

Regional Water Planning in Texas

Introduction to the 5th Cycle

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The following presentation is based upon professional research and analysis within the scope of the Texas Water Development Board's statutory responsibilities and priorities but, unless specifically noted, does not necessarily reflect official Board positions or decisions.

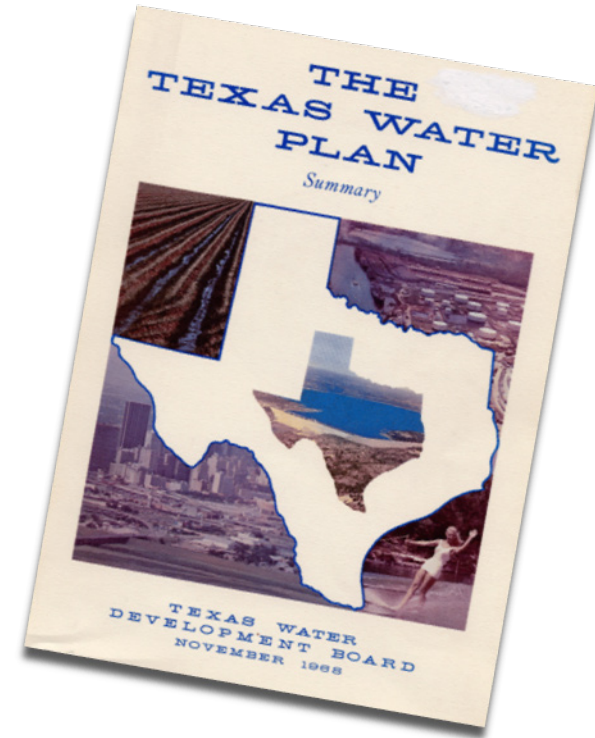
Overview

- Background on regional and state water planning in Texas
- Overview of regional water planning groups
- Fundamentals of water planning
- Foundation of the State Water Plan

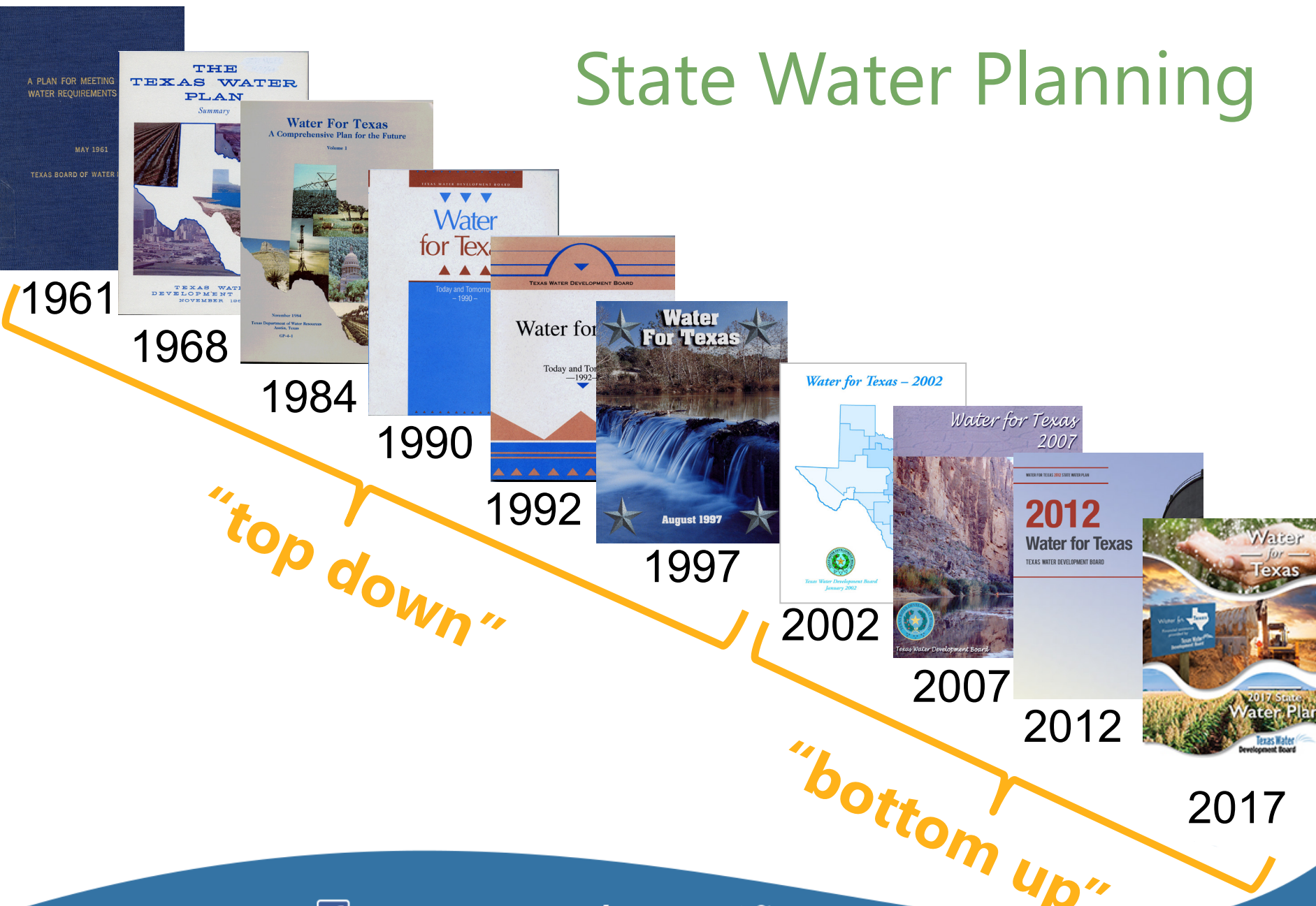
Water Planning: Legislative Response to Drought

1950s – Drought of Record

- 1957: Creation of TWDB
- \$200 million in Water Development Fund

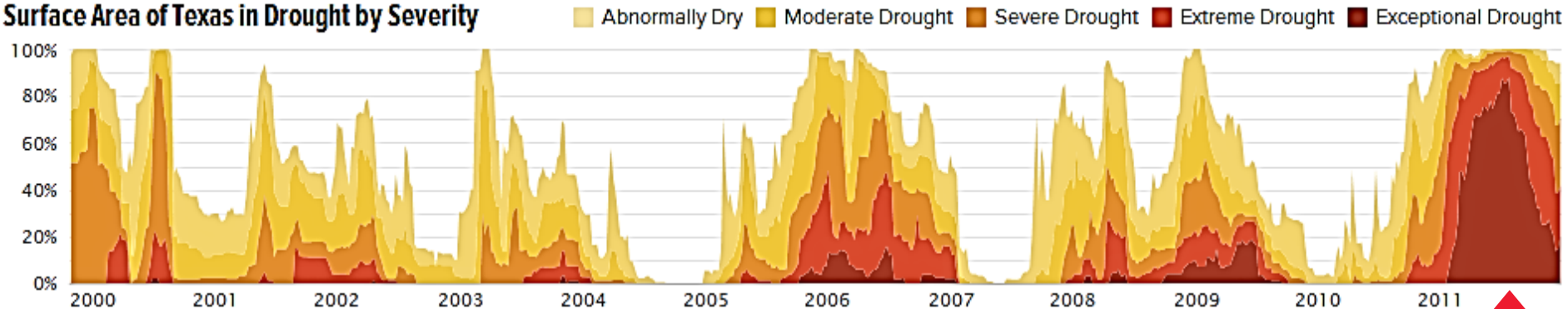


State Water Planning



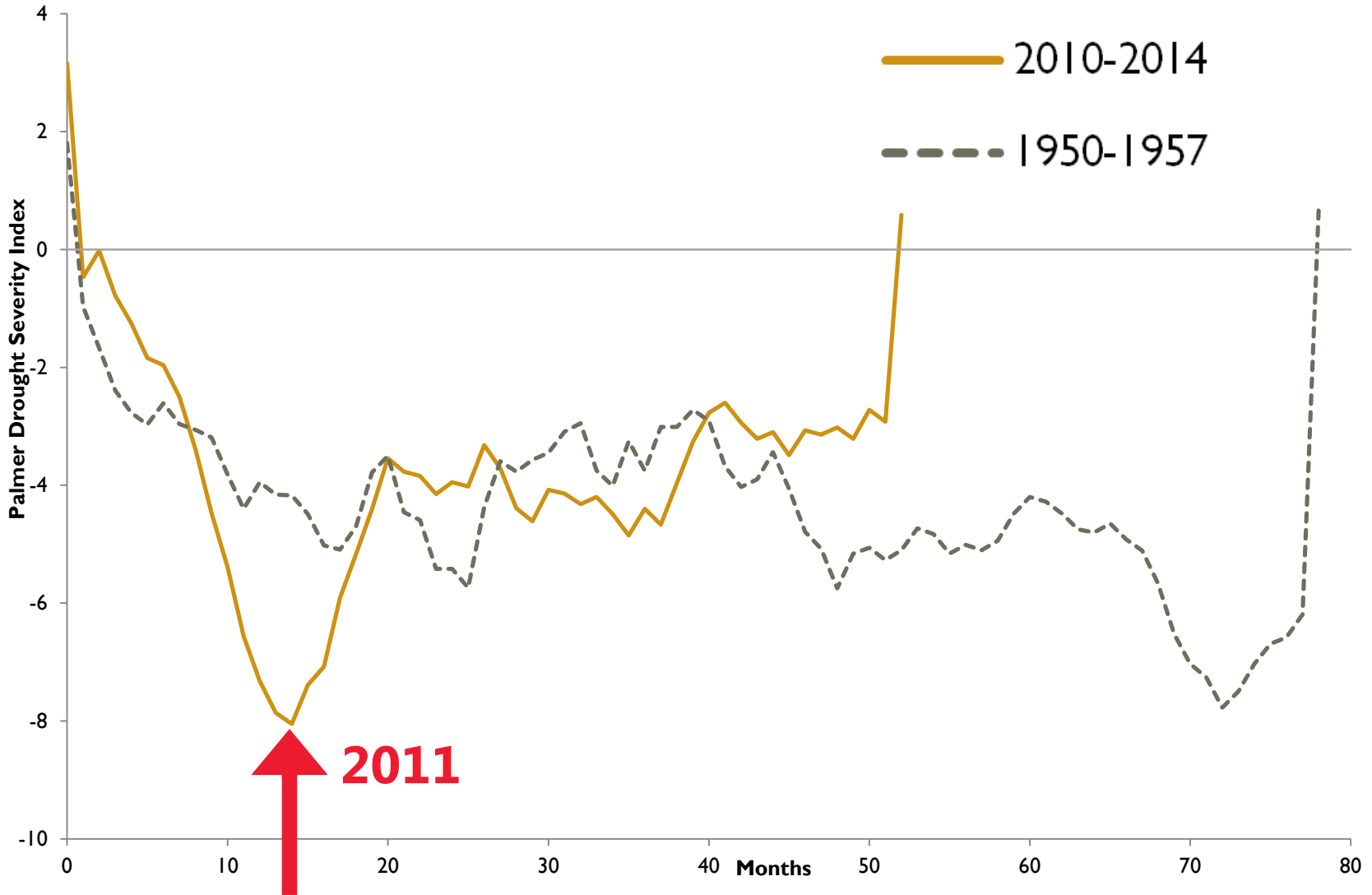
Why do we plan?

Surface Area of Texas in Drought by Severity



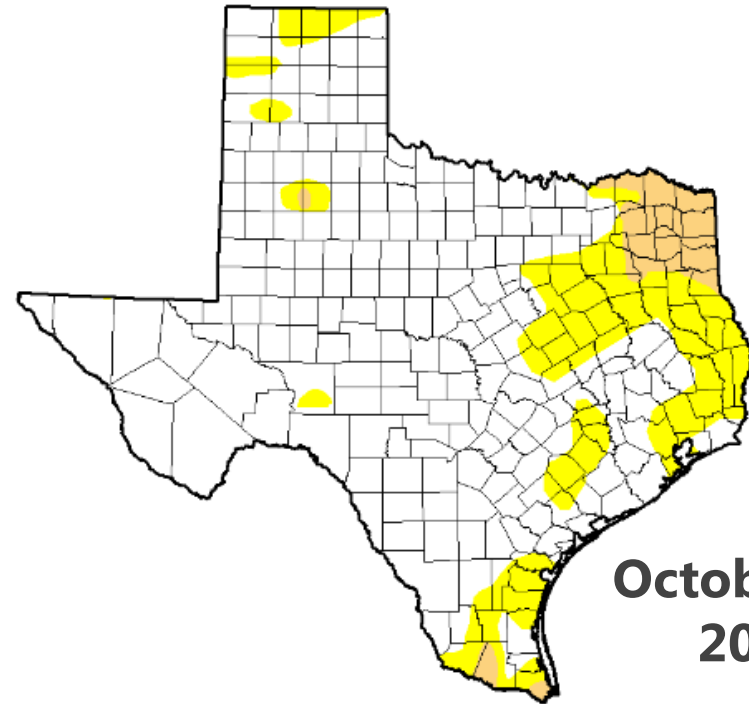
October 4, 2011

Worst Statewide Texas Droughts



Types of Drought

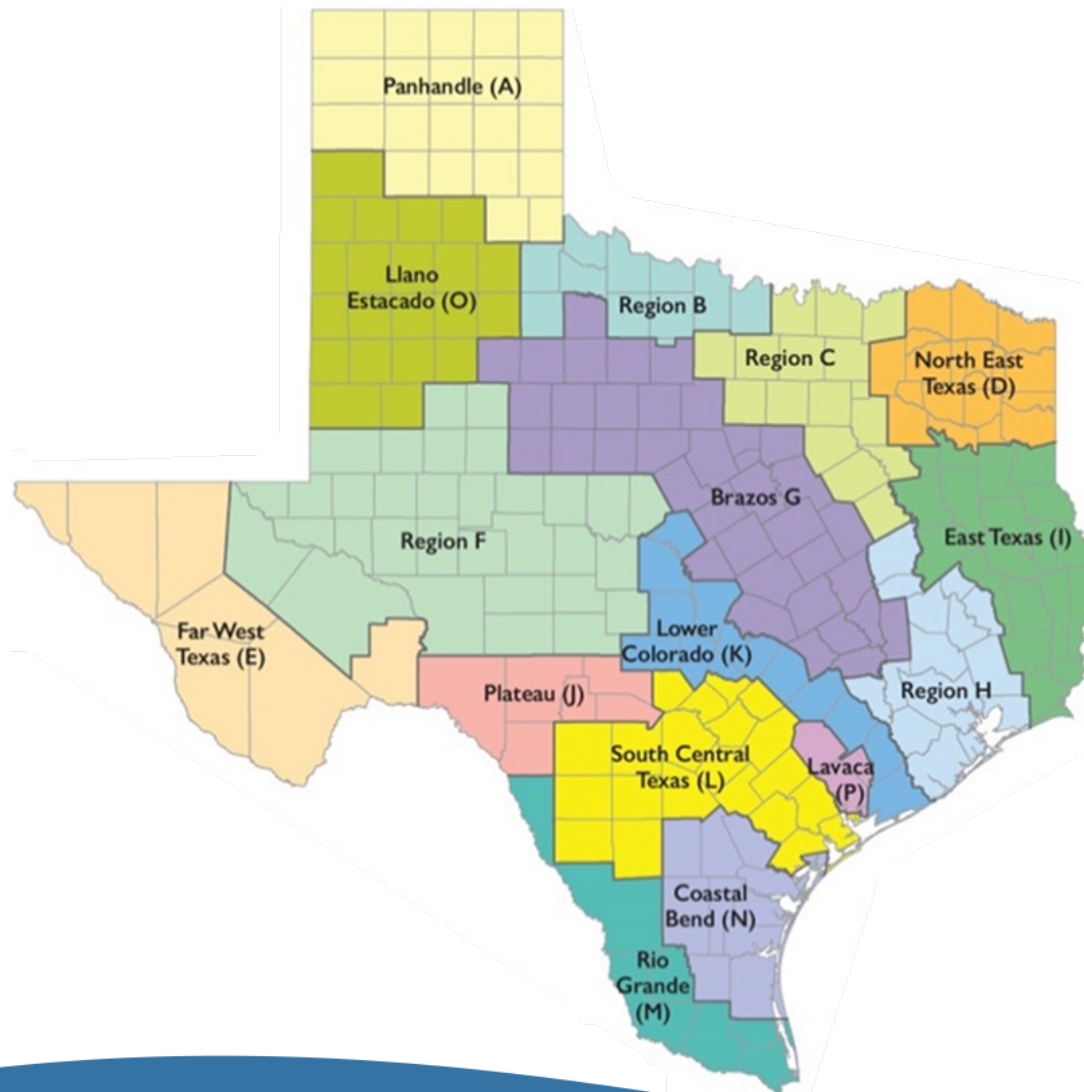
- Meteorological
- Agricultural
- Hydrological*
- Socioeconomic



*regional water planning focuses on drought impacting water supplies

Overview of Regional Water Planning Groups

16 Regional Water Planning Areas





Diverse
interest groups
represented

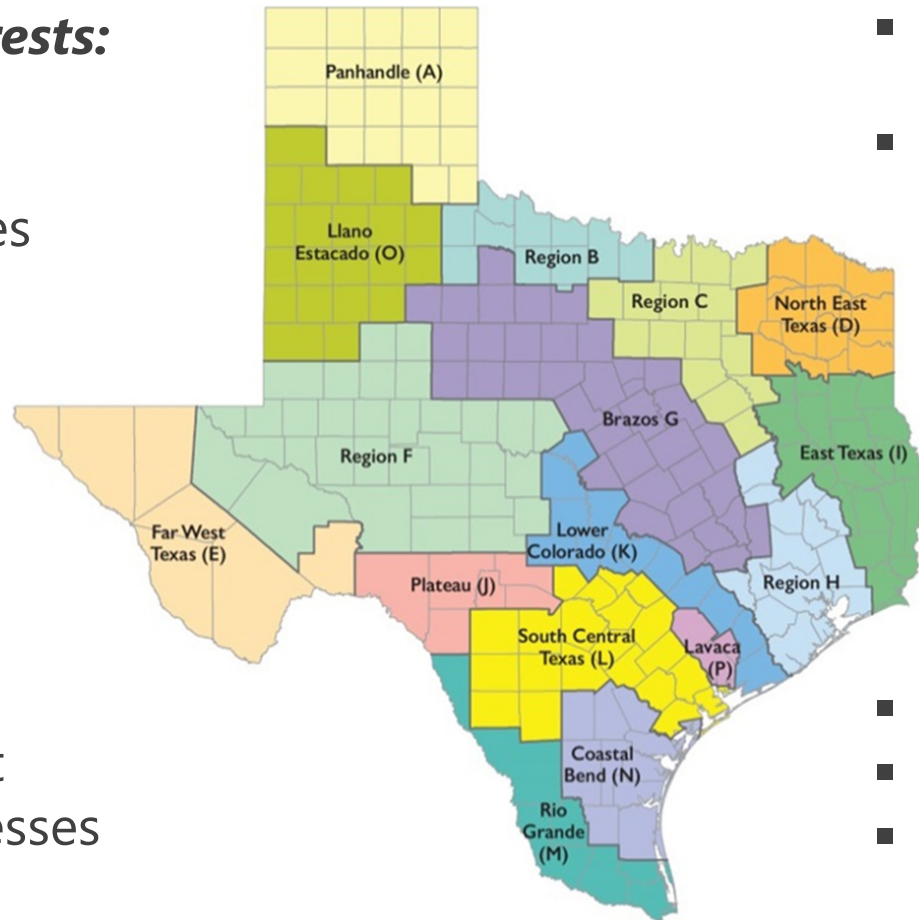


Voting Member Categories

Statutory interests:

- Public
- Counties
- Municipalities

- Industries
- Agriculture
- Environment
- Small businesses



- Electric-generating utilities
- River authorities

- Water districts
- Water utilities
- Groundwater management areas (varies by region)

There are approximately 370 voting members in the 16 groups

Key Responsibilities of Planning Group Members

- Represent interest category and region
- Develop a plan that serves region and state
- Consider local water plans
- Ensure adoption of a regional water plan by the statutory deadline that meets all requirements

How do planning groups function?

- Select a host political subdivision
- Select technical consultants
- Self-govern (maintain own bylaws and membership)
- Hold regular public meetings and sub-group meetings as necessary
- Consider stakeholder input and make decisions in accordance with bylaws

Public Notice Requirements

- Subject to Texas Open Meetings Act
- Follow significant public notice requirements (requirements vary depending on activity)
- Must hold initial preplanning public meeting for input on the next plan
- Must present how the planning group will identify potentially feasible water management strategies at a public meeting

Funding the Planning Process

- Legislative appropriations
- RWPGs apply for funding (based on 5-year cycles)
- Funding through TWDB contract with political subdivision
- Political subdivisions subcontract with technical consultants
- RWPGs direct work of consultants

Relevant Documents

- Statute
- Administrative rules
- Contract Scope of Work/Task budget
- Contract Exhibit C – general guidelines for regional water plan development
- Contract Exhibit D – guidelines for data deliverables

http://www.twdb.texas.gov/waterplanning/rwp/planningdocu/2021/current_docs.asp

Roles



Public



Legislature



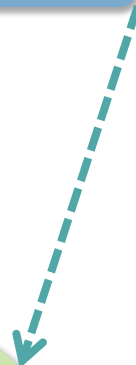
TWDB



16 Regional Water Planning Groups

16 technical consultants

16 political subdivisions



CONTRACTS



Incentives to Participate

- TWDB funding
- TCEQ permitting



Fundamentals of Water Planning

Basic Planning Parameters

- Meet **drought of record** water needs
- 50-year planning horizon
- 5-year planning cycle
- 6 categories of water use: municipal, manufacturing, mining, irrigation, livestock, and steam-electric power
- Geographic breakdown of water user group information by county, river basin, and region

Planning Units & Key Terms

- **Drought of Record (DOR)** = period of time when historical records indicate that natural hydrological conditions would have provided the least amount of water supply
- Data is **decadal** (over 50 year period)
- Water volumes are in **acre-feet**
(1 acre-foot = 325,851 gallons)
- **Water User Group** = "WUG"
- **Wholesale Water Provider** = "WWP"
- **Major Water Provider** = "MWP"

Key Planning Terminology

Availability* = maximum amount of raw water that could be produced by a source during a repeat of the **DOR**

Existing Supply* = maximum amount of water that is physically and legally accessible for immediate use by a **WUG** under a repeat of **DOR** conditions

*See handout page 1: Section 6.1 from the 2017 State Water Plan

Key Planning Terminology

Demand = volume of water required to carry out the anticipated domestic, public, and/or economic activities of a **WUG** during drought conditions

Need = a potential water supply shortage, based on the difference between water demands and existing water supplies (can be met by implementing recommended water management strategies)

Unmet Need = the portion of an identified water need that is not met by recommended water management strategies

Key Planning Terminology

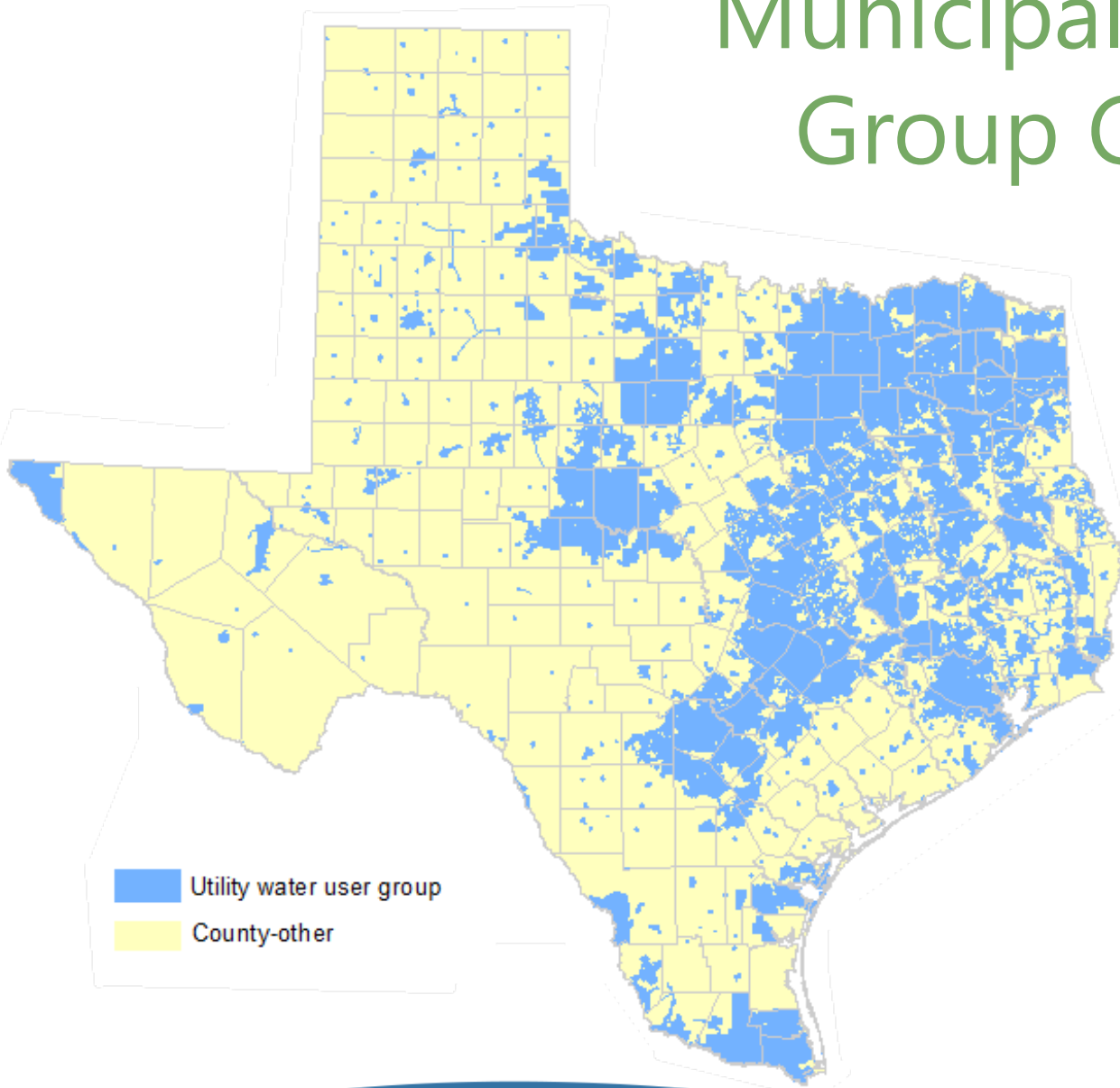
Water Management Strategy (WMS) = a plan to meet a need for additional water by a discrete **WUG**, through increasing total water supplies or maximizing existing supplies, including through reducing demands

Water Management Strategy Project (WMSP) = a water project that has a capital cost and when implemented, would develop, deliver, or treat additional water supplies or conserve water for **WUGs** or **WWPs**

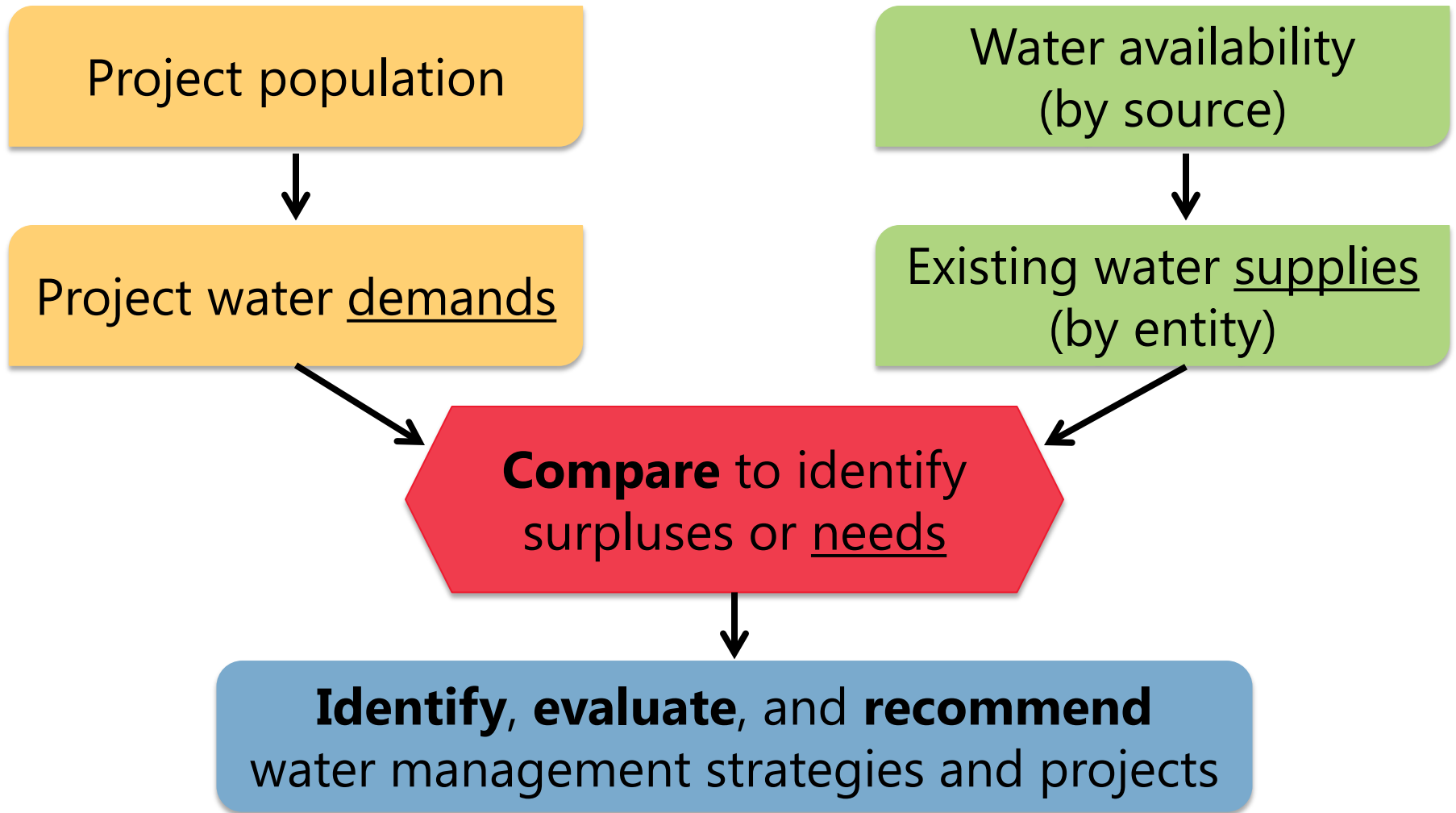
WUGs in the 2016 Regional Water Plans

Demand Category	Number of WUGs
<i>Municipal WUGs</i>	
Cities & Utilities	1,364
County-Other	254
<i>Non-municipal WUGs</i>	
Manufacturing	183
Mining	228
Steam-Electric Power	85
Irrigation	241
Livestock	254
Total number of WUGs	2,609

Municipal Water User Group Categories



Water Planning Basics



Path to Recommending Strategies and Associated Projects

- **identify** “potentially feasible” strategies and projects
- **evaluate** potentially feasible strategies and projects
- **compare** evaluated strategies and projects
- **recommend** strategies and projects that are “cost-effective and environmentally sensitive” 31 TAC 357.35(b)

Potentially Feasible Water Management Strategies*

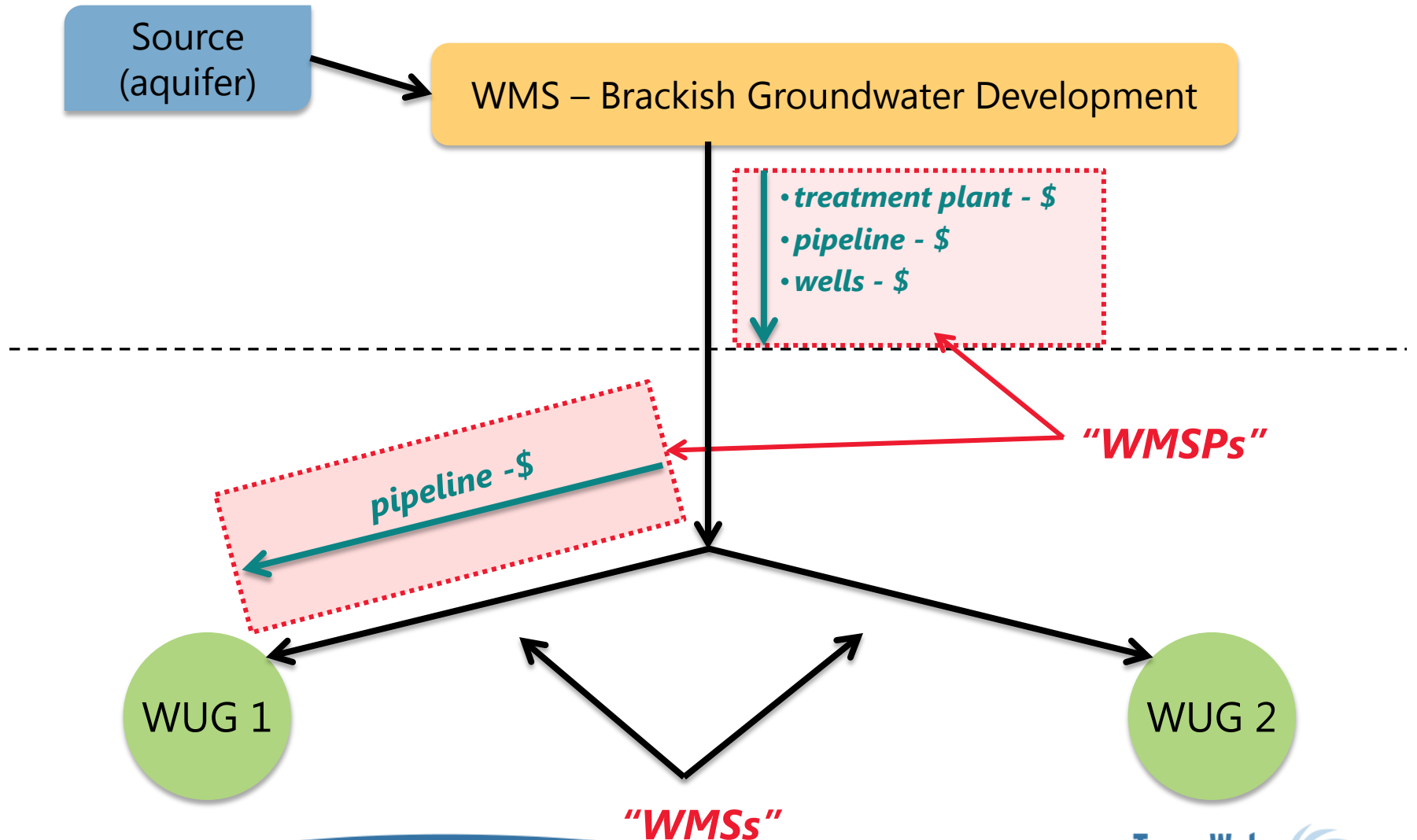
- WMS's that must be considered:
 - Expanded use of existing supplies
 - New supply development
 - Conservation and drought management measures
 - Reuse of wastewater
 - Interbasin transfers of surface water
 - Emergency transfers of surface water
- Water conservation and drought management measures must be considered for every water user group with an identified water need

*See handout page 2: List of potentially feasible WMSs required to be considered

Evaluation of Strategies and Associated Projects

- Evaluations are based on:
 - water quantity and reliability
 - financial costs
 - impacts to environment and agriculture
 - impacts to water quality
 - other factors such as regulatory requirements, time required to implement, etc.

Water Management Strategy vs. Project



Prioritization of Projects

- Regional and state level prioritization of WMSPs are required by SWIFT Legislation
- Each recommended WMSP must be prioritized
- Regional prioritization based on uniform standards developed by stakeholder committee (RWPG Chairs)
- State prioritization system based on statute and TWDB administrative rules

Regional Planning Deliverables

- Standard contract tasks associated with 11 Chapters
- Populate Online State Water Plan database (DB22)
- Report documents: Technical Memorandum, Initially Prepared Plan, and Final Plan
- List of prioritized projects

Standard RWP Chapters*

1. Planning area description
2. Population and water demand projections
3. Water supply analysis
4. Identification of water needs
5. Water management strategies and projects
6. Impacts of plan and consistency with protection of the State's water, agricultural, and natural resources

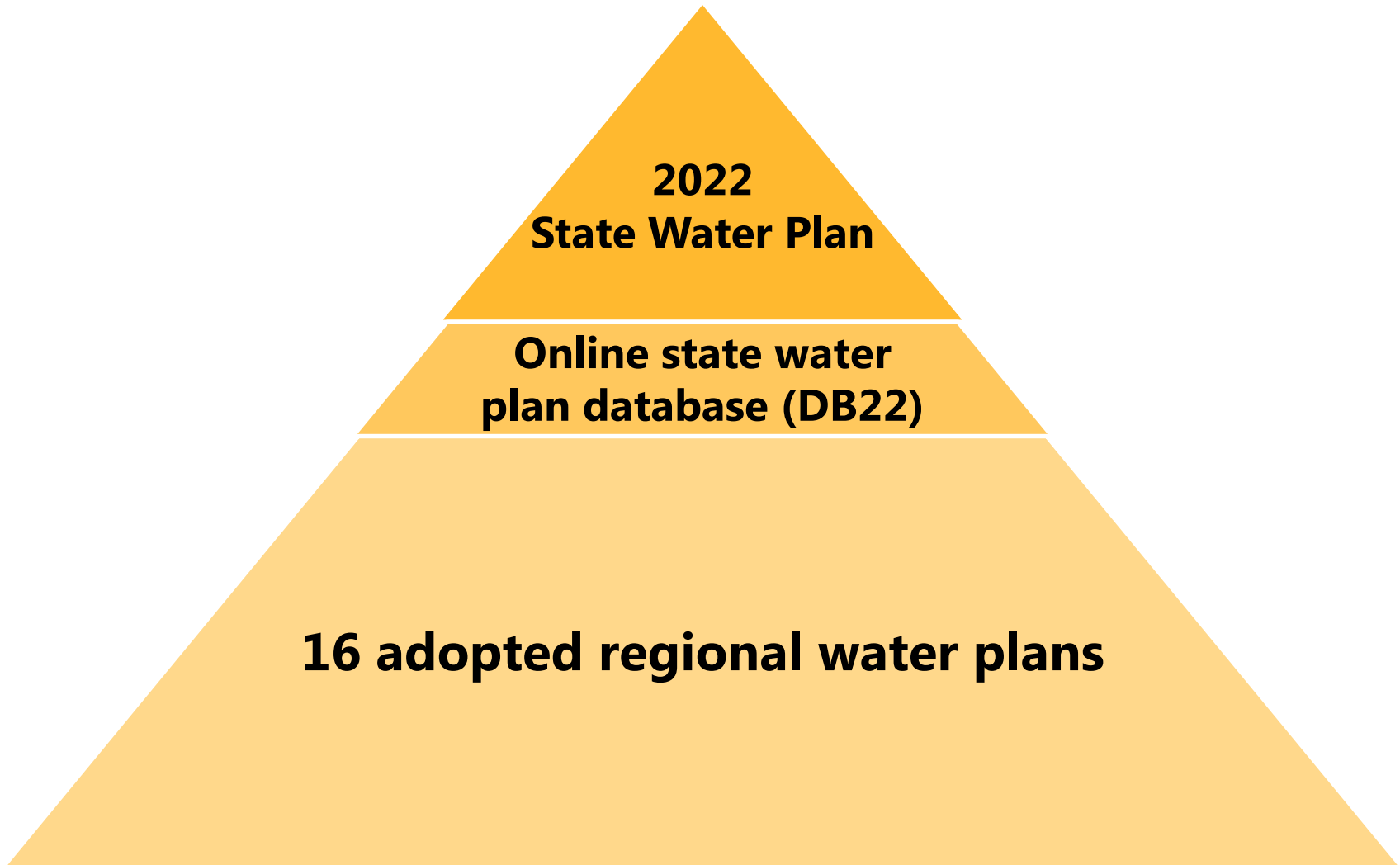
*See handout page 3: General Document Cross-Reference Table

Standard RWP Chapters (cont.)

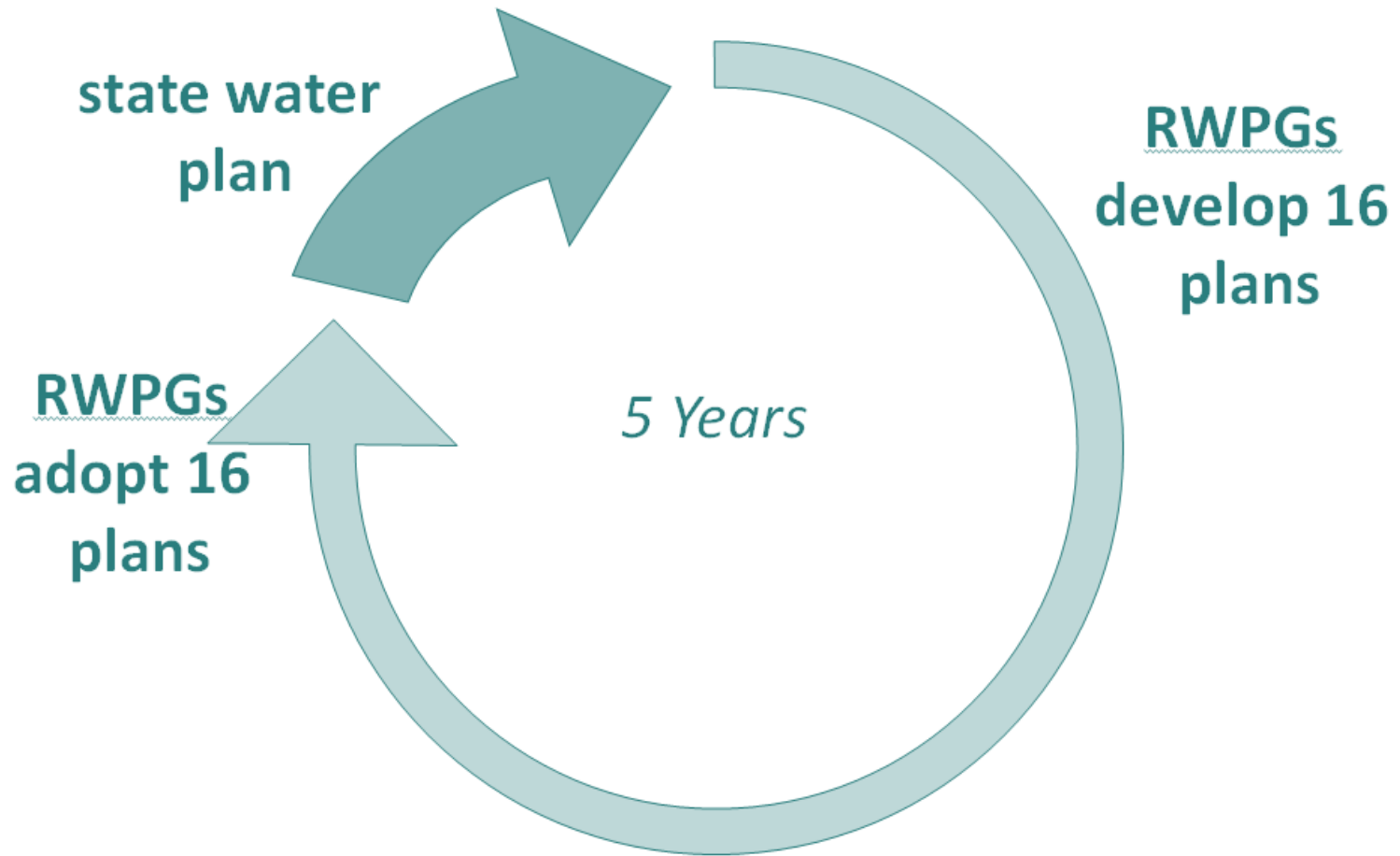
7. Drought response information, activities, and recommendations
8. Unique stream segments, unique reservoir sites, and policy recommendations
9. Infrastructure financing analysis
10. Adoption of plan
11. Implementation and comparison to previous regional water plan

Foundation of the State Water Plan

Bottom Up Approach



Regional & State Planning Cycles



Audience

- The State Water Plan is delivered to the Governor, the Legislature, and the public
- Key aspects for their consideration:
 - Long-term projections of water supplies, demands, and needs
 - Project costs and funding needs
 - Policy recommendations



Snapshot of the 2017 State Water Plan

5,500 strategies



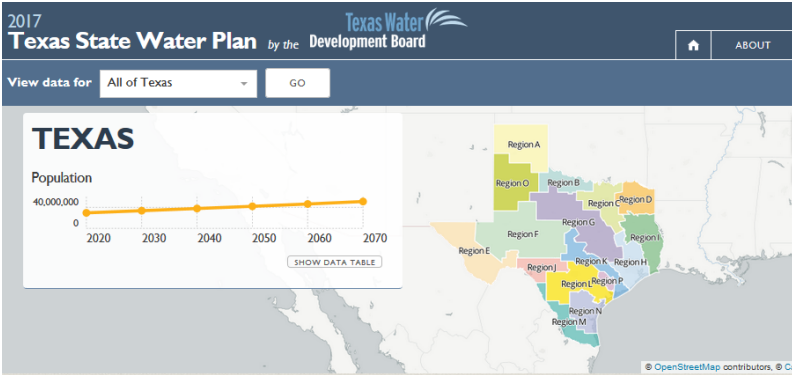
2,500 projects



Capital cost of **\$63** billion



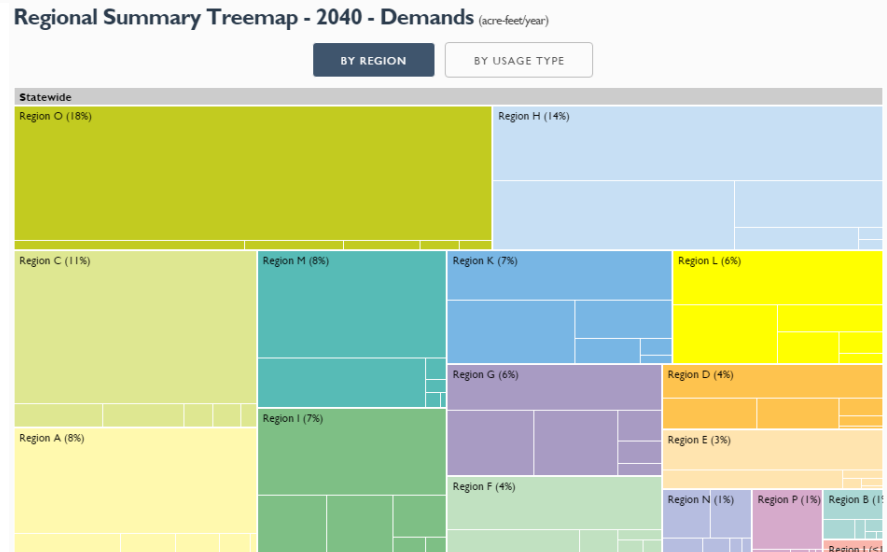
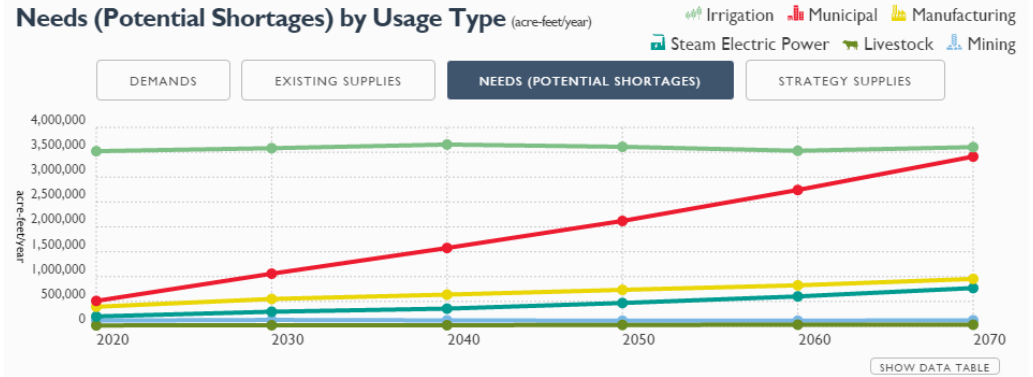
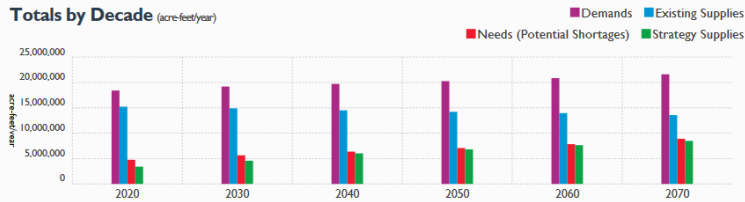
The State Water Plan is Online and Interactive



Development of the state water plan is central to the mission of the Texas Water Development Board. Based on 16 regional water plans, the plan addresses the needs of all water user groups in the state – municipal, irrigation, manufacturing, livestock, mining, and steam-electric power – during a repeat of the drought of record that the state suffered in the 1950s. The regional and state water plans consider a 50-year planning horizon: 2020 through 2070.

This website lets water users statewide take an up-close look at data in the 2017 State Water Plan and how water needs change over time by showing:

- o projected water demands,
- o existing water supplies,
- o the relative severity and projected water needs (potential shortages),
- o the water management strategies recommended to address potential shortages, and
- o recommended capital projects and their sponsors.



<http://texasstatewaterplan.org>

Additional TWDB Presentations

- Update on revised 31 TAC Chapter 357 rules
- What's new in the 5th cycle of planning
- Detailed plan requirements
- Others based on planning group requests



WATER *for* **TEXAS**
2017 conference

January 23-25, 2017

**AT&T Conference Center,
Austin, Texas**

Hosted by the TWDB

WaterForTexas.twdb.texas.gov

Questions?

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Supplemental Handout to the Regional *Water Planning in Texas, Introduction to the 5th Cycle Presentation*

1) Excerpt from the 2017 State Water Plan that explains “availability” vs. “existing supply”

“6.1 Evaluating water resources for planning¹”

Estimating how much water Texans will have to meet their water demands is a two-step process that examines both water *availability* and *existing supply*. Those two terms have very specific, and not necessarily intuitive, meanings in the water planning process.

Water availability refers to the maximum volume of raw water that could be withdrawn annually from each source (such as a reservoir or aquifer) during a repeat of the drought of record. Availability does not account for whether the supply is connected to or legally authorized for use by a specific water user group. Water availability is analyzed from the perspective of the source and answers the question: *How much water from this source could be delivered to water users as either an existing water supply or, in the future, as part of a water management strategy?* Determining water availability is the first step in assessing potential water supply volumes for a planning group.

Second, planning groups evaluate the subset of the water availability volume that *is already connected* to water user groups. This subset is defined as existing supply. Existing water supplies are based on legal access to the water as well as the infrastructure (such as pipelines and treatment plant capacity) already in place to treat and deliver the water to the “doorstep” of water user groups. Existing supply is analyzed from the perspective of water users and answers the question: *How much water supply could each water user group already rely on should there be a repeat of the drought of record?*

For example, the firm yield of a surface water reservoir may be 100,000 acre-feet per year. Of that 100,000 acre-feet per year in supplies available at the source, the current pipeline to that source could only convey 60,000 acre-feet per year to users as an existing supply. There remains, therefore, an additional 40,000 acre-feet per year in available water that could serve as the basis for a future water management strategy. Within a county, for another example, there may be a modeled available groundwater volume of 50,000 acre-feet per year, but because water users’ current permits and pumping facilities are only able to pump 20,000 acre-feet per year for existing supplies, there remains 30,000 acre-feet per year in available groundwater that could support water management strategies.

Because existing supplies are a subset of the availability of water sources, existing supplies cannot exceed a source’s availability without the risk of a water user running short of water in a drought of record. If existing supplies exceed availability it is called an over-allocation. To ensure that planning groups did not assign more water supply to a water source than the source could provide in a drought, the TWDB performed a detailed, statewide accounting of all assigned existing water supply volumes and notified planning groups of over-allocations. Planning groups then made adjustments to their draft plans so that supplies did not exceed the availability of any source in the final plans.”

¹ Page 61 of the 2017 State Water Plan.

2) Potentially feasible WMSs required to be considered by planning groups, per Texas Water Code §16.053(e)(3) and 31 Texas Administrative Code §357.34(c) include

- conservation² [*perennial demand management*];
- drought management³ [*temporary demand management*];
- reuse;
- management of existing water supplies;
- conjunctive use;
- acquisition of available existing water supplies;
- development of new water supplies;
- developing regional water supply facilities or providing regional management of water supply facilities;
- developing large-scale desalination facilities for seawater or brackish groundwater that serve local or regional brackish groundwater production zones identified and designated under TWC §16.060(b)(5);
- developing large-scale desalination facilities for marine seawater that serve local or regional entities;
- voluntary transfer of water within the region using, but not limited to, contracts, water marketing, regional water banks, sales, leases, options, subordination agreements, and financing agreements;
- emergency transfer of water under TWC §11.139;
- interbasin transfers of surface water;
- system optimization;
- reallocation of reservoir storage to new uses;
- enhancements of yields;
- improvements to water quality;
- new surface water supply;
- new groundwater supply
- brush control;
- precipitation enhancement;
- aquifer storage and recovery;
- cancellation of water rights; and
- rainwater harvesting.

² RWPGs must consider water conservation practices, including potential applicable best management practices, for each identified water need (31 TAC §357.34(g)(2)). If RWPGs do not adopt a water conservation strategy to meet an identified need, they shall document the reason in the RWP (31 TAC §357.34(g)(2)(B)).

³ RWPGs shall consider drought management measures for each identified need... If a RWPG does not adopt a drought management strategy for a need it must document the reason in the RWP (31 TAC §357.34(g)(1)).

3) General Document Cross-Reference Table from *Draft First Amended General Guidelines for Fifth Cycle of Regional Water Plan Development*

Regional Water Planning Contract Document References			2021 Regional Water Plan Chapter, Associated TAC Sections, and Content		
TWDB Contract Reimbursement Accounting Number ('CAS')	Exhibit A - Contract SOW Task	Exhibit C - General Guidelines for Regional Water Plan Development	Regional Water Plan Chapter Number	Primary TAC Section	General Content
TBD	1	1	1	§357.30	Description of the Regional Water Planning Area
1	2A	2	2	§357.31	Projected Non-Municipal Water Demands
2	2B			§357.31	Projected Population and Municipal Water Demands
TBD	3	3	3	§357.32	Water Supply Analysis
TBD	4A	4	4	§357.33	Identification of Water Needs
TBD	4C			contract	Technical Memorandum
TBD	4B	5	5	§357.34	Identification of Potentially Feasible Water Management Strategies (WMSs)
TBD	5A			§357.34; §357.35	Evaluations of Potentially Feasible WMSs, Recommended WMSs/WMSPs, and Alternative WMSs/WMSPs
TBD	5B			§357.34	Conservation Recommendations [<i>as an individual subchapter</i>]
TBD	6	6	6	§357.40	Impacts of Regional Water Plan
				§357.41	Consistency with Protection of Water Resources, Agricultural Resources, and Natural Resources
TBD	7	7	7	§357.42	Drought Response Information, Activities, and Recommendations
TBD	8	8	8	§357.43	Policy Recommendations & Unique Sites
TBD	9	9	9	§357.44	Infrastructure Financing Analysis
3	10	10	10	§357.21; §357.50	Public Participation and Plan Adoption
TBD	11	11	11	§357.45	Implementation and Comparison to the Previous Regional Water Plan
TBD	12	12	N/A	§357.46	RWPG Prioritization of Recommended Water Management Strategy Projects (WMSP)