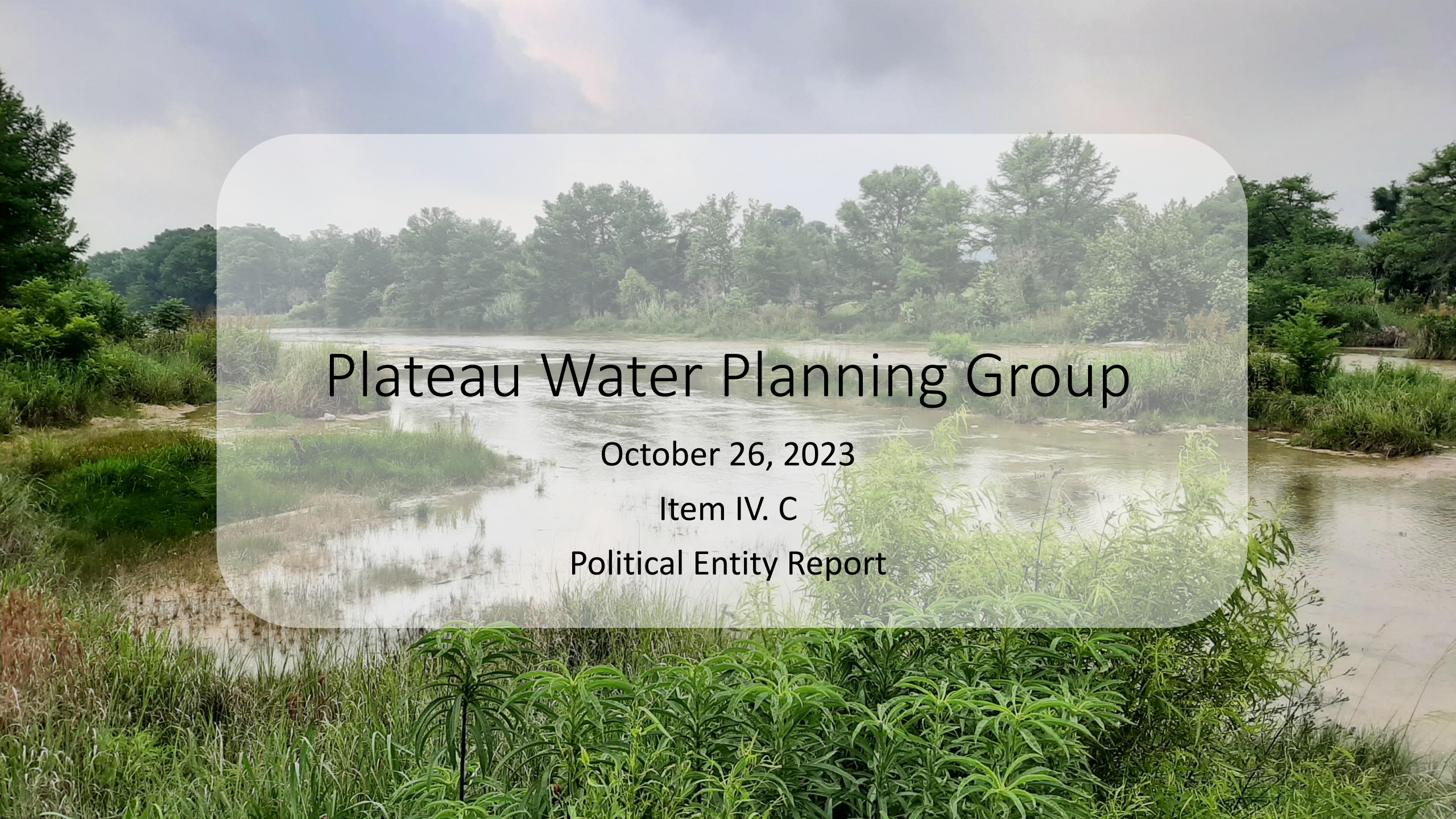
Plateau Water Planning Group

October 26, 2023



Plateau Water Planning Group

October 26, 2023

Item IV. C

Political Entity Report

Since Last Meeting

- Submitted payment reimbursement report/payment request #5
- Reviewed invoices – Items V. and VI.
- Communication with TWDB and WSP regarding:
  - Timing of payments
  - Agenda for upcoming meetings and decision points
  - Amended TWDB and WSP contracts – Item VIII.
  - Travel authorization – Item IX.

Plateau Water Planning Group

October 26, 2023

Item VII.

Texas Water Development Board Updates

The amendment process requires the following:

- A regional water planning group must submit a revision request, usually based on a request from apolitical subdivision, to the TWDB.
- The regional water planning group must provide at least 14 days notice for a meeting and make the proposed population and/or water demand projection revisions available for public inspection prior to the meeting.
- The regional water planning group must accept oral and written public comments at the meeting in which the request is considered and written comments for 14 days prior to the meeting.
- The regional water planning group submits the revision request to the TWDB, including a summary of all comments the planning group received at the meeting and during the comment period.

Minor Amendments

- can be made to incorporate changes that do not
- result in over-allocation of an existing or planned source of water,
- relate to a new reservoir,
- increase unmet needs or produce new unmet needs in the adopted regional water plan,
- have a significant effect on instream flows, environmental flows, or freshwater flows to bays and estuaries,
- have a significant substantive impact on water planning or previously adopted management strategies, or
- delete or change any legal requirements of a plan

Minor Amendment Process

- An entity requests the regional water planning group to amend a regional water plan.
- The regional water planning group considers the request and takes action to pursue the amendment at one of its regular public meetings.
- Amendment materials are prepared in accordance with TWDB rules and guidance, and a request fora “minor amendment determination” is submitted to the TWDB’s executive administrator.
- The executive administrator reviews the request and issues a determination to the planning group.
- If the executive administrator determines that it is a “minor amendment,” the regional water planning group considers adopting the amendment at a public meeting with an opportunity for public input. This meeting requires at least a 14-day notice. The regional water planning group considers public comments

Minor Amendment continued

- and may adopt the amendment at the meeting.
- The regional water planning group submits the adopted minor amendment materials, including a summary of public comments, to the TWDB for approval.
- The TWDB reviews the adopted minor amendment and, if acceptable, approves it at its next regular Board meeting.
- The TWDB then amends the state water plan, which requires a public hearing on the proposed state water plan amendment and a 30-day public notice prior to its adoption.

Major Amendments

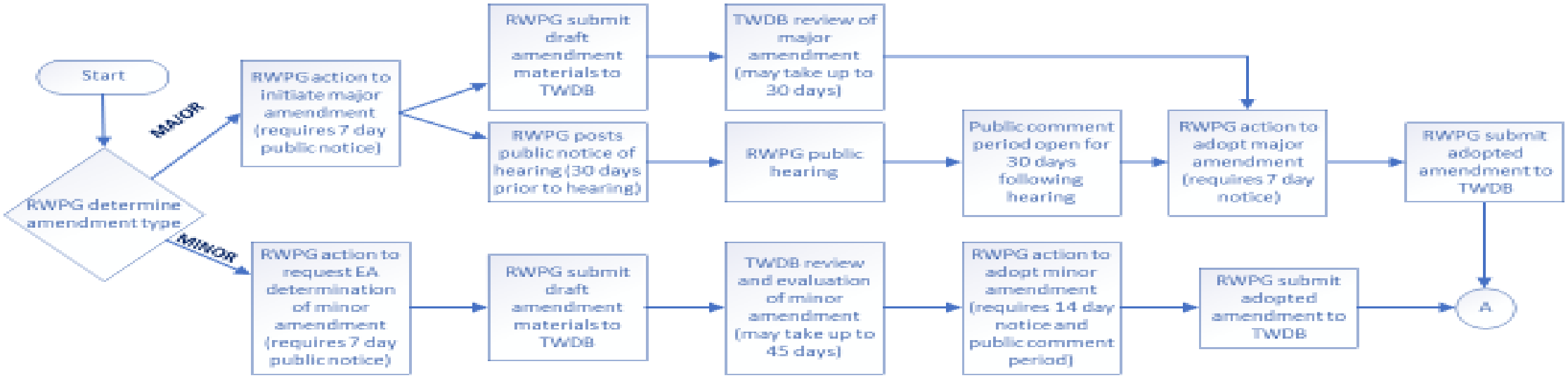
- can be made to incorporate changes that cannot be addressed through a minor amendment. Major amendments shall not result in an over-allocation of an existing or planning source of water, and shall conform with all other rules for regional water plan development.
- Process: An entity requests that the regional water planning group make an amendment. The regional water planning group considers the request and takes action to pursue the amendment at one of its regular public meetings. Amendment materials are prepared in accordance with TWDB rules and guidance for consideration at a public hearing.

Major Amendment Process continued

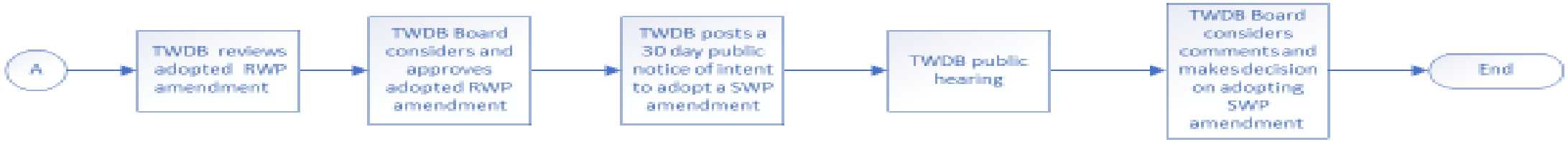
- The regional water planning group holds a public hearing on the proposed amendment. This process requires 30 days between published notice of the hearing and the hearing date and a 30-day comment period following the hearing.
- The regional water planning group considers all public comments received and may adopt the regional water plan amendment at a regular planning group meeting after the 30-day comment period.
- The regional water planning group submits the adopted amendment materials, including a summary of public comments, to the TWDB for approval.

Regional and State Water Plan Amendment Process

RWPG Amendment Process for RWP
Major amendment process may take approximately three (3) months and includes two (2) RWPG meetings and one (1) hearing. Minor amendment process may take approximately 2.5 months and includes two (2) RWPG meetings.



TWDB Amendment Process for SWP
TWDB amendment process may take approximately three (3) months, subject to the timing of TWDB Board meetings.



Acronyms:
TWDB: Texas Water Development Board
RWPG: Regional Water Planning Group
RWP: Regional Water Plan
SWP: State Water Plan

Updated September 2022

Plateau Water Planning Group

October 26, 2023

Item VIII.

Contract Amendment

Item VIII.

- TWDB – UGRA Contract Amendment

CONTRACTOR EXPENSE BUDGET

EXPENSE BUDGET CATEGORY	BUDGET	REVISED BUDGET	AMOUNT CHANGED
Contractor (Political Subdivision) Other Expenses [1]	$1,250.00	$1,250.00	$0.00
Contractor (Political Subdivision) Salaries and Wages[2]	$0.00	$0.00	$0.00
Subcontract Services	$377,480.00	$463,315.00	$85,835.00
Voting Planning Member Travel [3]	$0.00	$0.00	$0.00
Contractor (Political Subdivision) Travel [4]	$0.00	$0.00	$0.00
Total Project Cost	**$378,730.00**	**$464,565.00**	**$85,835.00**

TASK BUDGET

CAS Item No.	SOW Task No.	Task Description	BUDGET	REVISED BUDGET	AMOUNT CHANGED
1	1	Planning Area Description	$7,059.00	$8,947.00	$1,888.00
2	2A	Non-Municipal Water Demand Projections	$9,674.00	$9,674.00	$0.00
3	2B	Population and Municipal Water Demand Projections	$11,749.00	$11,749.00	$0.00
4	8	Recommendations Regarding Unique Stream Segments and/or Reservoir Sites and Legislative & Regional Policy Issues	$7,547.00	$9,435.00	$1,888.00
5	10	Public Participation and Plan Adoption	$112,350.00	$130,756.00	$18,406.00
6	3	Water Supply Analysis	$41,684.00	$51,494.00	$9,810.00
7	4A	Water Needs Analysis	$5,494.00	$6,787.00	$1,293.00
8	4B	Identification of Infeasible Water Management Strategies in the previously adopted 2021 Regional Water Plan	$13,857.00	$17,119.00	$3,262.00
9	4C	Technical Memorandum	$7,764.00	$9,591.00	$1,827.00
10	5A	Identification of Potentially Feasible Water Management Strategies and Projects	$7,728.00	$14,267.00	$6,539.00
11	5B	Evaluation and Recommendation of Water Management Strategies and Projects	$113,734.00	$145,222.00	$31,488.00
12	5C	Conservation Recommendations	$7,650.00	$9,451.00	$1,801.00
13	6	Impacts of the Regional Water Plan and Consistency with Protection of Resources	$9,311.00	$11,502.00	$2,191.00
14	7	Drought Response Information, Activities, and Recommendations	$13,777.00	$17,019.00	$3,242.00
15	9	Implementation and Comparison to the Previous Regional Water Plan	$9,352.00	$11,552.00	$2,200.00
		Total	**$378,730.00**	**$464,565.00**	**$85,835.00**

Plateau Water Planning Group

October 26, 2023

Item IX.

Out of State Travel Authorization

Item IX.

- UGRA – WSP Pass Through Agreement
  - Article 5. Financial Obligations, Section (a) 8
  - Reimbursement for all travel expenses for out-of-state travel is prohibited under the agreement, except where such travel is specifically authorized by UGRA.
  - WSP does not anticipate exceeding budgeted funds for subcontractor travel (task 10).

Guadalupe Basin Natural Resources Center

125 Lehmann Drive
Ste. 100

Kerrville, Texas
78028-5908

(830) 896-5445
Fax (830) 257-2621
Email: tbushnoe@ugra.org

October 26, 2023

Jennifer Jackson
WSP USA
848 E 2nd Ave
Durango, CO 81301
Via email: Jennifer.Herrera@wsp.com

Re: Out of state travel authorization

Dear Ms. Jackson:

According to Article 5. Financial Obligations, Section (a) 8 of the UGRA/WSP First Amended Pass-through Grant Agreement, reimbursement for all travel expenses for out-of-state travel is prohibited under the agreement, except where such travel is specifically authorized by UGRA.

This correspondence serves as authorization of out-of-state travel expenses for Jennifer Jackson to attend Plateau Water Planning Group meetings when necessary to facilitate completion of planning group tasks. Reimbursement of out-of-state travel from duty point to duty point is limited to the current rate for State of Texas employees and the UGRA/WSP agreement travel budget at time of travel.

Prior to authorizing the out-of-state travel, I obtained written confirmation from Lann Bookout, TWDB that out-of-state travel between the official out-if-state duty point and the Plateau Water Planning Group meeting location is reimbursable under the TWDB/UGRA agreement.

Please let me know if you have any questions.

Sincerely,

Tara M. Bushnoe
General Manager

cc: Lann Bookout, TWDB (Lann.Bookout@twdb.texas.gov)

UGRA

Plateau Water Planning Group

October 26, 2023

Item X. & XI

WSP/Carollo Presentations

Technical Consultant Presentation

PLATEAU RWPG Meeting

October 26, 2023

Update on Regional Water Planning Schedule

Required Deadlines in 2024

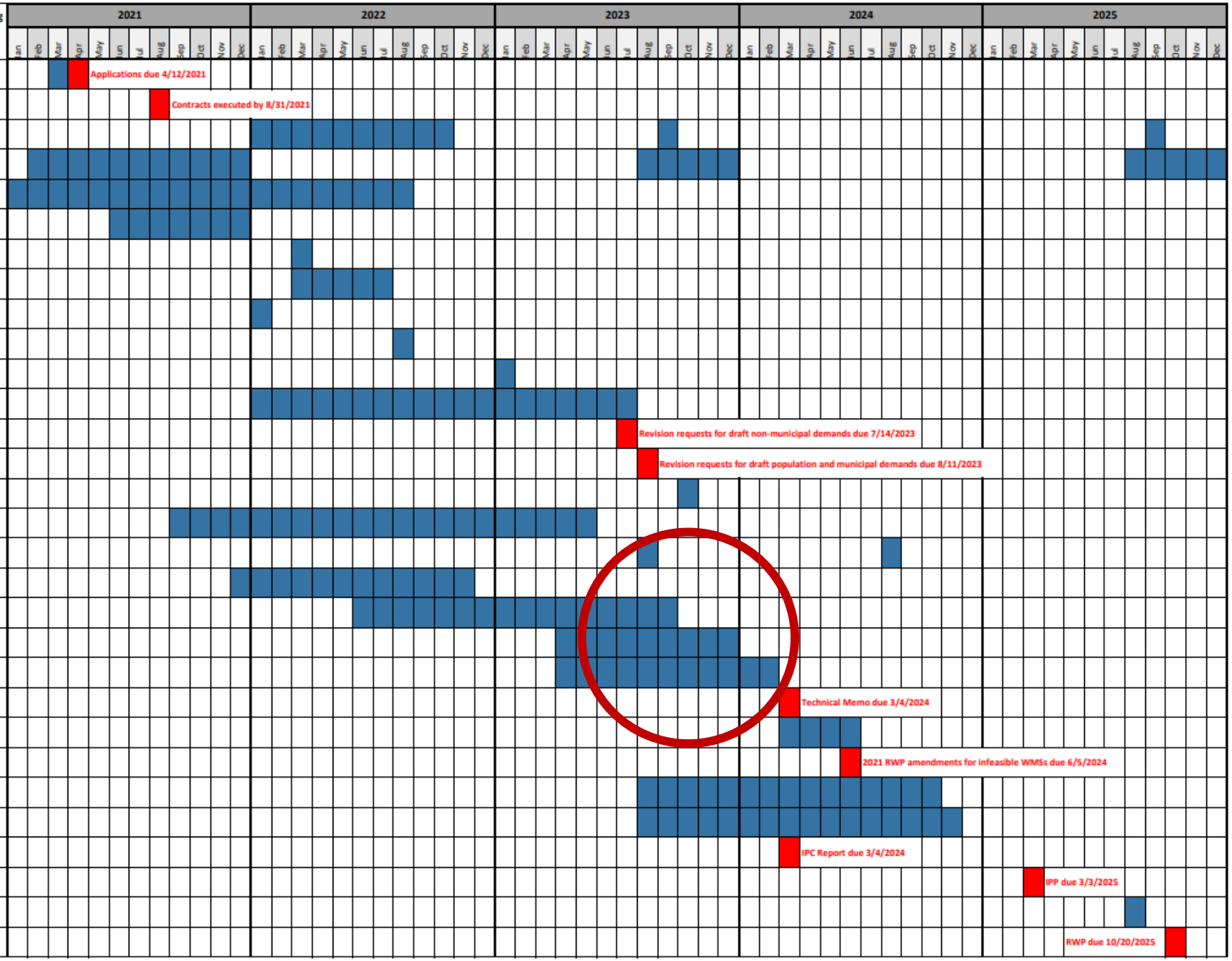
- March 4, 2024 – Technical Memorandum due to TWDB.
- June 5, 2024 - 2021 RWP Amendments for Infeasible WMSs due to TWDB

Sixth Cycle of Regional Water Planning (2026 Regional Water Plans)

Working Schedule (as of March 2023)[A]

Texas Water Development Board

Item	Entity	Activity	Planning SOW Task #
1	TWDB	RFA for regional water planning grant posted and applications due	NA
2	TWDB/RWPG	Initial planning contract execution deadline	NA
3	TWDB/RWPG	Anticipated additional contracting activities	NA
4	TWDB	Regional Water Planning rules update	NA
5	TWDB	TWDB/BEG Mining study	2A
6	RWPG	RWPGs hold pre-planning & coordination meeting (before technical work begins)	10
7	TWDB	Municipal WUG list, GPCD, historical population, and water use released	2B
8	RWPG	Review municipal WUG list, GPCD, historical population, and water use; provide feedback to TWDB	2B
9	TWDB	Draft Livestock, Manufacturing, and Steam Electric Power demand projections released	2A
10	TWDB	Draft Irrigation and Mining projections released	2A
11	TWDB	Draft Population and Municipal demand projections released	2B
12	RWPG	Review draft projections and finalize adjustments with TWDB staff	2A, 2B
13	RWPG	Revision requests for draft non-municipal demands due	2A
14	RWPG	Revision requests for draft population and municipal demands due	2B
15	TWDB	TWDB Board adopts projections	2A, 2B
16	TWDB	DB27 prepared for data entry[B,C]	NA
17	TWDB/RWPG	DB27 individualized training for consultants	NA
18	TWDB	Updated MAGs released	3
19	RWPG	Evaluate water availability and existing water supplies	3
20	RWPG	Identify water needs	4A
21	RWPG	Identify infeasible WMSs in the 2021 RWPs	4B
22	RWPG	Technical Memo due	4C
23	RWPG	Amendments to 2021 RWPs to remove/revise infeasible WMSs	4B
24	RWPG	RWPG adopted amendments to 2021 RWPs to remove/revise infeasible WMSs due to TWDB	4B
25	RWPG	Identify potentially feasible WMSs	5A
26	TWDB/RWPG	Review and negotiate SOW submittals for WMS evaluations and issue notice-to-proceeds[D]	5B
27	IPC	Interregional Planning Council report due to the TWDB	NA
28	RWPG	Initially Prepared Plan due	10
29	TWDB	Socioeconomic Impact Report released to RWPGs	6
30	RWPG	Final Plan due	10



Material Covered at Previous Meeting

- Approved population and municipal water demand projections for the TWDB August 11th submittal deadline

Update on TWDB Response to RWPG Population Requests

- Handout #1

Today's Discussion

- Major Water Providers
- Surface Water
  - Sources / Supply Analysis / Availability (WAMs) / Hydrologic Variance Request
- Groundwater
  - Sources / Supply Analysis / Availability (MAGs)
- Identifying Potentially Infeasible WMSs in 2021 RWP
- Identifying Potentially Feasible WMSs for 2026 RWP
- Requirements of Technical Memorandum

Major Water Providers

Major Water Provider (MWP)

TWDB defines a Major Water Provider (MWP) as a water user group or a Wholesale Water Provider of particular significance to the Region's water supply as determined by the regional water planning group.

Wholesale Water Provider is defined as an entity that has contracts to sell more than 1,000 acre-feet of water wholesale in any one year during the five years immediately proceeding the adoption of the previous RWP.

Major Water Provider (MWP)

APPROVED REGION J MAJOR WATER PROVIDER DEFINITION

"An entity that currently provides significant water supplies (>10,000 acre-feet per year) to other users and which will continue to develop new supplies to meet the future needs of those whom they supply."

Major Water Provider (MWP)

MAJOR WATER PROVIDER
Del Rio Utilities

Surface Water Source Availability

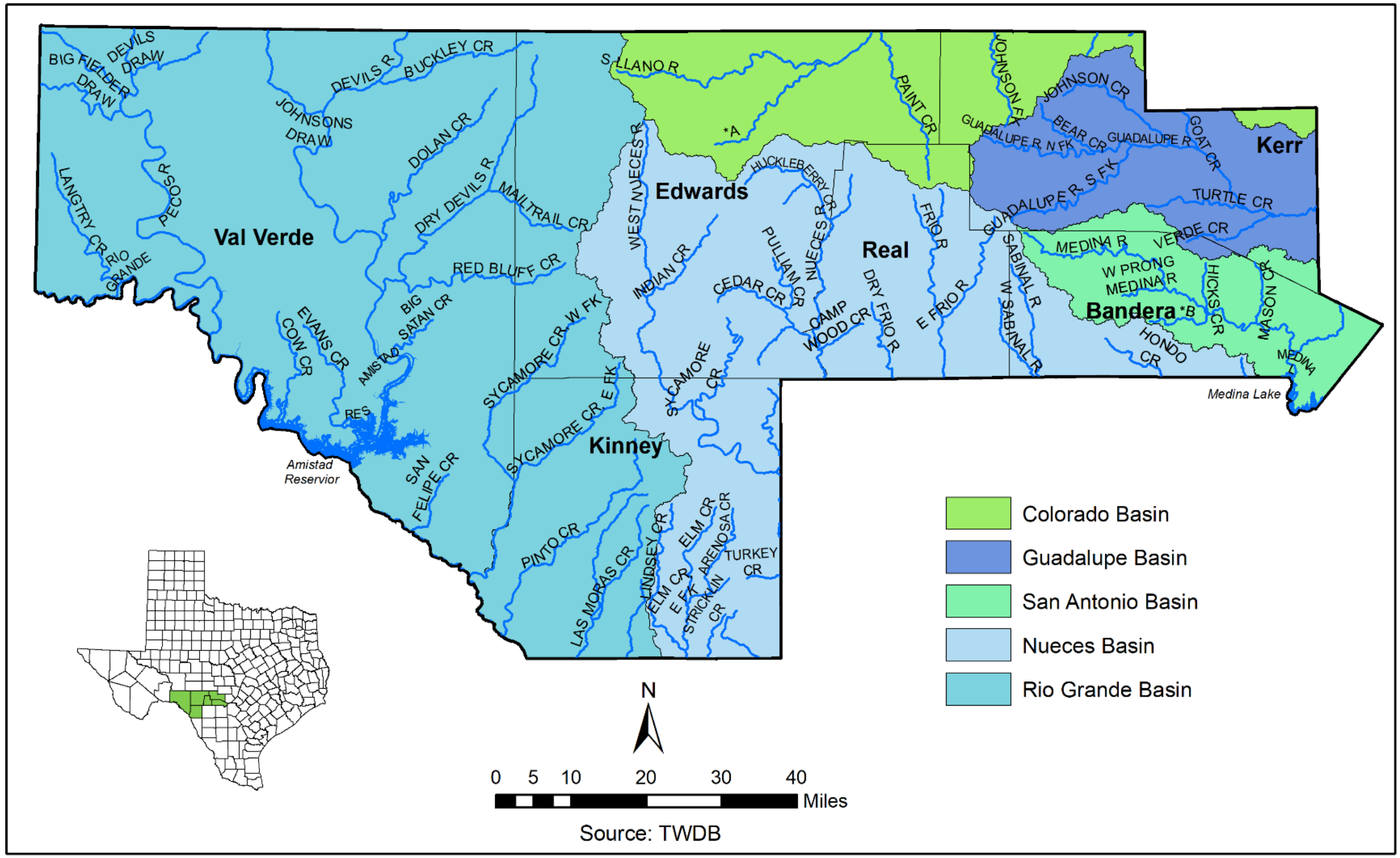
Terminology

Term	Description
Availability	Maximum amount of raw water that could be produced by a source during a repeat of the Drought of Record, regardless of whether the supply is physically connected to or legally accessible by Water User Groups.
DOR	Drought of Record - The period of time when historical records indicate that natural hydrological conditions would have provided the least amount of water supply.
DWDOR	Drought Worse than the Drought of Record – Recognition of uncertainty in use of drought of record.
Firm Yield	The maximum amount of water that is physically and legally accessible from existing sources for immediate use by a Water User Group under a repeat of Drought of Record conditions."
GAM	Groundwater Availability Models developed for the purposes of Joint Planning
MAG	Modeled Available Groundwater: Aquifer source availability as determined by Groundwater Availability Models
Source Availability	Water available from a given source during critical drought-of-record conditions
Existing Water Supply	Maximum amount of water that is physically and legally accessible from existing sources for immediate use by a Water User Group under a repeat of Drought of Record conditions.
WAM	Water Availability Model – Official model for determining surface water availability for permitting in Texas using historical hydrology, characteristics of water rights, and the prior appropriation doctrine.

Evaluating Source Availability

The amount of water that a user can depend on obtaining during drought of record conditions

- Reservoirs: Firm Yield
- Run of river: Available monthly diversion during driest period of record


Val Verde
Edwards
Real
Kerr
Bandera
Kinney
Amistad Reservior
Medina Lake
BIG FIELDER DRAW
DEVILS DRAW
DEVILS R
BUCKLEY CR
JOHNSONS DRAW
DOLAN CR
DRY DEVILS R
MAILTRAIL CR
LANGTRY CR
PECOS R
RIO GRANDE
RED BLUFF CR
EVANS CR
COW CR
BIG SATAN CR
AMISTAD RES
SAN FELIPE CR
SYCAMORE CR W FK
SYCAMORE CR E FK
SYCAMORE CR
PINTO CR
LAS MORAS CR
LINDSEY CR
ELM CR
E FK ELM CR
ARENOSA CR
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MASON CR
HONDO CR
MEDINA
*B
Colorado Basin
Guadalupe Basin
San Antonio Basin
Nueces Basin
Rio Grande Basin
N
0 5 10 20 30 40
Miles
Source: TWDB

Regional Planning Rules for Water Availability

Surface Water must be evaluated using TCEQ WAM

- Unmodified Water Availability Model
- WAM for each river basin in the state

"Run 3" version – Full Authorization

- Version used for permitting surface water in Texas
- All water rights use their full authorized amount
- All applicable permit conditions, such as flow requirements, are met
- No return flows
- Uses original reservoir capacities.

For regional planning purposes anticipated sedimentation is a necessary modification performed by RWPGs

- This modification *does not* require a hydrologic variance.
- Methodology for calculating sedimentation rate and revising reservoirs' area-capacity rating curves must be described in Tech Memo, IPP, and final adopted RWP

Hydrologic Variance Request

RWPGs can consider requesting a Surface Water **Hydrologic Variance** to modify the WAM Run 3

For use of an alternative methodology

For any criteria that varies from base requirements

Or is expected to have significant effects on existing supply estimates

RWPG must ensure that

- any resulting estimates are reasonable for drought planning purposes; and
- will reflect conditions expected in the event of near-term, actual drought conditions

Submittal Requirements

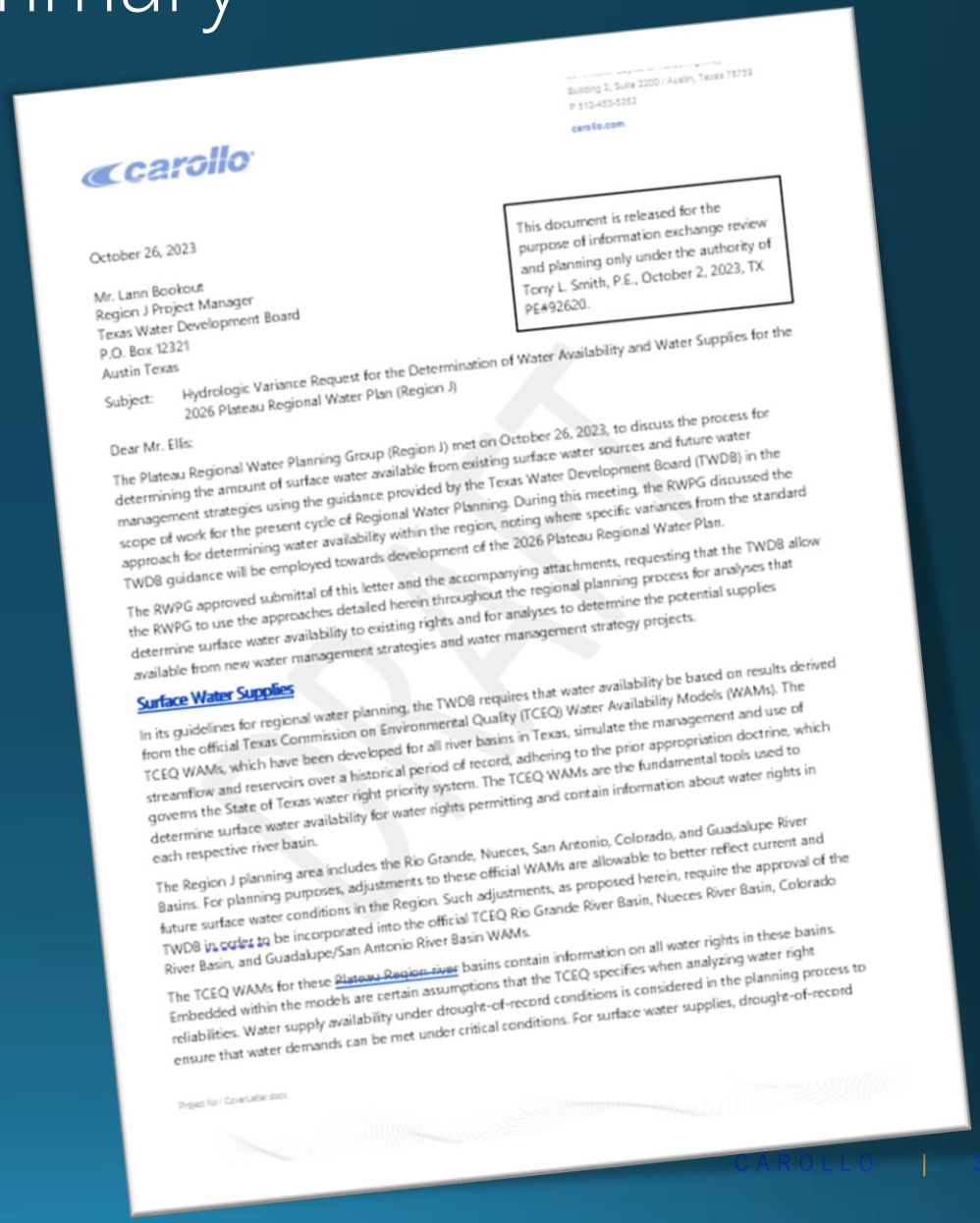
A completed surface water hydrologic variance request checklist for each river basin, along with any necessary supporting information.

Documentation of the submittal request being approved by the RWPG at a regular planning group meeting.

Hydrologic Variance Request Summary

Cover Letter

- Documentation of approval for submittal at Oct. 26, 2023 meeting
- Defines approach for firm yields (same for existing and strategies)
- Where providers have studied DWDOR, consider potential impacts within Chapter 8 to inform upon legislative and regional policy recommendations.



carollo

October 26, 2023

This document is released for the purpose of information exchange review and planning only under the authority of Tony L. Smith, P.E., October 2, 2023, TX PE#92620.

Mr. Lann Bookout
Region J Project Manager
Texas Water Development Board
P.O. Box 12321
Austin Texas

Subject: Hydrologic Variance Request for the Determination of Water Availability and Water Supplies for the 2026 Plateau Regional Water Plan (Region J)

Dear Mr. Ellis:

The Plateau Regional Water Planning Group (Region J) met on October 26, 2023, to discuss the process for determining the amount of surface water available from existing surface water sources and future water management strategies using the guidance provided by the Texas Water Development Board (TWDB) in the scope of work for the present cycle of Regional Water Planning. During this meeting, the RWPG discussed the approach for determining water availability within the region, noting where specific variances from the standard TWDB guidance will be employed towards development of the 2026 Plateau Regional Water Plan.

The RWPG approved submittal of this letter and the accompanying attachments, requesting that the TWDB allow the RWPG to use the approaches detailed herein throughout the regional planning process for analyses that determine surface water availability to existing rights and for analyses to determine the potential supplies available from new water management strategies and water management strategy projects.

Surface Water Supplies

In its guidelines for regional water planning, the TWDB requires that water availability be based on results derived from the official Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAMs). The TCEQ WAMs, which have been developed for all river basins in Texas, simulate the management and use of streamflow and reservoirs over a historical period of record, adhering to the prior appropriation doctrine, which governs the State of Texas water right priority system. The TCEQ WAMs are the fundamental tools used to determine surface water availability for water rights permitting and contain information about water rights in each respective river basin.

The Region J planning area includes the Rio Grande, Nueces, San Antonio, Colorado, and Guadalupe River Basins. For planning purposes, adjustments to these official WAMs are allowable to better reflect current and future surface water conditions in the Region. Such adjustments, as proposed herein, require the approval of the TWDB in order to be incorporated into the official TCEQ Rio Grande River Basin, Nueces River Basin, Colorado River Basin, and Guadalupe/San Antonio River Basin WAMs.

The TCEQ WAMs for these Plateau Region river basins contain information on all water rights in these basins. Embedded within the models are certain assumptions that the TCEQ specifies when analyzing water right reliabilities. Water supply availability under drought-of-record conditions is considered in the planning process to ensure that water demands can be met under critical conditions. For surface water supplies, drought-of-record

General Assumptions

Assumption	Use for Existing Supplies	Use for Water Management Strategies
General		
Use most recent available versions of the TCEQ WAMs.	X	X
WAM Run 3 - full consumption of existing water rights with no (zero) return flows).	X	X
Modeling of reuse to include consideration of minimum and permitted return flows associated with WUG, including identified return flows from TCEQ WAM Run 8.	X	X
Channel losses based on factors employed within official TCEQ WAMs.	X	X
ASR evaluations will consider surface water availability as determined by the WAM compared to demand, with the firm supply being the maximum demand that could be met assuming a repetition of the period of record drought.		X
Adopted environmental flow standards will be used as incorporated into the applicable official TCEQ WAMs	X	X
For those basins lacking TCEQ adopted environmental flow standards, TWDB consensus planning criteria will be employed in a manner consistent with TWDB guidelines.		X
Subordination of water rights will be modeled in a manner consistent with modeled subordination within the official TCEQ WAMs.	X	X
For municipal and industrial users: Run of the river rights will be determined in accordance with TWDB guidelines which state that the use-appropriate monthly percentage of the annual firm diversion must be satisfied in each and every month of the simulation period for all surface water diversions. Reservoirs will use firm yield unless a change is specifically requested by a reservoir owner and approved by the RWPG and TWDB, as appropriate per TWDB guidelines. The calculated source availabilities will be compared against existing legal and infrastructure constraints (water treatment plants, pipelines, intakes, etc.) and will be constrained if the existing infrastructure or legal capability is not sufficient to facilitate full utilization of the source. The most constrained amount will be used as the firm supply.	X	X
For irrigation users, water supply will be determined using firm reliability (100%). In the absence of any supply information or justification of reliable supplies available in a drought of record, supply values will be set equal to zero.	X	X
For livestock, in the absence of any supply information or justification of reliable supplies available in a drought of record, supply values will be set to zero.	X	X
Sedimentation		
For reservoirs with available volumetric survey information, an annual sediment rate will be calculated, and loadings calculated for Year 2030 and Year 2080. Sediment distribution will be calculated using the Empirical Area-Reduction method and resultant 2030 and 2080 area-capacity curves developed and employed within WAM. Intervening decadal yields will be linearly interpolated.	X	X
The most recent volumetric survey information will be utilized. For reservoirs lacking volumetric surveys, original area-capacity relations within TCEQ WAM Run 3 will be assumed constant.	X	X

WAMs

Basin	Version	POR	New Version?
Rio Grande	Oct. 1, 2023	1940-2018	Yes, updated hydrologic period
Nueces	Oct. 1, 2023	1934-1996	Yes, updated hydrologic period
Colorado	Oct. 1, 2023	1940-2016	Yes, updated hydrologic period
San Antonio/Guadalupe	Oct. 1, 2023	1934-1989	Yes, Updated WRs

Modifications

Request	Similar to previous planning cycle?
Requesting inclusion of return flows for existing surface water rights utilizing return flows for evaluation of existing and strategy supplies. This will include evaluations of existing reuse and reuse strategies, consistent with TCEQ approach for evaluations of reuse permit applications.	Yes
Requesting modified WAM to reflect updated sedimentation effects on existing and strategy reservoir firm yields	Yes

Surface Water Hydrologic Variance Request Checklist

Texas Water Development Board (TWDB) rules[1] require that regional water planning groups (RWPG) use most current Water Availability Models (WAM) from the Texas Commission on Environmental Quality (TCEQ) and assume full utilization of existing water rights and no return flows for surface water supply analysis. Additionally, evaluation of existing stored surface water available during Drought of Record conditions must be based on Firm Yield using anticipated sedimentation rates. However, the TWDB rules also allow, and **we encourage**, RWPGs to use more representative, water availability modeling assumptions; better site-specific information; or justified operational procedures other than Firm Yield with written approval (via a Hydrologic Variance) from the Executive Administrator in order to better represent and therefore prepare for expected drought conditions.

RWPGs must use this checklist, which is intended to save time and reduce effort, to request a Hydrologic Variance for estimating the availability of surface water sources. For Questions 4 – 10, please indicate whether the requested variance is for determining Existing Supply, Strategy Supply, or both. Please complete a separate checklist for each river basin in which variances are being requested.

Water Planning Region:

1. Which major river basin does the request apply to? Please specify if the request only applies part of the basin or only to certain reservoirs.

   Nueces

2. Please give a brief, bulleted, description of the requested hydrologic variances including how the alternative availability assumptions vary from rule requirements, how the modifications will affect the associated annual availability volume(s) in the regional water plan, and why the variance is necessary or provides a better basis for planning. You must provide more-detailed descriptions in the subsequent checklist questions. Attach any available documentation supporting the request.

   - Request inclusion of return flows for evaluation of strategy supplies.

3. Was this request submitted in a previous planning cycle? If yes, please indicate which cycle and note how it is different, if at all, from the previous request?

   Yes

   The above requests were submitted in the 2021and 2016 planning cycles and are unchanged from the previous planning cycle request.

[1] 31 Texas Administrative Code (TAC) §§ 357.10(14) and 357.32(c)

Sedimentation -

- Sedimentation Methodology is:
  - Not required for Hydrologic Variance, but its inclusion is encouraged by TWDB.
  - Is required within Technical Memorandum, IPP, and final RWP.
  - Consistent with approach used for the purposes of the 2021 Region D Plan.

Surface Water Existing Supply Process

Existing Surface Water Supply

- Based on infrastructure that is currently in place.
- Based on the assumption that all senior downstream water rights are being fully utilized.
- A properly issued water right is no guarantee of access to water.
- Answers “How much water could each WUG already rely on should there be a repeat of the drought of record?”

Characterizing Water Supply

Survey Information

Engagement

Information on:

- Contracts
- Infrastructure capacity
  - Intake
  - Pump stations
  - Pipeline
  - Treatment

Inputs for DB27

Groundwater Sources

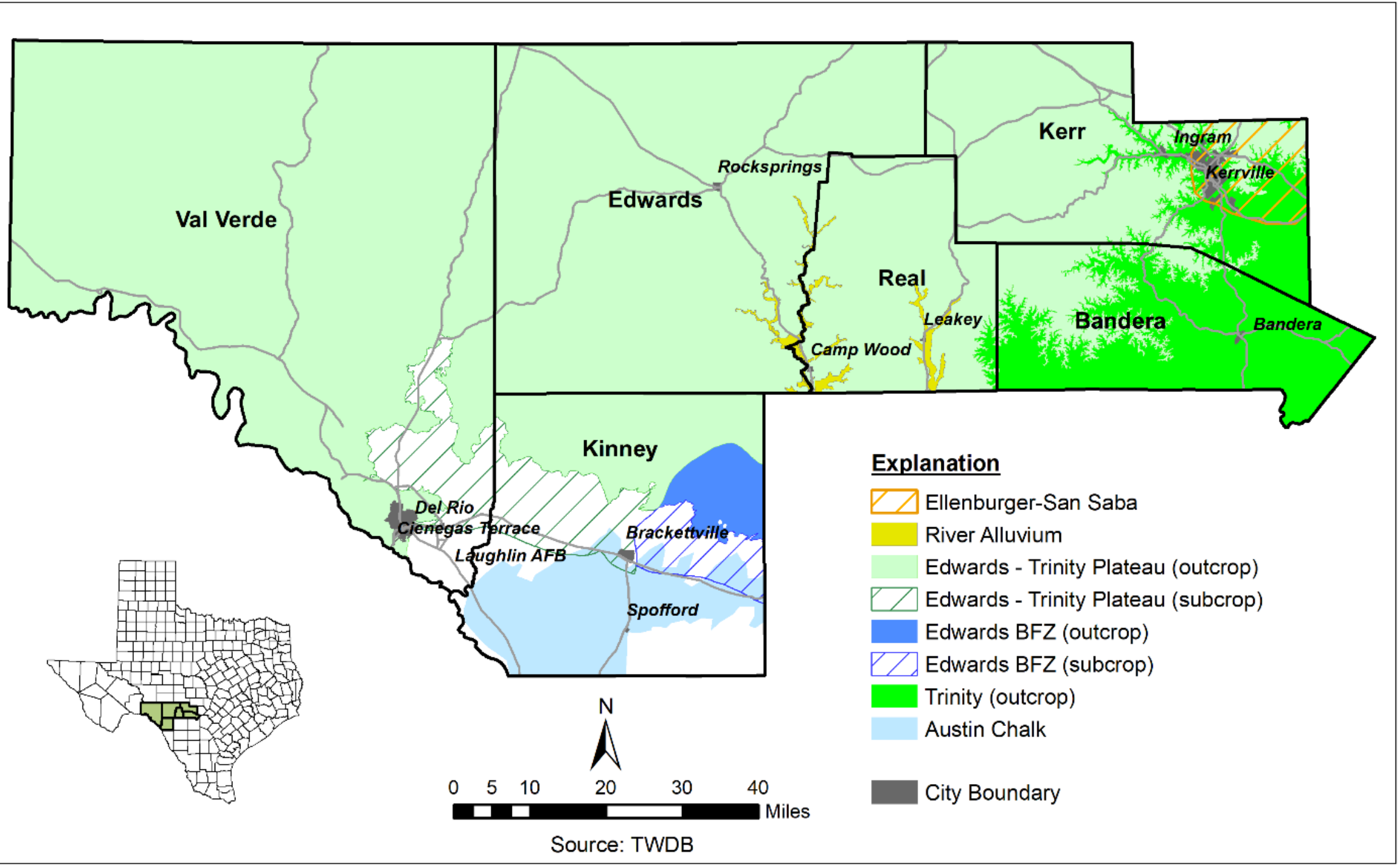
Groundwater Sources

Sources:

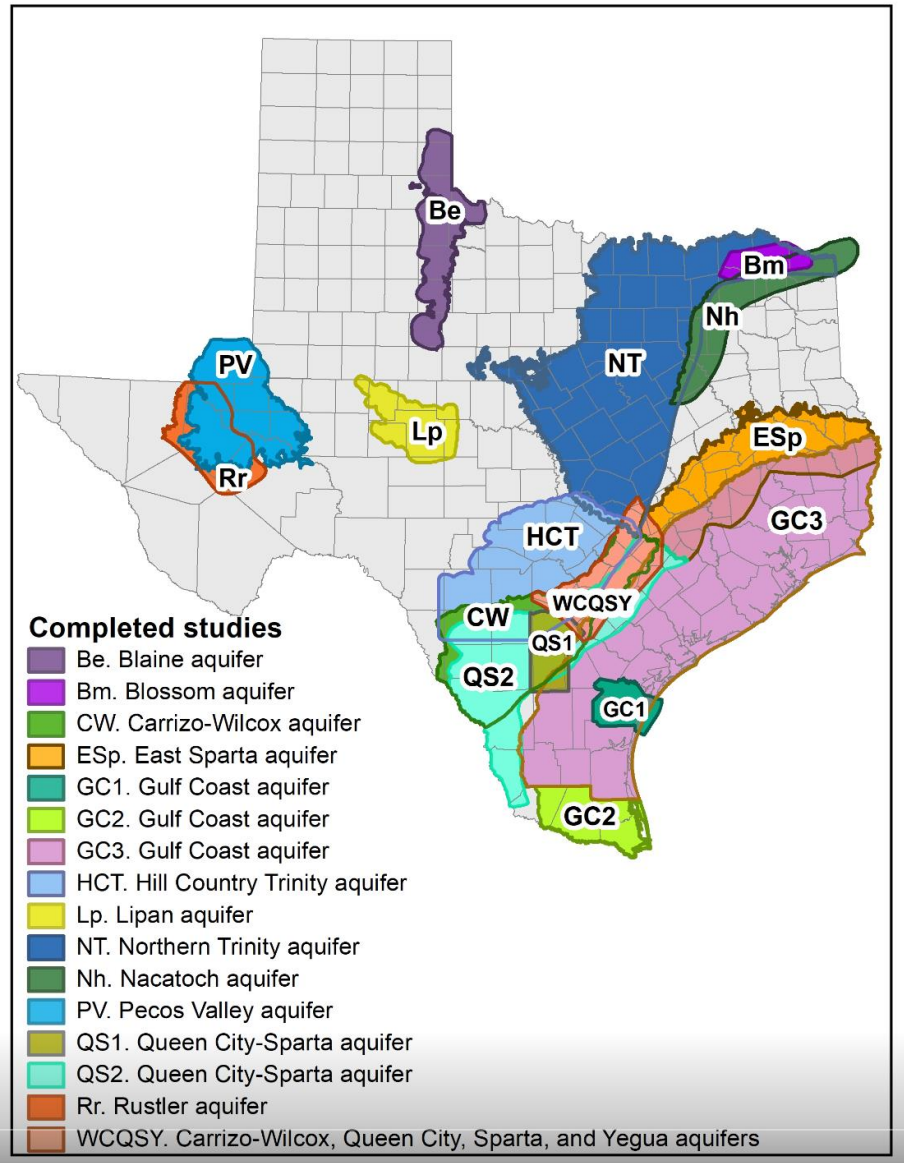
- Fresh Groundwater
- Brackish Groundwater
- Local Supply
- Reuse

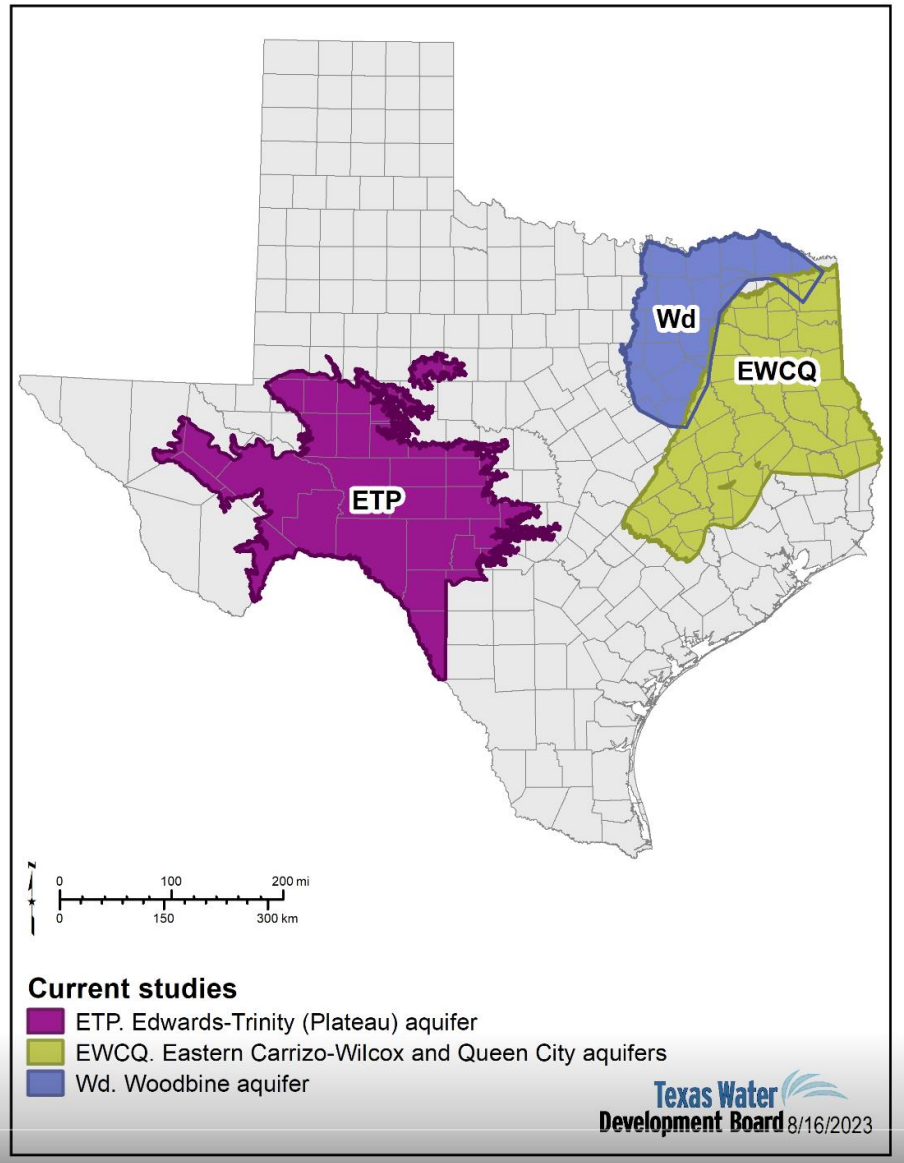
Aquifer Types

- Major Aquifers
- Minor Aquifers
- Other Aquifers
- Brackish Aquifers


Val Verde
Edwards
Rocksprings
Kerr
Ingram
Kerrville
Real
Leakey
Camp Wood
Bandera
Bandera
Kinney
Del Rio
Cienegas Terrace
Laughlin AFB
Brackettville
Spofford
Explanation
Ellenburger-San Saba
River Alluvium
Edwards - Trinity Plateau (outcrop)
Edwards - Trinity Plateau (subcrop)
Edwards BFZ (outcrop)
Edwards BFZ (subcrop)
Trinity (outcrop)
Austin Chalk
City Boundary
N
0 5 10 20 30 40
Miles
Source: TWDB

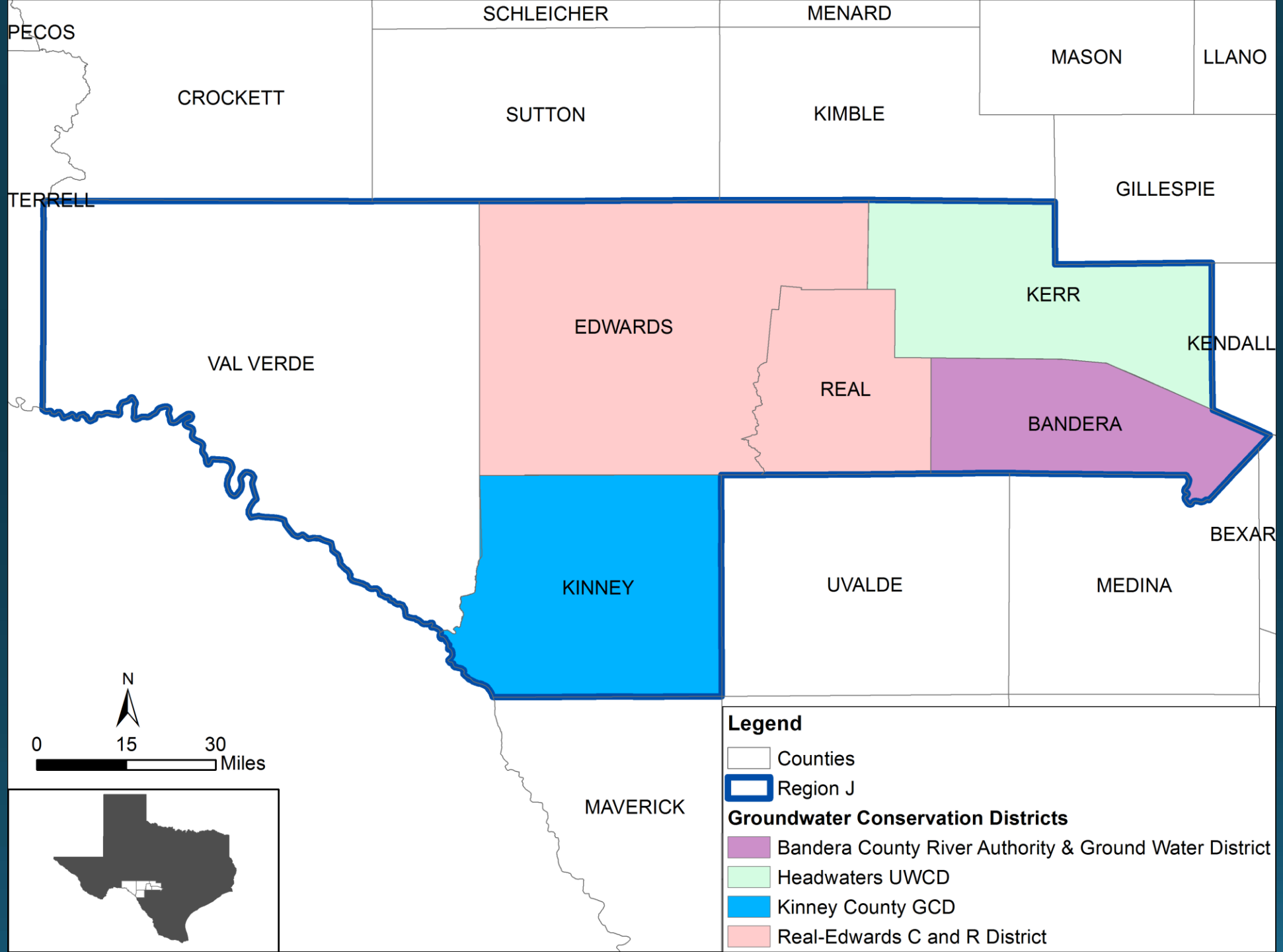
Brackish Resources Aquifer Characterization System (BRACS) Program - Study Status





Groundwater Conservation Districts & Groundwater Management Areas

- Total of 4 Groundwater Conservation Districts (GCDs)
- Total of 3 Groundwater Management Areas (GMAs)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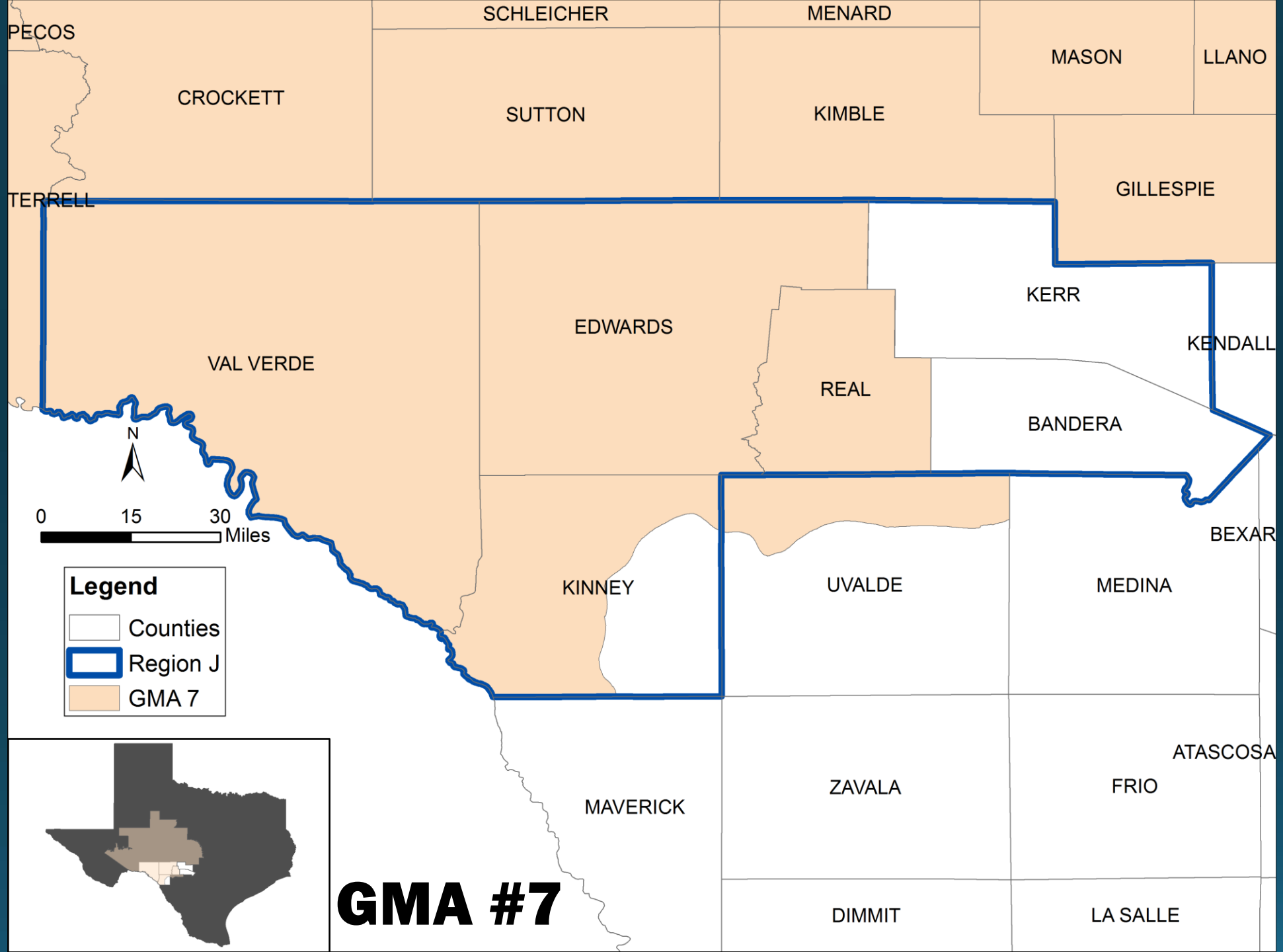
Groundwater Conservation Districts
Bandera County River Authority & Ground Water District
Headwaters UWCD
Kinney County GCD
Real-Edwards C and R District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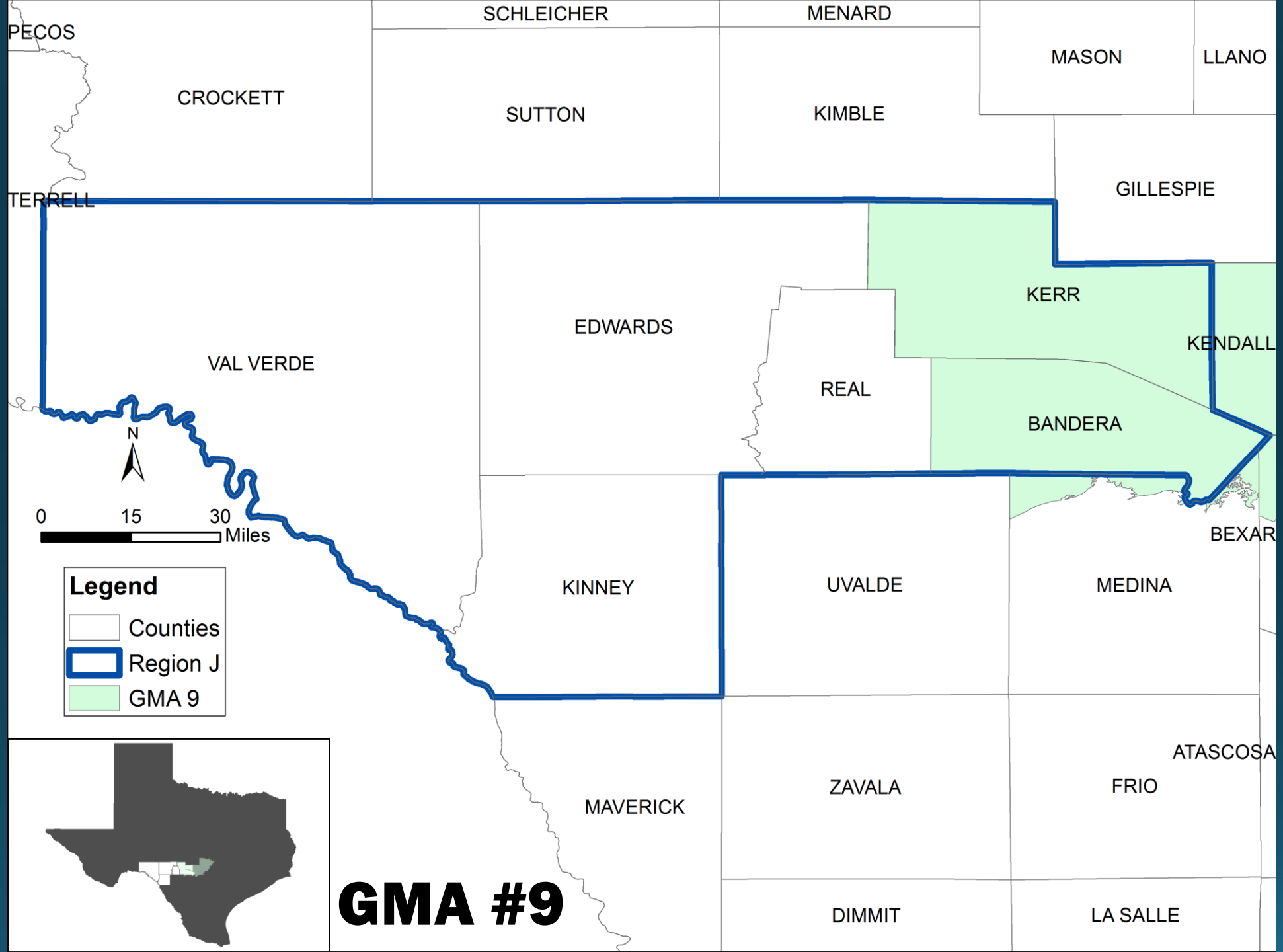
DIMMIT
LA SALLE

GMA #7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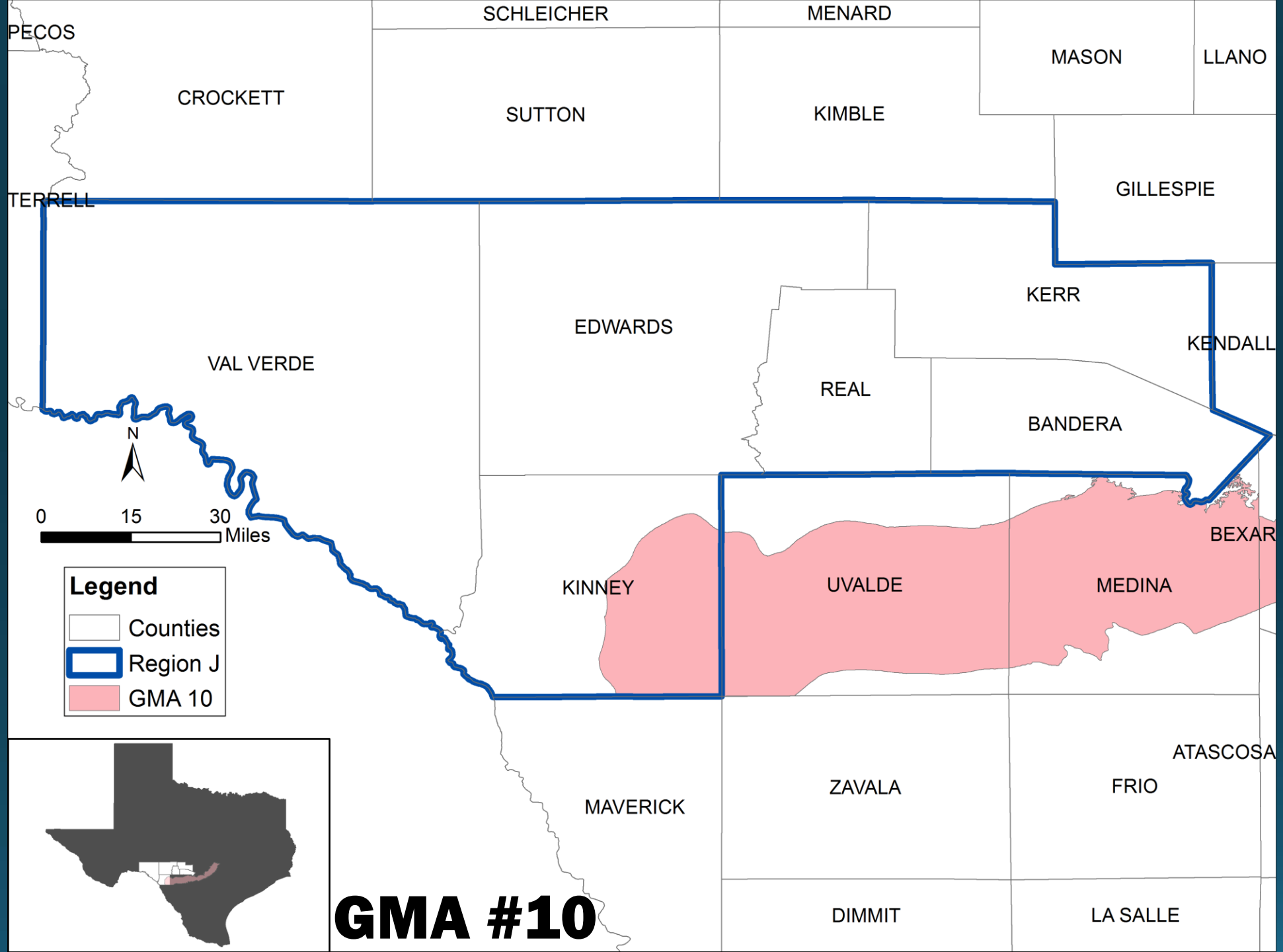
GMA #9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GMA #10

Groundwater Supply Analysis Process

Groundwater Supply Analysis Process

- Desired Future Conditions (DFCs) Were Provided To The TWDB By GMAs During The 2021 Joint Planning Process
- Modeled Available Groundwater (MAGs) Were Provided To The TWDB By GMAs During The 2021 Joint Planning Process
- WSP Will Use The MAG Estimates As Guidance For Groundwater Availability By County/Aquifer/River Basin
- If Demands Are Greater Than MAGs – Complete A Local Hydrogeologic Assessment

Desired Future Conditions

- **Handout #3**

Groundwater Availability (MAGs)

Groundwater Source Availability

Handout #4

Kerr	Edwards-Trinity (Plateau) Aquifer	Colorado	17	17	17	17	17	17	TWDB modeling note: non-relevant DFC-compatible modeled pumping values. Modeled availability is 17 acre-feet/year for all planning decades. GMA(s): 9 | GAM Run: GR21-014_MAG
		Guadalupe	962	962	962	962	962	962	TWDB modeling note: non-relevant DFC-compatible modeled pumping values. Modeled availability is 962 acre-feet/year for all planning decades. GMA(s): 9 | GAM Run: GR21-014_MAG
		Nueces	5	5	5	5	5	5	
		San Antonio	3	3	3	3	3	3	TWDB modeling note: non-relevant DFC-compatible modeled pumping values. Modeled availability is 3 acre-feet/year for all planning decades. GMA(s): 9 | GAM Run: GR21-014_MAG

2021 RWP

Edwards-Trinity (Plateau)	Colorado	245	245	245	245	245	245
	Guadalupe	1,015	1,015	1,015	1,015	1,015	1,015
	Nueces	5	5	5	5	5	5
	San Antonio	12	12	12	12	12	12

Groundwater Availability Methodology

Handout #5

Source Supply	County	Basin	Methodology
Austin Chalk Aquifer	Kinney	Rio Grande	0.6% (0.006) of average annual rainfall (22 in) over the aquifer outcrop (189,377 acres) as recharge. Calculated by Planning Group consultant (WSP).
		Nueces	0.6% (0.006) of average annual rainfall (22 in) over the aquifer outcrop (87,549 acres) as recharge. Calculated by Planning Group consultant (WSP).
Nueces River Alluvium Aquifer	Edwards	Nueces	Recharge plus 0.1 volume of water in storage. See Plateau Region Report: Occurrence of Significant River Alluvium Aquifers in the Plateau Region (2010). www.ugra/plateau-water-planning-group
	Real	Nueces	
Frio River Alluvium Aquifer	Real	Nueces	
Ellenburger/San Saba Aquifer	Kerr	Colorado	Annual availability of 0.007 acre-feet/acre/year over 286,000 acres of prime production zone in eastern Kerr County. See Sec 3.1.8 of this 2021 Plan.
		Guadalupe	
Edwards-BFZ Aquifer	Kinney	Nueces	GMA10 MAG
		Rio Grande	
Edwards Group of the Edwards-Trinity (Plateau) Aquifer	Kerr	Colorado	GMA9 Non-Relavant, TWDB modeled run compatible with DFC, which was provided to PWPG.
		Guadalupe	
		Nueces	
		San Antonio	
	Bandera	Guadalupe	GMA9 MAG
		Nueces	
		San Antonio	
Edwards-Trinity (Plateau), Pecos Valley, Trinity Aquifer	Edwards	Colorado	GMA7 MAG
		Nueces	
		Rio Grande	
	Kinney	Nueces	
		Rio Grande	
	Real	Colorado	
		Nueces	
		Guadalupe	
	Val Verde	Rio Grande	
Trinity Aquifer	Bandera	Guadalupe	GMA9 MAG
		Nueces	
		San Antonio	
	Kerr	Colorado	
		Guadalupe	
		Nueces	
		San Antonio	

Identifying Infeasible Water Management Strategies 2021 RWP

Infeasible Water Management Strategies

TWDB defines a strategy as being "Infeasible" if...

"the proposed sponsor of the water management strategy or project has not taken an affirmative vote or other action to make expenditures necessary to construct or file applications for permits required in connection with implementation of the WMS on a schedule in order for the WMS to be completed by the time the WMS is needed to address drought in the plan."

Focus on Water Management Strategies that have an online decade of 2020 within the 2021 RWP

Tex. Water Code § 16.053

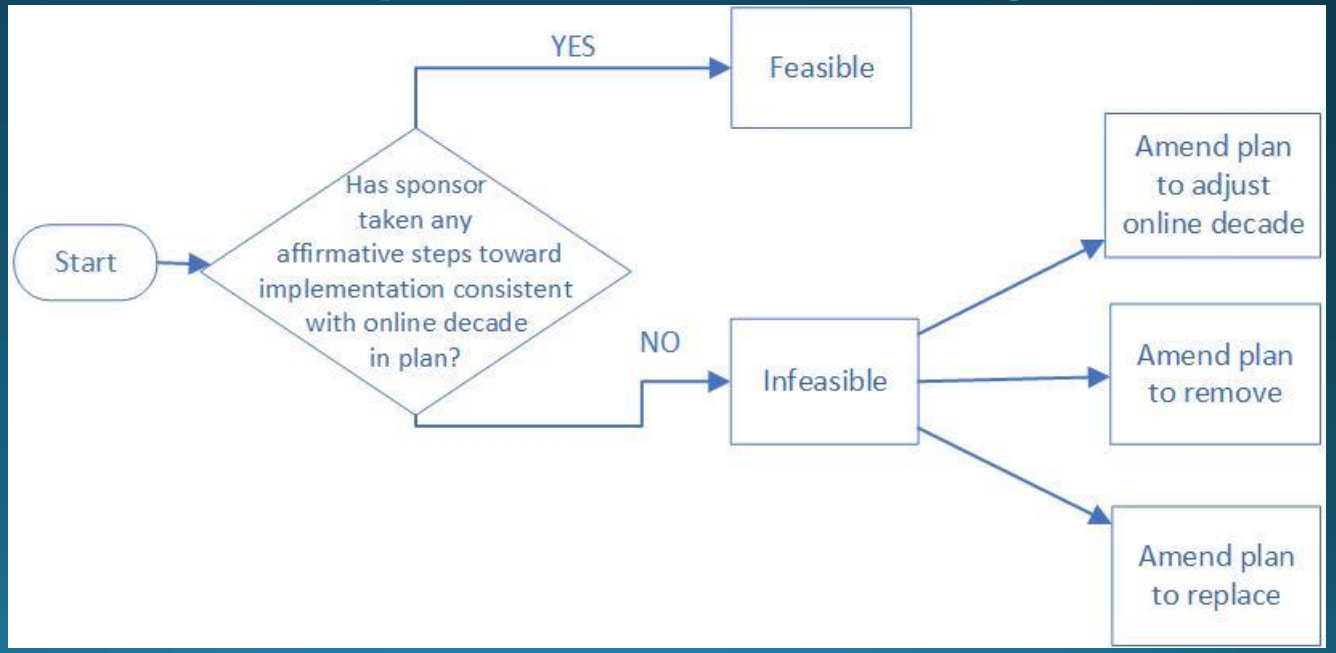
Process for Identifying Infeasible WMSs

STEP #1 - RWPGs must review the status of strategies and projects with an online decade of 2020 and 2030 in the 2021 RWP that require a permit and/or involve construction and that…

- **Are related to new major reservoirs, seawater desalination, direct potable reuse, brackish groundwater, and aquifer storage and recovery**

STEP #2 – RWPGs need to determine if the sponsors have taken any affirmative steps toward implementation.

See Handout #6



What are “Affirmative Steps” Towards Implementation?

Affirmative steps by the sponsor may include but not limited to:

1) Spending money on the strategy / project
2) Voting to spend money on the strategy / project
3) Applying for a federal or state permit
4) Project constructed
5) Partial implementation
6) Purchase of sites
7) Funding applications submitted
8) Feasibility / Design underway
9) Test wells constructed
10) Redevelopment of existing wells to increase capacity at same source

Engagement / Survey

					Project Implementation Update		
County	**Water User Group**	**Strategy**	**Online Decade**	**Total Capital Cost**	**Implemented by 1/5/2023 (Y/N)**	**Is the strategy/project in the correct planning decade? (Y/N)**	**Will adjusting the planning decade make the strategy/project feasible? (Y/N)**
Bandera	Bandera County FWSD #1	Additional Groundwater Well					

	What affirmative steps have been taken toward implementation?						
Strategy	Spend money on the strategy/project? (Y/N)	Voted to spend money on the strategy/project? (Y/N)	Applied for Federal/State permit for the strategy/project? (Y/N)	Status (%) of Planning/Design /Construction?	Test wells constructed? (Y/N)	Redevelopment of existing wells to increase capacity? (Y/N)	Rough approximation of funds expended to date
Additional Groundwater Well							

57 Strategies With An Online Decade Of 2020
&
15 Strategies With An Online Decade of 2030

7 “Alternate” Strategies That Are Exempt

3 Purchase Water Strategies

8 Strategies within County Aggregate

17 Conservation Strategies

37 Total Strategies To Review

14 Total Strategies Listed as *“Infeasible”*

Final List of "Infeasible WMSs"

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet Per Year)						Total Capital Cost	WMS Project Identified as Infeasible (Y/N)
				2020	2030	2040	2050	2060	2070		
Bandera	City of Bandera	Reuse treated wastewater effluent for irrigation of public spaces	J-1	0	310	310	310	310	310	$1,496,000	Y
		Promote, design & install rainwater harvesting systems on public buildings	J-2	0	1	1	1	1	1	$56,000	Y
		Additional Middle Trinity wells within City water infrastructure area	J-4	161	161	161	161	161	161	$625,000	Y
		Surface water acquisition, treatment and ASR	J-5	0	1,500	1,500	1,500	1,500	1,500	$34,188,000	Y
	Bandera County Other - Enchanted River Estates	Water loss audit and main-line repair	J-17	1	1	1	1	1	1	$117,000	Y
Edwards	Edwards County Other (Barksdale WSC)	Additional well in the Nueces River Alluvium Aquifer and RO wellhead treatment	J-28	54	54	54	54	54	54	$178,000	Y
Kerr	Kerr County Other - Verde Park Estates	Water loss audit and main-line repair	J-42	1	1	1	1	1	1	$155,000	Y
Kinney	City of Brackettville	Increase supply to Spofford with new water line	J-66	0	3	3	3	3	3	$4,271,000	Y
		Increase storage facility	J-67	0	3	3	3	3	3	$1,272,000	Y
Real	Real County Other - Oakmont Saddle Mountain WSC	Additional groundwater well	J-79	54	54	54	54	54	54	$417,000	Y
Val Verde	*City of Del Rio	Water treatment plant expansion	J-82	0	943	943	943	943	943	$8,646,000	Y
		Develop a wastewater reuse program	J-83	0	3,092	3,092	3,092	3,092	3,092	$2,846,000	Y
	Val Verde County Other - Val Verde County WCID Comstock	Water loss audit and main-line repair	J-84	1	1	1	1	1	1	$406,000	Y
	Val Verde County Other - San Pedro Canyon Upper Subdivision	Water loss audit and main-line repair	J-85	7	7	7	7	7	7	$142,000	Y
No Survey Response											

Process for Identifying Infeasible WMSs

STEP #3 – If any Infeasible WMSs are identified, the RWPG **must amend** their 2021 RWP according to 31 Texas Administrative Code §357.51 . These amendments may address Infeasible WMSs by:

- Adjusting the online decade
- Removing the infeasible strategy and replacing the strategy with a new feasible strategy to meet the same need
  - (substitution of Alternative WMSs)
- Removing the infeasible strategy and leaving the need as “unmet”

Process for Identifying Feasible Water Management Strategies 2026 RWP

Potentially Feasible Strategy Process

Handout #7

- Statutory and Rule Requirements
  - TWC §16.053(e)(5); and 31 TAC §357.34(c)
- RWPGs must consider, but are not limited to considering, 24 types of WMSs for all identified water needs
- Other Potential Projects Considered:
  - Appropriate strategies from the 2021 Plan
  - Water-loss audits and line replacement
  - Projects suggested by municipalities through a survey
  - Projects that are currently or have recently applied to the TWDB for funding
- Lessons Learned from Infeasible Strategy Analysis
  - Strategy contemplate construction/permitting
  - Sponsor taken affirmative steps

Tech Memo Requirements

Task 4C – Technical Memorandum

- Population and Water Demand (DB27)
- Source Water Availability (DB27)
- Existing Water Supplies (DB27)
- Identified Water Needs / Surpluses (DB27)
- 2026 RWP WUG Data Comparison to 2021 RWP (DB27)
- 2026 RWP Source Data Comparison to 2021 RWP (DB27)
- Copy of the Hydrologic Variance Request
- Methodology of Groundwater Availability
- Documented Process to Identify Potentially Infeasible WMSs
- Documented Process to Identify Potentially Feasible WMSs
- Tabular List of All Infeasible WMSs Identified by RWPG
- Tabular List of All Potentially Feasible WMSs Identified by RWPG
- Summary of Region's Interregional Coordination Efforts

Ongoing Work

- Finalize assessment of strategies that are infeasible
- Infeasible Water Management Strategies in 2021 RWP
  - RWPG needs to Amend 2021 RWP
    - Move water management strategy to a different decade in 2021 RWP
    - Replace by a new water management strategy or substitute an alternative in 2021 RWP
    - Remove from 2021 RWP

Next Meeting Material

- **Approve Technical Memorandum**