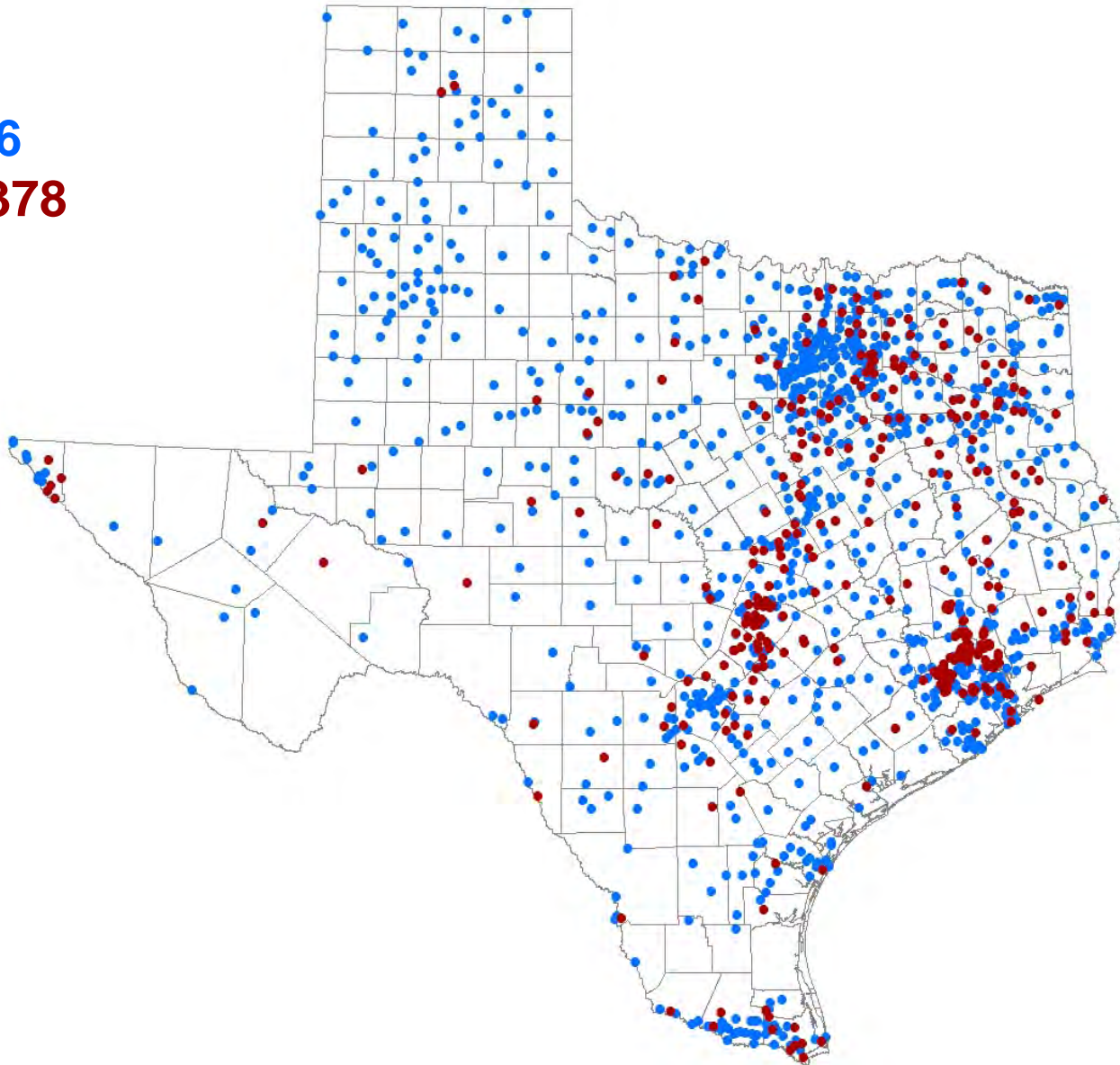
Cities

- Cities: 956



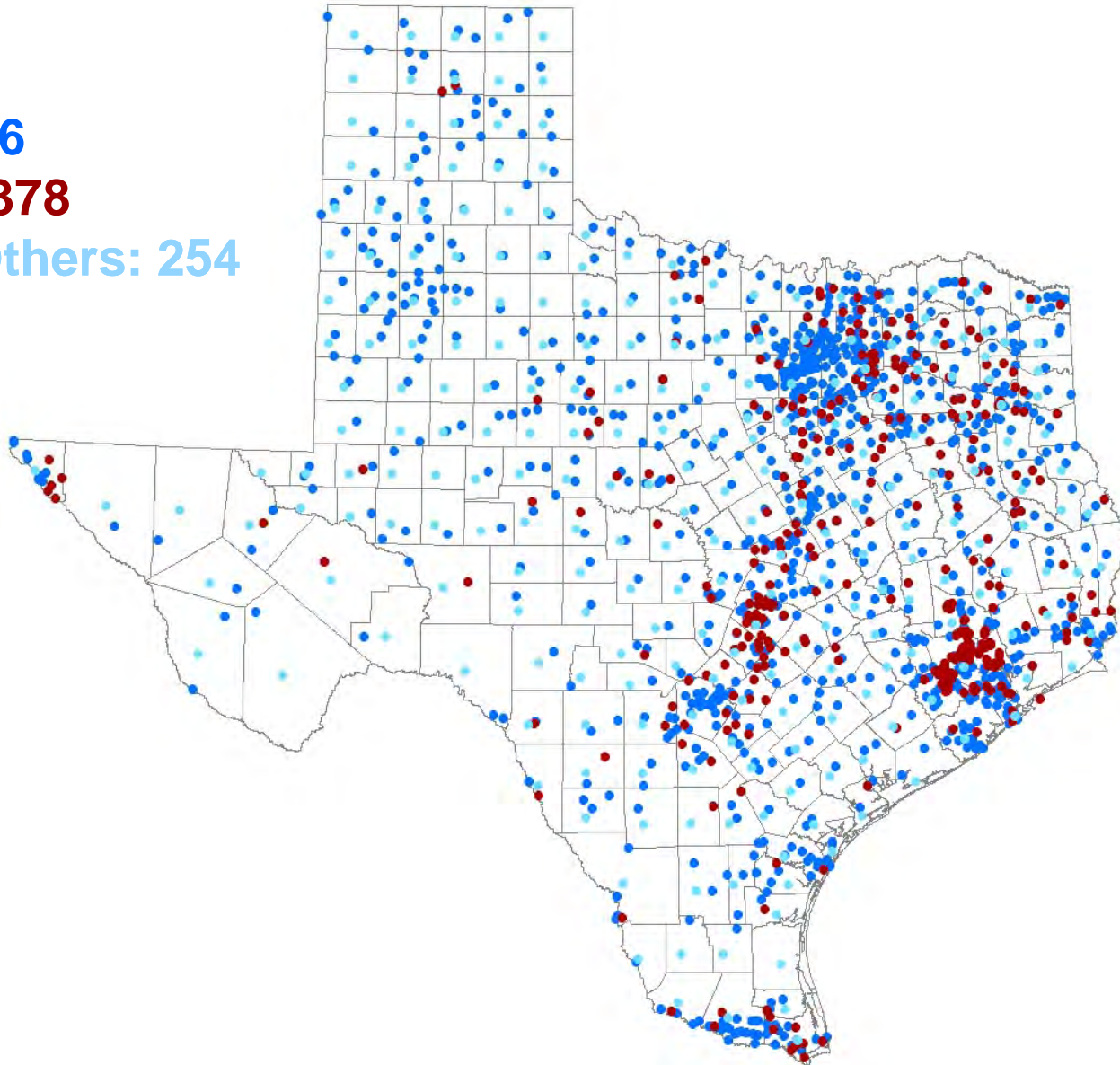
Utilities

- Cities: 956
- Utilities: 378



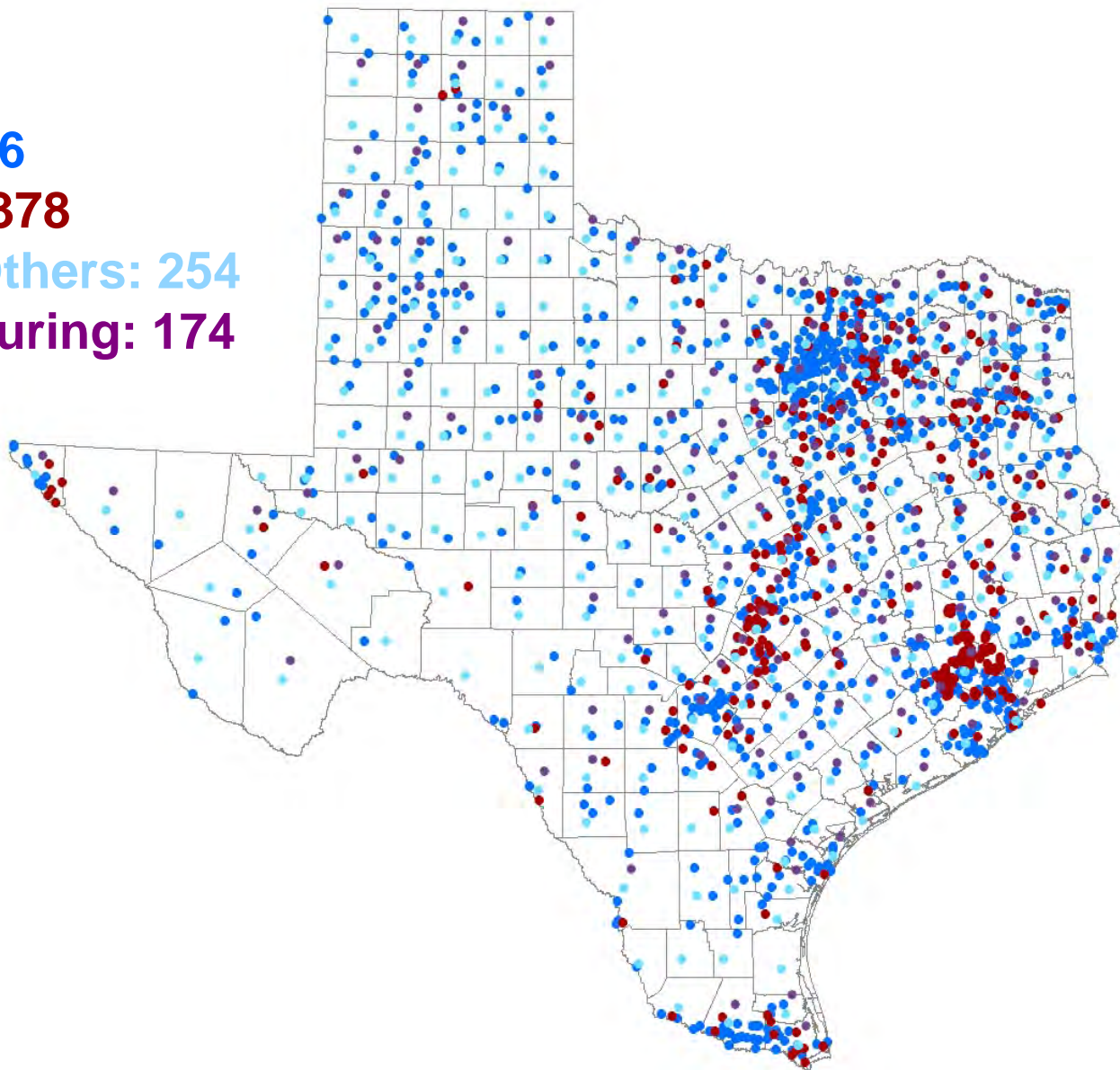
County-Others

- Cities: 956
- Utilities: 378
- County-Others: 254



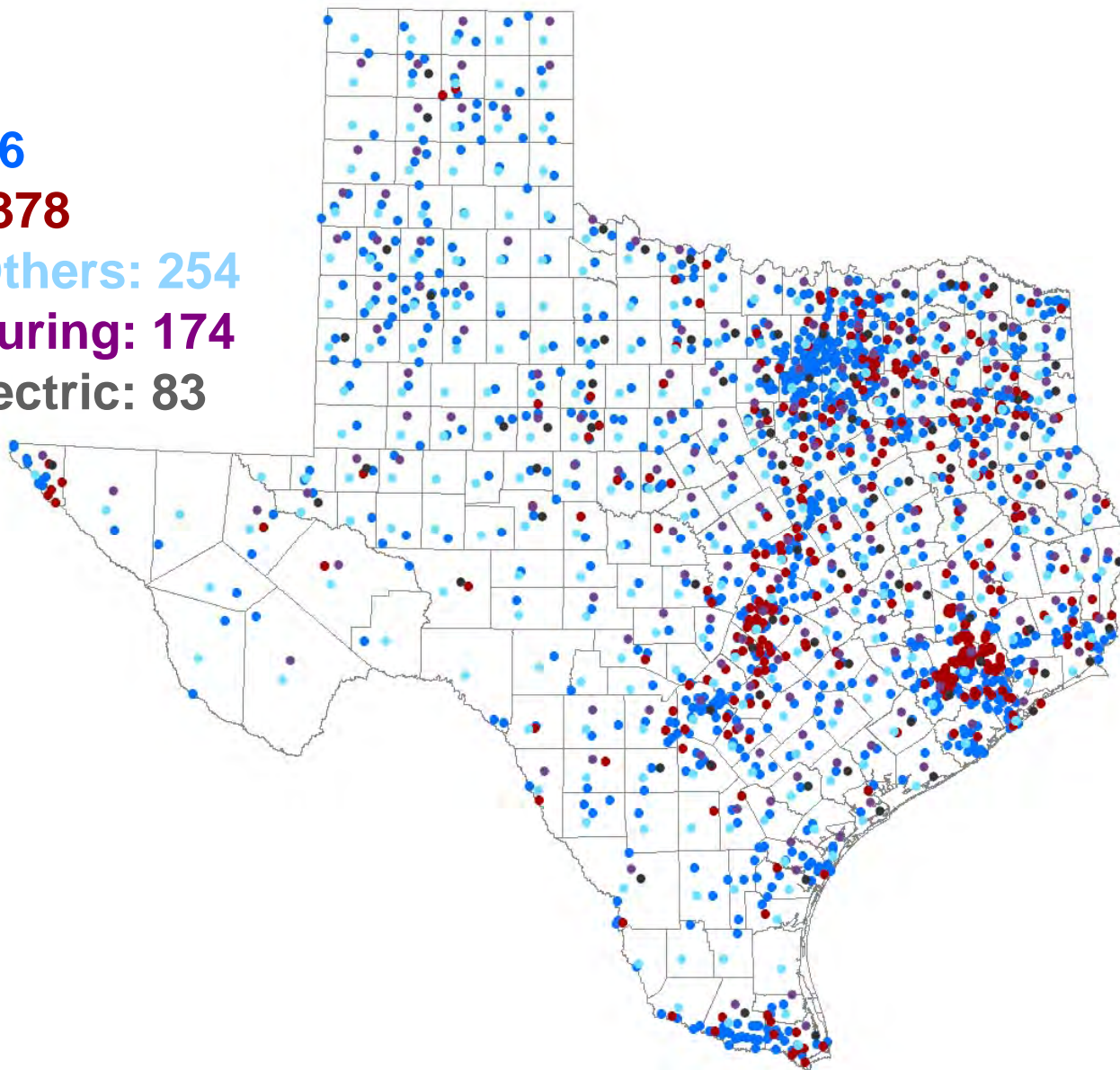
Manufacturing

- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174



Steam Electric

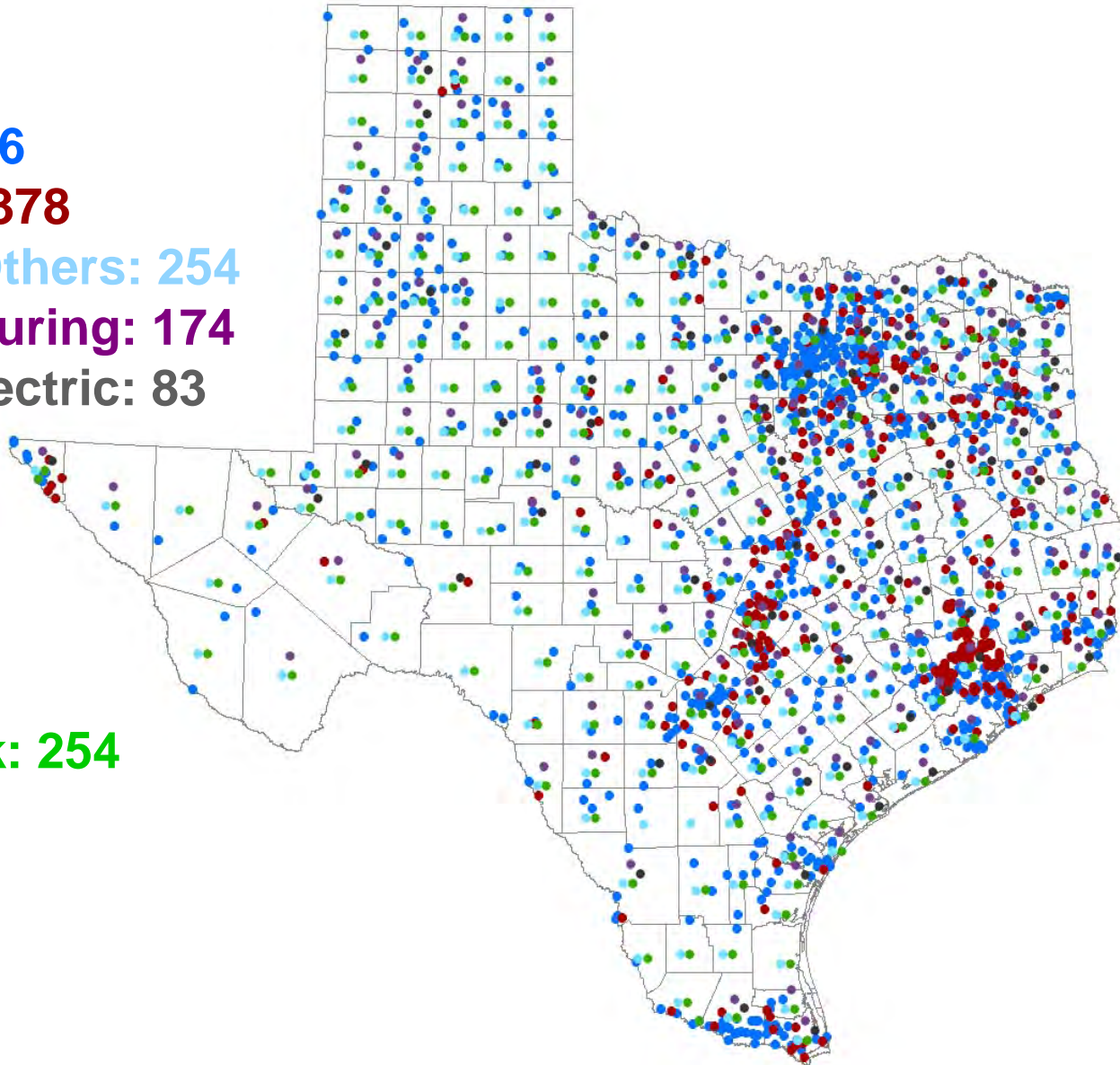
- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83



Livestock

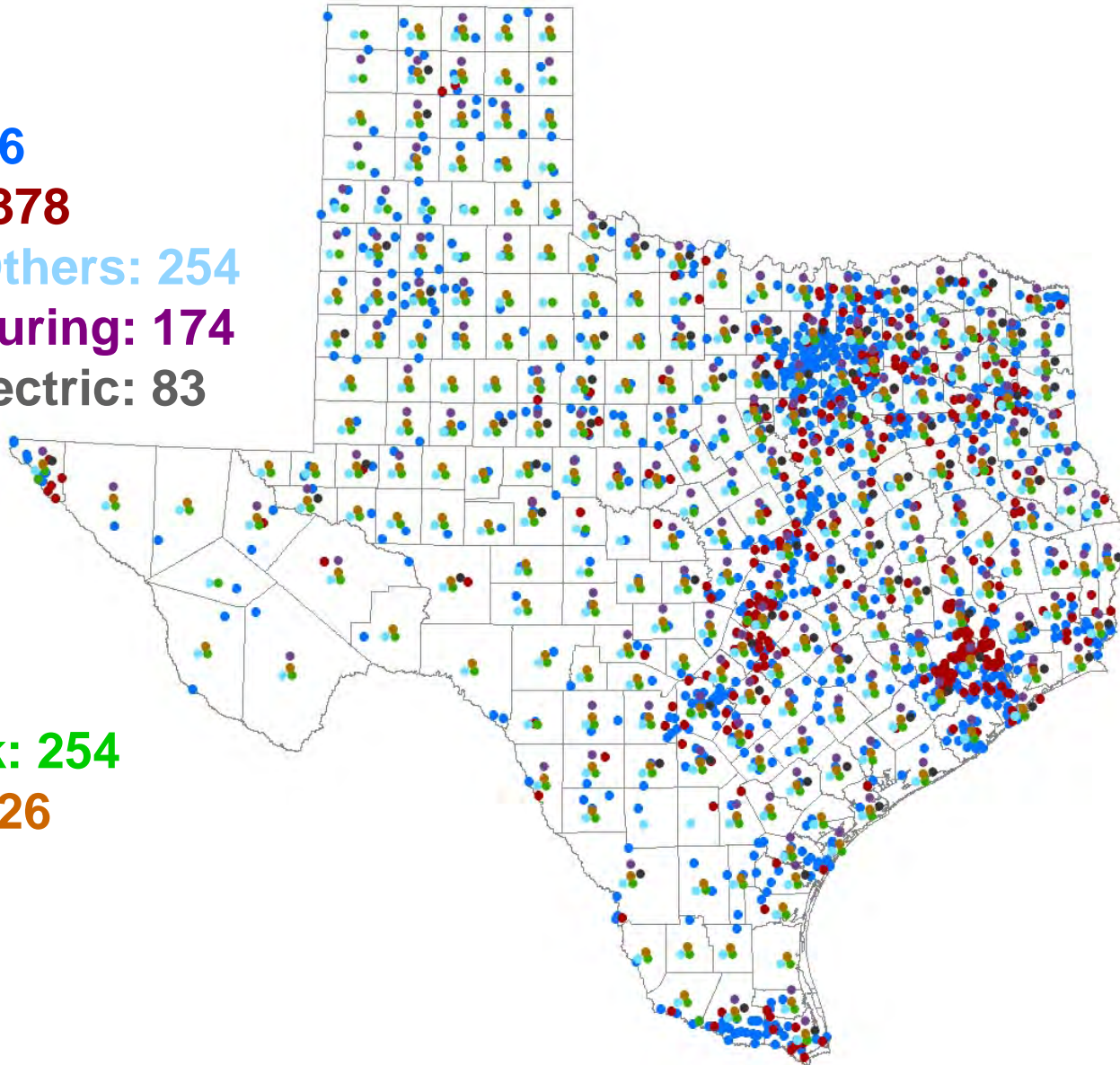
- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83

- Livestock: 254



Mining

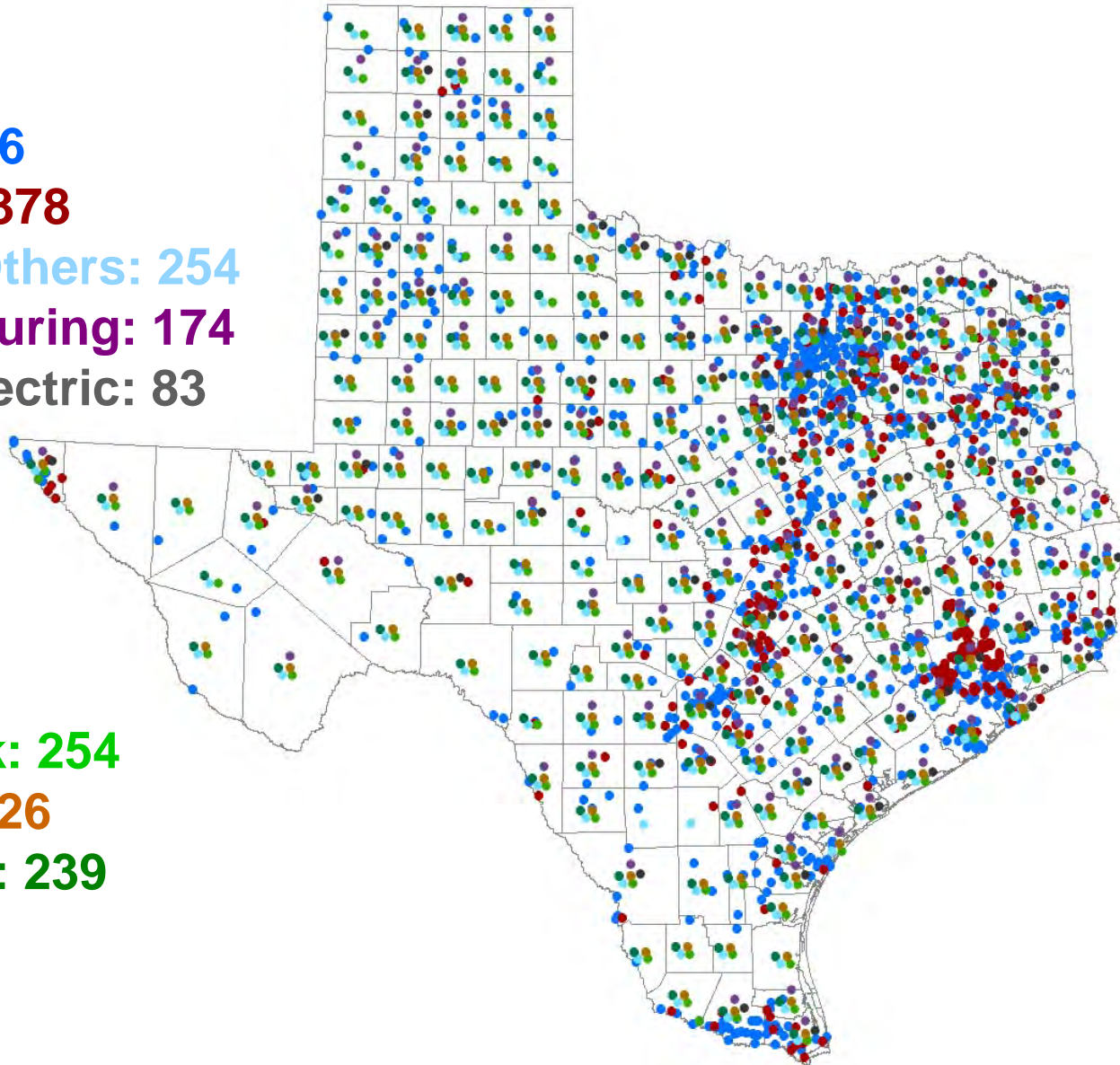
- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83



- Livestock: 254
- Mining: 226

Irrigation

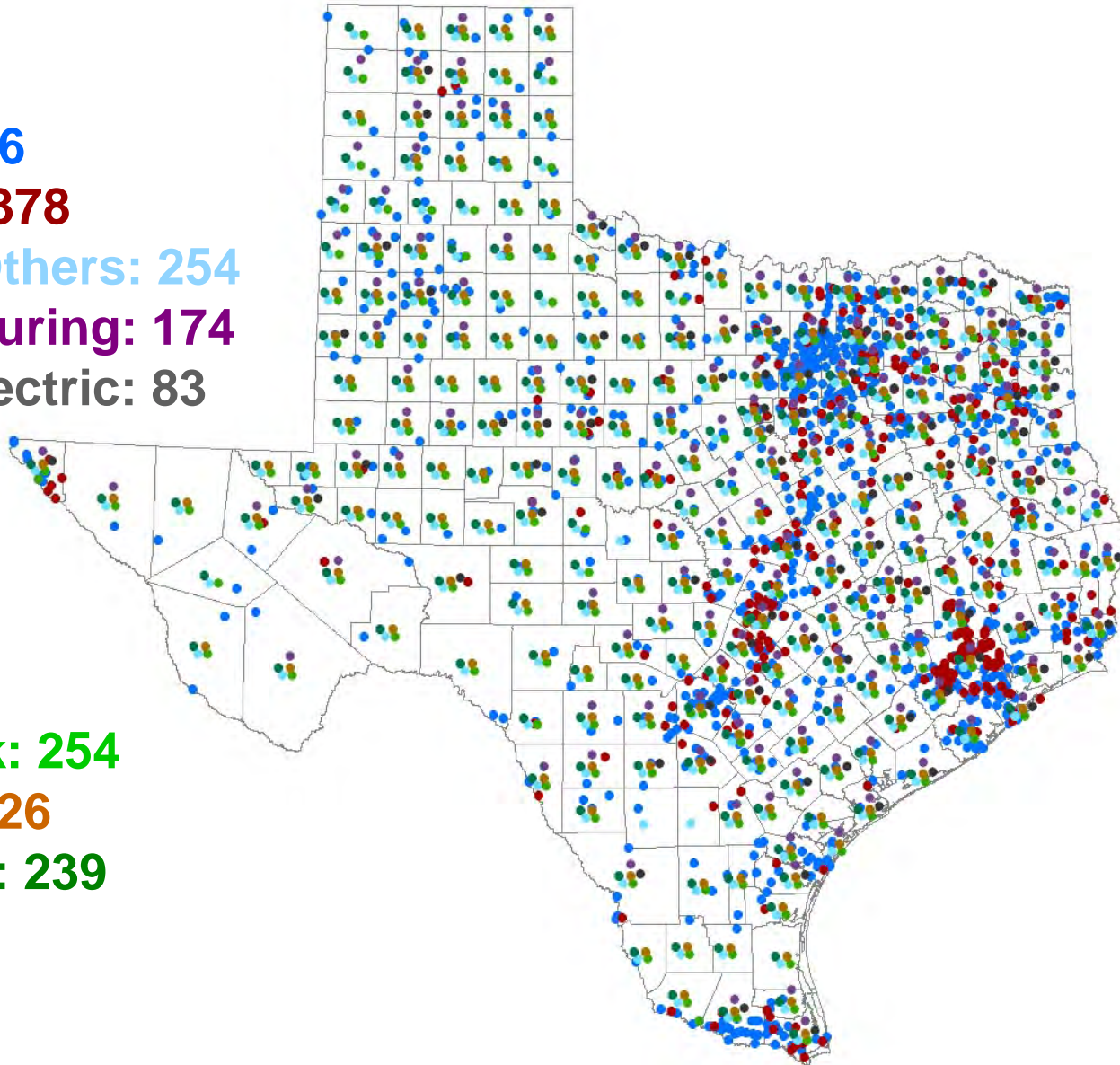
- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
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- Livestock: 254
- Mining: 226
- Irrigation: 239

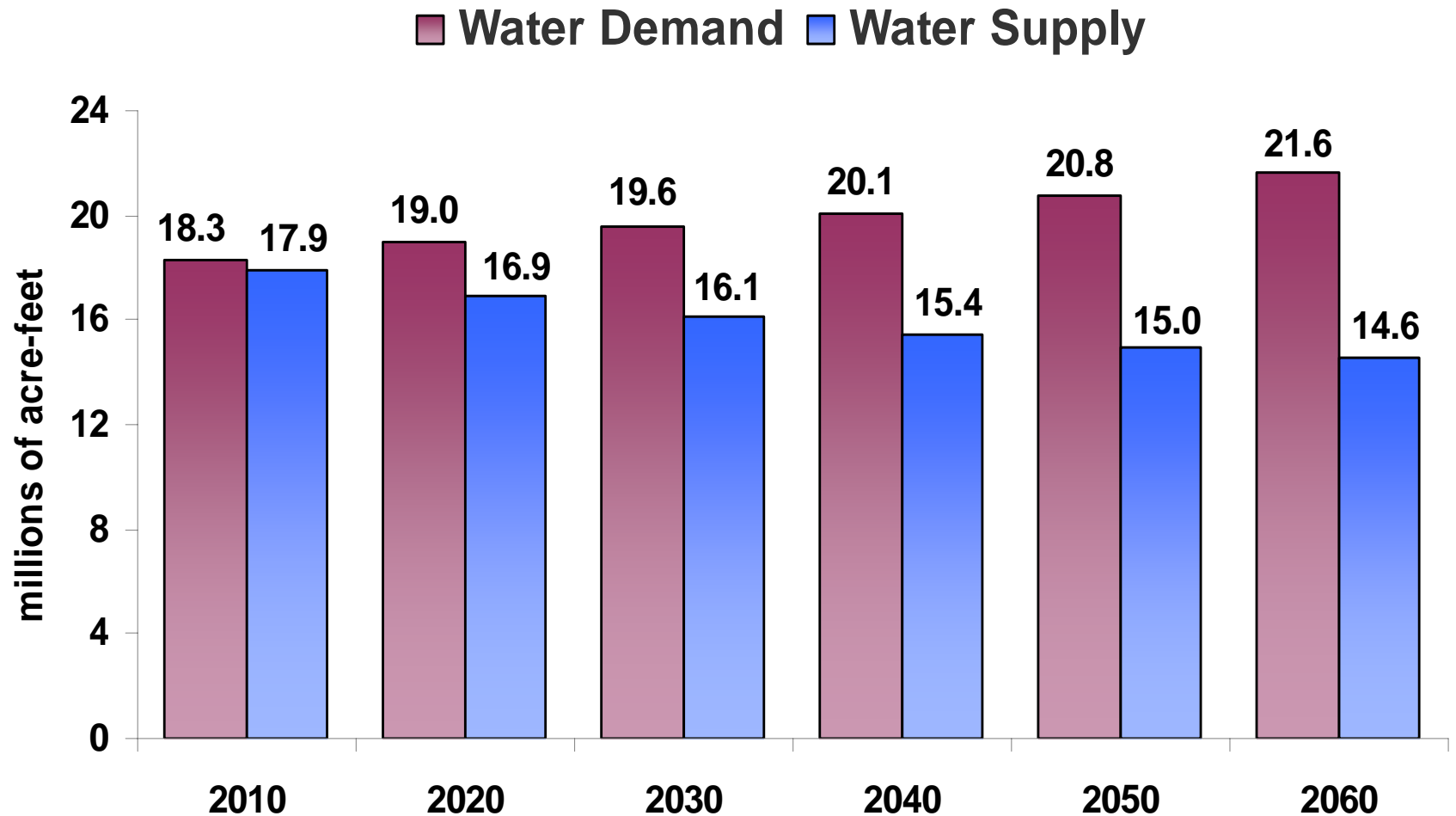
Total = 2,564

- Cities: 956
- Utilities: 378
- County-Others: 254
- Manufacturing: 174
- Steam Electric: 83

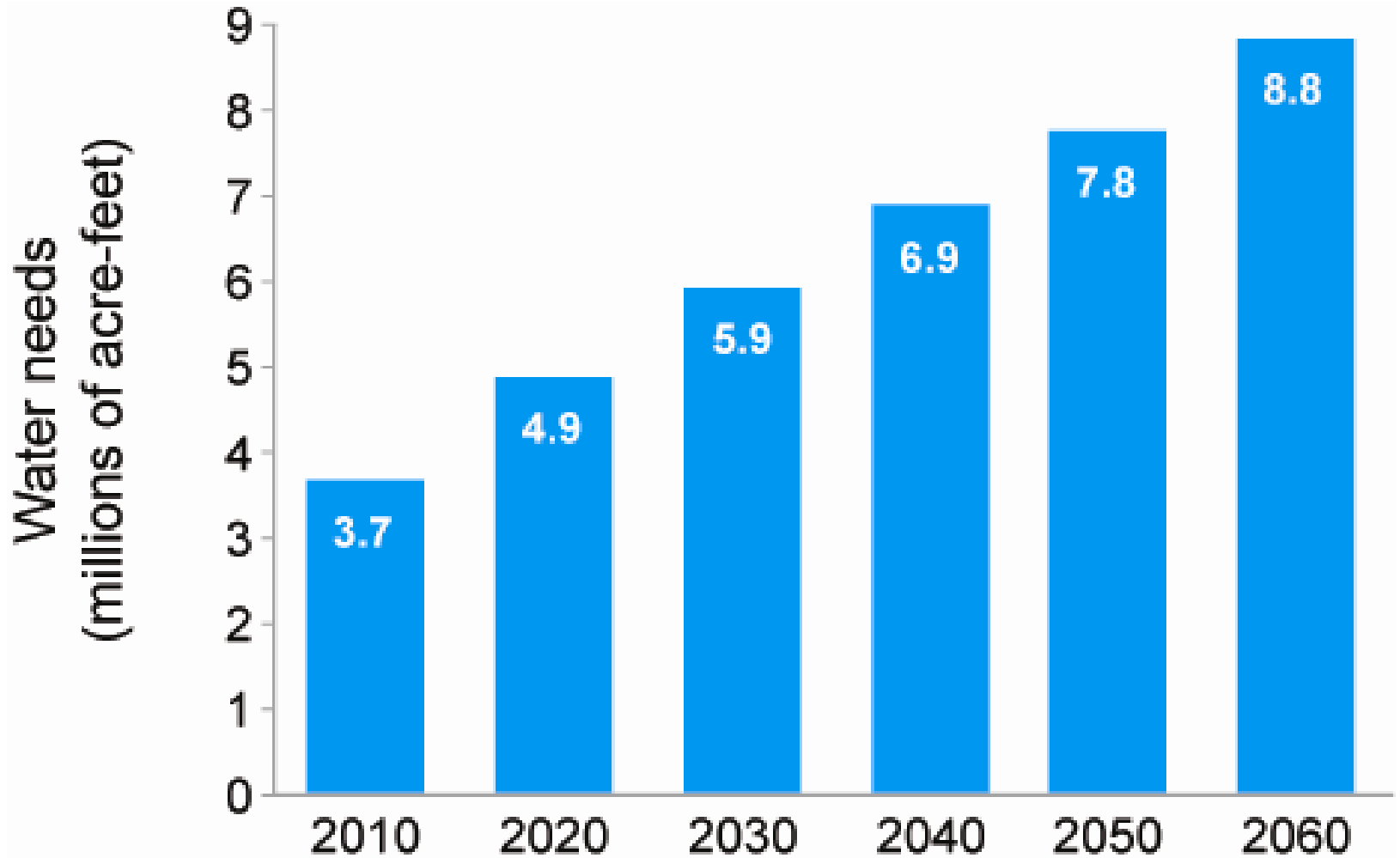


- Livestock: 254
- Mining: 226
- Irrigation: 239

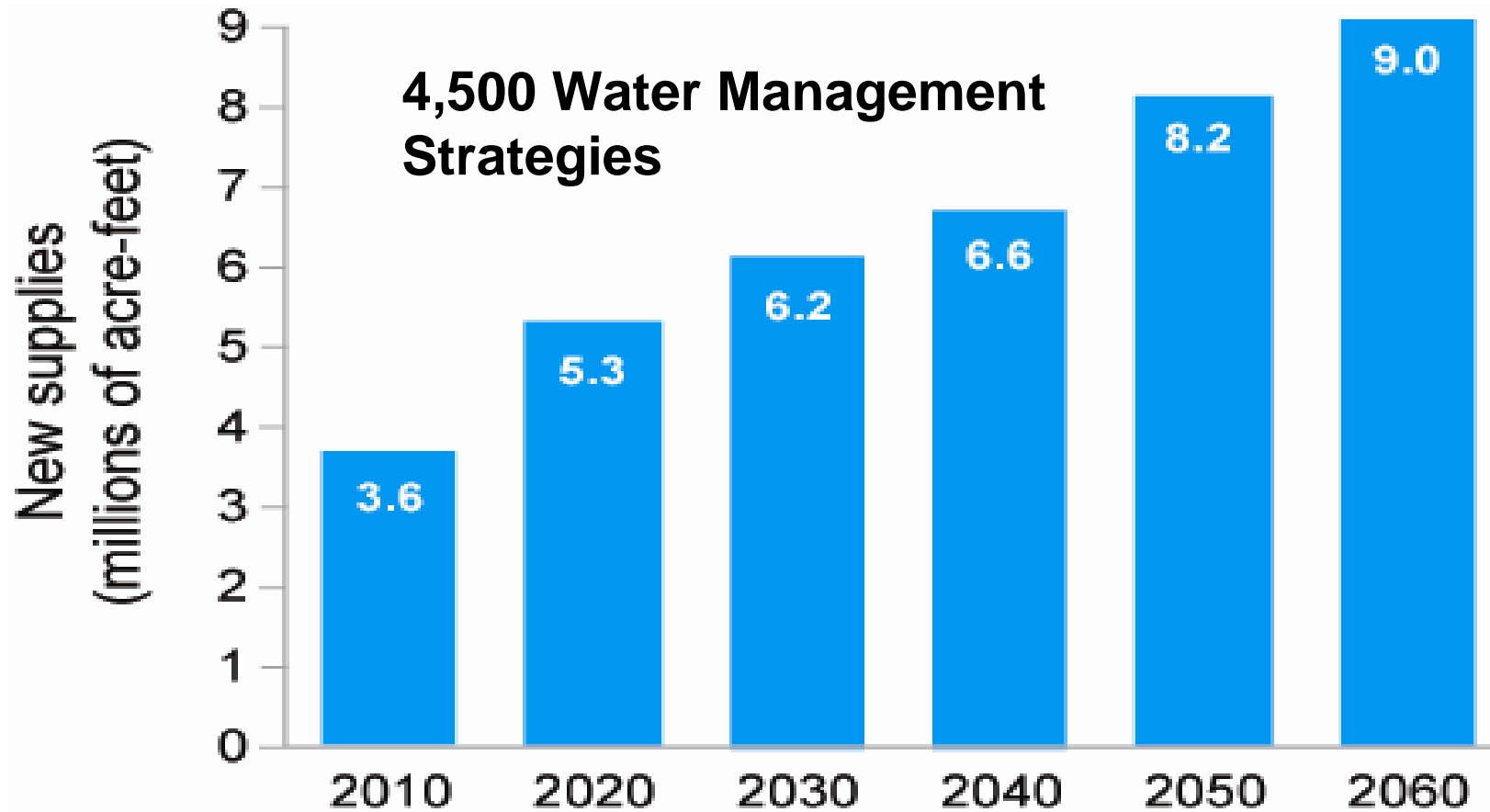
Projected Water Demand & Supply



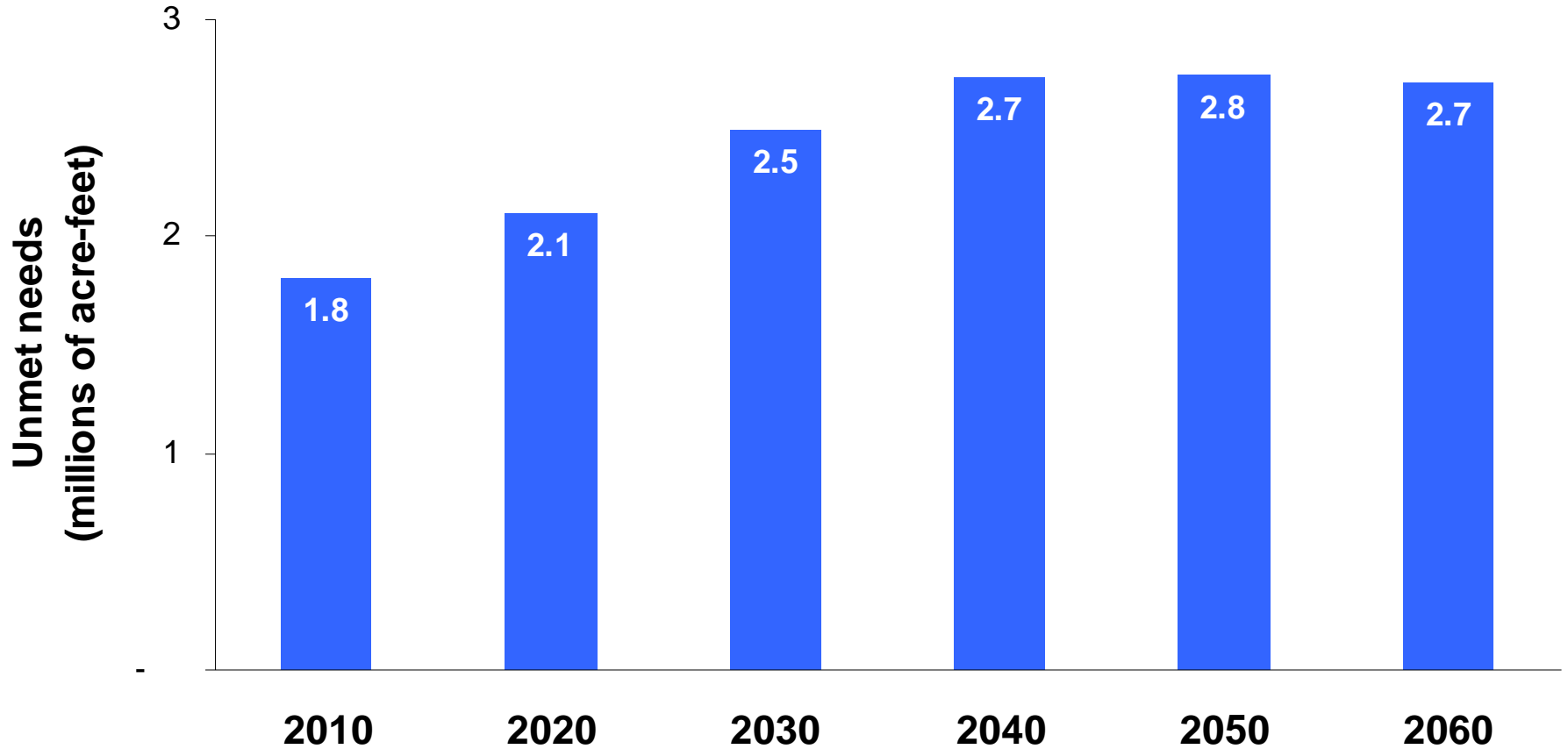
Projected Water Supply Needs



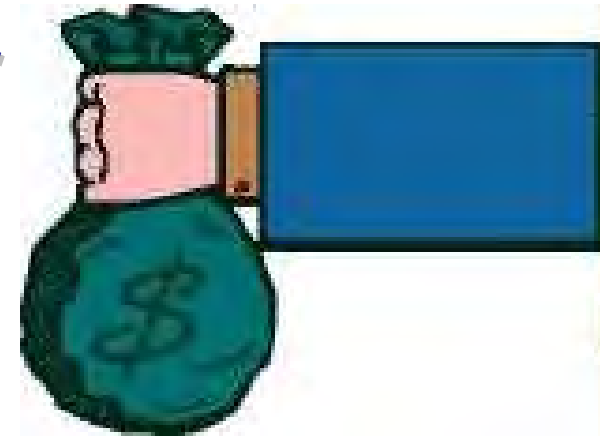
Water Volume from Recommended Water Management Strategies



Water Needs Not Met by the Recommended Water Management Strategies



Costs of Recommended Water Management Strategies



Total capital costs: \$30.7 billion



Water Management Strategies

- Projected needs met with a wide variety of water management strategies including:
 - More efficient use of existing supplies,
 - New surface reservoirs,
 - New or expanded well fields,
 - Other strategies including,

Water Conservation

State Wide Totals

2002 Plan

990,000 af/y

14% of total WMS

2007 Plan

2 million af/y

23% of total WMS

Water Conservation



Municipal

2002 Plan

68,000 AFY

<1% of total WMS

2007 Plan

612,000 AFY

7% of total WMS

Water Conservation Irrigation



Rain Water Harvesting



Desalination

- Recommended Water Management Strategies projected to add about 320,000AFY by 2060



Reuse

2002 Plan

0.4 Million AFY

2007 Plan

1.3 Million AFY

Land Stewardship



A component of land stewardship that has garnered much attention is brush control

Reduce vegetation that consumes large volumes of water and replace with native plants and maintain open space



Successes, Challenges, and Lessons Learned

Positive Outcomes of the Regional Planning Process

- Broad-based expansion of public knowledge and understanding of water resources issues
- Fosters direct link between water planning and implementation
- Enhanced cooperation and coordination between different interest groups and regions

Positive Outcomes of the Regional Planning Process

- Improved relationships between environmental and development interests that have not had a history of working together
- Development and implementation of Water Management Strategies

Challenges

- Conflict between two or more regions
 - Conflict occurs if more than one region plans on using the same water—overallocation
 - TWDB mediates disputes
- Funding the water management strategies

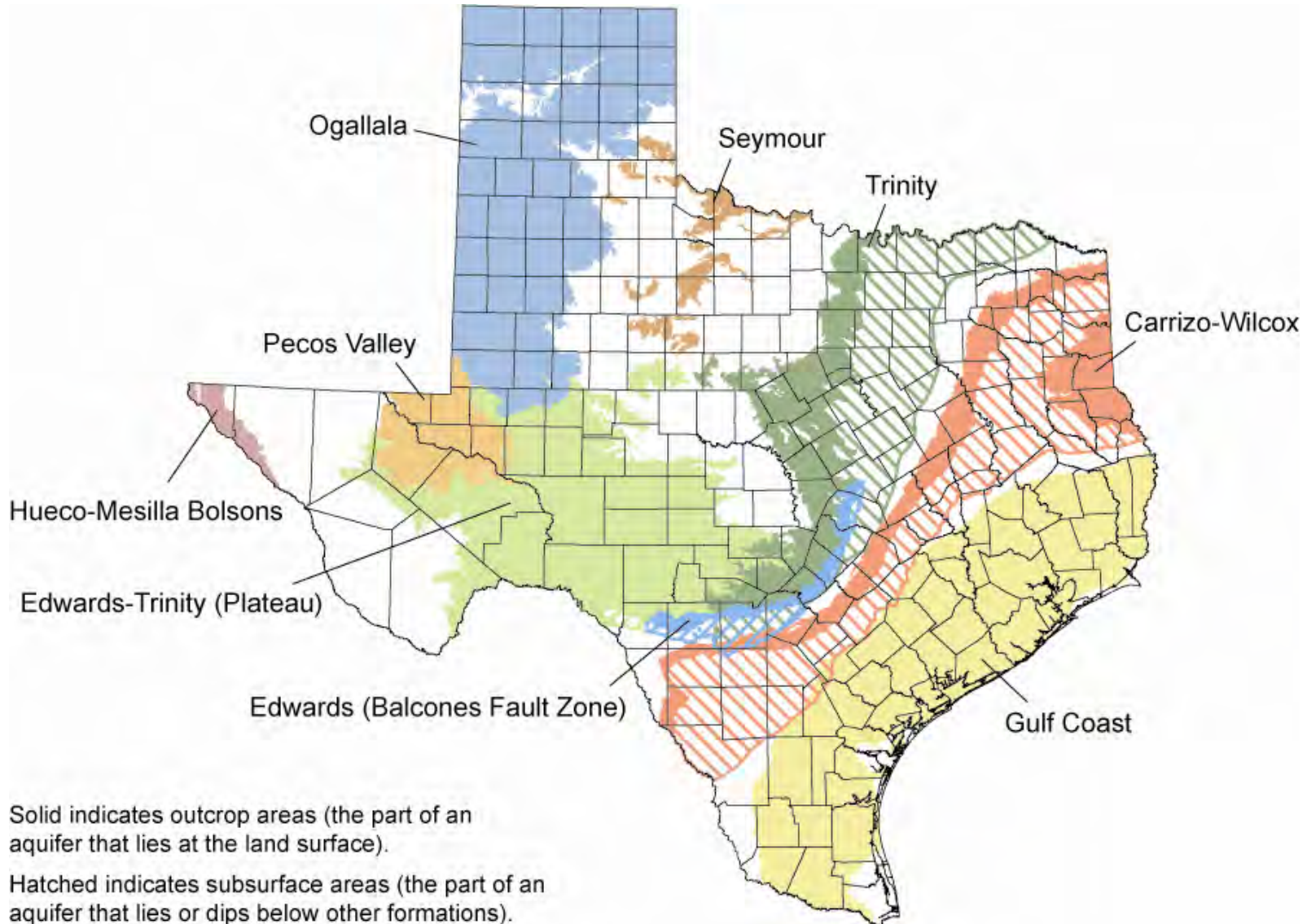
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Major River and Coastal Basins of Texas



The Major Aquifers of Texas



The Minor Aquifers of Texas

