
Plateau Water Planning Group

Minutes and Meeting Materials

5th Planning Cycle

The following pages contain minutes and presentations from the meetings of the Plateau Water Planning Group (Regional Water Planning Group J) during the 5th Planning Cycle October 2016 – October 2020.

Minutes and presentations from meetings held on the following dates are included:

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Minutes
Plateau Water Planning Group
Regular Meeting – Leakey, Texas
Wednesday - October 19, 2016

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Wednesday, October 19, 2016, beginning at 10:00 A.M. at the Frio Baptist Church, 919 S. US Highway 83, Leakey, Real County, Texas, Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; David Mauk, Bandera County; Joel Pigg, Real County; Gene Williams, Kerr County; Genell Hobbs, Kinney County; Homer Stevens, Bandera County; Feather Wilson, Bandera County; Scott Loveland, Kerr County; David Jeffery, Bandera County; Jody Grinstead; John Ashworth, LBG-Guyton & Associates.; Jennifer Herrera, LBG-Guyton & Associates; Lann Bookout, Texas Water Development Board; Chad Norris, Texas Parks and Wildlife; Chandra Eggemeyer, Texas Department of Agriculture; Kayla Rohrbach, Bandera County; Michael Redman, Bandera County; Joseph McDaniel, Aqua America; Sky Lewey, Wes Robinson, Carl Schwing and Tina Ashley

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

A quorum was present.

II. Public Comments.

There were no public comments.

III. Approval of minutes from the April 14, 2016 RWPG meeting.

Motion by Joel Pigg to approve the April 14, 2016 minutes of the Regular Meeting and the Public Meeting; second by Ray Buck. The motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

Mr. Letz state that the TWDB requested that he and 3 other Regional Water Planning Chairs attend a meeting on November 17th to review the planning process regarding the “county issues” as they relate to rural type issues.

Gene Williams spoke briefly regarding a project Headwaters Groundwater Conservation District is doing which involves numerous volunteer geologists drilling test wells with the intention of drilling to the bottom of the Ellenberger, possibly into the San Saba source. Mr. Letz stated that the wells will potentially have a lot of implications for long-term water supplies for Kerr, Kendall and Gillespie; and wanted to thank the volunteer group and Headwaters for funding the project.

The current balance in the PWPG Administrative account as of September 30, 2016 is \$15,003.69

b. Report from Secretary.

No report was given.

c. Report from Political Entity.

No report was given.

d. Report from Liaisons.

Chad Norris gave a brief report on the Apache Company’s discovery of 3 billion barrels of oil in the West Texas Permian Basin

e. Report from GMA representatives

David Jeffery gave a brief update on GMA 9. Genell Hobbs gave a brief update on GMA10. Feather Wilson gave a brief update on Region K.

V. Consider, discuss and take appropriate action to approve invoices.

Motion by Gene Williams to approve the following invoices; second by David Jeffery. The motion passed by a unanimous vote.

LBG-Guyton (8/1/16-8/31/16) \$882.82; LBG-Guyton (7/1/16-7/31/16) \$294.27; LBG-Guyton (5/1/16-5/31/16) \$252.24; LBG-Guyton (4/1/16-4/30/16) \$2,724.78; Leggette, Brashears & Graham, Inc. - \$1239.30 (Region J – County Summary); Leggette, Brashears & Graham, Inc. - \$183.60 (Region J – County Summary); Leggette, Brashears & Graham, Inc. - \$1577.10 (Region J – County Summary); Leggette, Brashears & Graham, Inc. - \$1000.00 (bound copies of 2016 Plan); Jody Grinstead - \$80.20 (reimbursement for mailing 2016 Plans to members); Jody Grinstead - \$207.90 (reimbursement for transcripts of 4/14/16 meeting); Kinney County GCD - \$125.00 (partial reimbursement for meal at 4/14/16 meeting)

VI. Consider, discuss and take appropriate action on vacancy in the Industries Interest for Kerr County.

Mr. Letz stated that Joseph McDaniel, a representative from Aqua Texas, has agreed to join the Board. **Motion by Ray Buck to allow Joseph McDaniel to fill the vacancy in the Industries Interest for Kerr County; Second by David Mauk. The motion passed by a unanimous vote.** Mr. McDaniel briefly introduced himself the Group.

VII. Consider, discuss and take appropriate action on vacancy in Agriculture Interest for Kinney County.

Mr. Letz stated that this vacancy is to fill the position previously held by Zack Davis, and that Wes Robinson has been nominated to fill the vacancy. Wes briefly introduced himself to the Group. **Motion by Genell Hobbs to allow Wes Robinson to fill the vacancy in Agriculture Interest for Kinney County; second by Joel Pigg. The motion passed by a unanimous vote.**

VIII. Consider, discuss and take appropriate action on vacancy in Municipalities Interest for Kerr County.

Mr. Letz stated that a formal nomination has not yet been received for this vacancy so it will remain open at this time.

IX. Consider, discuss and take appropriate action to appoint a new liaison for Region M (to replace Zack Davis).

Mr. Letz stated that Carl Schwing has expressed an interest in serving as this liaison Mr. Schwing has attended several of the PWPG meetings, and is interested in becoming a board member in the future, but would like to fill this position in the meantime. Mr. Schwing briefly introduced himself to the Group. **Motion by Ray Buck to allow Carl Schwing to be the new liaison for Region M; second by David Mauk. The motion passed by a unanimous vote.**

X. Consider, discuss and take appropriate action to authorize the Region J Political Subdivision to provide public notice and submit a grant application to the TWDB on behalf of Region J for funding to complete the fifth round of regional water planning, and to negotiate and execute the amendment to the TWDB contract.

Mr. Ashworth stated that Ray Buck will prepare the application to release the remainder amount of the budget which will allow work to begin on the tasks that have not yet been worked on. **Motion by David Mauk to authorize the Region J Political Subdivision to provide public notice and submit a grant application to the TWDB on behalf of Region J for funding to complete the fifth round of regional water planning, and to negotiate and execute the amendment to the TWDB contract; second by Joel Pigg. The motion passed by a unanimous vote.**

XI. Discuss and consider recommending Carollo Engineers as the water planning sub-consultants for the Fifth Cycle of Water Planning for Region J to the Plateau Water Planning Group members.

Ms. Herrera spoke briefly regarding Carollo Engineers qualifications. She stated that they are a local company, their representatives have full intentions of participating in the planning process and in the meetings, and that LBG-Guyton highly recommends them. **Motion by Joel Pigg to hire Carollo Engineers as the water planning sub-consultants for the Fifth Cycle of Water Planning for Region J; second by David Jeffery. The motion passed by a unanimous vote.**

XII. Texas Water Development Board Updates – Lann Bookout, Project Manager

Mr. Bookout gave the following updates:

TWDB is having financial workshops across the state; typically one per month in a different areas. He said the closest workshop will be in Vernon, Texas in January.

In addition to meeting with the Chairs of the rural area planning groups in November, the TWDB is also having a work session which will include all of the Chairs. They will discuss some of the interim charges from the Legislature that are of interest to the Regional Planning Groups. A brief discussion ensued regarding various Bills that are being filed with regards to Groundwater Districts.

He spoke briefly regarding the Grant Application process (just approved under Item X). He stated as the funds become available to the TWDB the contracts will be amended to add money as the work develops in the water planning. He stated there will likely be at least two more amendments to add funds to these contracts before they're fully funded. He went on to state that the political subdivision will complete the application and submit it.

TWDB is still working on evaluation of methodologies for irrigation, manufacturing, power projections that they will provide. Those will hopefully be released by the end of the month.

January 2017 is the target date to deliver the first data sets for draft population and municipal water demands projection to the consultants.

Mr. Letz asked if Kevin Kluge would be available to attend a future meeting to speak about population projections and the municipal investments. Mr. Bookout said he would try to coordinate things with Mr. Kluge. It was agreed that the next meeting will be mid-February in Del Rio and that Jody will coordinate with everyone to get the meeting set up.

XIII. Presentation on TWDB Brackish Resources Aquifer Characterization System (BRACS) – LBG-Guyton.

Mr. Ashworth briefly described the Water Development Board's initiative called Brackish Resources Aquifer Characterization System (BRACS); set up via House Bill 30. He stated that many years ago LBG-Guyton contracted with TWDB to do a statewide assessment of brackish water in all of the aquifers in the state and that information has been available for regional water planning groups to review. TWDB is now taking the next step by studying each aquifer and working to evaluate the specific zones within these aquifers that may contain unusual amounts of brackish ground water. He defined brackish water to be water that is a little saltier than drinking water; which is anywhere from 1000 TDS up to about 10000 TDS. TWDB is studying brackish levels because they are more capable of being developed on an economic basis through desalination.

TWDB has completed, or nearly completed, the first four aquifers: the Blaine, Carrizo, Gulf Coast and Rustler Aquifers. During 2017 they are going to be working on the Blossom,

The Group briefly discussed the aquifers within Region J and House Bill 30.

XIV. Presentation on potential new/revised TWDB utility-based WUGs – LBG-Guyton.

Jennifer Herrera informed the Board that on June 30th the TWDB distributed listings of their recommended utility water user groups to all regions. The method and the goal behind this utility-based planning is to make the plan more uniform from start to finish with who sponsors each projects and how the projects are going to come to fruition. She went on to discuss the criteria used for the lists. She noted that some of the entities are now identified with new names (instead of them being clumped into County Other); Bandera County FWSD, Leakey and Val Verde County WCID Comstock. She briefly explained why Aqua Texas and Southwest Water Company were not listed, and stated those could be listed as sub-WUGs. A brief discussion ensued regarding sub-WUGs. Mr. Bookout stated that in the new rural changes (which will hopefully be adopted) the criteria for a wholesale water provider is gone and some additional definitions have been added. Mr. Ashworth stated that in previous plans Del Rio was considered a wholesale water provider; now they will called a major water supplier since they are providing water outside their boundaries. The Group directed Ms. Herrera to prepare a list of sub-WUGs based on the discussions of today's meeting that the Group can ratify at the next meeting.

XV. Set next meeting.

It was determined that the next meeting will be held late February or early March.

Mr. Ashworth spoke briefly regarding the Water Conservation Advisory Council that the Governor's Office established. He said the Council compiled a list of conservation recommendations and they asked the Regional Water Planning Groups to look at the list and provide any suggestions by December 1st. Mr. Ashworth stated that the only suggestion he had deals with the agricultural conservation section. He noted that the Group has repeatedly complained that the methodology of determining agricultural water use, especially irrigated agricultural water use, has not stayed up with the times. The process is not good and we don't have a strong alliance on those numbers. . He suggested that the Group respond by saying that better methodologies need to be used regarding agricultural use. Mr. Letz asked Mr. Ashworth to prepare something stating such and submit it prior to the deadline. Mr. Ashworth stated he would prepare a statement, send it out to everybody for review, and then Mr. Letz could send it out.

Meeting adjourned

LBG-GUYTON UPDATE

PLATEAU REGION WATER PLANNING GROUP MEETING

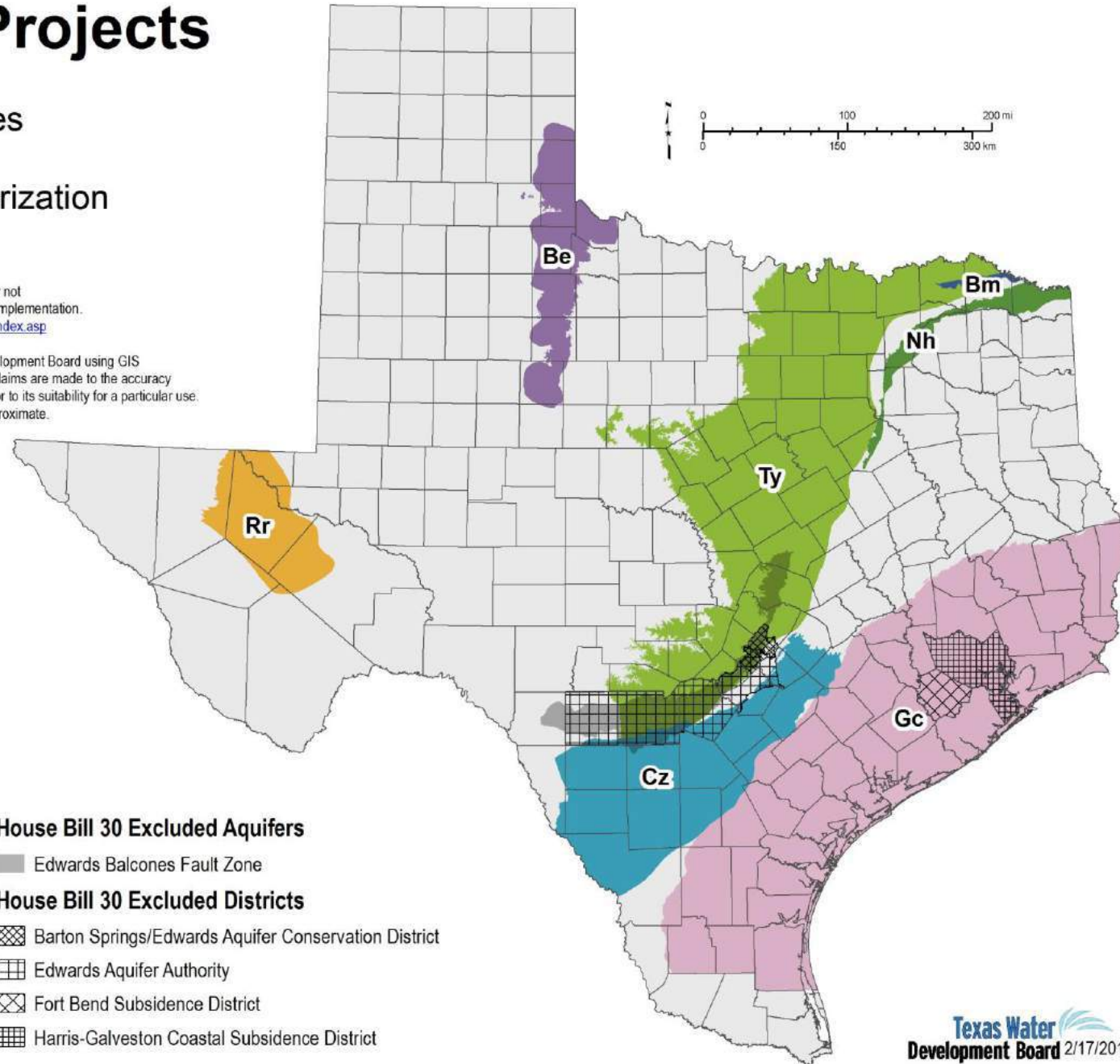
October 19, 2016

BRACS Projects

Brackish Resources Aquifer Characterization System

Proposed projects are conceptual and may or may not represent a precise location and extent or actual implementation.
<http://www.twdb.texas.gov/innovativewater/bracs/index.asp>

This map was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown herein or to its suitability for a particular use. The scale and location of all mapped data are approximate.



House Bill 30 Projects

2016 Aquifers

- Be. Blaine
- Cz. Carrizo
- Gc. Gulf Coast
- Rr. Rustler

2017 Aquifers

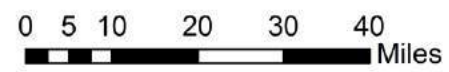
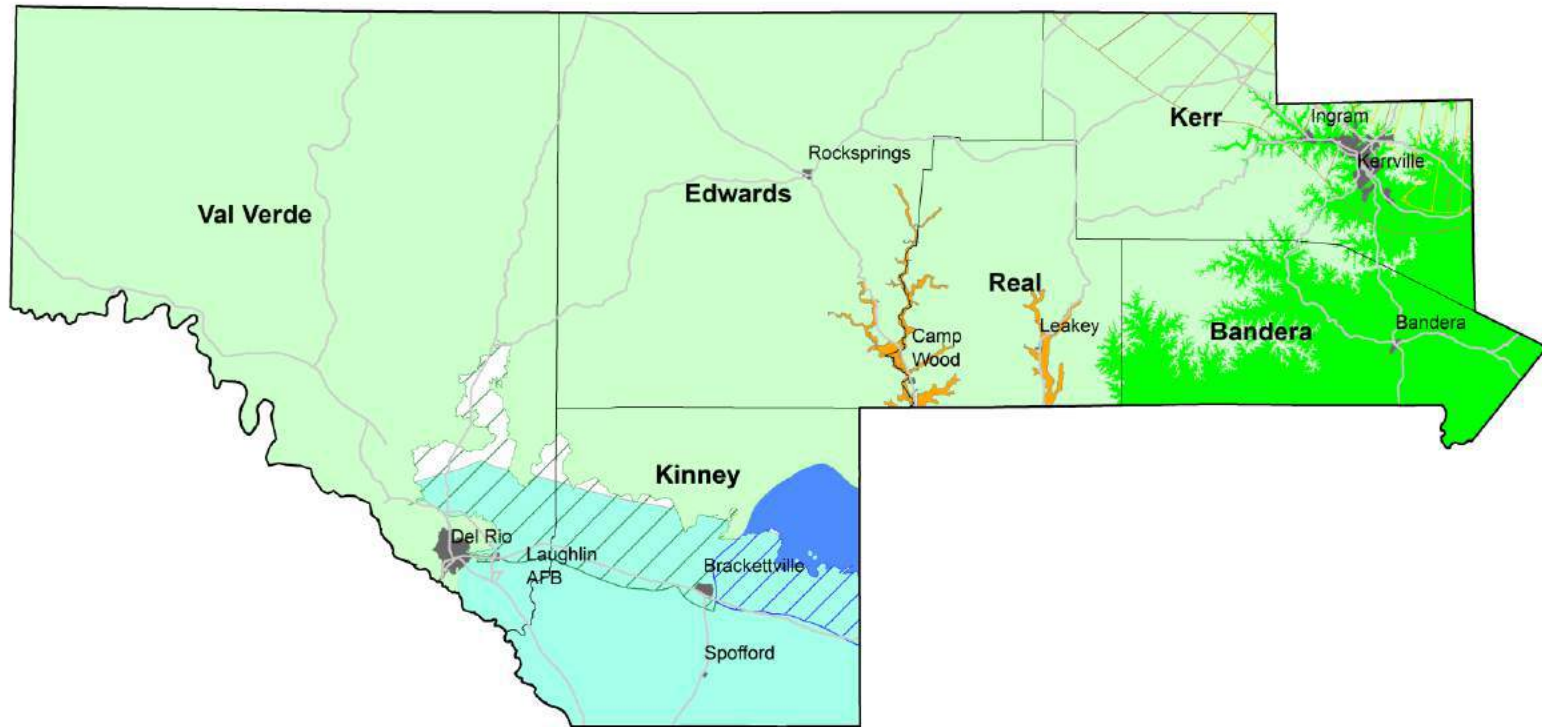
- Bm. Blossom
- Nh. Nacatoch
- Ty. Trinity

House Bill 30 Excluded Aquifers

- Edwards Balcones Fault Zone

House Bill 30 Excluded Districts

- Barton Springs/Edwards Aquifer Conservation District
- Edwards Aquifer Authority
- Fort Bend Subsidence District
- Harris-Galveston Coastal Subsidence District



Source: TWDB

Explanation

-  Austin Chalk
-  Ellenburger - San Saba (subcrop)
-  Hickory (subcrop)
-  Edwards - Trinity Plateau (outcrop)
-  Edwards - Trinity Plateau (subcrop)
-  Edwards BFZ (outcrop)
-  Edwards BFZ (subcrop)
-  Trinity (outcrop)
-  Trinity (subcrop)
-  River Alluvium

TWDB REVISED MUNICIPAL WUG CRITERIA

- **Retail public utilities** owned by a political subdivision providing more than 100 acre-feet per year;
- **Privately-owned utilities** that request inclusion as an individual WUG, are approved by the RWPG and provide more than 100 acre-feet per year;
 - ✓ No privately-owned utilities listed within Region J
- Water systems of **state or federal-owned facilities** that request inclusion as an individual WUG, are approved by the RWPG and provide more than 100 acre-feet per year;
 - ✓ Laughlin Air Force Base
- **Collective reporting units (CRU)**, or groups of retail public utilities that have a common association and are requested by the RWPG.
 - ✓ No CRUs listed within Region J

County	2016/2017 Water User Groups (WUGs) Retail Utilities	2021/2022 Water User Groups (WUGs) Retail Utilities	2011 Municipal Water Use (Acre- Feet)	2014 Municipal Water Use (Acre- Feet)	<u>NEW</u> TWDB Assigned Utility Name
Bandera	Bandera	Bandera	266	217	
	County-Other	New - Bandera County FWSD #1	117	65	
		County-Other			
Edwards	Rocksprings	Rocksprings			
	County-Other	County-Other			
Kerr	Ingram				County-Other (not meeting criteria)
	Kerrville	Kerrville	4,688	3,878	
	Loma Vista Water System				County-Other (not meeting criteria)
	County-Other	County-Other			
Kinney	Brackettville	Brackettville	534	484	
	Fort Clark Springs MUD	Fort Clark Springs MUD	615	515	
	County-Other	County-Other			
Real	Camp Wood	Camp Wood	135	106	
	County-Other	New - Leakey	205	196	
		County-Other			
Val Verde	Del Rio	Del Rio Utilities Commission	9,242	8,249	
	Laughlin Air Force Base	Request inclusion	943	533	
	County-Other	New - Val Verde County WCID Comstock	133	82	
		County-Other			

Note: Single 100 acre-foot threshold determined by either the 2011 or 2014 data submitted to the TWDB through the annual water use survey.

Minutes
Plateau Water Planning Group
Regular Meeting – Del Rio, Texas
February 23, 2017
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Thursday, February 23, 2017, beginning at 10:00 A.M. at the Bank and Trust, 1200 Veterans Blvd., Del Rio, Val Verde County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joel Pigg, Real County; Gene Williams, Kerr County; Genell Hobbs, Kinney County; Rene Villarreal, Kinney County; Feather Wilson, Bandera County; Scott Loveland, Kerr County; Jody Grinstead; John Ashworth, LBG-Guyton & Associates.; Jennifer Herrera, LBG-Guyton & Associates; Lann Bookout, Texas Water Development Board; Chad Norris, Texas Parks and Wildlife; Chandra Eggemeyer, Texas Department of Agriculture; Joseph McDaniel, Aqua America; Wes Robinson; Carl Schwing; Charlie Wiedenfeld, Kerr County; Grady Douglas Real Edwards Water Conservation Reclamation District; Matthew Henderson, Laughlin Air Force Base water programs; Ernie DeWinnie; Kit Averitt; Kevin Kluge, Texas Water Development Board; Tony Smith, Carollo Engineers; Otila Gonzalez, Val Verde County. The following people arrived after roll call: David Mauk, Bandera County; Jerry Simpton, Val Verde County; Tomas Rodriguez, Region M; and Aaron Wendt.

I. **Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.**

A quorum was present.

II. **Public Comments.**

No public comments were made.

III. **Approval of minutes from the October 19, 2016.**

Motion by Charlie Wiedenfeld to approve the October 19, 2016 minutes; second by Rene Villarreal. The motion passed by a unanimous vote.

IV. **Reports.**

a. Report from Chair

No report was given

b. Report from Secretary

No report was given

c. Report from Political Entity

Ray Buck thanked Jennifer Herrera, John Ashworth and Lann Bookout for their help with the second round of funding application

d. Report from Liaisons.

Feather Wilson gave an update regarding Region K; Charlie Wiedenfeld stated that he had not been to a Region L meeting; Carl Schwing gave an update on Region M. Jonathan Letz introduced Tomas Rodriguez, Chairman from Region M – who was at the meeting as a guest.

e. Report from TWDB.

Update to be given later in the meeting

f. Report from GMA representatives.

Dave Mauk gave an update on GMA9; Genell Hobbs gave an update on GMA10; Feather Wilson spoke briefly regarding the IH-35 Corridor project.

V. **Consider, discuss and take appropriate action to approve invoices.**

Motion by Charlie Wiedenfeld to approve the following invoices:

LBG-Guyton (9/1/16-9/30/16) - \$1,429.35; LBG-Guyton (10/1/16-10/31/16) - \$4,191.86; LBG-Guyton (11/1/16-11/30/16) - \$2,858.69; LBG-Guyton (12/1/16-12/31/16) - \$1,933.64; Jody Grinstead - \$120.00 (Reimbursement for Transcripts) AND

Costs for Public Notice for RFA for 5th Cycle (to be reimbursed from TWDB account)

Postage - \$47.00; Bandera Bulletin - \$135.00; Del Rio News Herald - \$163.00; Hill Country Community Journal - \$50.00

Second by Feather Wilson. The motion passed by a unanimous vote.

VI. **Texas Water Development Board Updates – Lann Bookout, Project Manager.**

Mr. Bookout informed the Group that:

TWDB has been having financial workshops all across the state; the next one in this area is in San Angelo in March.

TWDB is currently engaged in evaluating SWIFT applications that were submitted February 3rd (20+ applications) and they are in the process of ranking and scoring the applications. The goal is to get those evaluated by summer. Bonds will then be sold and are expected to close in the winter.

The State Revolving Fund invitations for priority projects have gone out and the project information forms on those potential applications for funds are due to the board on the 3rd of March.

They received the applications or additional funding for the Regional plans. Those will be reviewed, then amendments to the contracts will be sent out.

VII. **Consider, discuss and take appropriate action regarding to discuss PWPG Bylaws, member representation, planning overview, and general meeting structure.**

Mr. Letz stated that all of the Regional Water Planning Chairs attended a meeting in Austin in November. At that meeting all Chairs were encouraged to look at their processes; everything from public participation, to membership, to where meetings were held.

One item that needs to be discussed is the Groups Bylaws. Mr. Letz asked all members to review the Bylaws so they could be discussed in detail at our next meeting. He stated that they have not been revised since 2010.

He spoke briefly regarding member representation. He stated when the Group was first formed, they added different slots to ensure that each geographic area had representation. He said that

many of the other regions have an environmental representative, and asked the Group to think about whether or not that is something they want to add.

He stated most Groups have their meetings in a central location; unlike Region J that rotates the meetings between all the counties in the region. He stated that he believed that Leakey area might be a good central spot to have meetings, if the Group decided to move in that direction. Joel Pigg stated they would be happy to host the meetings.

Mr. Letz spoke briefly regarding board orientation. The Group has not had an orientation in years and we have added new members since then. He stated the TWDB can do an orientation if the new members were interested in having one. Mr. Bookout stated he would be happy to present the TWDB “Planning 101” slideshow. He said the presentation includes the planning process, member’s responsibilities relative to their categories that they are representing as well as information regarding the tools that are available online at the Development Board website. Mr. Letz spoke briefly regarding the Opening Meetings Act, and stated that the PWPG is subject to those requirements.

VIII. **Consider, discuss and take appropriate action to change PWPG Bylaws as needed.**

Mr. Letz asked the members to review the Bylaws and said they would be discussed in detail at the next meeting.

IX. **Consider, discuss and take appropriate action to re-appoint Members whose terms have expired.**

Motion by Feather Wilson to re-appoint the following members to an additional 5 year term: Lee Sweeten, Stuart Barron, Feather Wilson, Thomas Qualia, Ray Buck, Jonathan Letz, Gene Williams, David Mauk, Rene Villarreal, and Charlie Wiedenfeld; second by Genell Hobbs. The motion passed by a unanimous vote.

X. **Consider, discuss and take appropriate action to re-appoint Officers whose terms have expired.**

Mr. Letz stated that he and Gene Williams are willing to continue in their positions, but he has not yet had an opportunity to speak to Jerry Simpton. It was agreed that Mr. Letz would speak to Mr. Simpton prior to him being reappointed. **Motion by Charlie Wiedenfeld to reappoint Jonathan Letz as Chair, and Gene Williams as Secretary for an additional 2 year term; second by Ray Buck. The motion passed by a unanimous vote.**

XI. **Consider, discuss and take appropriate action to assign a Liaison to Region E to replace Otila Gonzalez.**

Ms. Gonzalez stated that the meetings are very far away (as far as El Paso). No other member was interested in being the Liaison. Mr. Letz stated the slot would remain open. Mr. Ashworth said that LBG-Guyton was the consultant for that region and if there is ever anything discussed of critical importance, they would share that information with this region.

XII. **Consider, discuss and take appropriate action to replace Stuart Barron (Kerr County Municipalities representative) with Scott Loveland.**

Mr. Letz stated the he received a letter from the City of Kerrville requesting that Scott Loveland replace Stuart Barron as the Kerr County Municipalities representative. **Motion by Joel Pigg**

to allow Scott Loveland to replace Stuart Barron; second by Charlie Wiedenfeld. The motion passed by a unanimous vote.

XIII. **TWDB utility-based planning and changes to population and municipal water demand projections – Kevin Kluge.**

Mr. Kluge stated that TWDB will be putting out non-municipal projections (irrigation/manufacturing/steam electric power) in June. He spoke briefly regarding:

Utility planning – planning for the service area utilities instead of city boundaries

Draft projections – population/municipal water demand/mining

Reuse and brackish groundwater and how they are being included in this cycle of regional and state water plans

Anticipated timelines with regards to the projections.

June – send out draft projections for remaining non municipal projections. April

–July (depending on the Legislature and workload) – sending out

historical, projection water use numbers

By September 1st – Submittal deadline for desired Sub-Wugs

November 15th – Changes to draft projections are due

XIV. **LBG-Guyton update on the TWDB draft population, municipal and mining water demand projections. Consideration of approval of draft mining water demand projections.**

Jennifer Herrera stated that with the utility based switch, she thought it would be a helpful exercise to compare what was in the 2016 plan to what some of those changes might look like when we make the switch to the utility based planning process. She reviewed the following handouts with the Group:

Table 1. 2016 Water User Group (WUG) Population

Table 1. 2016 Municipal and Mining Water Demands

Table 2. 2021 *Draft* Water User Group (WUG) Population

Table 2, 2017 *Draft* Municipal and Mining Water Demands

Preliminary Working Schedule: Fifth Cycle of Regional Planning

A brief discussion ensued regarding Sub-Wugs. John Ashworth suggested that, prior to the next meeting, that he and Jennifer meet with representatives from Kerr County and Bandera County to discuss suggested Sub-Wugs.

XV. **Presentation from Carollo Engineers regarding history of the firm and introduction to the WAM process.**

Jennifer Herrera introduced Tony Smith with Carollo Engineers - the sub consultant company Region J will be using for the 2021 plan for the surface water portion of the Plan. Mr. Smith spoke briefly regarding Carollo Engineers and some of the work they have done in the past and what they intend to do for Region J.

XVI. **Introduction of the Goldwater Project — a statewide effort to quantify and project water conservation savings. (Kip Averitt)**

Mr. Averitt stated that the agenda item submitted incorrectly stated he would be speaking about the Goldwater project; however he was here to speak about a research project that's sponsored by the Water Development Board. The nature of the project relates to water conservation. He

stated they would be going door to door in 233 cities through the state that the Water Development Board has identified as the target utilities. They would collect data to determine how much water people are saving with their conservation strategies. He said 2 of the cities they will be visiting are Kerrville and Del Rio and they would have a report, specific to Region J, which will give an idea of what's going on in the Region. The report will identify the actual million gallons per year of savings. They hope to be done by mid-summer (but are required to be done by the end of August). He stated that they will submit something to the Group prior to the report being finalized to ensure they have missed anything.

XVII. Presentation regarding Texas State Soil and Water Conservation Board (TSSWCB) programs. (Aaron Wendt)

Aaron Wendt spoke briefly regarding their organization and its responsibilities. He then went on to discuss two of the programs offered by the TSSWCB:

Water Supply Enhancement Program – is part of the State Water Supply Enhancement Plan which is the state's comprehensive strategy for dealing with brush wherever it's a water conservation problem. It must be updated every two years.

Rio Grande Carrizo Cane Eradication Program – was passed in the last Legislative session and deals controlling Carrizo Cane (only on the Rio Grande) for border security purposes.

Mr. Buck stated it was a very good program and that UGRA partnered with them to incentivize brush management in Kerr County.

XVIII. Presentation on recent revisions to the TWDB's regional water planning administrative rules regarding the use of a Modeled Available Groundwater (MAG) Peak. (Lann Bookout)

This item was passed on until the next meeting.

XIX. Discuss remaining planning activities.

The next meeting will be in early July.

XX. Set next meeting.

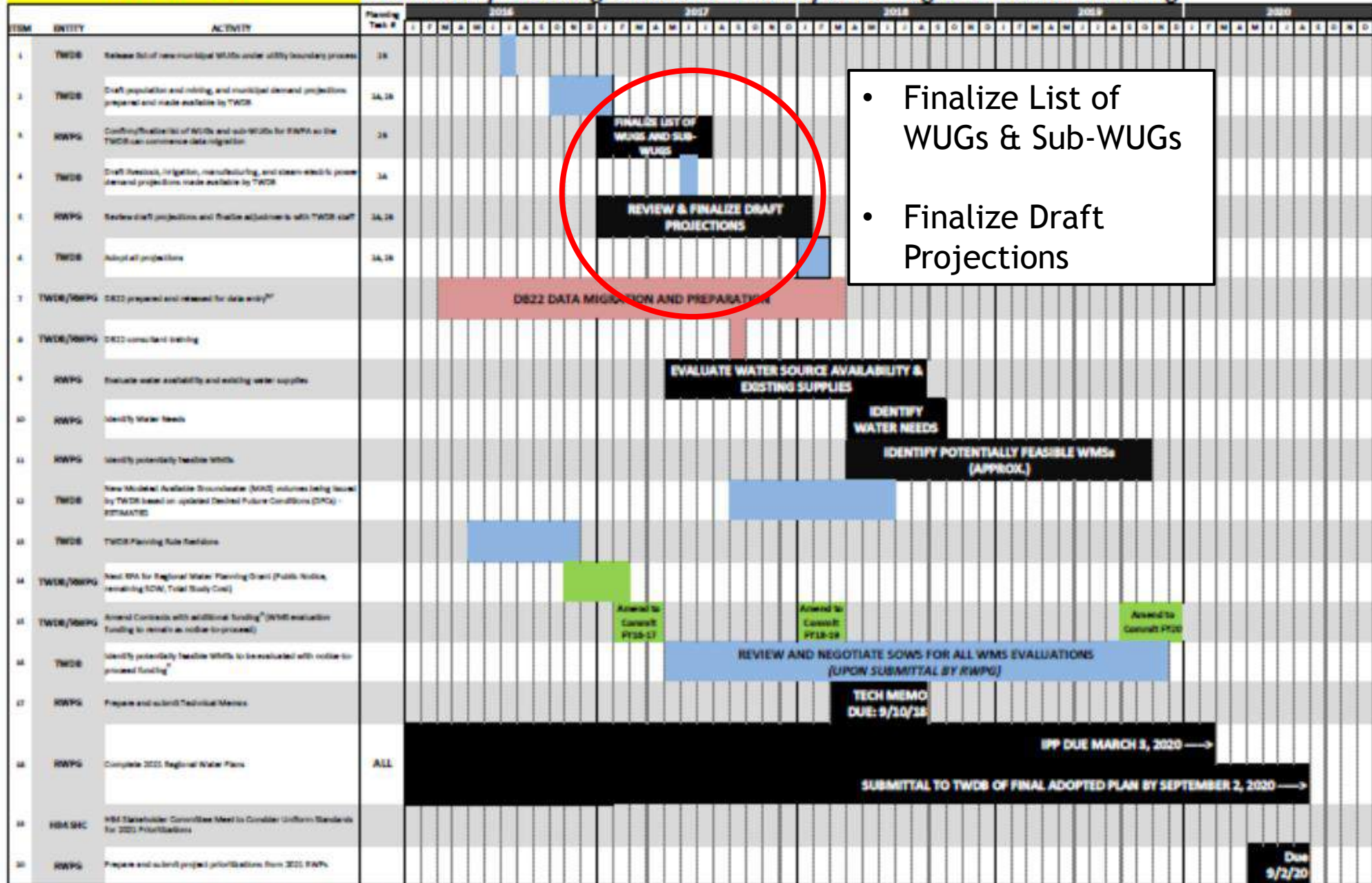
No action.

Plateau RWPG Meeting

LBG-Guyton Technical Consultant Presentation

February 23, 2017





- Finalize List of WUGs & Sub-WUGs
- Finalize Draft Projections

Note A: Estimated timeline based on currently available agency resources and subject to change

Note B: DB22 is the updated, online water planning database for the 2022 State Water Plan

Note C: Anticipated database availability dates are estimates based on currently available agency resources

Note D: Subject to available funding

RWPG activity = [Black box]
Contracting activity = [Green box]
TWDB activity = [Blue box]
Database activity = [Red box]

Due 9/2/20

NO changes in population county totals between Plans.

Why?

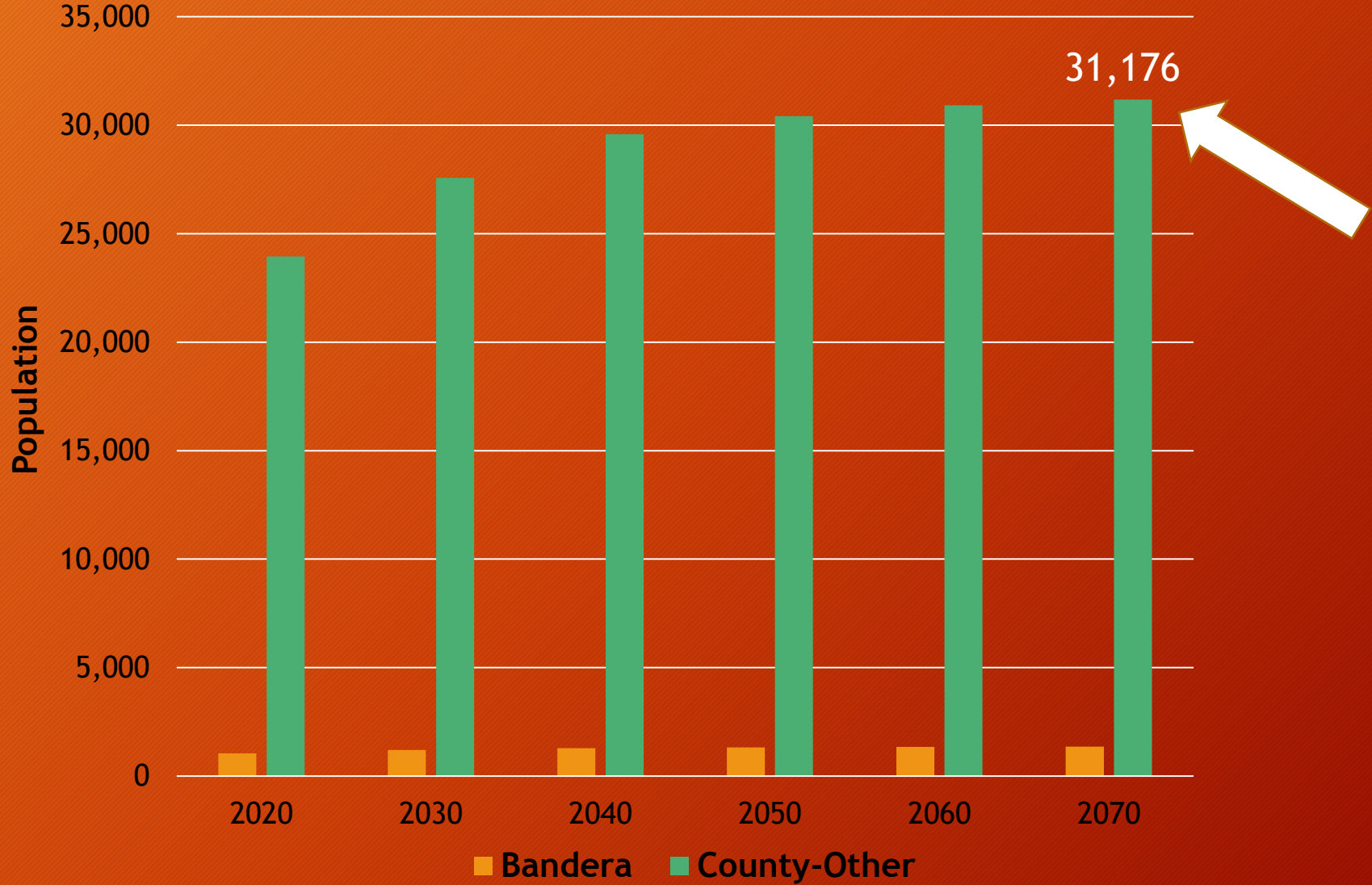
- ★ **Inter-census planning cycle (new census numbers are not available for projections).**

Change in municipal and county-other allocations due to utility service area boundaries and the incorporation of new utility WUGs.

WUG POPULATION CHANGES

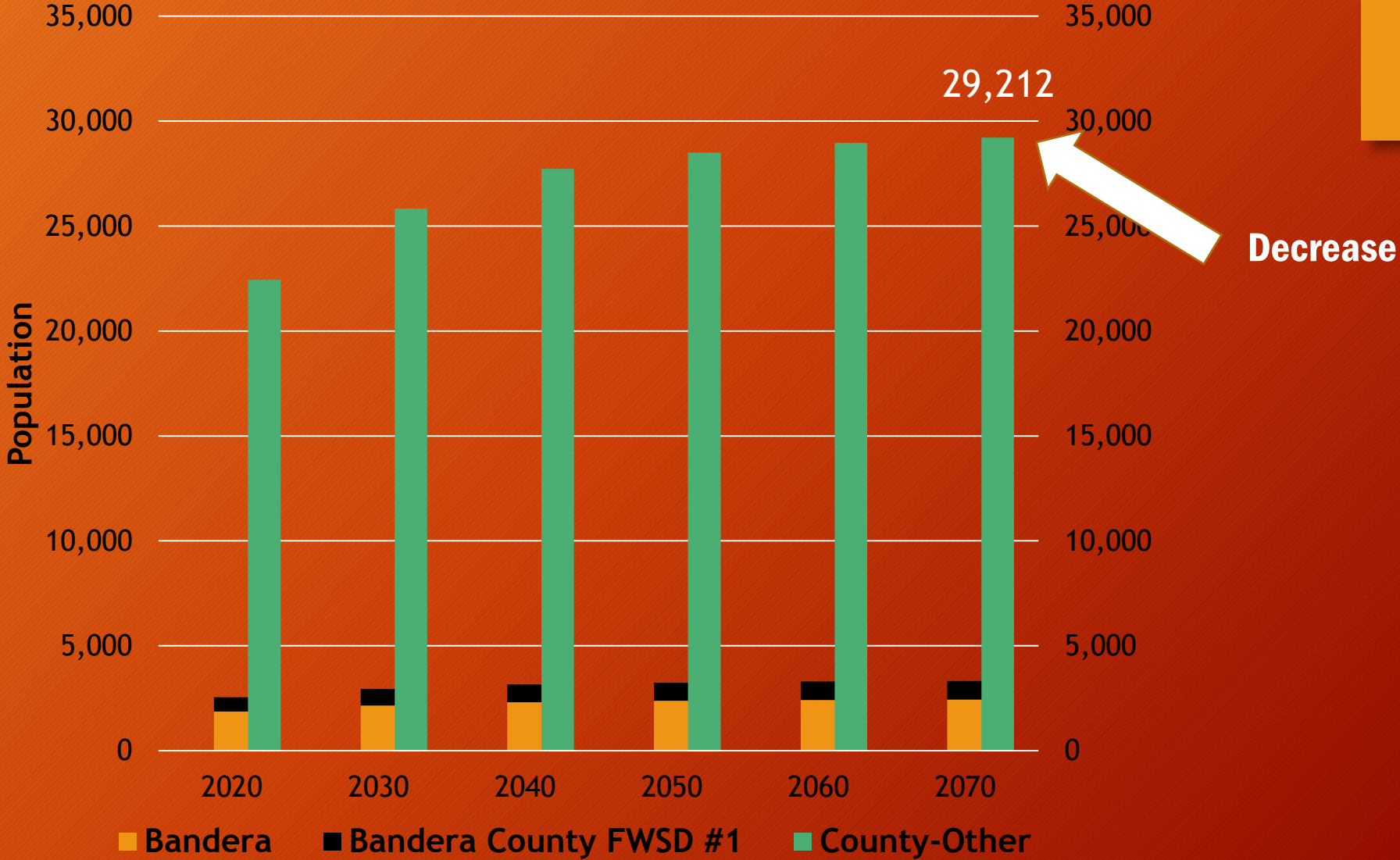
2016 BANDERA COUNTY POPULATION COMPARISON

Municipal vs. County-Other



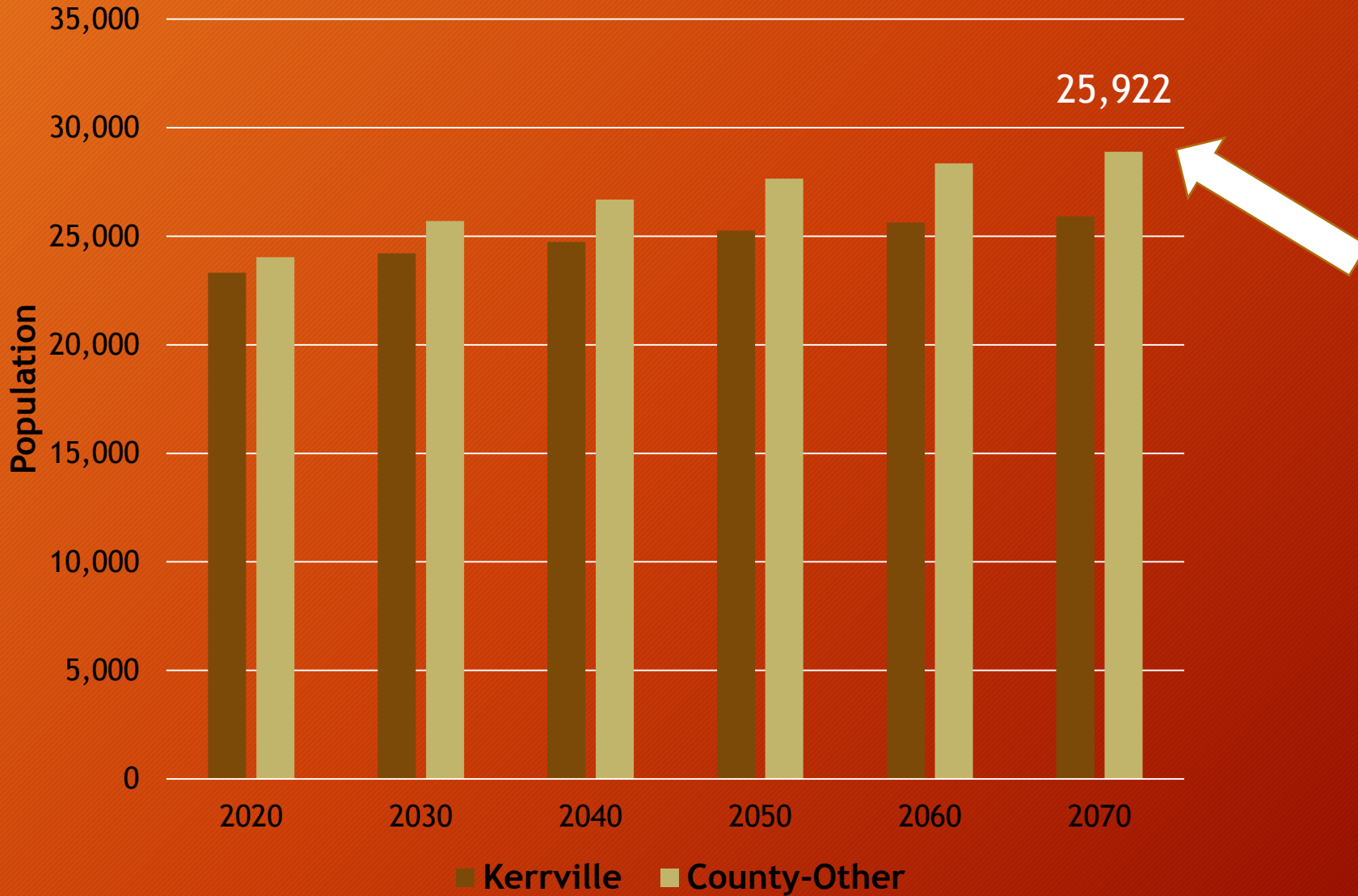
2021 BANDERA COUNTY POPULATION COMPARISON

Municipal vs. County-Other



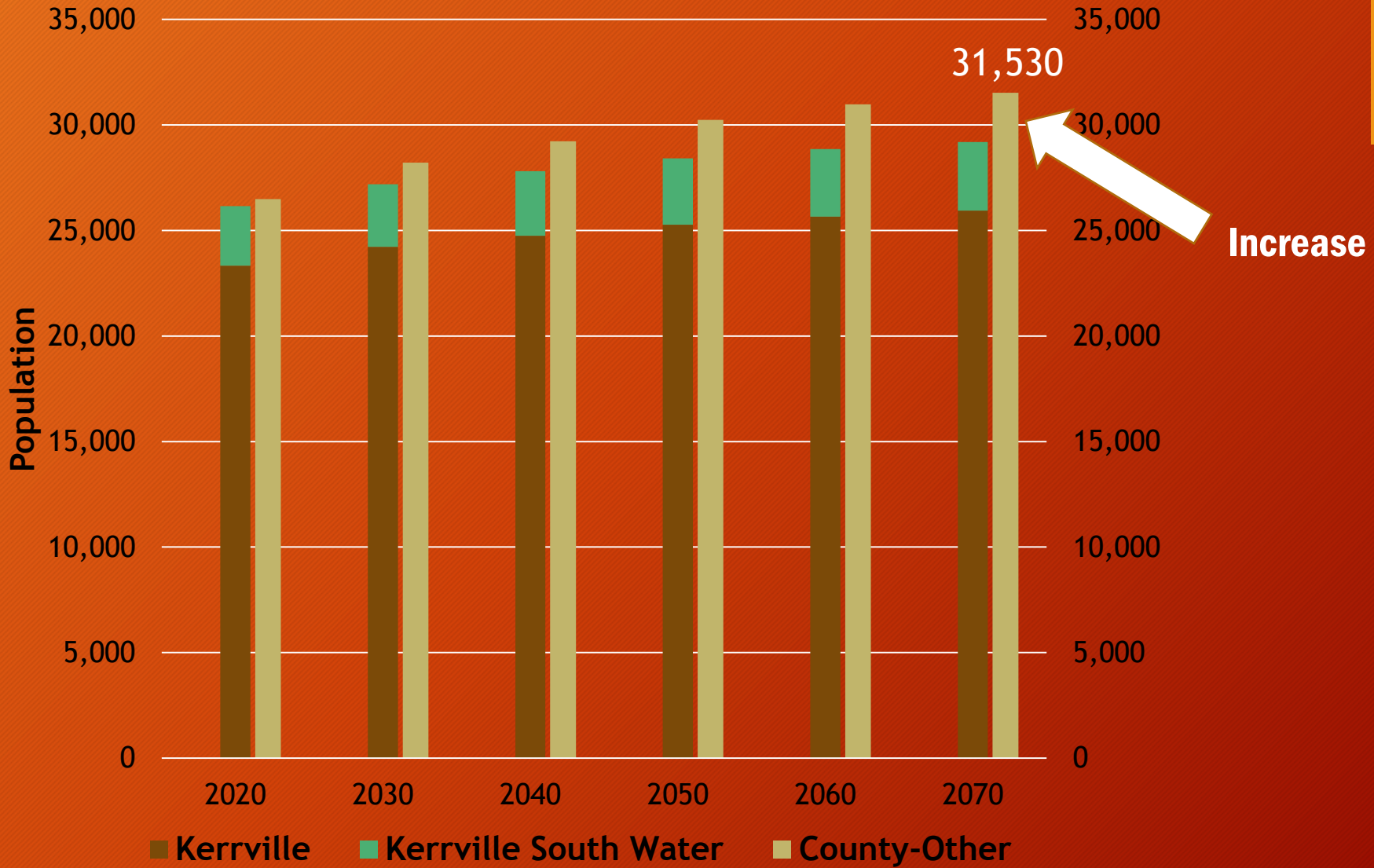
2016 KERR COUNTY POPULATION COMPARISON

Municipal vs. County-Other

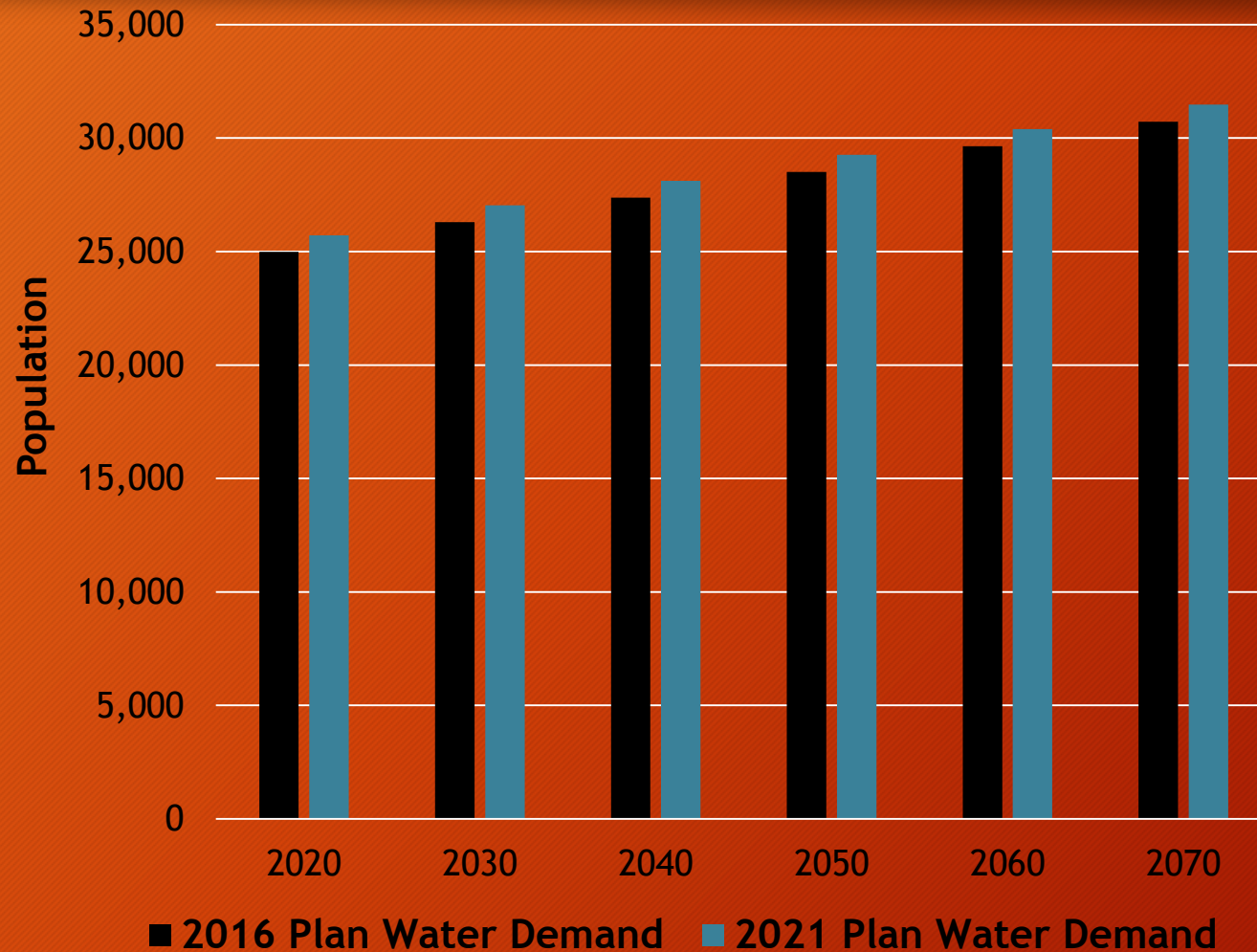


2021 KERR COUNTY POPULATION COMPARISON

Municipal vs. County-Other



MUNICIPAL & COUNTY-OTHER WATER DEMAND COMPARISON



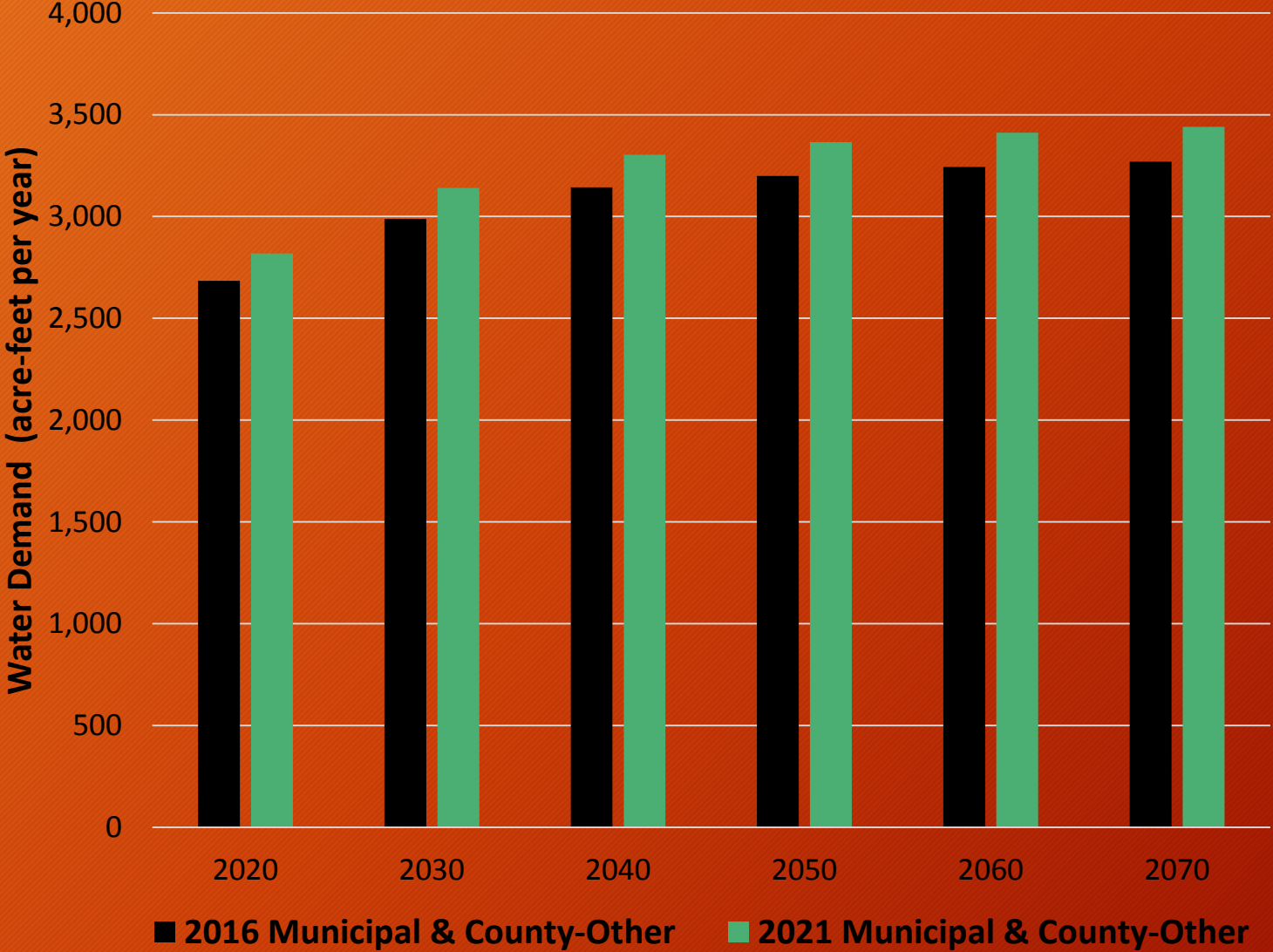
ALL counties experience some change in the total water demand draft projections.

Why?

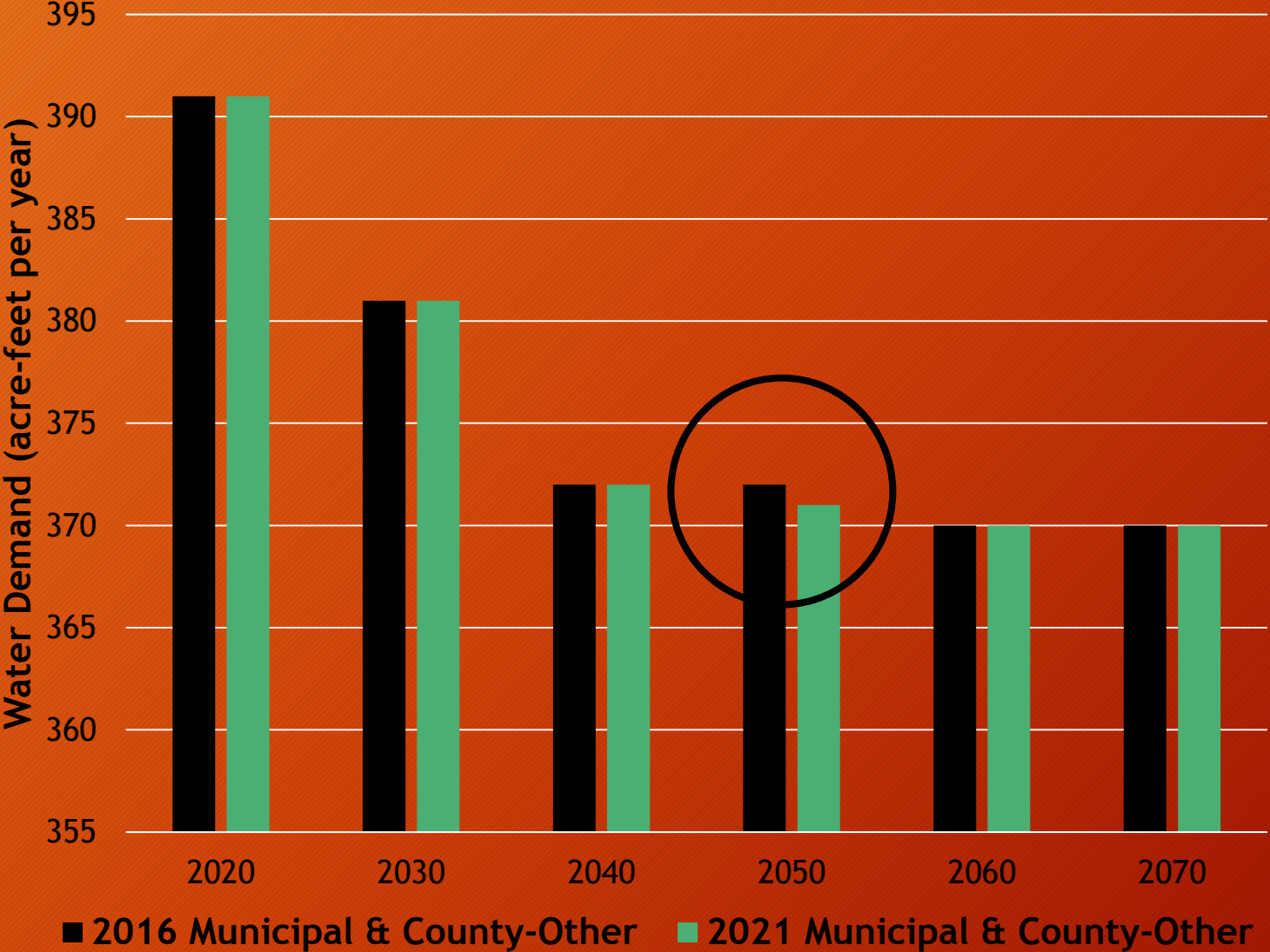
- ✦ **Shift in population = Shift in water demand based on GPCD allocation.**
- ✦ **2016 Plan municipal water demand projections used the (GPCD) volumes from the 2017 SWP.**
- ✦ **New WUGs water demand projections used the 2011 or 2014 (GPCD) volumes.**

WUG WATER DEMAND CHANGES

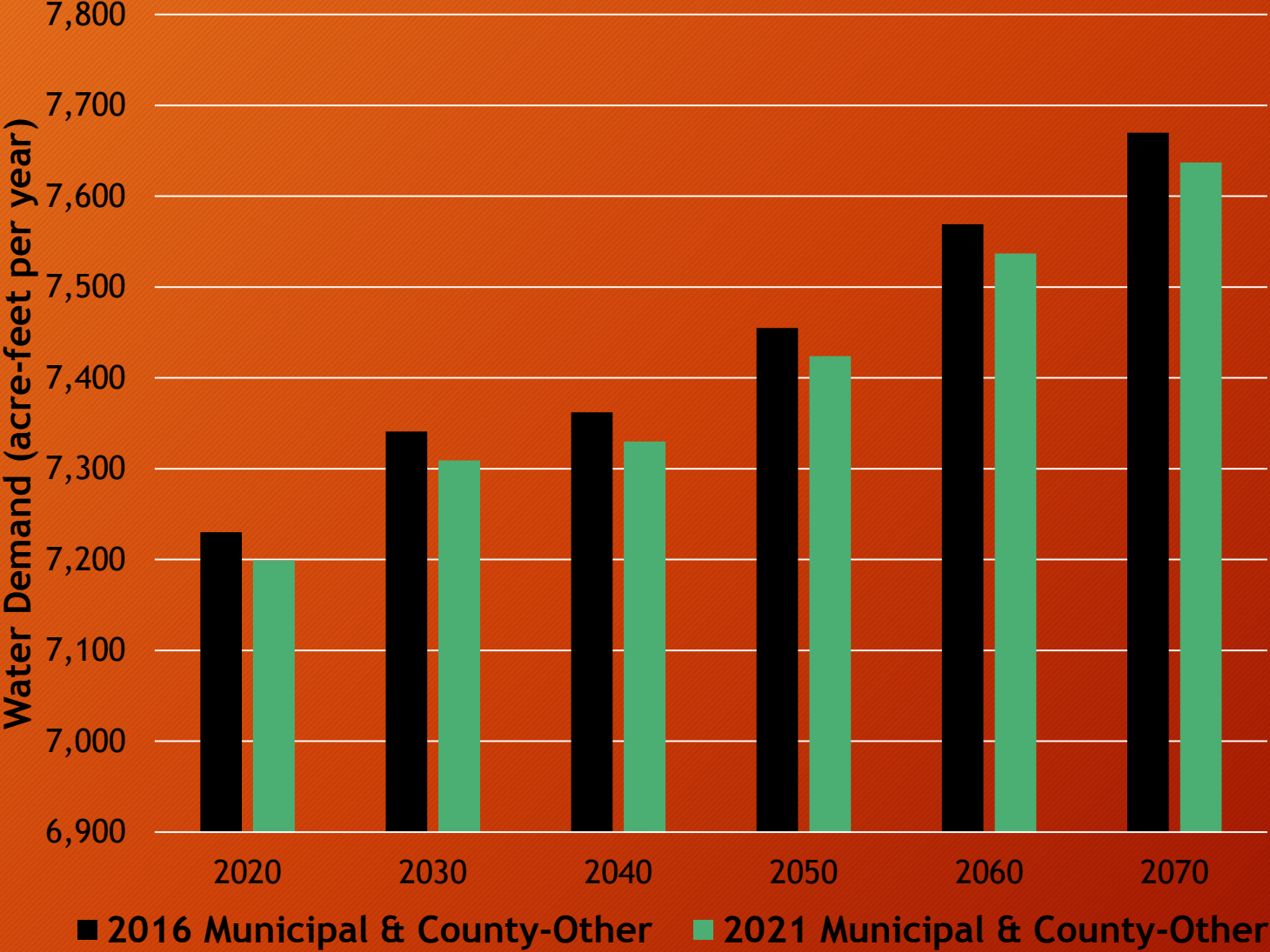
Bandera County Water Demand Comparison



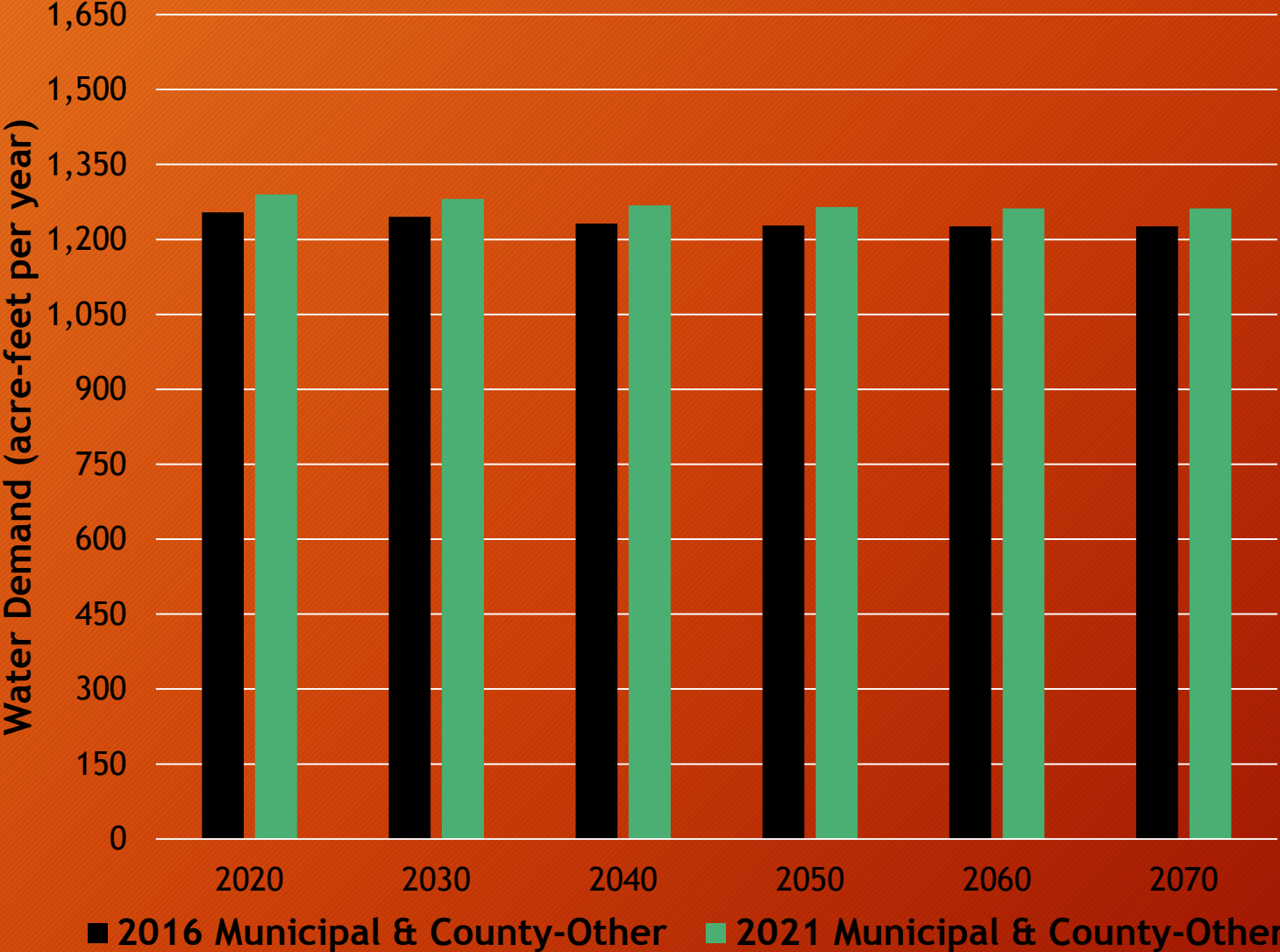
Edwards County Water Demand Comparison



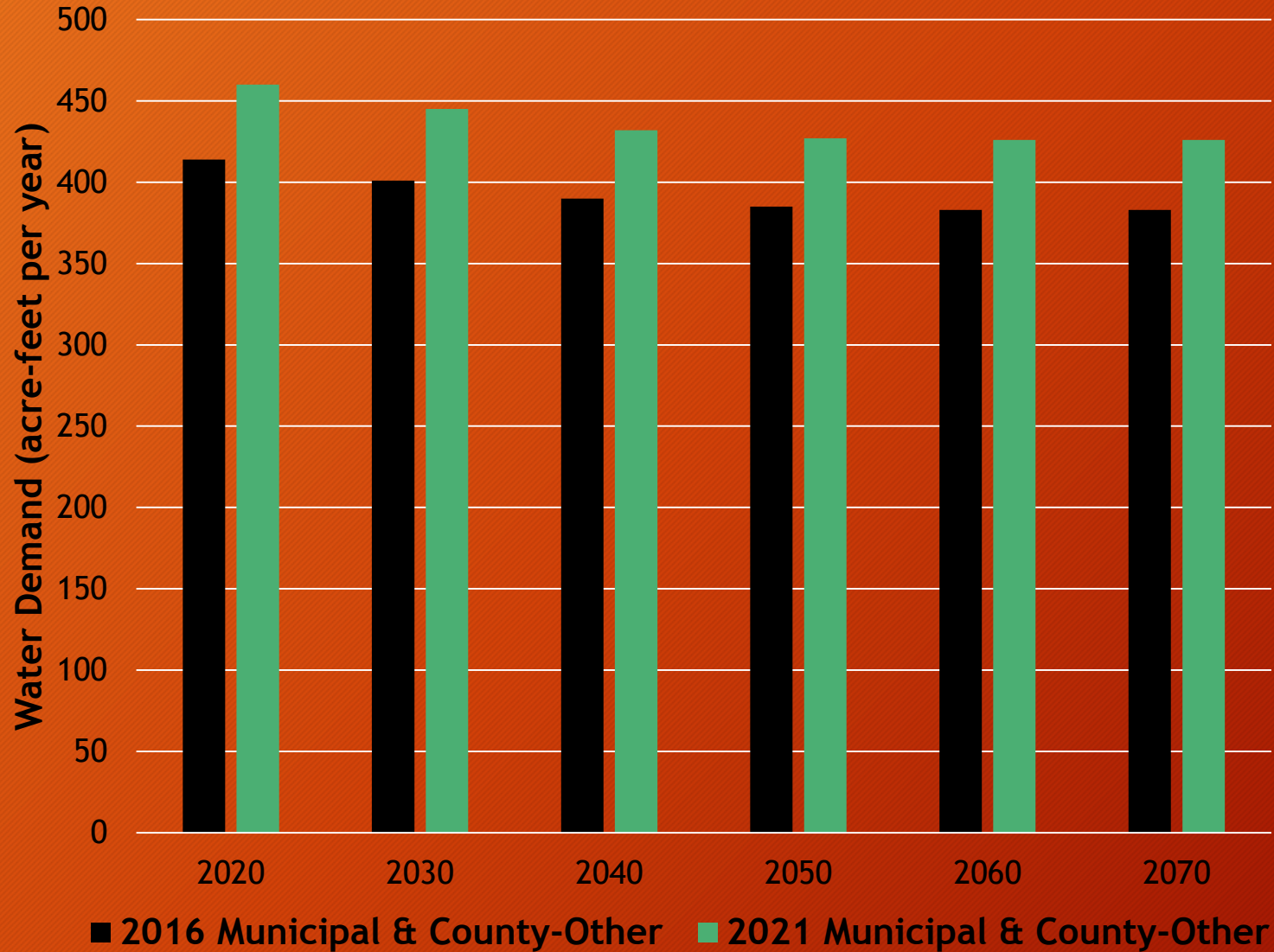
Kerr County Water Demand Comparison



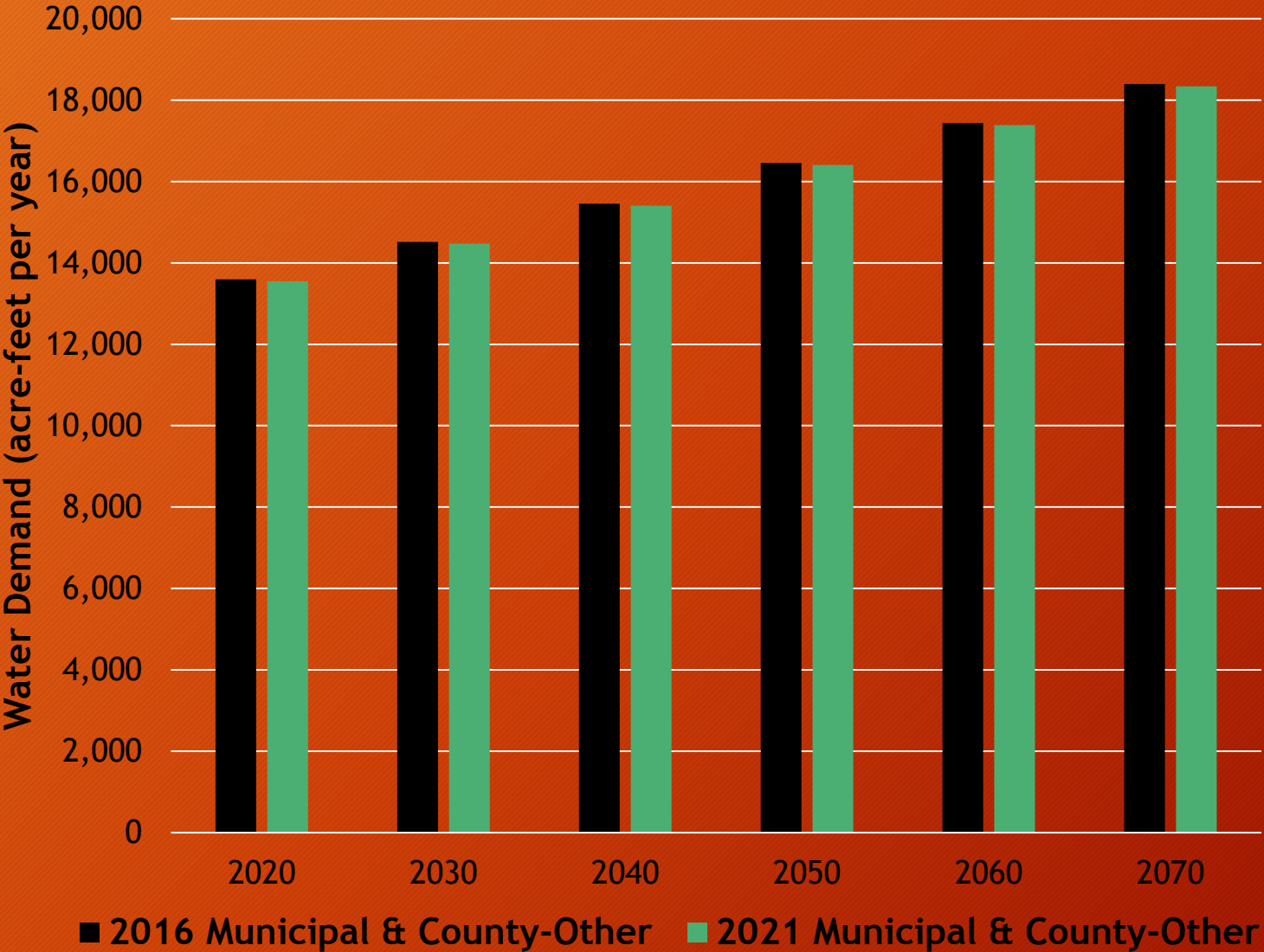
Kinney County Water Demand Comparison



Real County Water Demand Comparison



Val Verde County Water Demand Comparison

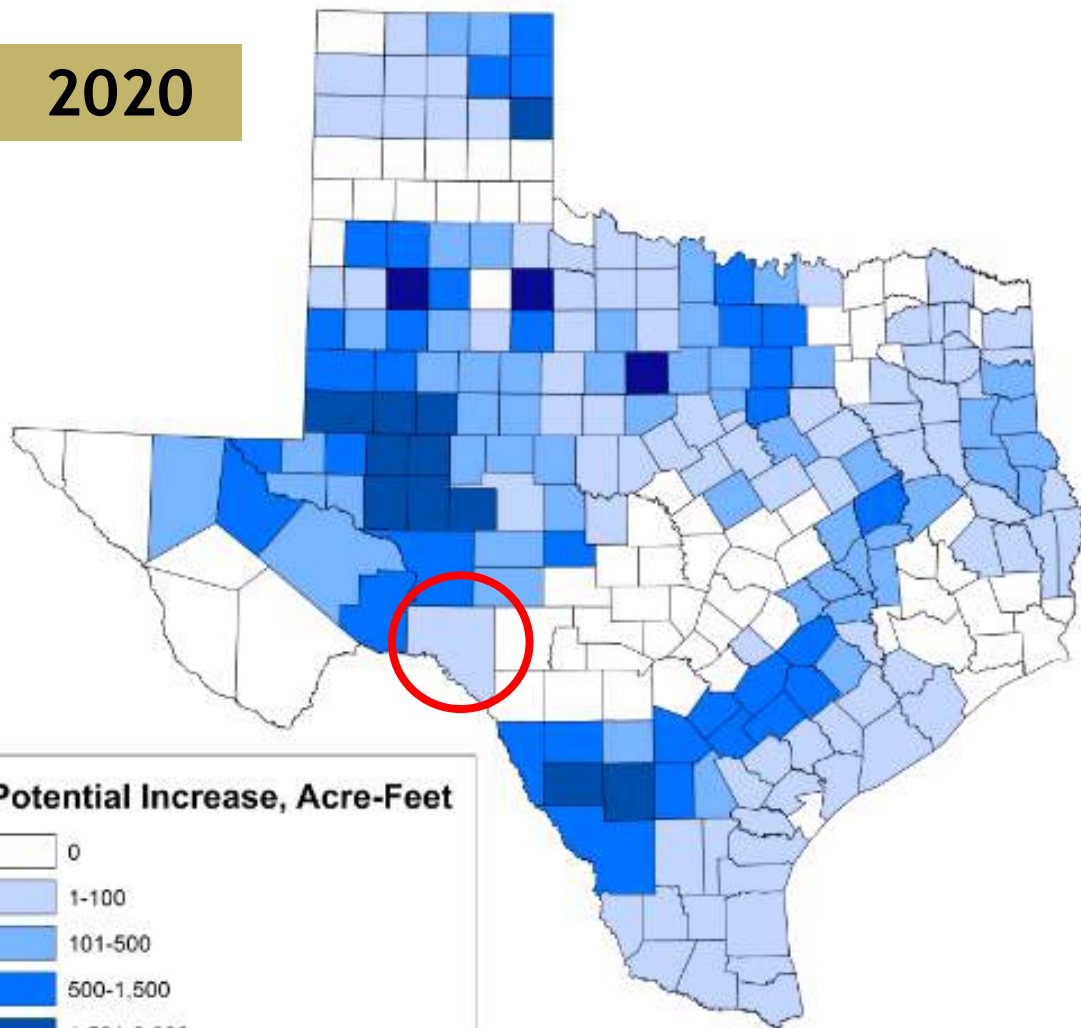


- ✦ **Discuss and consider approval of draft mining water demand projections.**
- ✦ **Discuss and consider County-Other Sub-WUG's.**

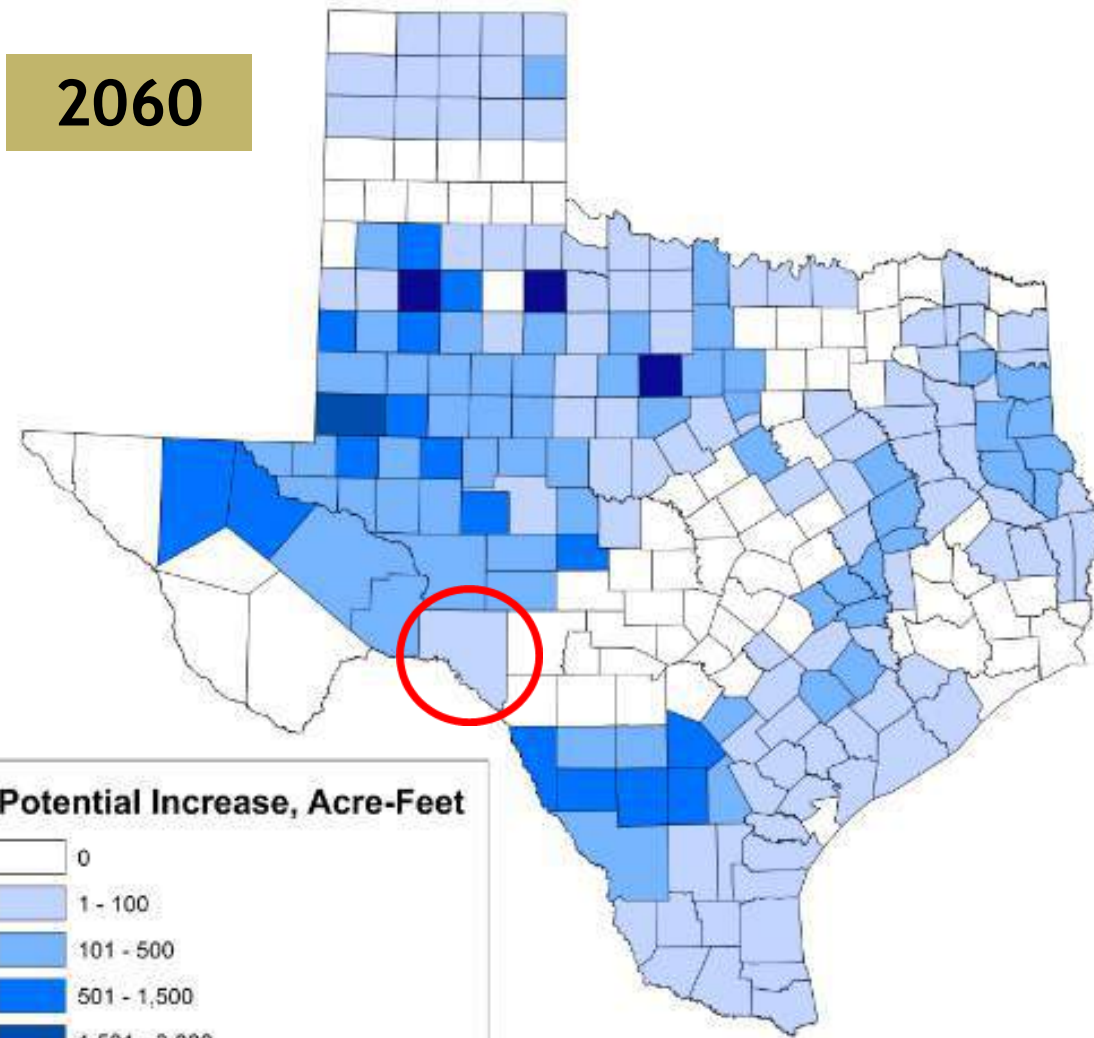
ADDITIONAL WUG ANALYSIS

Reuse & Brackish Groundwater Potential Increase in Mining Demands

2020



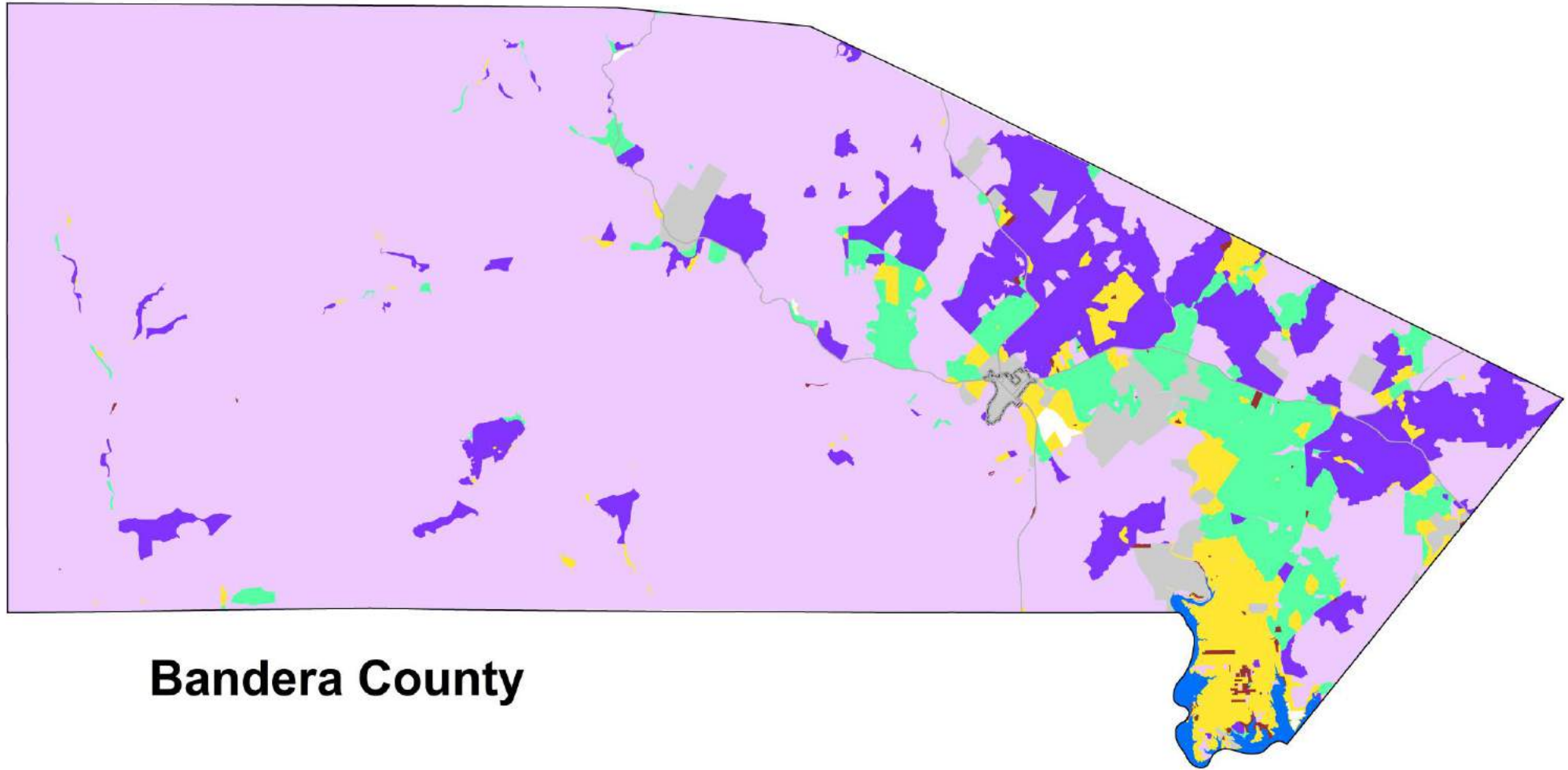
2060



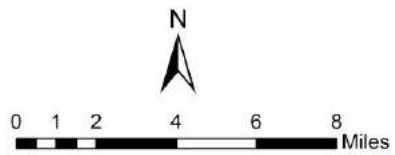
County-Other Sub-WUGs

- ✦ **Sub-WUG breakout provides a more refined analysis.**
- ✦ **Water demands will be assigned to those entities individually.**
- ✦ **This process is to better account for, and present water supplies and water needs within the ‘county-other’ category.**
- ✦ **Ideal process for Bandera and Kerr counties were the population and water demands are primarily concentrated to the eastern portion of the counties.**

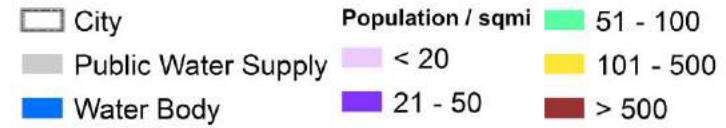
Will the identification of these ‘needs’ impact those entities in a positive way when it comes to the strategy prioritization process?

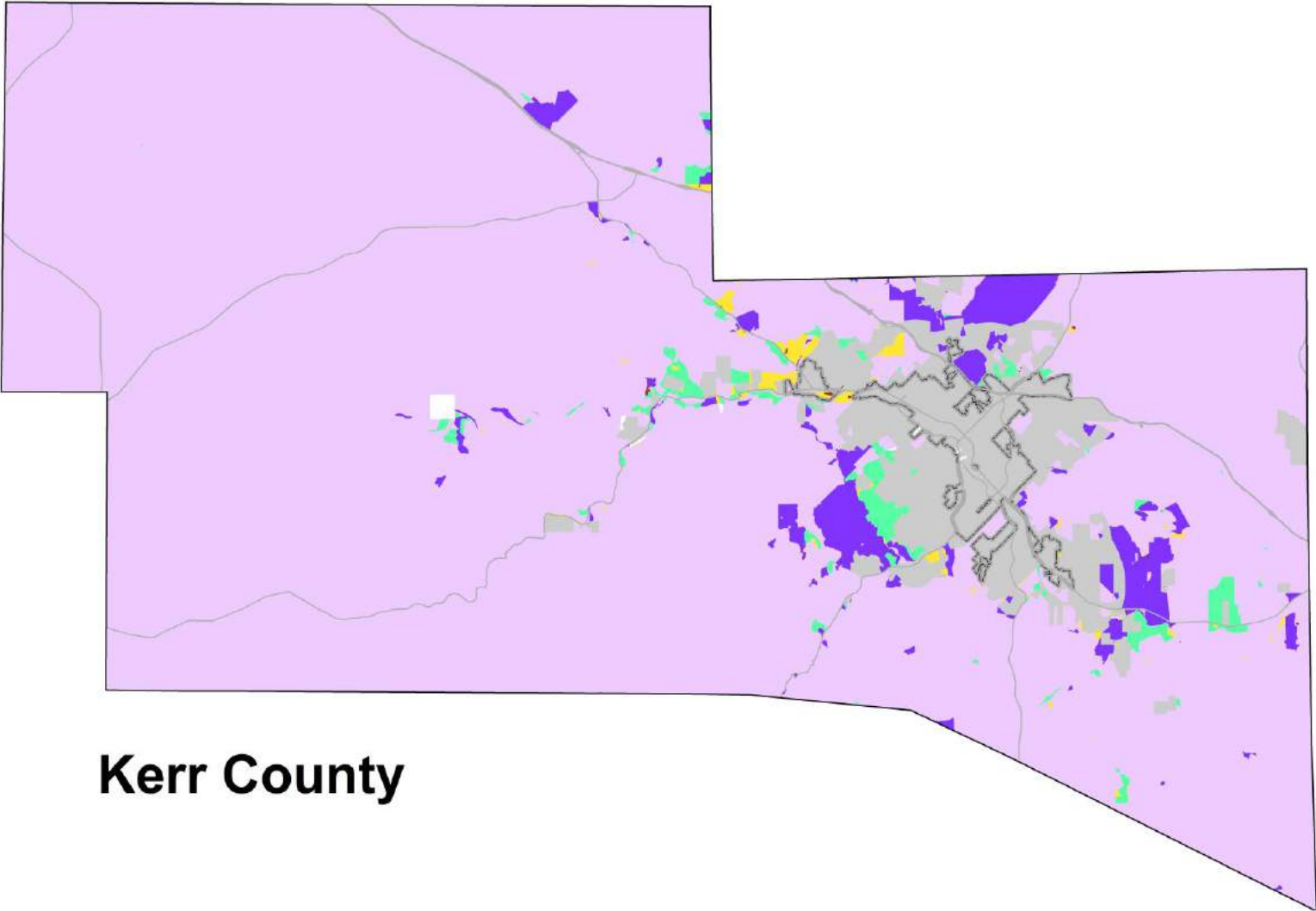


Bandera County

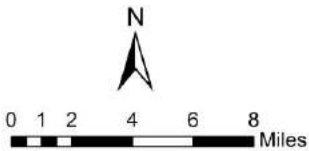


EXPLANATION





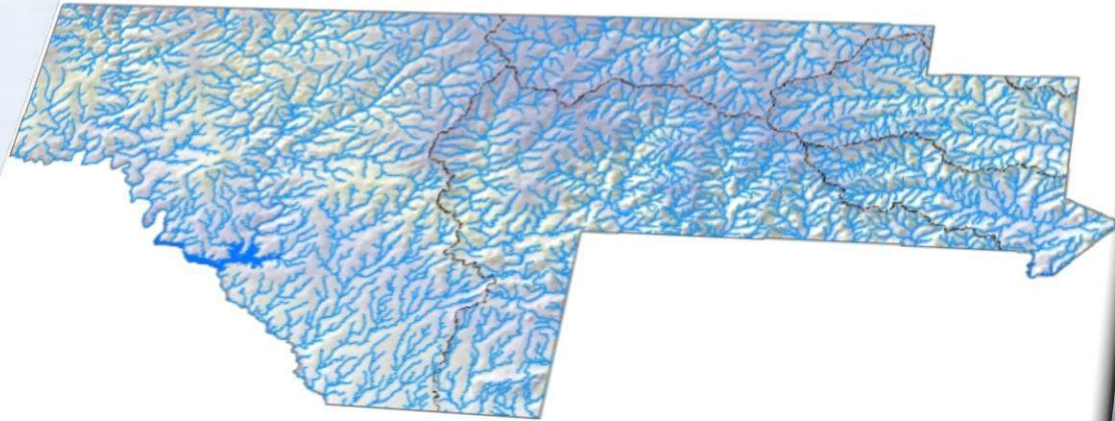
Kerr County



EXPLANATION

- | | | |
|---------------------|------------------------|------------|
| City | Population / sqmi < 50 | 101 - 250 |
| Public Water Supply | 51 - 100 | 251 - 1000 |
| Water Body | > 1000 | |

Regional Surface Water Planning and Modeling



Plateau Water Planning Group

Carollo – 90+ Texas Staff

WATER
OUR FOCUS
OUR BUSINESS
OUR PASSION



EL PASO



FORT WORTH



DALLAS



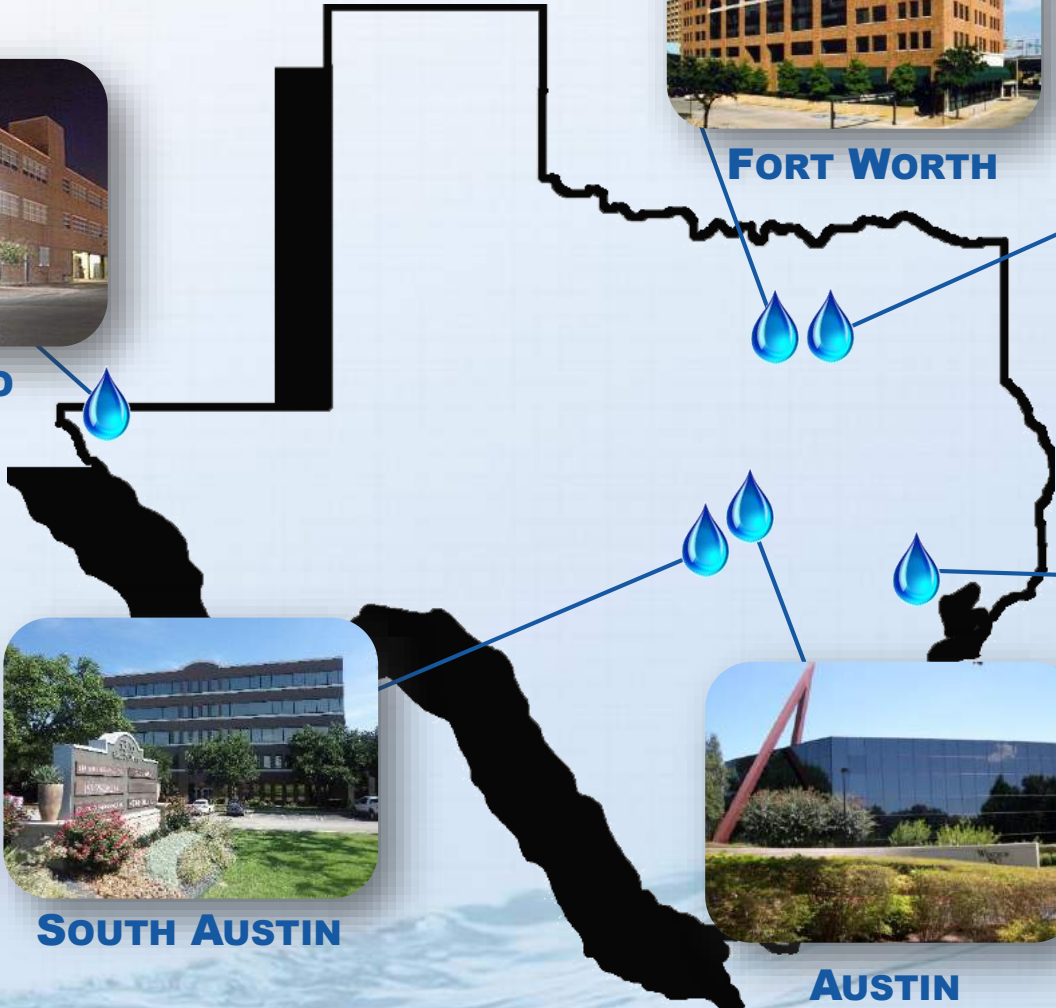
SOUTH AUSTIN



AUSTIN



HOUSTON



Carollo Water Resources Team

- Surface Water Permitting
- Surface Water Availability Modeling
 - WAM
- Regional Water Planning

WATER SUPPLY AND AVAILABILITY EXPERTISE	Surface Water Permitting /Reuse	Water Availability Modeling	Regional Planning
North East Texas Regional Water Planning Prime Consultant (2011 – present)	•	•	•
Llano-Estacado Regional Water Planning Surface Water Lead (2011 – present)	•	•	•
City of Kerrville Indirect Reuse Permit	•	•	
City of Kerrville Water Rights Investigation and Amendments	•	•	
City of Kerrville Aquifer Storage and Recovery Study and Design	•		•
TCEQ Water Availability Model (WAM) Development	•	•	
City of Houston Water Resources	•	•	•

Planning Rules from the Texas Administrative Code (TAC)

- Meet all requirements of 31 TAC §357.32.
- Updating or adding:
 - Source availability estimates;
 - Existing WUG/WWP water supplies
- Defined in 31 TAC §357.10:

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.

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.

TWDB Surface Water Supply Draft Guidance for PWPG

- Hydrologic assumptions
- Models
- Modeling procedures
- Most current TCEQ WAMs
- Obtain TWDB approval of hydrologic assumptions, models, and/or any variations from requirements
 - Operational requirements
 - Sedimentation
- Firm supply
 - Firm Yield
 - 100% monthly reliability

What is WAM?

Water Availability Model

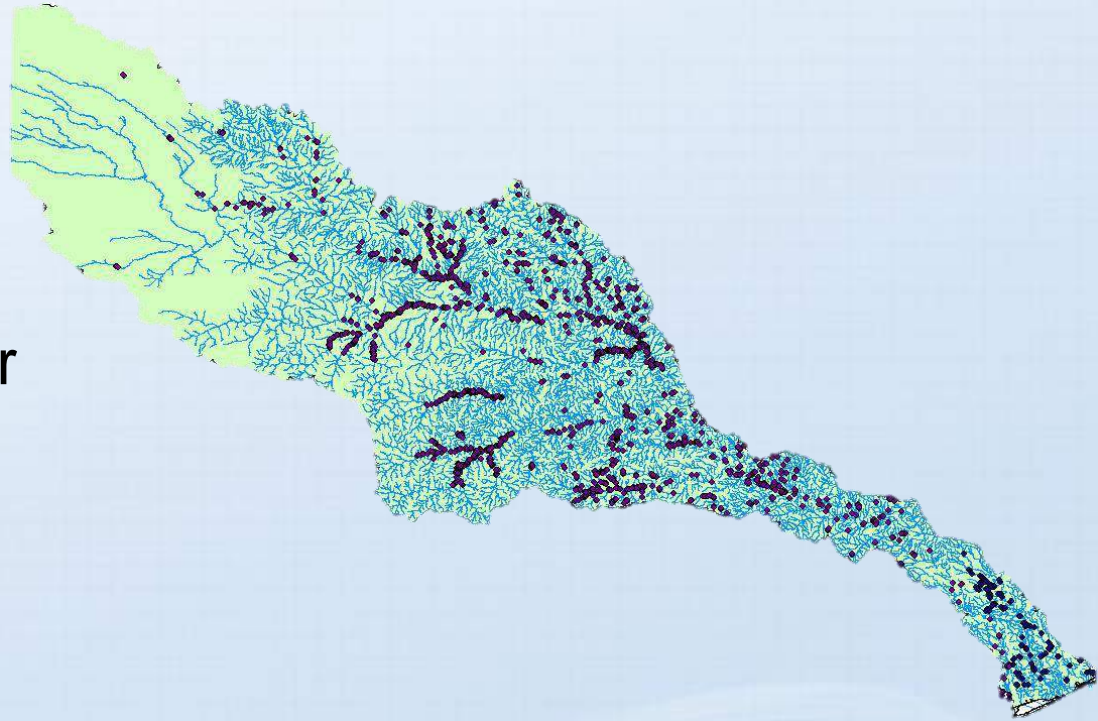
- The Water Rights Analysis Package (WRAP) software developed by Texas A&M
- WAMs created for each river basin
 - Utilize historical flow, naturalized using
 - Developed from USGS Gage Data, Historical Use and Historical Return Flows,
 - Historical Rainfall and Evaporation,
 - Permitted Diversion Volumes, Patterns, and Location
- Models the natural hydrology of the river basin to evaluate effects of permitted water diversion/use.

Use of Water Availability Models

- Implements prior appropriation system
 - (first in time, first in right)
- Conservatively determine water availability and reliability
 - Full permit conditions
 - Original reservoir capacities
 - No return flows (i.e. discharges)
- Critical period
- Environmental flows
- Four river basins

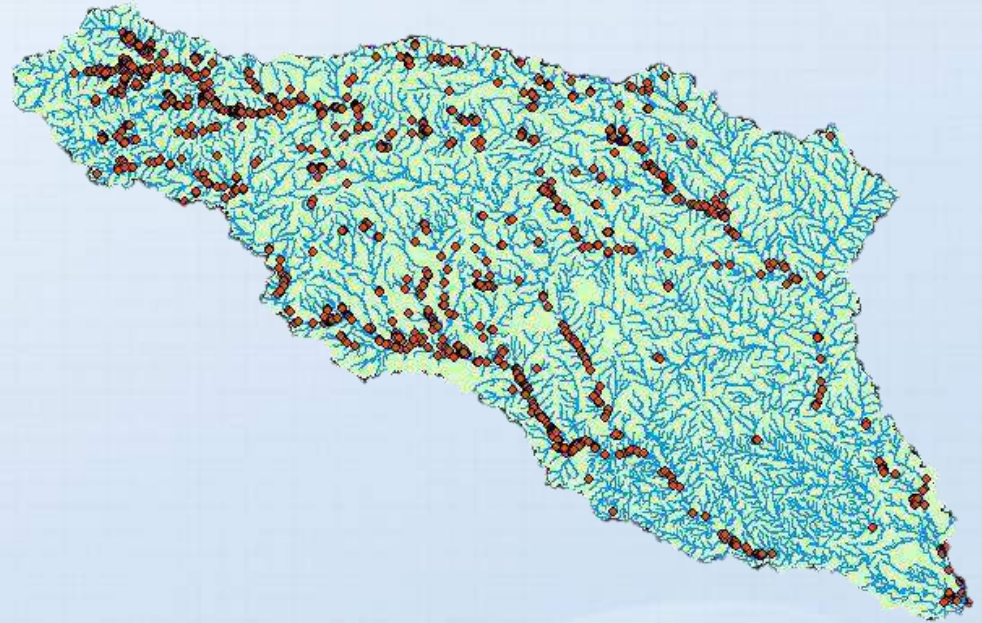
Colorado Brazos-Colorado WAM

- Approximately 1,289 Water Rights
- Approximately 3 Water Rights in Region J



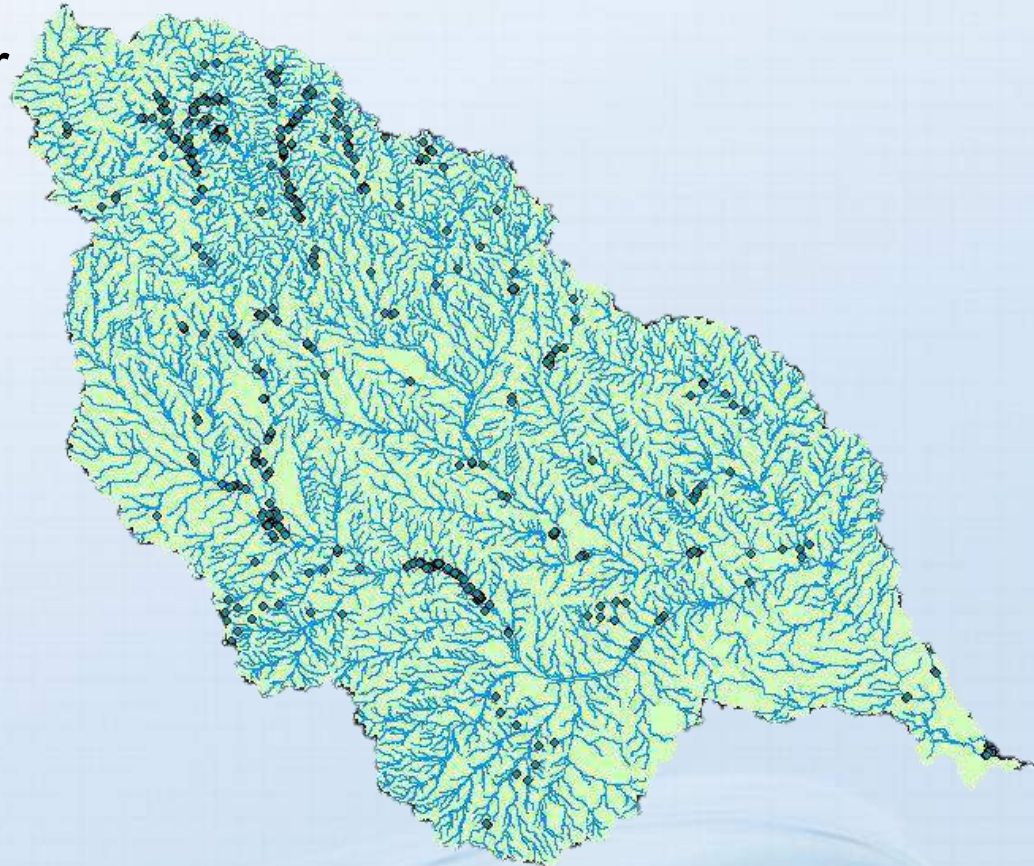
Guadalupe San Antonio WAM

- Approximately 625 Water Rights
- Approximately 176 Water Rights in Region J



Nueces WAM

- Approximately 252 Water Rights
- Approximately 86 Water Rights in Region J



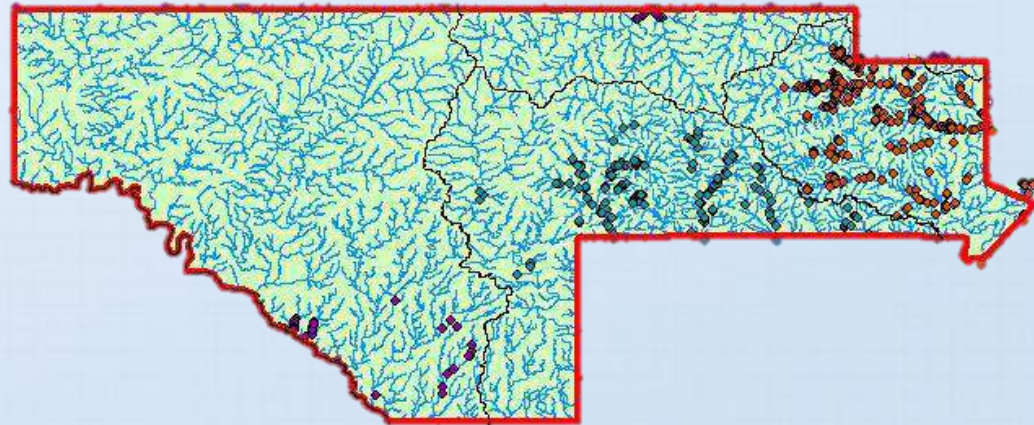
Rio Grande WAM

- Approximately 461 Water Rights
- Approximately 36 Water Rights in Region J



Plateau Regional Planning Area

- Colorado Brazos-Colorado WAM
 - Approximately 3 Water Rights
- Guadalupe San Antonio WAM
 - Approximately 176 Water Rights
- Nueces WAM
 - Approximately 86 Water Rights
- Rio Grande WAM
 - Approximately 36 Water Rights



Water Availability Models in Regional Planning

- Determine decadal firm yield of existing water rights to identify surface water supply
 - Account for reservoir sedimentation where appropriate
- Determine reliable supply for run-of-river permits
- Identify yield of potential surface water management strategies
- Inter-regional coordination

Questions?

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Tony L. Smith, P.E.

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TLSmith@Carollo.com

Minutes
Plateau Water Planning Group
Regular Meeting - Bandera, Texas
July 27, 2017
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Thursday, July 27, 2017, beginning at 10:00 A.M. at Bandera County River Authority and Groundwater District, 440 FM 3240, Bandera, Bandera County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joel Pigg, Real County; Gene Williams, Kerr County; Genell Hobbs, Kinney County; Rene Villarreal, Kinney County; Feather Wilson, Bandera County; Scott Loveland, Kerr County; Jody Grinstead; John Ashworth, LBG-Guyton & Associates.; Jennifer Herrera, LBG-Guyton & Associates; Lann Bookout, Texas Water Development Board; Chad Norris, Texas Parks and Wildlife; Chandra Eggemeyer, Texas Department of Agriculture; Joseph McDaniel, Aqua America; Carl Schwing; Charlie Wiedenfeld, Kerr County; David Mauk, Bandera County; Tomas Rodriguez, Region M; David Jeffery, Bandera County; Homer Stevens, Bandera County; Charlie Flatten, Hill Country Alliance; Kayla Shearhart, Bandera County River Authority and Groundwater District; Michael Redman, Bandera County River Authority and Groundwater District; and Ernie DeWinnie

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

II. Public Comments.

No public comments were given.

III. Approval of minutes from the February 23, 2017.

Motion by Charlie Wiedenfeld to approve the minutes of the February 23rd meeting; second by Rene Villarreal. The motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

Mr. Letz reviewed the bank statements. The balance as of May 31, 2017 is \$13,192.55

Mr. Letz reported that the water conservation modification project report that Kip Averitt spoke about at the February meeting had been received and sent to the members.

b. Report from Secretary.

No report was given

c. Report from Political Entity.

Mr. Buck stated that the amendment with the Water Development Board had been executed which increases the funding by approximately \$115,000

d. Report from Liaisons.

Carl Schwing gave an update regarding Region M.

e. Report from GMA representatives.

No reports were given

- V. **Consider, discuss and take appropriate action to approve invoices.**
Motion by Charlie Wiedenfeld to approve the following invoices: LBG-Guyton (1/1/17-1/31/17)-\$1,305.49; LBG-Guyton (2/1/17-2/28/17) - \$6,361.61; LBG-Guyton (3/1/17-3/31/17) - \$1,008.49; LBG-Guyton (4/1/17-4/30/17) - \$6,037.15; Transcripts - \$262.40 (Reimbursed to Kerr County)
Costs for Public Notice for RFA for 5th Cycle (to be reimbursed from TWDB account)
Kinney County Post - \$94.00; Uvalde Leader - \$118.40; Texas Mohair Weekly - \$55.10
- **Received reimbursement from TWDB account for all costs related to Public Notice for RFA for The 5th Cycle in the amount of 565.66 (check dated March 29, 2017)
Second by Feather Wilson. The motion passed by a unanimous vote.
- VI. **Texas Water Development Board Updates. (Lann Bookout for William Alfaro, Project Manager)**
Mr. Bookout briefly updated the Group on the Chair's Conference Call that was held. He then discussed various House Bills and Senate Bills that will affect the Planning Group. A brief discussion ensued regarding the Open Meetings Act. He stated that one of the Bills added a non-voting member to the regional planning groups from the State Soil and Water Conservation Board. It is assumed that the state level board will appoint someone to attend the regional meetings in the future.
- VII. **Planning 101 presentation. (Lann Bookout)**
Mr. Bookout gave his presentation.
- VIII. **Presentation on recent revisions to the TWDB's regional water planning administrative rules regarding the use of a Modeled Available Groundwater (MAG) Peak. (Lann Bookout)**
Mr. Bookout gave his presentation.
- IX. **Consider, discuss and take appropriate action to discuss PWPG Bylaws, member representation, planning overview, and general meeting structure.**
The Group briefly discussed the Bylaws, meeting attendance requirements and other related matters. Mr. Letz stated that he would send a letter to those members who have not attended meeting on a regular basis to determine if they were still interested in being a member.
- X. **Consider, discuss and take appropriate action to change PWPG Bylaws as needed.**
Motion by Ray Buck to re-adopt the current Bylaws; second by Feather Wilson. The motion passed by a unanimous vote.
- XI. **Consider, discuss and take appropriate action to re-appoint Jerry Simpton as Vice-Chair or appoint a new Officer to that position.**
Motion by Genell Hobbs to appoint Joel Pigg as the PWPG Vice-Chair; second from David Jeffery. The motion passed by a unanimous vote. Mr. Letz stated that he thought Mr. Simpton would be at the meeting today and that Mr. Simpton had always been very willing to be the Vice-Chair, but he did not think Mr. Simpton would have a problem with Mr. Pigg taking his place.

XII. Consider, discuss and take appropriate action to select municipal WUGs and sub-WUGs, for submittal to TWDB by September 1, 2017.

Ms. Herrera discussed the various handouts with the Group. She stated the deadline to finalize the WUGs and sub-WUGs selection is September 1st. A discussion ensued regarding the various WUG's and sub-WUG's throughout the Region. **Motion by Joseph McDaniel to authorize the consultants to have five WUGs; the plan being three in Kerr County, one in Bandera County, and one in Edwards County - and that the boundaries of those areas be worked out by representatives of those areas prior to September 1st; second by Charlie Wiedenfeld. The motion passed by a unanimous vote.**

XIII. Consider, discuss and take appropriate action to approve the mining water demand projections.

Mr. Ashworth stated that the Water Development Board had already given municipal water demand and mining demand as one grouping; which is why the Group will take action on the non-municipal mining water demand at this time. The numbers that the Board is projecting are the same numbers that the Group voted in for the 2016 plan. Mr. Ashworth briefly discussed the numbers. **Motion by Genell Hobbs to approve the mining demand for Edwards, Kerr, Val Verde County as designated; second by Charlie Wiedenfeld. The motion passed by a unanimous vote.**

XIV. Consider and discuss draft non-municipal water demand projections.

Ms. Herrera stated that the Water Development Board recently released the draft projections much like municipal mining - but this now covers the non-municipal category. She reviewed her handouts (Differences within Irrigation Water Demand Projections and Differences within Livestock Water Demand Projections) with the group. The Group briefly discussed the data on the handouts. Ms. Herrera stated that the trend is that there is less non-municipal water demand being represented in the 2021 plan versus the 2016 plan. She stated that January 12th is the deadline for all draft numbers to be approved by the planning group that's municipal and non-municipal draft numbers.

XV. Discuss remaining planning activities.

The discussion was done as part of item XIV.

XVI. Set next meeting.

The next meeting will be in October or November, 2017.

LBG-Guyton Technical Consultant Presentation

Plateau RWPG Meeting

Overview of Previous Meeting

- **February 23rd Meeting**
- **Reviewed draft population, municipal and mining water demand projections.**

Current Meeting Activity

- **Select municipal WUGs and sub-WUGs for submittal by Sept. 1st**
- **Approve mining water demand projections.**
- **Discuss draft non-municipal demand projections.**

**Recommended
Utility-Based
WUG's**

**Utility-Based Water User Groups
Plateau Region 2021 Water Plan
(Projected Water Demands Acre-Feet per Year)**

County	WUG Name	2020	2030	2040	2050	2060	2070
Bandera	Bandera	342	383	404	413	419	423
	Bandera County FWSD #1	141	158	167	171	174	175
Edwards	Rocksprings	296	290	285	284	284	284
Kerr	Kerrville	4,622	4,692	4,709	4,763	4,825	4,878
	Kerrville South Water	341	346	347	352	358	363
Kinney	Brackettville	608	602	594	593	592	592
	Fort Clark Springs MUD	618	616	612	610	609	609
Real	Camp Wood	143	139	136	135	135	135
	Leahey	193	186	180	178	177	177
Val Verde	Del Rio Utilities Commission	10,558	11,053	11,554	12,130	12,733	13,326
	Laughlin Air Force Base	1,018	1,114	1,215	1,277	1,276	1,276
	*Val Verde County WCID Comstock						

***Data to be provided by TWDB**

**‘County Other’
sub – WUG’s**

Mining Water Demand Projections

Mining Water Demand Projections

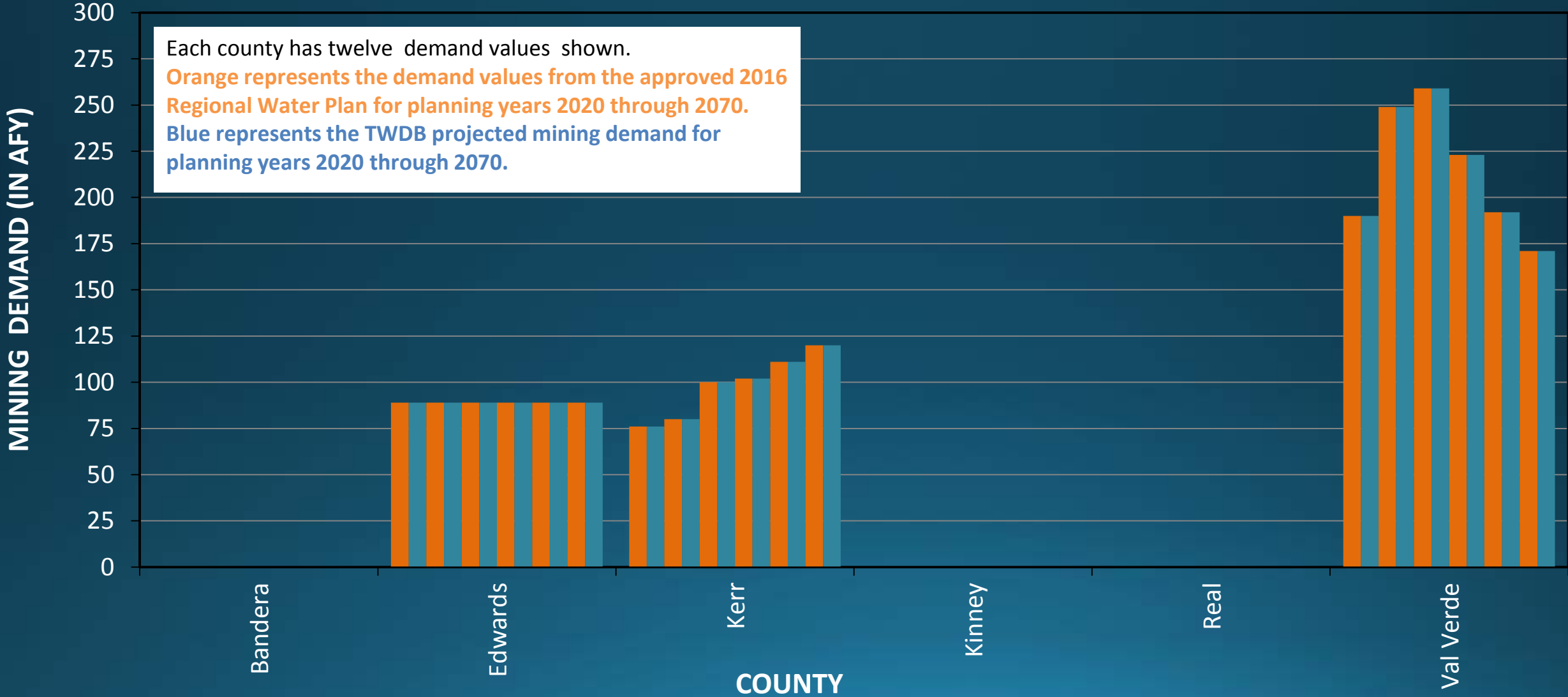
Plateau Region 2021 Water Plan

	2020	2030	2040	2050	2060	2070
Edwards	89	89	89	89	89	89
Kerr	76	80	100	102	111	120
Val Verde	190	249	259	223	192	171

Note: Same volumes as the 2016 Plan

Mining Water Demand Projections

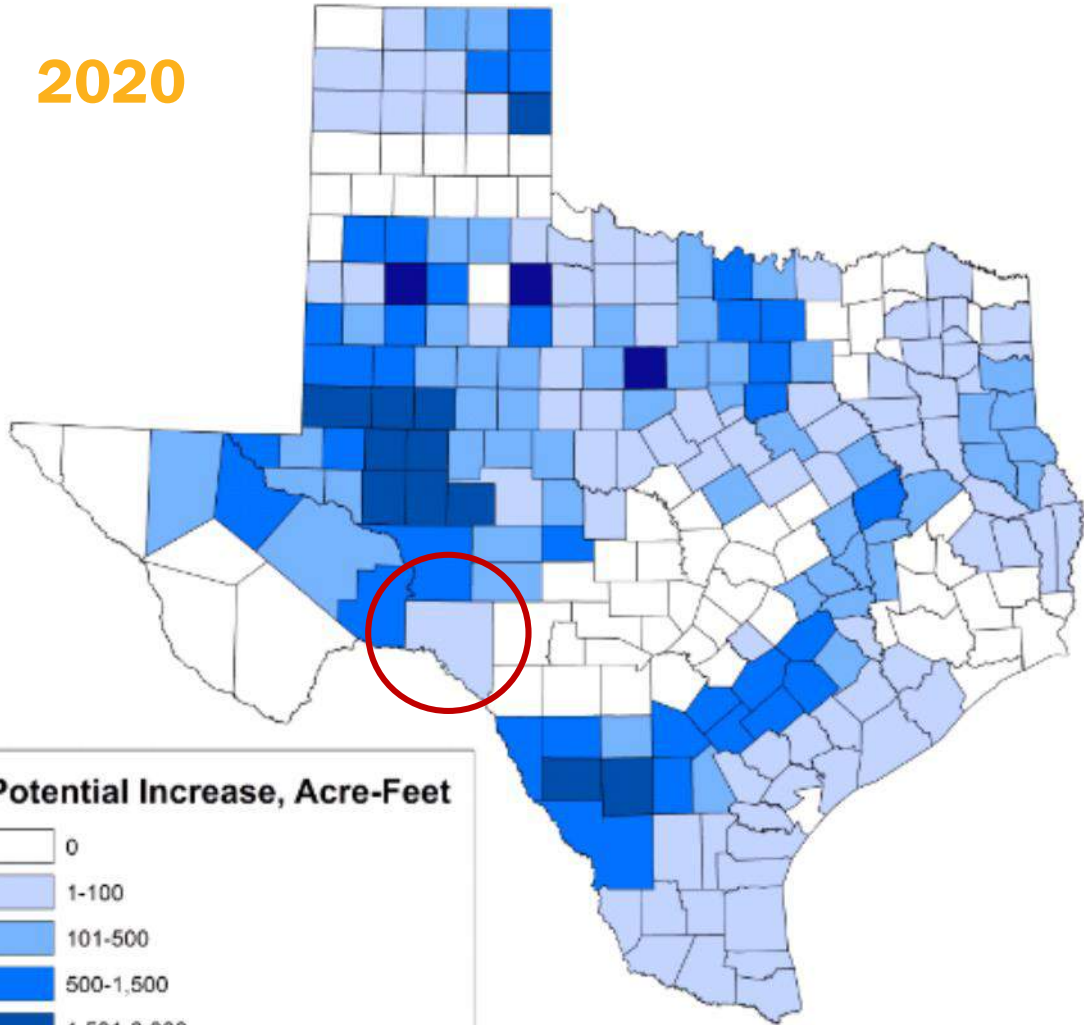
Each county has twelve demand values shown.
Orange represents the demand values from the approved 2016 Regional Water Plan for planning years 2020 through 2070.
Blue represents the TWDB projected mining demand for planning years 2020 through 2070.



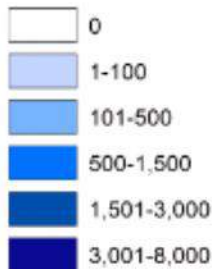
Reuse & Brackish Groundwater Potential Increase in Mining Demands

Impacts Only Val Verde County (1 – 100 acft/yr.)

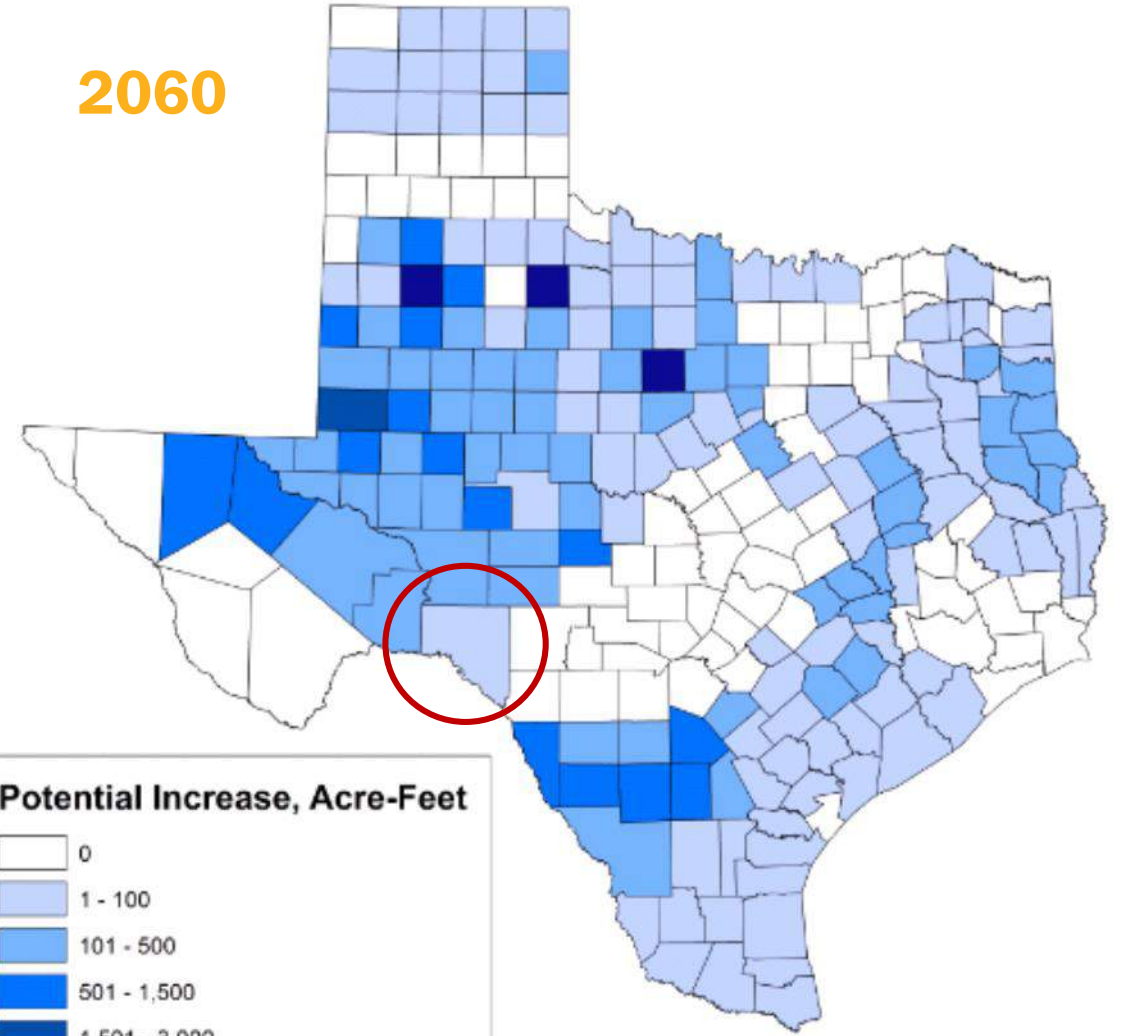
2020



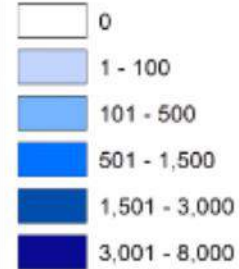
Potential Increase, Acre-Feet



2060



Potential Increase, Acre-Feet

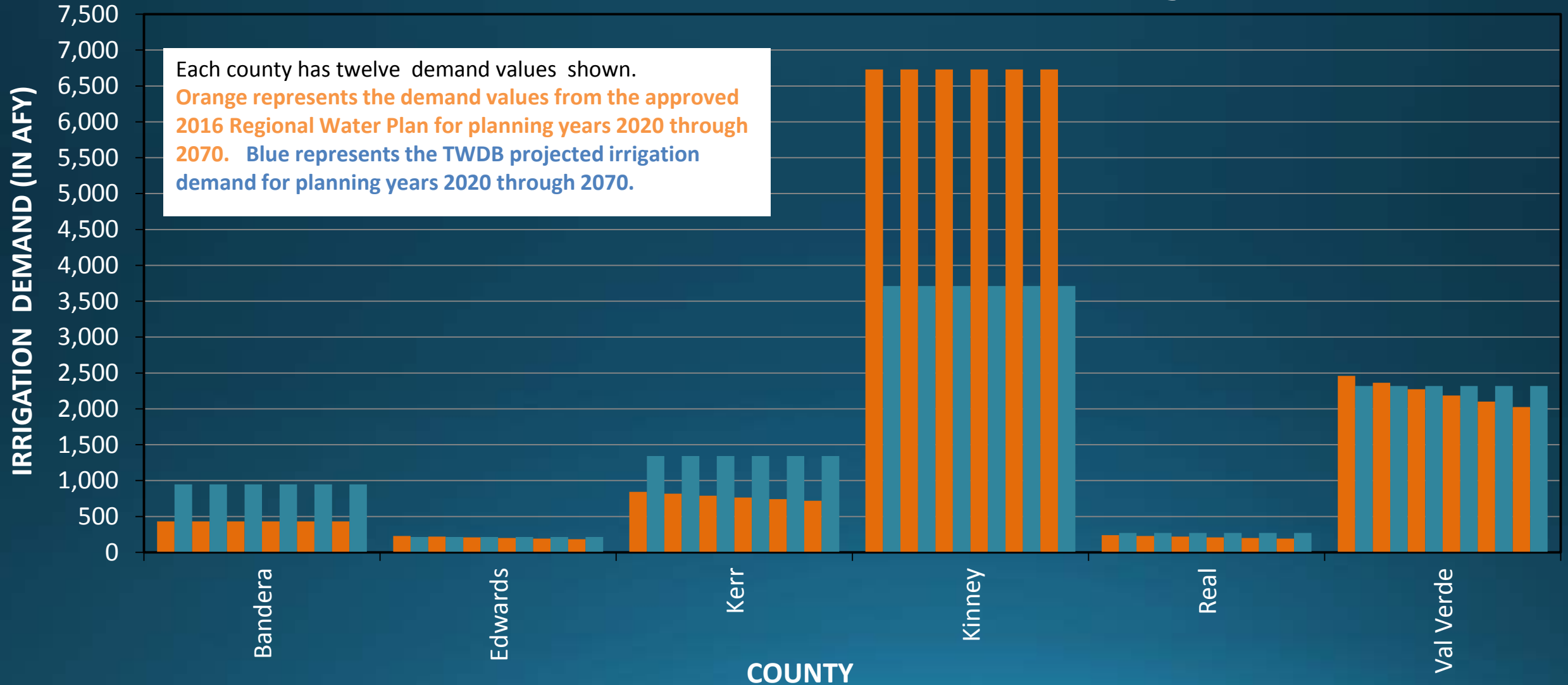


Draft
Non-Municipal
Water Demand
Projections

Irrigation Water Demand Projection Methodology

- **Baseline methodology is the average of the most recent five-years of water use estimates held constant between 2020 and 2070.**
- **Counties = total groundwater availability over the planning period < the groundwater portion of the baseline,**
 - ❖ **draft irrigation projections will begin to decline in 2030 or later, to be compatible with groundwater availability volumes.**

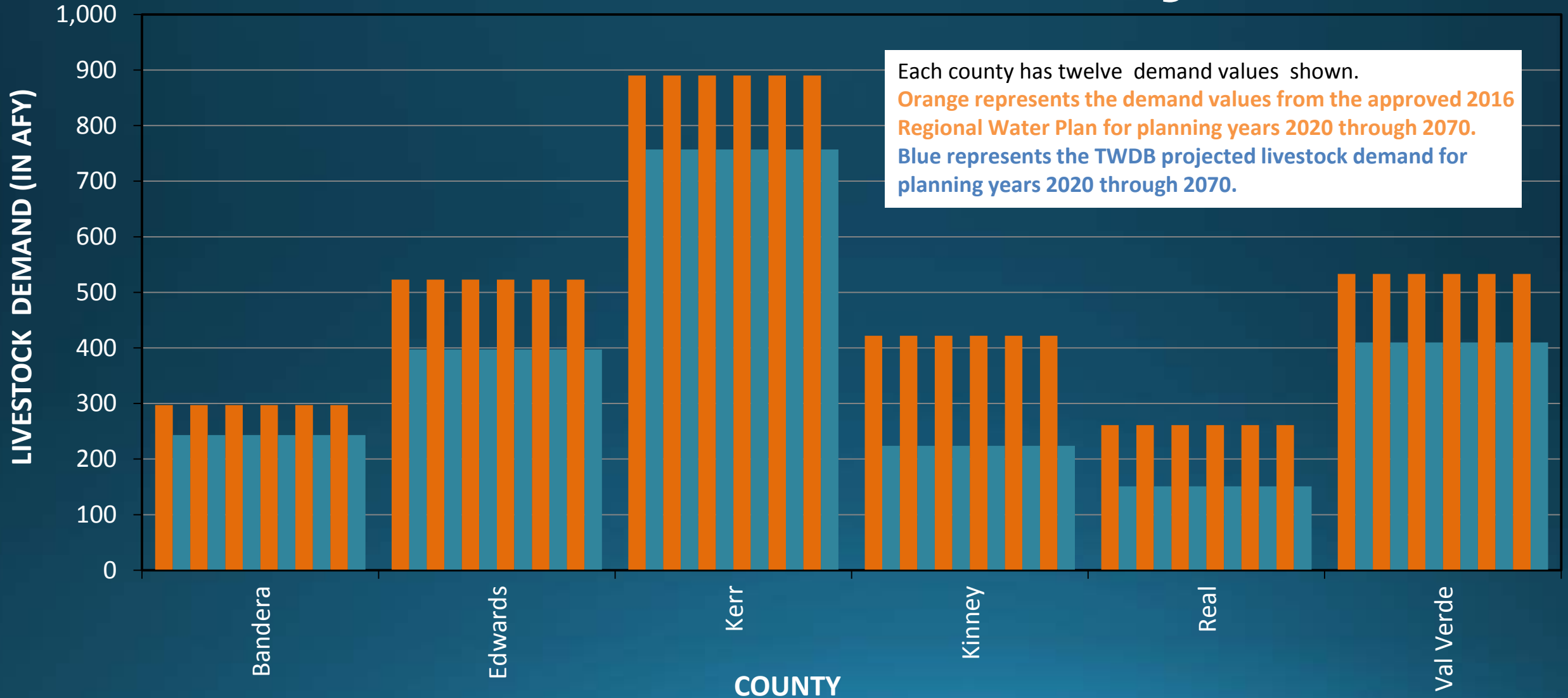
Irrigation Water Demand Projections



Livestock Water Demand Projection Methodology

- **Water use estimates based on the following combination of data:**
 - ❖ **Water-use survey data**
 - ❖ **TWDB estimates based on**
 - **Livestock inventory data from the National Agricultural Statistical Service (NASS)**
 - **Texas Department of Agriculture**
 - **Per head water use consumption by animal class**
 - ❖ **All counties are projected to have a decrease in use**

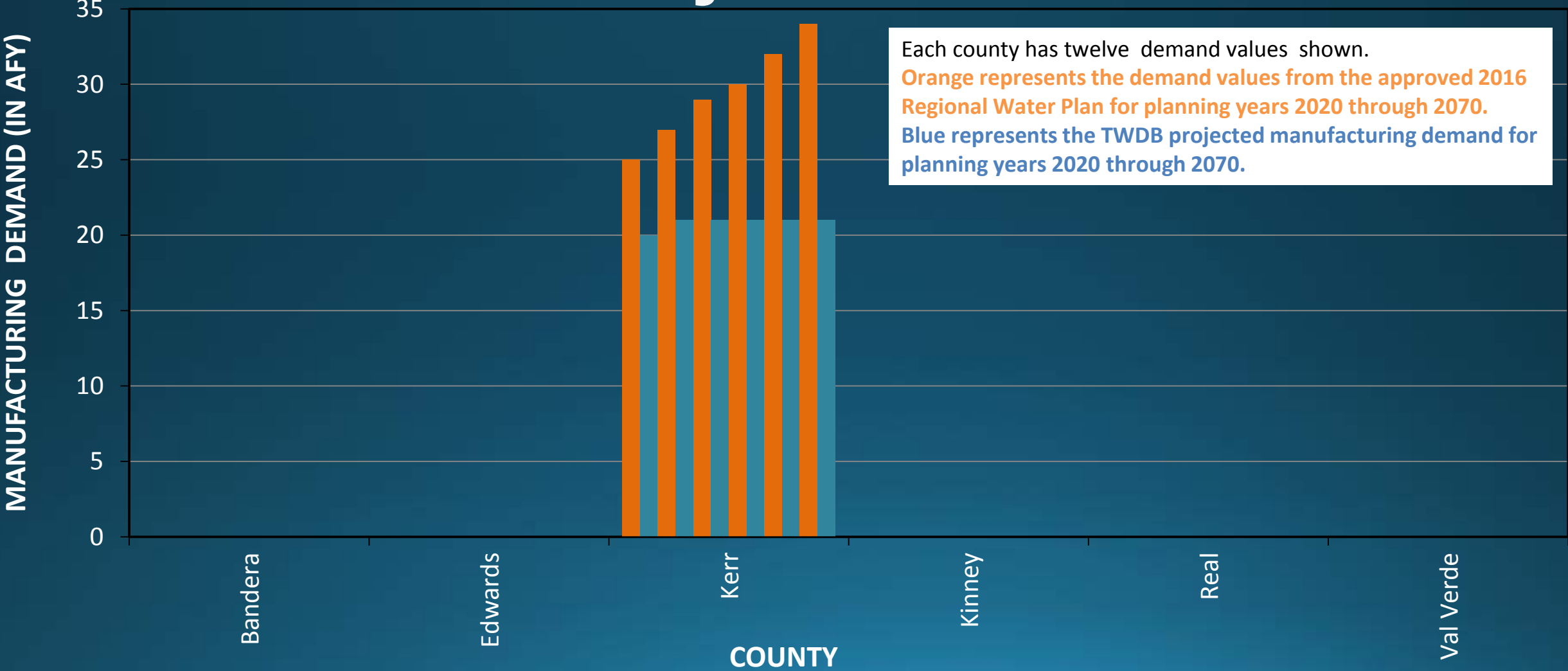
Livestock Water Demand Projections



Manufacturing Water Demand Projection Methodology

- 2020 water demand projection will be based on the highest county aggregated manufacturing water use in the most recent five-years of data from the annual water use survey.
- 2020 to 2030 = most recent 10-year projections from employment growth from TWC.
- 2040 through 2070 = use held constant.

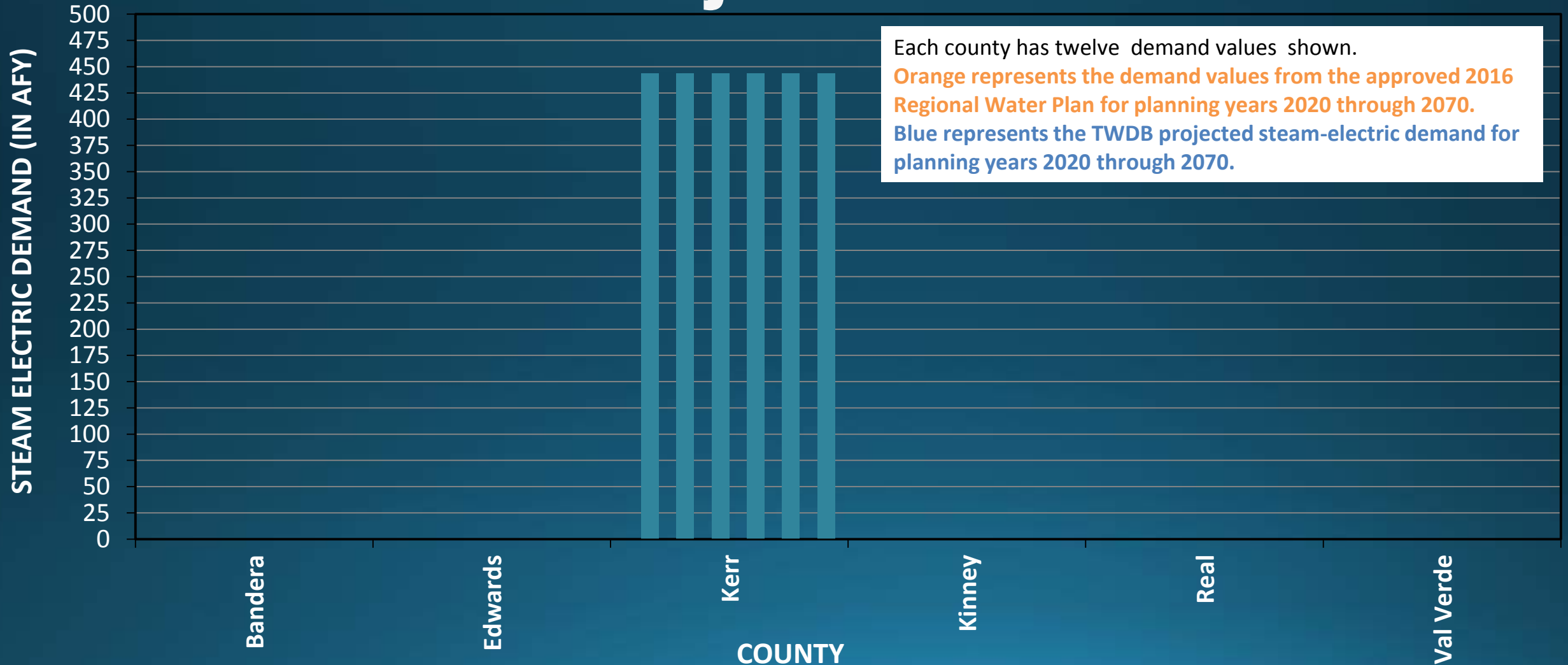
Manufacturing Water Demand Projections



Steam-Electric Power Water Demand Projection Methodology

- 2020 water demand projection will be based on the highest county aggregated SEP water use in the most recent five-years of data from the annual water use survey.
- Future facilities listed in the state & federal reports will be added to the demand projections from operation date to 2070.
- Facilities scheduled to retire will be subtracted.

Steam-Electric Water Demand Projections



Regional Water Demand Projections



Moving Forward...

1

Disbursement of
TWDB First
Amended
Contracts

2

Municipal & Non-
municipal water
demand review &
revisions

3

Draft demand
revision requests
due to TWDB Jan.
12, 2018

Next Meeting...

- **October or November**

Minutes
Plateau Water Planning Group
Regular Meeting - Leakey, Texas
November 9, 2017
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Thursday, November 9, 2017, beginning at 10:00 A.M. at The Frio Canyon Baptist Church, 919 US-83, Leakey, Real County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joel Pigg, Real County; Gene Williams, Kerr County; Rene Villarreal, Kinney County; Feather Wilson, Bandera County; Scott Loveland, Kerr County; Jody Grinstead; John Ashworth, WSP and LBG-Guyton & Associates.; Jennifer Herrera, WSP and LBG-Guyton & Associates; Lann Bookout, Texas Water Development Board; William Alfaro, Texas Water Development Board Chad Norris, Texas Parks and Wildlife; Joseph McDaniel, Aqua America; Carl Schwing; Charlie Wiedenfeld, Kerr County; David Jeffery, Bandera County; Homer Stevens, Bandera County; Michael Redman (for David Mauk), Bandera County River Authority and Groundwater District; Roland "Tooter" Trees, Zack Davis (for Wes Robinson), Tully Shahan, Kinney County; Lee Sweeten, Real-Edwards County, Jerry Simpton, Val Verde County; Sky Lewey, E.A. Hoppe, City of Kerrville; Tom Moser, Kerr County and Chris Childs

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

II. Public Comments.
No public comments were made.

III. Approval of minutes from the July 27, 2017.
Motion by Ray Buck to approve the minutes of July 27, 2017; second by Joel Pigg. The motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

Bank Statements - June, July, August & September. Balance of \$12,870

b. Report from Secretary.

No report was given.

c. Report from Political Entity.

No report was given.

d. Report from Liaisons.

e. Report from GMA representatives.

Mr. Schwing gave an update on Region M

Mr. Wilson gave an update on Region K

Mr. Pigg gave an update on GMA7

Lann Bookout spoke briefly regarding SB1511

Chad Norris informed the Group that Representative Nevarez has directed the Water Development Board along with Parks and Wildlife and TCEQ to prepare a report regarding the possibilities for water management. The report is scheduled to be released the of 2018

- V. **Consider, discuss and take appropriate action to approve invoices.**
Motion by Joel Pigg to pay the following invoices: \$3,998.60 – LBG-Guyton (6/1/17-6/30/17), \$14,159.27 – LBG-Guyton (7/1/17-7/31/17), \$4,640/25 – LBG-Guyton (8/1/17-8/31/17), \$2,850.50 - LBG-Guyton (9/1/17 – 9/30/17), \$273.55 – Transcripts for 7/27/17 Meeting (reimbursed to Kerr County) and \$49.00 – Postage; **second by David Jeffery. The motion passed by a unanimous vote.**
- VI. **Discussion regarding required open meetings act training (SB 347).**
It was determined that certificates were still needed from: Otila Gonzales, Tommy Qualia, Tully Shahan & Homer Stevens. Ms. Gonzales was not present at the meeting, but previously stated she would mail the certificate to Jody. Mr. Letz stated that he did not think Mr. Qualia still had an interest in being a member. Mr. Shahn stated that he would turn his in soon. Mr. Stevens presented his certificate at the meeting.
- VII. **Consider, discuss and take appropriate action to re-announce vacancy for Water Utilities (Kerr County) previously held by Jerry Heffley.**
Mr. Letz stated that the vacancy for Mr. Heffley would be posted again.
- VIII. **Consider, discuss and take appropriate action to announce vacancy for Municipalities (Val Verde County) currently held by Mitch Lomas.**
Mr. Letz stated that Mr. Lomas no longer worked for the City of Del Rio, so he announced the vacancy for that position. Mr. Letz stated that he spoke to Jerry Simpton and Mr. Simpton is going visit with the City of Del Rio about who they'd like to represent them. He said that he would also send the City a letter announcing that there's a vacancy, and ask them to appoint somebody.
- IX. **Consider, discuss and take appropriate action to discuss attendance records and policy regarding meeting attendance.**
Mr. Letz stated that Jody (Administrative Assistant) reviewed the meeting attendance records and noted that a small number of members had missed numerous meetings. Of those members, the only one that is believed not to have an interest in continuing is Tommy Qualia. Mr. Letz said an agenda item would be placed on the next agenda to announce that vacancy.
- X. **Consider, discuss and take appropriate action to have Joseph McDaniel replace Charlie Wiedenfeld as the Liaison for Region L.**
Motion by Charlie Wiedenfeld to appoint Joseph McDaniel as the Liaison for Region L; second by Joel Pigg. The motion passed by a unanimous vote.
- XI. **Consider, discuss and take appropriate action to appoint Jody Grinstead as the Public Information Coordinator for the Plateau Water Planning Group.**
Motion by Joel Pigg to appoint Jody Grinstead as the Public Information Coordinator for the Plateau Water Planning Group; second by Rene Villarreal. The motion passed by a unanimous vote.
- XII. **Texas Water Development Board Updates. (William Alfaro, Project Manager)**
Mr. Alfaro introduced himself to the Group (he will be the new Project Manager for the region) and gave a little background on himself. He stated that the deadline for project revisions is January 12th. He encouraged the planning groups and consultants to submit their information early in order to allow time for feedback regarding the revisions. He also stated that the Water

Development Board is seeking input for the proposal of the new rules and a draft of the new rules should be available in December.

XIII. LBG-Guyton Update on TWDB Work Session – Potential Changes to the Regional and State Water Planning.

Ms. Herrera gave a brief presentation regarding Senate Bill 347 (Public Opening Meetings Act), House Bill 2215 (RE: Joint Planning between GMA's and Water Planning with regards to DFC's – and simplified planning) and Senate Bill 1511 (feasible strategies)

XIV. LBG-Guyton Update on Regional Water Planning Schedule.

Ms. Jennifer Herrera informed the Group that LBG-Guyton had been acquired by a new company named WSP. She gave a brief history on WSP and said that the change will not have any impact on the work that she and John do for the Group. She said the WSP is very interested in water planning activities.

Ms. Herrera briefly reviewed what action the Group had taken at the last meeting. She then discussed the upcoming January 12th submittal date that Mr. Alfaro referred to earlier and gave a brief summary of what needed to be accomplished at today's meeting.

XV. Consider, discuss and take appropriate action to approve the population projections.

Ms. Herrera discussed her handout entitled "Table 1. 2021 *Draft* Water User Group (WUG) Population". The Group briefly discussed the numbers listed for the City of Kerrville, population projects done by the TWDB. Mr. Sweeten discussed transient populations and how they are not accounted for in the population estimates as well as absentee land owners. The Group went on to discuss the projections for Bandera County and Kinney County. **Motion by Gene Williams to approve population projections with the exception of the City of Kerrville and authorize the City of Kerrville, the consultants and the Chair to modify that number as appropriate; second by Joseph McDaniel. The motion passed by a unanimous vote.** It was agreed that another meeting will be called if any of the changes will cause a detriment to some other entity.

XVI. Consider, discuss and take appropriate action to approve the municipal and county-other water demand projections.

Ms. Herrera discussed her handout entitled "Table 2. 2021 *Draft* Municipal and County-Other Water Demands (Acre-Feet per Year)". She stated this was the same information that was presented two meetings ago. The Group briefly discussed the Edwards County, Real County, Kerr County, Bandera County, City of Kerrville, Kinney County and Val Verde County numbers. Mr. Ashworth stated that the numbers came directly from the Water Development Board. **Motion by Lee Sweeten to appoint Joel Pigg, Scott Loveland, Gene Williams, Ray Buck and Jonathan Letz to a committee to look at the numbers for Kerr, Edwards, and Real Counties, along with the consultants, and allow that committee the flexibility to determine the final demand numbers; second by Jerry Simpton. The motion passed by a unanimous vote.**

XVII. Consider, discuss and take appropriate action to approve the non-municipal demand projections.

Ms. Herrera briefly discussed the following handouts:

Table 3. Plateau Region County-Other Water Supply Entities (Acre-Feet per Year). Ms. Herrera stated that this information was discussed at the last meeting. The current handout lists all the Sub-WUG's that were turned in by the September 1st deadline.

Table 4. Differences within Irrigation Water Demand Projections (2016 & 2021 Plans)(Acre-Feet per Year); Ms. Herrera stated that she has been working with Ms. Hobbs (Kinney County) to work on resetting Kinney County's irrigation numbers back to the true metered numbers.

5. Differences within Livestock Water Demand Projections (2016 & 2021 Plans)(Acre-Feet per Year). Ms. Herrera stated that these numbers were also submitted at a previous meeting and upon review at that time, there wasn't anything there that would require a revision. A brief discussion ensued regarding wildlife and exotics. Ms. Herrera stated that they will continue to stress to the Water Development Board that this is definitely happening in this region because to that degree, the draft numbers don't incorporate all of that breakout. The methodology behind livestock doesn't include all of that study in 2010. Mr. Sweeten said that the Real Edwards Water Conservation District did a study in 2009-2010 that did a full projection of those numbers and turned it into the planning group and it was addressed in the narrative of the Plan at that time. Mr. Letz stated the big concern was whether or not exotics are included in the livestock numbers. Ms. Herrera said she had that methodology and would email it to Mr. Letz.

Table 6. Differences within Manufacturing Water Demand Projections (2016 & 2021 Plans)(Acre-Feet per Year). Mr. Ashworth said the table only shows manufacturers that are producing their own water, not those that are buying from the cities.

Motion by Zach Davis to approve the irrigation demand projections with the exception of Kinney County that is being worked on by the Kinney Groundwater Conservation District and the manufacturing demand projections as presented: second by Ray Buck. The motion passed by a unanimous vote.

Motion by Lee Sweeten to authorized the previously appointed committee to make modifications to the livestock demand projections as they deem appropriate; second by Tully Shahan. The motion passed by a unanimous vote.

XVIII. Consider, discuss and take appropriate action on designation of Major Water Providers (MWPs).

Ms. Herrera briefly discussed the definition of a Wholesale Water Provider in the 2016 Plan and stated that in the 2021 Plan, the Water Development Board has offered planning groups flexibility by identifying a Major Water Provider. She said the Board's definition of a Major Water Provider is a water user group or a wholesale water provider with particular significance to the region's water supply as determined by the regional water planning group. She proposed that the Group alter the Board's definition to identify an entity that currently provides significant water supply greater than 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 and in selecting greater than 10,000 acre feet.

Motion by Jerry Simpton to define a Major Water Provider the same a Wholesale Water Provider was defined in the previous plan; second by Lee Sweeten. The motion passed by a unanimous vote.

XIX. Discuss remaining planning activities.

Ms. Herrera stated that the next deadline is January 12, 2018 when the draft demand revisions are due to the TWDB

XX. Set next meeting.

The next meeting will be February 15, 2018 in Kerr County. Exact location is to be determined.

LBG – Guyton Technical Consultant Presentation

Plateau RWPG Meeting



LBG – Guyton Update
TWDB - Potential Changes to
Regional & State Water Planning



Overview of SB's and HB from 85th Legislative Session

SB 347

HB 2215

SB 1511



SB 347 – Open Meetings Act

- **Flexibility built into the act during the next legislative session to allow for video conferences or teleconferences as being a tool for meeting quorum.**



HB 2215 – Joint Planning Timeline

Sync up GMA
Planning with
Regional Water
Planning

Next GMA Planning
cycle will require
adoption of DFC's to
be due Jan. 5, 2022

Allow for the MAG
reports to be
generated in time for
the Regional Water
Planning process



SB 1511 – Simplified Planning

Determined by the
planning group

No significant
changes to
availability, supplies
& demands

Only every other
planning cycle



SB 1511 – Infeasible Strategies

Plans that have strategies that cease to be feasible shall amend the Plan to exclude that project and replace it with a feasible project.

The focal point is the decade of need within that planning cycle. RWP is adopted in 2021, so a 2020 decadal need should be addressed with a feasible project.



LBG – Guyton Update
WSP and LBG-Guyton



WSP and LBG Partnership

Who Are They?

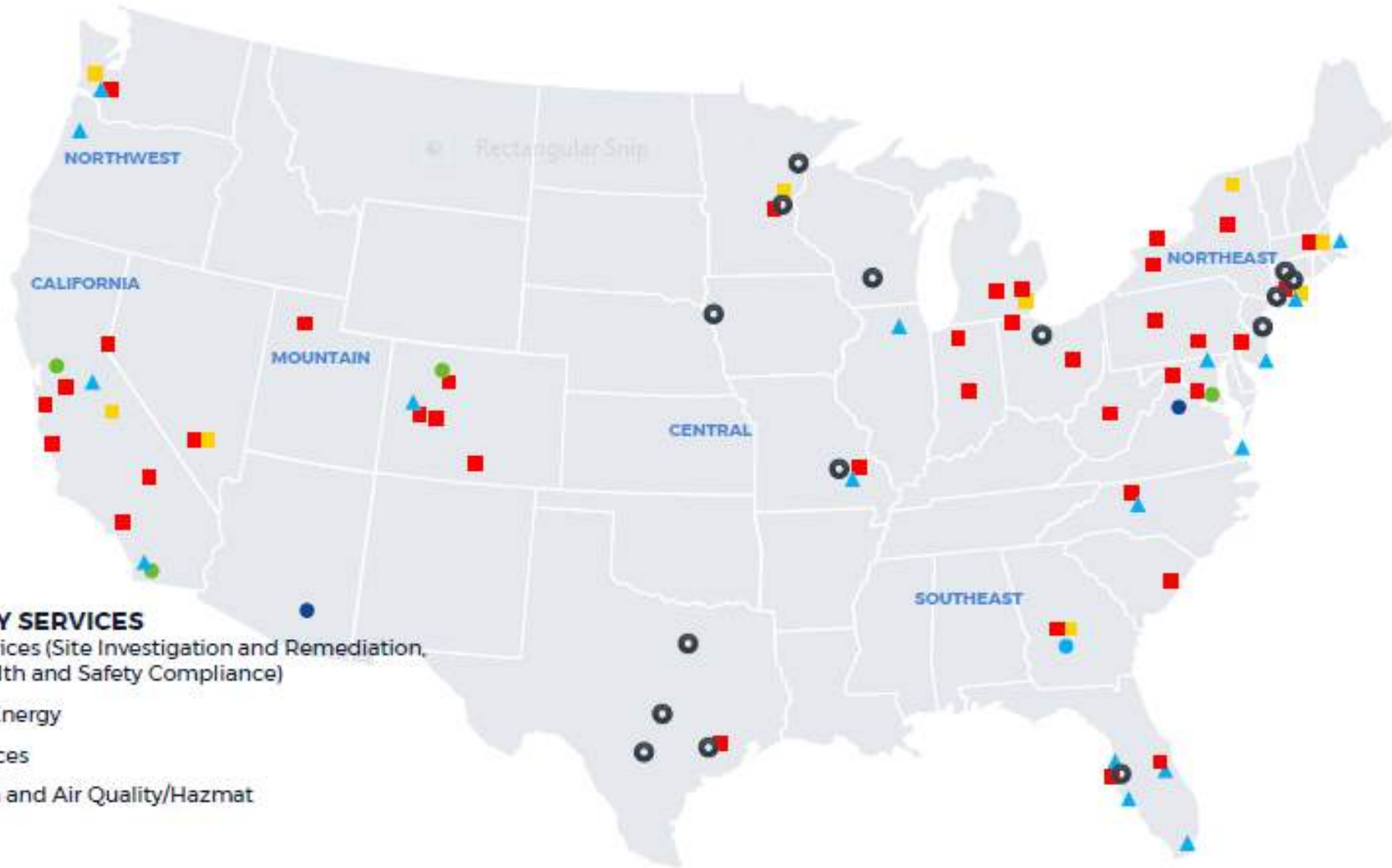
- Leading, global professional consulting firm.
- Locally dedicated with international scale.

Impacts to RWP?

- Team from LBG is still here & looks forward to continuing the great working relationship with the PWPG.
- Provide a larger suite of services.



WSP and LBG, a geographic fit



LBG – Guyton Update
RWP Schedule



What did we discuss in July?

- Approved municipal WUGs & sub-WUGs for submittal to TWDB - Sept. 1, 2017
- Approved mining water demand projections
- Reviewed draft non-municipal water demand projections



What Will We Discuss Today?

- Approve population projections for TWDB submittal - Jan. 2018
- Approve municipal & non-municipal water demand projections for TWDB submittal – Jan. 2018
- Discuss ‘Major Water Providers’ and take appropriate action



Chapter 2 – Population and Water Demands
2021 Municipal & County-Other Population
(Table 1)



Chapter 2 – Population and Water Demands
2021 Municipal & County-Other Water Demands
(Table 2)



Chapter 2 – Population and Water Demands
2021 County-Other Water Supply Entities
(Table 3)



Chapter 2 – Non-Municipal Water Demands
2021 Irrigation Water Demands
(Table 4)



2021 Irrigation Water Demands

COUNTY	2020	2030	2040	2050	2060	2070
Bandera	946	946	946	946	946	946
Edwards	215	215	215	215	215	215
Kerr	1,342	1,342	1,342	1,342	1,342	1,342
Kinney	3,713	3,713	3,713	3,713	3,713	3,713
Real	270	270	270	270	270	270
Val Verde	2,319	2,319	2,319	2,319	2,319	2,319
TOTAL	8,805	8,805	8,805	8,805	8,805	8,805



Chapter 2 – Non-Municipal Water Demands
2021 Livestock Water Demands
(Table 5)



2021 Livestock Water Demands

COUNTY	2020	2030	2040	2050	2060	2070
Bandera	243	243	243	243	243	243
Edwards	397	397	397	397	397	397
Kerr	757	757	757	757	757	757
Kinney	224	224	224	224	224	224
Real	151	151	151	151	151	151
Val Verde	410	410	410	410	410	410
TOTAL	2,182	2,182	2,182	2,182	2,182	2,182



Chapter 2 – Non-Municipal Water Demands
2021 Manufacturing Water Demands
(Table 6)



2021 Manufacturing Water Demands

COUNTY	2020	2030	2040	2050	2060	2070
Bandera	0	0	0	0	0	0
Edwards	0	0	0	0	0	0
Kerr	20	21	21	21	21	21
Kinney	0	0	0	0	0	0
Real	0	0	0	0	0	0
Val Verde	0	0	0	0	0	0
TOTAL	20	21	21	21	21	21



Chapter 2 – Non-Municipal Water Demands
2021 Steam-Electric Power Water Demands
(NO WATER DEMANDS)



Chapter 2 – Population and Water Demand

Major Water Providers



Major Water Provider (MWP)

In the 2016 Plan:

Wholesale water provider defined as an entity that had contracts to sell more than 1,000 acre-feet of water wholesale in any one year during the five years immediately preceding the adoption of the last RWP.

In the 2021 Plan:

The RWPG will identify Major Water Providers (MWP) for the Region.



Major Water Provider (MWP)

TWDB defines a major water provider 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.



Major Water Provider (MWP)

Proposed definition for Region J:

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)

2016 Plan WWPs:

- City of Del Rio

2021 Plan MWPs:

- Del Rio Utilities



Moving Forward...

1

Submit draft demand revision requests to TWDB by Jan. 12, 2018.

2

Survey WUGs and MWP's to evaluate existing water supplies.

3

Perform water availability analysis (WAM Run & MAG Analysis).



**Minutes
Population Revision Committee
of the
Plateau Water Planning Group (Region J)
Meeting – Kerrville, Texas
January 4, 2018
10:00 AM**

Notice having been duly given a meeting of the Population Revision Committee of the Plateau Water Planning Group (Region J) was held on Thursday, January 4, 2018, beginning at 10:00 A.M. at The Upper Guadalupe River Authority, 125 Lehmann Drive, Suite 100, Kerrville, Kerr County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joel Pigg, Real County; John Ashworth, WSP and LBG-Guyton & Associates.; Jennifer Herrera, WSP and LBG-Guyton & Associates; William Alfaro, Texas Water Development Board; John Ellis, Texas Water Development Board (Economic Demographic Analysis Unit of the Water Use Projections and Planning Department). and Carl Schwing.

I. Consider, discuss and take appropriate action to approve revision to the Population Demand Projections and related documents and authorized submission to the Texas Water Development Board.

The Committee agreed to use scenario 2 with the exception to hold Sub-WUG's in County-Other constant from Scenario 1 and any reduction in County-Other population only comes from the Non-Sub-WUG population.

Minutes
Plateau Water Planning Group
Regular Meeting - Hunt, Texas
February 15, 2018
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Thursday, February 15, 2018, beginning at 10:00 A.M. at the Kerr Wildlife Management Area (Bass Conference Facility), 2625 FM 1340, Hunt, Kerr County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joel Pigg, Real County; Gene Williams, Kerr County; Rene Villarreal, Kinney County; Feather Wilson, Bandera County; Scott Loveland, Kerr County; Jody Grinstead; John Ashworth, WSP and LBG-Guyton & Associates.; Jennifer Herrera, WSP and LBG-Guyton & Associates; William Alfaro, Texas Water Development Board Chad Norris, Texas Parks and Wildlife; Joseph McDaniel, Aqua America; Charlie Wiedenfeld, Kerr County; David Jeffery, Bandera County; Roland "Tooter" Trees, Real County; Rusty Ray; Texas State Soil & Water Conservation Board; Otilia Gonzalez, Val Verde County; Michael Redman for David Mauk, Bandera County; Michael Mann, Headwaters Groundwater Conservation District; Randy Nunns, Devils River Conservancy; Genell Hobbs, Kinney County; Tony Smith, Carollo Engineering; Charlie Flatten, Hill Country Alliance; Wes Robinson, Kinney County; John Elliott, Headwaters Groundwater Conservation District.

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

It was determined that a quorum was present.

II. Public Comments.

There were no public comments.

III. Approval of minutes from the November 9, 2017 Regular Meeting and minutes from the Population Revision Committee meeting on January 4, 2018.

Motion by Ray Buck to approve the minutes as submitted; second by Joel Pigg. The motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

Mr. Letz informed the Group that:

The balance in the checking account as of the end of January is \$12,570.

Jody Grinstead completed the Public Information Act training

Certificates for Open Meetings Act training are still needed from Tully

Shahan and Otila Gonzalez

A letter was sent to the City of Del Rio regarding the vacancy for Mitch Lomas, inquiring whether or not they wanted to nominate someone to replace him.

As of today's date a response has not yet been received.

b. Report from Secretary.

No report given

c. Report from Political Entity.

Ray Buck stated that the contract/paperwork had been updated as required to reflect WSP instead of LBG-Guyton and thanked Jennifer for her assistance with that task.

d. Report from Liaisons.

Feather Wilson gave an update on Region K

Joseph McDaniel stated that he had been in contact with Region L and their meeting was today so he was unable to attend

e. Report from GMA representatives.

David Jeffery gave an update on GMA9

Joel Pigg stated that GMA7 was meeting on March 22nd

V. Consider, discuss and take appropriate action to approve invoices.

Motion by Gene Williams to approve the following invoices: LBG-Guyton (11/1/17-11/30/17) - \$3,712.68, LBG-Guyton (12/1/17-12/31/17) - \$5,070.33, JPMorgan Chase (transcript reimbursement 11/9/17 mtg) - \$300.00; second by David Jeffery. The motion passed by a unanimous vote.

VI. Texas Water Development Board Updates. (William Alfaro, Project Manager)

Mr. Alfaro thanked the Group for working on the projections and said TWDB was currently working on the revisions that were proposed. The anticipated adoption date for those projections is this April. Once those are adopted it will still be possible to request additional revisions. However that will require further justification submitted via a formal request.

He stated they have been working on draft rules that will impact the water planning process. The draft was posted on the Texas Register in December and public comments were received until January 1st. TWDB is set to adopt those in March.

A contract amendment for additional funding will be coming in spring. It will also incorporate some guidance documents that have been updated to the contract. Once the contract is prepared the Planning Group will need to authorize the political subdivision to execute the contract.

VII. Consider, discuss and take appropriate action to announce vacancy for Public Interest (Val Verde County) currently held by Tommy Qualia.

Mr. Letz announced the vacancy and stated there are 3 vacancies:

Public Interest (Val Verde County)

Water Utilities (Kerr County) - previously held by Jerry Heffley

Municipal Interest (Val Verde County) - previously held by Mitch Lomas.

Mr. Letz informed the Group that Charlie Flatten with the Hill Country Alliance has expressed an interest in filling one of those positions. Mr. Flatten lives outside the Region J area, but Mr. Letz checked the Bylaws and that would not prohibit him from serving as long as he represents the region. Mr. Flatten represents Kerr, Bandera, Edwards and Real Counties as part of his job with the Hill Country Alliance. Therefore he qualifies. Mr. Letz suggested allowing Charlie to fill the Val Verde interest, but making it an "at-large" interest. He stated it would be on the next agenda for further discussion.

VIII. Consider, discuss and take appropriate action to hold all future meetings at a location in Leakey, Texas.

Mr. Letz stated the Joel Pigg has offered to host all future meetings. **Motion by Rene Villareal to host future meetings in Leakey; second by Ray Buck. The motion passed by a unanimous vote.** Mr. Letz said this would not preclude the meetings being held elsewhere if needed.

IX. Update on Regional Water Planning Schedule. WSP USA (formerly LBG-Guyton)

Jennifer briefly gave a recap of what was discussed at the previous meeting (water demands and population projections). She reminded the Group that they:

Approved the population and water demand projections.

Agreed that the major water providers would be addressed the same as the wholesale water providers.

Approved the designation of sub-WUG's in Kerr County of Kerr.

Designated a subcommittee and consultants to develop population and water demand for

Designated Kerr County sub-WUG's

On January 4th TWDB staff along with members of the PWPG had a meeting. At that meeting they agreed on methodology to develop the water demands for sub-WUGs mentioned above. Those were submitted in the revision package. On February 5th, they were notified that the TWDB and the 4 agencies that it had to be reviewed by all approved the changes. Jennifer briefly summarized the changes that were made.

Jennifer addressed the Group regarding the Tech Memo and informed them it was time to begin looking at the analysis process for ground water and surface water supply sources. She stated they would be discussing the identification of potentially feasible water management strategies.

She informed the Group that Chapter Two had been drafted and asked for feedback once the members have had time to review it.

X. Consider and discuss the Plateau Region groundwater supply analysis process. WSP USA (formerly LBG-Guyton)

John Ashworth presented a slide show regarding groundwater and surface water sources. In that presentation he discussed: major aquifers, minor aquifers, other aquifers, and brackish supplies.

John briefly discussed when availability numbers would be coming out and the scheduling issues that might arise based on the tech memo being due on September 10th. The Water Development Board is recognizing that there may be a problem with some planning groups getting their tech memo's out in time. He suggested that the Group wait until the next meeting to determine whether or not they think this group will have a scheduling problem. If the Group believes there will be a problem then the Water Development Board is going to require the Group to approve a request for an extension of that deadline time and then that would require a letter from the planning group requesting that extension.

Feather Wilson stated that he would like to see Chapter 2 include a table that shows the per capita use of ground water for each county and maybe for some of the cities. Mr. Ashworth agreed that would be an appropriate place for that table.

A brief discussion ensued regarding the fracking that is being done, the amount of water being used and if that is included in the long term plans. Ms. Herrera stated that the Water Development Board's approach to their mining water demand projections included frack focused data. However the data is done on a volunteer basis so it won't capture everything, but it's the first step in trying to begin including some of that current fracking or water demand.

XI. Consider, discuss and take appropriate action to approve the Plateau Region surface water supply analysis process and letter to TWDB requesting modifications to TCEQ Water Availability Model (WAM). (Carollo)

Tony Smith gave a presentation regarding the source and supply availabilities on surface water. He stated there are five river basins that are incorporated within the region, the Rio Grande, Nueces, Colorado, the Guadalupe, and the San Antonio. There are a lot of technical guidelines that are provided by the Water Development Board for how we characterize sources and supplies. He briefly discussed surface water supply availability stating that the key component is what supply is available during a critical period. Critical periods are typically the drought of record.

During the presentation he discussed: firm yield, water permitting models, TCEQ water models, USGS gauging system, how water rights work, environmental flows, Senate Bill 3, water management studies, naturalized flows and manmade effects, hydrology for WAMs and the interface between surface water and ground water.

He stated that the TWDB requires the Planning Group to submit a letter (often referred to as Water Supply Assumptions or a Hydrologic Variance Memo). That memo tells TWDB how the regional planning group plans on evaluating supply in a regional planning context. His firm compiled the recently authorized inactive service water rights from TCEQ, as well as the most recent five-year annual diversion so they could determine the magnitude of present use that's in place.

Mr. Smith reviewed his handout entitled "Procedures for Determining Water Availability and Water Supplies for the 2021 Plateau Regional Water Plan". He stated the letter needs to be submitted to the Board after approval by the Board. Mr. Letz noticed a typo page 5, paragraph 1 of the memo. It states 2,000 acre-feet and it should be 6,000 acre-feet. **Motion by Joel Pigg to authorize the memorandum to be submitted to Texas Water Development Board as presented with one modification (2,000 acre-feet changed to 6,000 acre-feet); second by Ray Buck. The motion passed by a unanimous vote.**

XII. Consider, discuss and take appropriate action to approve the process for identifying selecting potentially feasible water management strategies for the 2021 Plateau Region Water Plan. WSP USA (formerly LBG-Guyton)

John Ashworth reviewed his handout entitled "Process for Identifying and Selecting Potentially Feasible Water-Management Strategies to be Evaluated for the 2021 Plateau Region Water Plan" with the Group. He stated this was required before selecting strategies; it is what TWDB considers first step in coming up with the water management strategies. He explained the document in detail to the Group. Mr. Ashworth said it must be approved, but it can be done at this meeting or the next meeting. Jonathan Letz suggested that it be done at the next meeting.

XIII. Consider and discuss the revised, draft Chapter 2 – Population and Water Demands for the 2021 Plateau Region Water Plan. WSP USA (formerly LBG-Guyton)

Jennifer Herrera reviewed her handout entitled "Chapter 2 Population and Water Demand" with the Group. Mr. Letz suggested that the Group go through the chapter between now and the next meeting and send any comments they have to Jennifer and John so a final draft can be done for the May meeting.

A brief discussion ensued regarding Sub-WUGs.

XIV. Set next meeting.

The next meeting was set for May 17th in Leakey.

John Ashworth invited the planning members to join he and Jennifer to walk over to view the Headwater Spring which he described as probably the largest spring complex that feeds all of the Guadalupe River.

PLATEAU RWPG MEETING
WSP (FORMERLY LBG-GUYTON)
TECHNICAL CONSULTANT
PRESENTATION



**REGIONAL WATER PLANNING
WORKING SCHEDULE**



MATERIAL COVERED AT PREVIOUS MEETING

- **APPROVED POPULATION, MUNICIPAL & WATER DEMAND PROJECTIONS (WITH THE EXCEPTION OF THE CITY OF KERRVILLE) FOR TWDB'S JANUARY 12TH SUBMITTAL DEADLINE**
- **APPROVED MAJOR WATER PROVIDERS**
- **AUTHORIZE THE CITY OF KERRVILLE, THE CONSULTANTS & THE CHAIR TO MODIFY POPULATION AND WATER DEMANDS AS NECESSARY FOR KERR COUNTY.**

TODAY'S DISCUSSION

- **DISCUSS GROUNDWATER SUPPLY SOURCES**
- **DISCUSS GROUNDWATER SUPPLY ANALYSIS PROCESS**
- **DISCUSS SURFACE WATER SUPPLY ANALYSIS PROCESS**
- **DISCUSS PROCESS FOR IDENTIFYING POTENTIALLY FEASIBLE WATER MANAGEMENT STRATEGIES**
- **DISCUSS THE DRAFT CHAPTER 2**

CHAPTER 3: WATER SUPPLY AVAILABILITY

SOURCE AVAILABILITY

- **FRESH GROUNDWATER**
- **BRACKISH GROUNDWATER**
- **SURFACE WATER**
- **LOCAL SUPPLY**
- **REUSE**

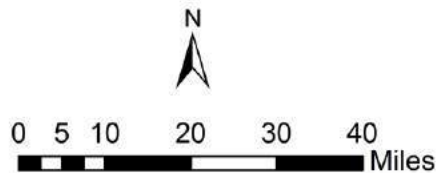
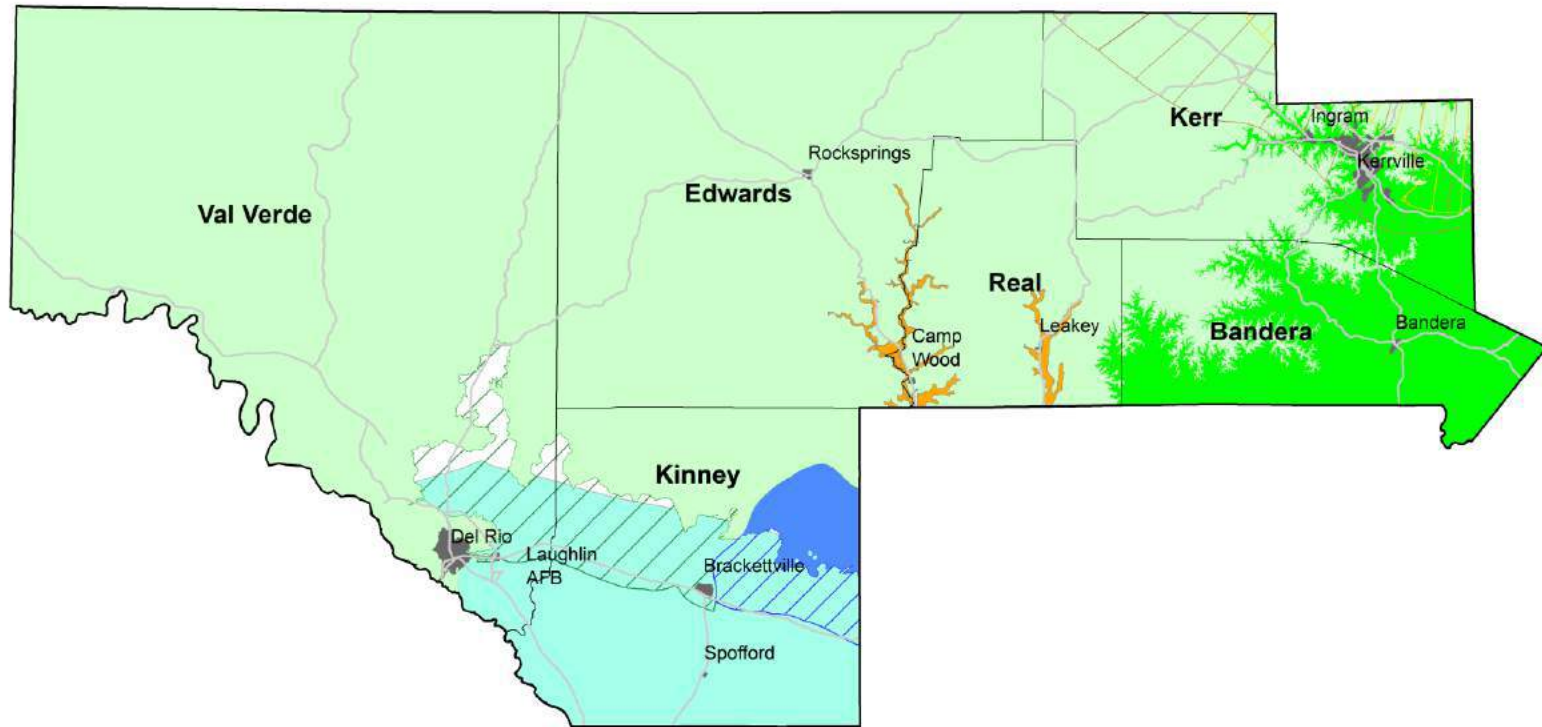
INFRASTRUCTURE AVAILABILITY

PLATEAU REGION GROUNDWATER

- **OVERVIEW OF AQUIFERS IN THE PLATEAU REGION**
- **GROUNDWATER AVAILABILITY**
- **PLATEAU REGION'S APPROACH TO GROUNDWATER**

GROUNDWATER SUPPLY SOURCES

- MAJOR AQUIFERS
- MINOR AQUIFERS
- OTHER AQUIFERS
- BRACKISH AQUIFERS



Source: TWDB

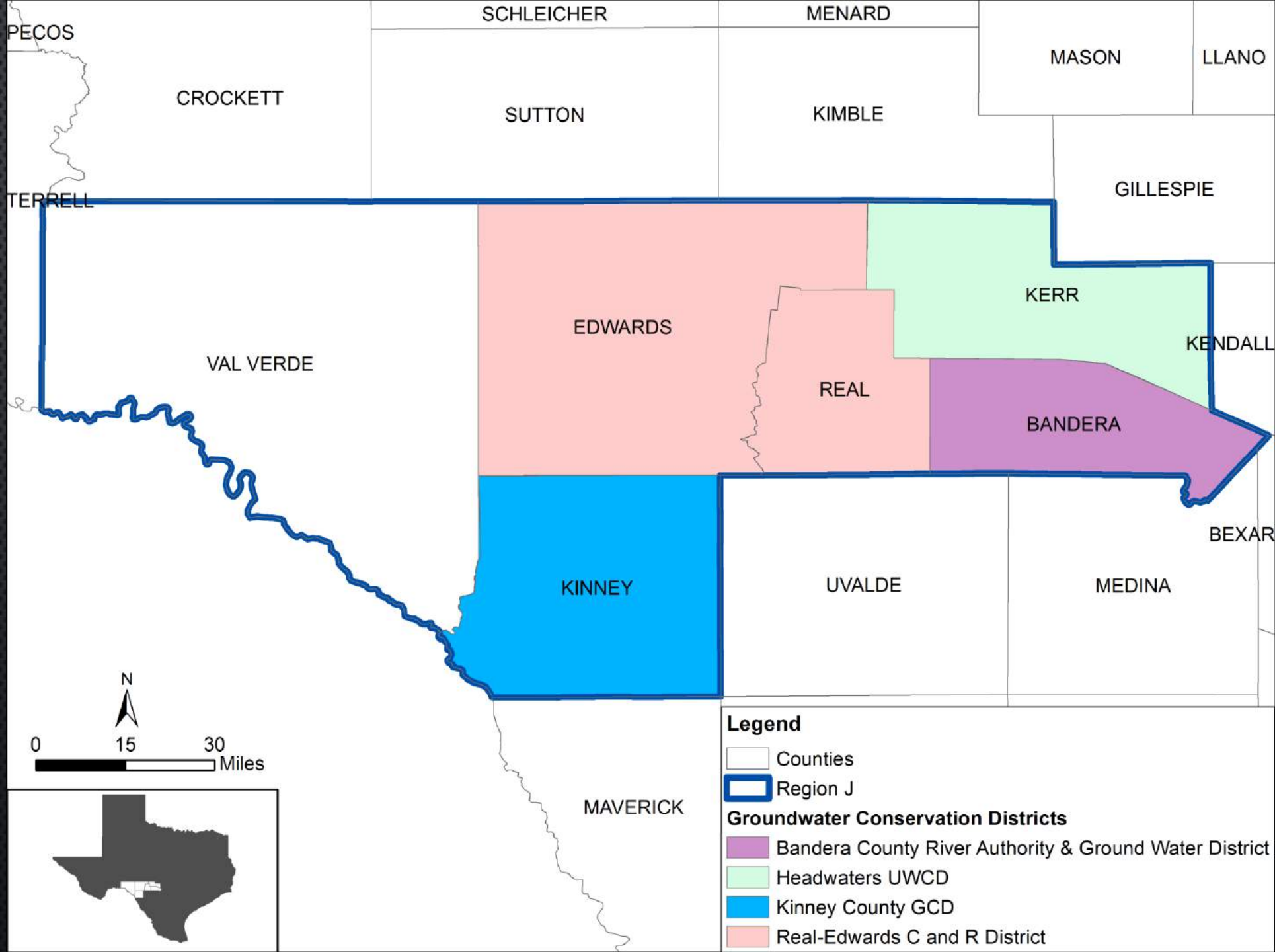
Explanation

-  Austin Chalk
-  Ellenburger - San Saba (subcrop)
-  Hickory (subcrop)
-  Edwards - Trinity Plateau (outcrop)
-  Edwards - Trinity Plateau (subcrop)
-  Edwards BFZ (outcrop)
-  Edwards BFZ (subcrop)
-  Trinity (outcrop)
-  Trinity (subcrop)
-  River Alluvium



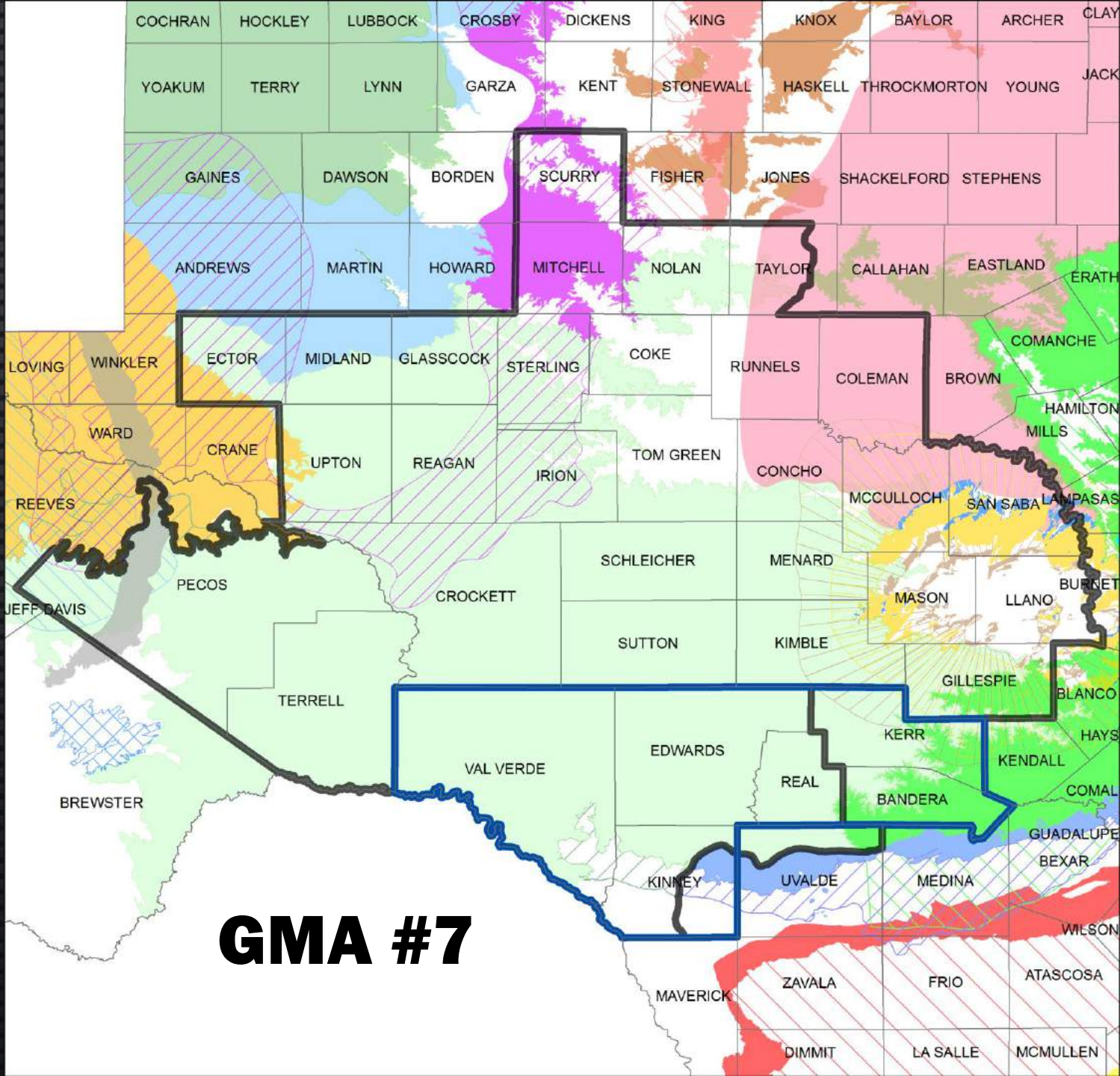
PLATEAU REGION
GROUNDWATER CONSERVATION DISTRICTS





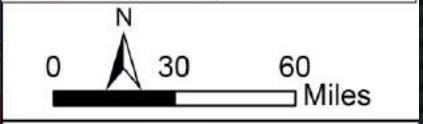
PLATEAU REGION
GROUNDWATER MANAGEMENT AREAS



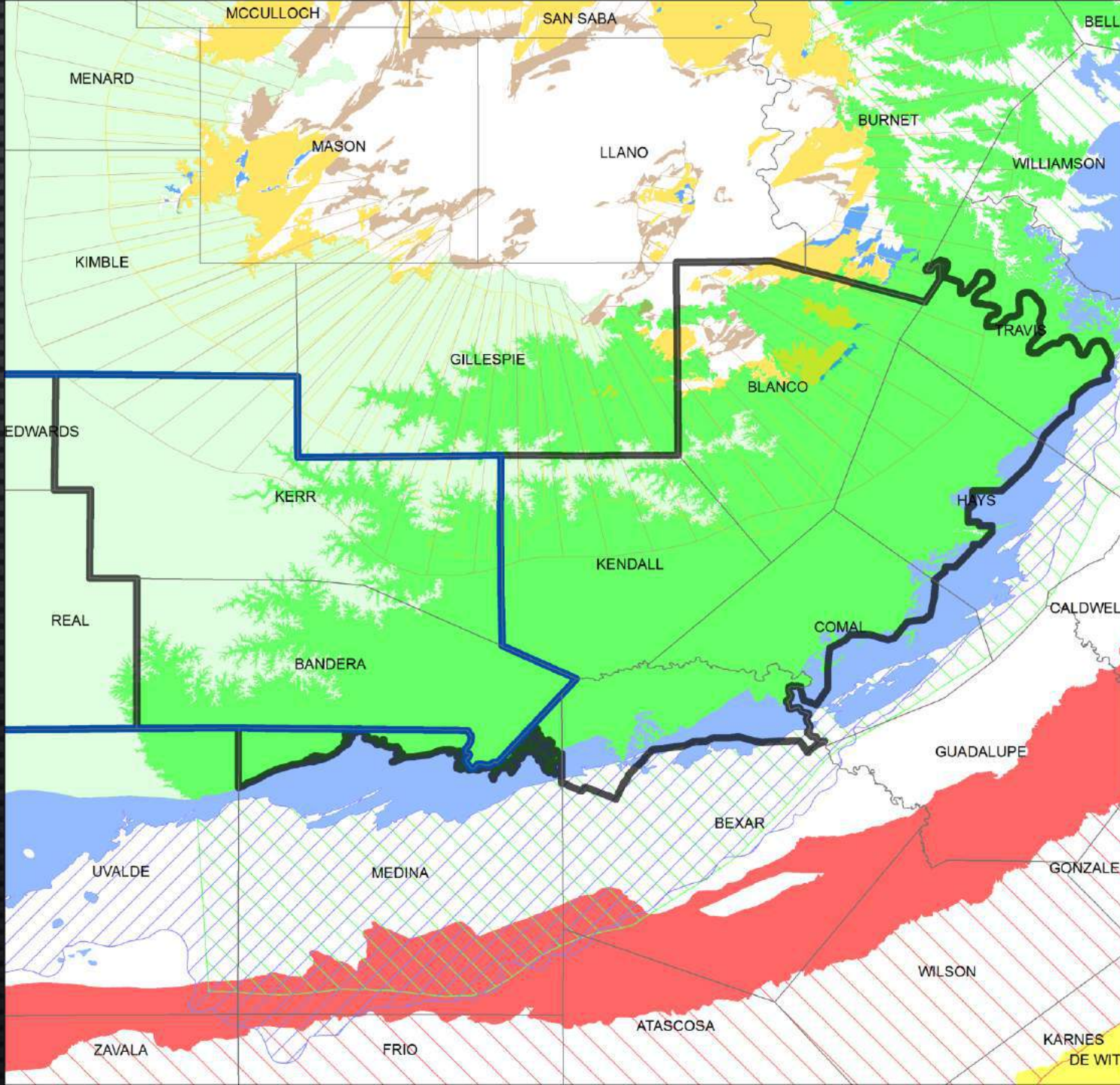


GMA #7

- Legend**
- Counties
 - Region J
 - GMA 7
- Minor Aquifers**
- Edwards - Trinity (High Plains)
 - Dockum (outcrop)
 - Dockum (subcrop)
 - Rustler (subcrop)
 - Capitan Reef Complex
 - Blaine (outcrop)
 - Blaine (subcrop)
 - Marble Falls
 - Marathon
 - Ellenburger - San Saba (outcrop)
 - Ellenburger - San Saba (subcrop)
 - Hickory (outcrop)
 - Hickory (subcrop)
 - Cross Timbers
- Major Aquifers**
- Pecos Valley
 - Seymour
 - Gulf Coast
 - Carrizo - Wilcox (outcrop)
 - Carrizo - Wilcox (subcrop)
 - Ogallala
 - Edwards - Trinity Plateau (outcrop)
 - Edwards - Trinity Plateau (subcrop)
 - Edwards BFZ (outcrop)
 - Edwards BFZ (subcrop)
 - Trinity (outcrop)
 - Trinity (subcrop)



GMA #9



Legend

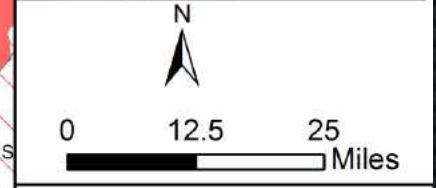
- Counties
- Region J
- GMA 9

Minor Aquifers

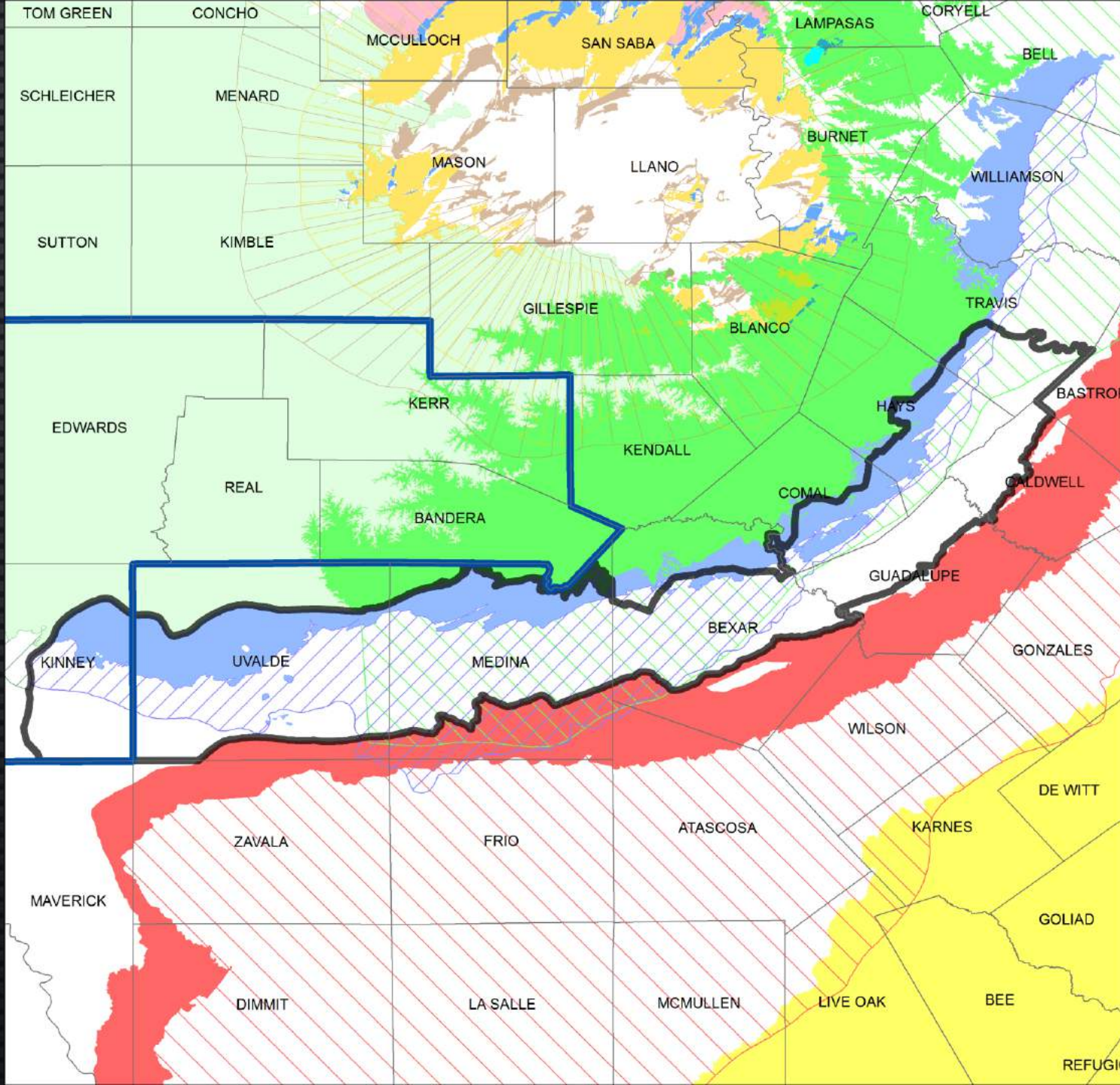
- Marble Falls
- Ellenburger - San Saba (outcrop)
- Ellenburger - San Saba (subcrop)
- Hickory (outcrop)
- Hickory (subcrop)

Major Aquifers

- Gulf Coast
- Carrizo - Wilcox (outcrop)
- Carrizo - Wilcox (subcrop)
- Edwards - Trinity Plateau (outcrop)
- Edwards BFZ (outcrop)
- Edwards BFZ (subcrop)
- Trinity (outcrop)
- Trinity (subcrop)

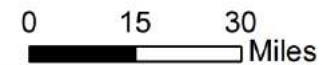


GMA #10



Legend

- Counties
- Region J
- GMA 10
- Minor Aquifers**
 - Marble Falls
 - Ellenburger - San Saba (outcrop)
 - Ellenburger - San Saba (subcrop)
 - Hickory (outcrop)
 - Hickory (subcrop)
 - Cross Timbers
- Major Aquifers**
 - Gulf Coast
 - Carrizo - Wilcox (outcrop)
 - Carrizo - Wilcox (subcrop)
 - Edwards - Trinity Plateau (outcrop)
 - Edwards - Trinity Plateau (subcrop)
 - Edwards BFZ (outcrop)
 - Edwards BFZ (subcrop)
 - Trinity (outcrop)
 - Trinity (subcrop)



DFC / MAG TIMELINE

- **DESIRED FUTURE CONDITIONS (DFC'S) WERE PROVIDED TO TWDB BY GMA'S IN 2016**
- **TWDB IS CURRENTLY FINALIZING THE MODELED AVAILABLE GROUNDWATER (MAG) REPORTS**
 - **GMA 7 – SHOULD BE FINALIZED LATE FEBRUARY**
 - **GMA 9 – IS AVAILABLE (TRINITY, ET (PLATEAU), ELLENBURGER-SAN SABA & HICKORY AQUIFERS)**
 - **GMA 10 – SHOULD BE FINALIZED MARCH / APRIL**

GROUNDWATER AVAILABILITY APPROACH

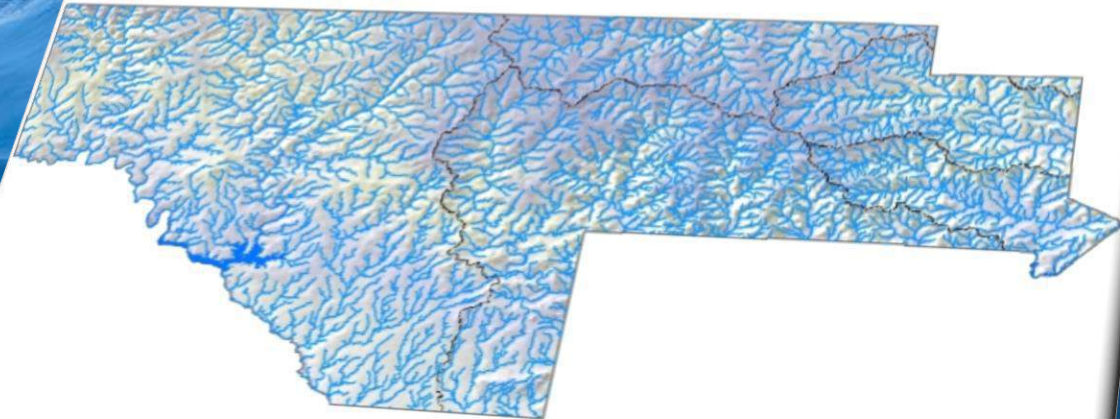
- **WSP (FORMERLY LBG-GUYTON) WILL USE THE MAG ESTIMATES AS GUIDANCE FOR GROUNDWATER AVAILABILITY BY COUNTY/AQUIFER/RIVER BASIN**
- **IF DEMANDS ARE GREATER THAN MAGS**
 - **COMPLETE A LOCAL HYDROGEOLOGIC ASSESSMENT**

PLATEAU REGION
SURFACE WATER SUPPLY ANALYSIS
(CAROLLO)



Regional Surface Water Planning and Modeling

Plateau Water Planning Group



WATER
OUR FOCUS
OUR BUSINESS
OUR PASSION

**carollo**
Engineers...Working Wonders With Water®

Evaluating Available Surface Water Supply

Evaluated as the amount of water that a user can depend on obtaining during drought of record conditions

- **Reservoirs:** Firm Yield
- **Run of river:** Reliable (100%)
monthly diversion during driest
period of record

TWDB Guidelines (cont'd)

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.

Water Availability Models (WAMs)

As required by rule, TCEQ WAMs (Run 3) will be used.

Region J WAMs

- Colorado, & Brazos-Colorado
- Guadalupe & San Antonio
- Nueces
- Rio Grande

What is WAM?

Water Availability Model

- Models used by TCEQ for permitting surface water use
- Utilize historical flow, naturalized using:
 - Developed from USGS Gage Data, Historical Use and Historical Return Flows,
 - Historical Rainfall and Evaporation,
 - Permitted Diversion Volumes, Patterns, and Location
- Models the natural hydrology of the river basin to evaluate effects of permitted water diversion/use.



Use of Water Availability Models

- Implements prior appropriation system
 - (first in time, first in right)
- Conservatively determine water availability and reliability
 - Full permit conditions
 - Original reservoir capacities
 - No return flows (i.e. discharges)
- Critical period
- Environmental flows



Plateau Regional Planning Area

- **Colorado & Brazos-Colorado WAM**

- Currently unavailable, pending TCEQ update
- Approximately 3 Water Rights

- **Guadalupe & San Antonio WAM**

- ver. October 17, 2014
- Approximately 176 Water Rights

- **Nueces WAM**

- ver. January 7, 2013
- Approximately 86 Water Rights

- **Rio Grande WAM**

- ver. October 17, 2014
- Approximately 36 Water Rights



Surface Water Supplies to be Evaluated


Surface Water	County	Basin	Salinity
Colorado Other Local Supply	Edwards	Colorado	Fresh
Colorado Other Local Supply	Kerr	Colorado	Fresh
Colorado Other Local Supply	Real	Colorado	Fresh
Colorado Run-Of-River	Edwards	Colorado	Fresh
Guadalupe Other Local Supply	Kerr	Guadalupe	Fresh
Guadalupe Run-Of-River	Bandera	Guadalupe	Fresh
Guadalupe Run-Of-River	Kerr	Guadalupe	Fresh
Medina Lake/Reservoir	Bandera	San Antonio	Fresh
Nueces Livestock Local Supply	Edwards	Nueces	Fresh
Nueces Livestock Local Supply	Real	Nueces	Fresh
Nueces Other Local Supply	Edwards	Nueces	Fresh
Nueces Other Local Supply	Kinney	Nueces	Fresh
Nueces Other Local Supply Old Faithful Springs	Real	Sea Antonio	Fresh
Nueces Run-Of-River	Bandera	Nueces	Fresh
Nueces Run-Of-River	Edwards	Nueces	Fresh
Nueces Run-Of-River	Real	Nueces	Fresh
Rio Grande Livestock Local Supply	Edwards	Rio Grande	Fresh
Rio Grande Livestock Local Supply	Val Verde	Rio Grande	Fresh
Rio Grande Other Local Supply	Kinney	Rio Grande	Fresh
Rio Grande Other Local Supply	Val Verde	Rio Grande	Fresh
Rio Grande Run-Of-River	Kinney	Rio Grande	Fresh
*Rio Grande Run-Of-River	Val Verde	Rio Grande	Fresh
San Antonio Other Local Supply	Bandera	San Antonio	Fresh
San Antonio Other Local Supply	Kerr	San Antonio	Fresh
San Antonio Run-Of-River Medina River Combined	Bandera	San Antonio	Fresh
Trinity ASR	Kerr	Guadalupe	Fresh

TWDB Surface Water Supply Guidance

- Employ most current TCEQ WAMs
- Obtain TWDB approval of hydrologic assumptions, models, and/or any variations from requirements
 - Operational requirements
 - Sedimentation
- Constraints
 - Availability
 - Physical
 - Legal



Municipal and Industrial Supply Assumptions

- Run of the river rights will be determined in accordance with TWDB guidelines. 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, i.e., minimum monthly diversion amounts that are available 100% of the time.
 - Reservoirs will use firm yield, unless a change is specifically requested by a reservoir owner and approved by the RWPG and TWDB, 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.
- 

Irrigation and Livestock Supply Assumptions

- Water supply for irrigation rights will be determined using firm reliability (100%). Per TWDB guidance, 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.
- Per TWDB guidance, in the absence of any supply information or justification of reliable supplies available in a drought of record, livestock supply values will be set equal to zero.

Simulation of Future Reservoir Conditions

- Reservoirs updated with decadal (2020 – 2070) elevation-area-capacity information (where available)
- If no recent surveys available, original area-capacity relations will be assumed.

Surface Water Supply Evaluation Objectives

- Determine decadal firm yield of existing water rights to identify surface water supply
 - Account for reservoir sedimentation where appropriate
- Determine reliable supply for run-of-river permits
- Identify yield/reliability of potential surface water management strategies
- Inter-regional coordination



Path Forward

- Compile most recent authorized and active Surface Water Rights
- Compile most recent (5 yr) reported Annual Diversions
- Develop Surface Water Supply Assumptions Memorandum for review and approval of RWPG and submittal to TWDB.





Tony L. Smith, P.E.

Carollo Engineers, Inc.
Office: 512-453-5383

Questions?

PLATEAU REGION

POTENTIALLY FEASIBLE STRATEGY PROCESS

(SEE HANDOUT)



PLATEAU REGION
REVIEW DRAFT CHAPTER 2

Minutes
Plateau Water Planning Group
Regular Meeting - Leakey, Texas
May 17, 2018
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Thursday, May 17, 2018, beginning at 10:00 A.M. at The Frio Canyon Baptist Church, 919 US-83, Leakey, Real County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joel Pigg, Real County; Gene Williams, Kerr County; Feather Wilson, Bandera County; Scott Loveland, Kerr County; Jody Grinstead; John Ashworth, WSP and LBG-Guyton & Associates.; Jennifer Herrera, WSP and LBG-Guyton & Associates; William Alfaro, Texas Water Development Board; Homer Stevens, Bandera County; Lee Sweeten, Edwards County; Carl Schwing; Tina Ashley, Real Edwards Conservation and Reclamation District; Chad Norris, Texas Parks and Wildlife; Joseph McDaniel, Aqua America; Charlie Wiedenfeld, Kerr County; David Jeffery, Bandera County; Roland "Tooter" Trees, Real County; Michael Redman for David Mauk, Bandera County; Genell Hobbs, Kinney County; Tony Smith, Carollo Engineering;

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

It was determined that a quorum was present.

II. Public Comments.

There were no public comments.

III. Approval of minutes from the February 15, 2018 Regular Meeting.

Motion by Joel Pigg to approve the minutes from the February 15, 2018 meeting with the amendments made by John Ashworth and Michael Redman; second by Tooter Trees. The motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

The Chair stated that the bank balance as of the end of March is \$12,317.22

b. Report from Secretary.

No report was given

c. Report from Political Entity.

No report was given

d. Report from Liaisons.

Feather Wilson gave an update on Region K

Joseph McDaniel gave an update on Region L

e. Report from GMA representatives.

Joel Pigg gave an update on GMA 7

V. Consider, discuss and take appropriate action to approve invoices.

Motion by Gene Williams to pay the following invoices: WSP - \$10,272.43 and transcript reimbursement in the amount of \$235.00; second by David Jeffery. The motion passed by a unanimous vote

VI. Texas Water Development Board Updates. (William Alfaro, Project Manager)

Mr. Alfaro spoke briefly regarding the interactive statewide plan. He informed the Group that the hydrologic variance request has been approved. He stated that the Technical Memorandum deadline is currently September 10th.

VII. Consider, discuss and take appropriate action to ratify Contract Amendment No.2, Contract No. 1548301838 between TWDB and UGRA and authorize UGRA to execute the TWDB Contract Amendment Committing Additional Funds and Incorporating Updated Contract Scope and Exhibits C and D. Mr. Letz stated these things had already been done, and needed to be ratified. Mr. Alfaro briefly explained what the amendments were – that they added additional funding. **Motion by Genell Hobbs to ratify Contract Amendment No.2, Contract No. 1548301838 between TWDB and UGRA and authorize UGRA to execute the TWDB Contract Amendment Committing Additional Funds and Incorporating Updated Contract Scope and Exhibits C and D; second by Lee Sweeten. The motion passed by a unanimous vote.**

VIII. Consider, discuss and take appropriate action to authorize UGRA to amend the contract to mirror the consultants' TWDB Contract Amendment No.2. **Motion by Lee Sweeten to authorize UGRA to amend the contract to mirror the consultants' TWDB Contract Amendment No.2; second by Joel Pigg. The motion passed by a unanimous vote.**

IX. Consider, discuss and take appropriate action to post vacancy for Public Interest - Val Verde County (previously held by Tommy Qualia).

Mr. Letz informed the Group that Mr. Qualia no longer wishes to continue on the Board (Public Interest Category). He stated that Jerry Simpton would like to nominate Dale Dickerson (he is on the Board of the Devil's River Conservancy) for the position – but the nomination would need to be considered at a future meeting as this agenda item is to post for the vacancy. **Motion by David Jeffery to post vacancy for Public Interest - Val Verde County (previously held by Tommy Qualia); second by Ray Buck. The motion passed by a unanimous vote.**

X. Consider, discuss and take appropriate action to consider changing the interest and geographical criteria for Municipalities – Val Verde County (previously held by Mitch Lomas) and announce vacancy as appropriate.

Mr. Letz stated that the City of Del Rio does not appear to have an interest in having someone fill the slot left by Mitch Lomas. Since the position is designated as a Municipalities Interest and Kerrville already fills a Municipal Interest on the Board, Mr. Letz believes it would be easier to change the position from a Municipalities Interest to Public Interest. He also believes it would be best to make it a regional interest (preferably from the western part of the region) instead of strictly a Val Verde County representative. The other alternative is not to fill the position at all and just eliminate it. However he thinks it would be best to keep the position because it keeps a good geographic balance. Mr. Sweeten asked if there would be any problem with changing it from a Municipal Interest to a public interest. Mr. Letz stated that the Group is required to have a Municipal Interest, which we have,have; all they must maintain is the geographical representations that we implemented in the very beginning. By changing it to a Public Interest it makes it easier to fill the spot and give the group more flexibility. He recommended that instead of making it for Val Verde County only that the language be changed to Edwards, Val Verde, or Kinney. **Motion by Lee Sweeten to change the Municipalities – Val Verde Interest to a Public Interest representing Val Verde, Edwards or Kinney Counties, and announce the vacancy; second by Joel Pigg. The motion passed by a unanimous vote.**

XI. Consider, discuss and take appropriate action to consider changing the interest and geographical criteria for Water Utilities – Kerr County (previously held by Jerry Heffley) and announce vacancy as appropriate.

Mr. Letz stated that this item is very similar to item 10. The City of Ingram held this slot before and we have not been able to fill it. He recommended changing this to a Public Interest representing Kerr, Bandera or Real Counties. **Motion by Ray Buck to change the Water Utilities – Kerr**

County interest to a Public Interest representing Kerr, Bandera or Real Counties and announce the vacancy; second by Lee Sweeten. The motion passed by a unanimous vote.

XII. Update on regional water planning schedule. (WSP-USA)

Ms. Herrera stated that the hydraulic variance was approved by the Water Development Board approximately two weeks ago. She said Tony has been gathering information on the surface water volumes, and she and John been working on the ground water numbers, but the Water Development Board is still waiting for data from GMA7 and GMA10. All of the work is being done in preparation of the Technical Memorandum that is due September 10th. She stated that the information that is submitted on the 10th still may evolve and change over the planning period and there'll be opportunities to go in and modify it along the way. Some of the things the consultants are looking at in developing the packet are analyzing both surface water and ground water availability in the sources and in supply with the infrastructure and the entities. That batch of data then has to be put into the board's database (DB22). That information will help show water needs or shortages. Then the Group can start looking at how to develop appropriate strategies to meet the needs.

Ms. Herrera went on to say that:

April 16th the TWDB approved all of the population and water demands statewide

TWDB is anticipating one additional commitment of funds in the fall (for 5A scope of work).

They received the updated water loss audit information, and conservation annual reports, so she and John will begin the process of reviewing that material which is required to be in Chapter One of the plan.

XIII. Consider and discuss the Technical Memorandum requirements and Task 5A Scope of Work Notice-to-Proceed.

Mr. Ashworth informed the Group that this agenda item addressed 2 items: the Technical Memorandum and Task 5A Scope of Work. He stated the Technical Memo is due September 10th and will include a number of tables, population water demand, source water availability and existing water supplies. Those numbers will be submitted and entered into the Water Development Board's database (DB22). In addition to the tables the consultants have to have a documented process for identifying potentially feasible water management strategies. The Technical Memo packet must include a list of these strategies so the consultants would like the Group to approve the list today. These are not the final strategies that will be adopted – just the potentially feasible ones. He suggested that they go through the current list of strategies, take out the ones that have already been implemented or those that don't apply anymore, and then add anything else that the Group is aware of and has already been discussing. That list can then be changed, if needed, at the next meeting.

Mr. Ashworth stated that with regards to ground water the ground water source data is represented by the managed ground water availabilities that come out of the Water Development Board's models following the desired future conditions from our GMAs. Two of the GMA's have not completed those yet – GMA7 and GMA10. Until we have those numbers we cannot start populating the database, and therefore, the database cannot calculate which of our WUGs are going to show shortages. Therefore Mr. Ashworth suggested preparing the letter of extension for 60 days in case they don't get the numbers in time to meet the September 10th deadline. Mr. Herrera said she believed the GMA's are projecting that they will have their numbers submitted by very late July or early August. She stated there was another item on today's agenda regarding the extension letter (Item XVI). The Group will address the matter again at that time. Mr. Alfaro briefly reviewed the process with the Group. A brief discussion ensued regarding the timeframe the GMA's had to submit their data to the Board.

Mr. Ashworth went on to speak about the Task 5A scope at work. He stated there is a specific worksheet that must be completed showing how we're developing all of our strategies and who's

being covered. He stated that spreadsheet might be presented to the Group at the next meeting for approval.

XIV. Consider, discuss, and take appropriate action to approve the process for identifying selecting potentially feasible water management strategies for the 2021 Plateau Region Water Plan. (WSP-USA)

Mr. Ashworth addressed his handout entitled “Process for Identifying and Selecting Potentially Feasible Water-Management Strategies to be Evaluated for the 2021 Plateau Region Water Plan”. He stated the Group needed to make any corrections necessary today so it can be approved and submitted as part of the Technical Memo. A brief discussion ensued regarding the list. **Motion by Ray Buck to approve the selection process as outlined in the “Process for Identifying and Selecting Potentially Feasible Water-Management Strategies to be Evaluated for the 2021 Plateau Region Water Plan” handout; second by Joseph McDaniel. The motion passed by a unanimous vote.**

XV. Consider and discuss groundwater and surface water source and supply availability. (WSP-USA and Corolla)

Mr. Ashworth stated that these numbers would also be included in the Technical Memo. He reviewed his handout entitled “2021 Groundwater Source Availability by GMA (Acre-Foot per Year)” and stated that the groundwater volumes are developed by the Water Development Board models and are based on the GMA designed future conditions. The Group discussed the handout.

Mr. Smith reviewed the surface water numbers. He stated that the surface water evaluation is very similar in context as what we do with the groundwater. they look at source availability, and then they look at infrastructure, supply, and what the WUGs can actually get. He said the key thing to remember ~~when talking~~when talking about source availability on the surface water side is drought. How much can you produce reliably, 100 percent reliably during the drought of record? He said TWDB has been very aggressive in their guidance about how to consider drought and the rigor with which you evaluate surface water rights, both municipal, industrial, agricultural, across the board. Mr. Smith went on to give a detailed presentation on surface water.

Mr. Smith stated that Hydrologic Variance Memo that was previously approved by the Group was submitted to the Water Development Board two weeks ago. The Group has obtained approval from the Board to utilize the assumptions, models, and variations that were listed in that memo.

He spoke briefly regarding both types of water sources and supplies. A brief discussion ensued regarding the drought of record.

Mr. Smith spoke regarding the various WUGs in the region and stated that they would be meeting with those WUGs soon to start inputting into the database. The information they gather ~~will help~~will help with the needs assessment and the water management strategy evaluation.

XVI. Consider, discuss, and take action on requesting an extension for submittal of the mandated Tech Memo. (WSP-USA)

Motion by Lee Sweeten to send a letter requesting an extension for the submittal of the mandated Tech Memo; second by Joseph McDaniel. The motion passed by a unanimous vote.

XVII. Consider and discuss revised draft Chapter 2 - Population and Water Demands for the 2021 Plateau Region Water Plan.

The Group briefly reviewed the handout entitled “Chapter 2 – Population and Water Demand”. Mr. Letz stated that it will be on the next agenda for final approval.

XVIII. Update on Revised 31 Texas Administrative Code Rules, Chapters 355 & 357 presentation.

Mr. Alfaro informed the Group that the Water Development Board is working on the flood assessment. They sent out surveys, received some responses and will be taking public comments during the summer. The report is due in December. The purpose of the assessment is to assess flood risk and estimated flood mitigation costs to determine flood planning for the future.

Mr. Alfaro reviewed his handout entitled “Texas Regional Water Planning – Update on Revised 31 Texas Administrative Code Rules Chapters 355 and 357”. He went on to give a presentation regarding the recent changes to the planning rules stating that the purpose of the rule provisions is to implement legislative changes from the last legislative session. The process was done in three steps: input from stakeholders, proposing the draft provisions, and revising and adopting the final rules. Final rules were adopted on March 21st and are effective April 11th. Senate Bill 347 establishes that all Committees and Sub-Committees of Regional Water Planning Groups are now ~~subject to~~ subject to the Open Meeting Act and Public Information Act, and any meetings they have will require the same 72-hour notice as the Planning Group meetings. House Bill 2215 synchronized the process of a statewide plan in Desired Future Conditions. He spoke briefly regarding the analysis for the infeasible water management strategies. They will have a 14-day knowledge requirement and a 14-day comment period. Some entities will be required to give notice when these strategies have become infeasible, and there will need to be an amendment to remove them. Ms. Herrera stated that she was informed that the Board will provide detailed guidance on what they consider infeasible because there was some discussion about what may be feasible and infeasible in one region may not be infeasible in another. Mr. Alfaro agreed. He said the Board would be updating the approved pamphlet with more information.

Mr. Alfaro reviewed his handout entitled “Regional Water Planning: The Simplified Planning Process”. He stated that the Technical Memorandum includes the declaration of the planning group to pursue or not to pursue simplified planning. If the planning group does not declare intent to pursue simplified planning, the planning group may proceed without any additional approvals. Mr. Buck asked if they would receive any money back if they went with a simplified plan. Mr. Alfaro said they are still working on that and trying to define the process that but at this point they don’t have guidance yet.

Simplified planning would require three meetings: the technical memorandum, the hearing, and the meeting with the planning group to take public comments, address those comments, and then declare the decision of the planning group.

He reviewed the Open Meetings Act and Public Information Act (SB347), SWP and DFC Processes (HB 2215), Excluding Infeasible WMS’s (SB 1511), Excluding Infeasible WMSs Notice Requirements (SB 1511), Simplified Planning (SB 1511), Simplified Planning Hearing and Notice Requirements (SB 1511), Other Rule Amendments (SB 1511 – including adding State and Soil Water Conservation Board to the Planning Groups – as a non-voting member) as well as other miscellaneous changes. There is a new section 357.11(e)(6) which adds the Soil and Water Conservation Board as a non-voting member to each regional planning group.

Mr. Sweeten commented on the fact that there seems to be requirements for more and more public hearings/meetings but the public never attends the meetings. Mr. Alfaro agreed that more hearings would be required if the Group plans to pursue simplified planning. Basically the Group would be adopting the information in the previously adopted plan and the statewide plan so the public needs to have an opportunity to comment on that.

XIX. Set next meeting.

The next meeting was tentatively set for either July 25th or August 1st.

Minutes
Plateau Water Planning Group
Regular Meeting - Leakey, Texas
October 24, 2018
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Wednesday, October 24, 2018, beginning at 10:00 A.M. at The Frio Canyon Baptist Church, 919 US-83, Leakey, Real County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joel Pigg, Real County; Gene Williams, Kerr County; Scott Loveland, Kerr County; Jody Grinstead; John Ashworth, WSP and LBG-Guyton & Associates; Jennifer Herrera, WSP and LBG-Guyton & Associates; Elizabeth McCoy, Texas Water Development Board; Carl Schwing; Chad Norris, Texas Parks and Wildlife; Joseph McDaniel, Aqua America; Charlie Wiedenfeld, Kerr County; David Jeffery, Bandera County; Michael Redman for David Mauk, Bandera County; Genell Hobbs, Kinney County; Tully Shahan, Kinney County; Jerry Simpton, Val Verde County; Tony Smith, Carollo Engineering; Charlie Flatten, Kendra Ray, Ernie DeWinne; Sky Lewey and Clint Carter.

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

It was determined that a quorum was present.

II. Public Comments.

No public comments were given

III. Approval of minutes from the May 17, 2018 Regular Meeting.

Motion by David Jeffery to approve the May 17, 2018 minutes; second by Joel Pigg. The Motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

Mr. Letz informed the Group about the Chairs Conference Call that was held on October 22nd. He stated there would be another call in mid-January to go over the prioritization process.

He received a letter from the Llano River Watershed Alliance requesting that the South Llano River in Edwards County be designated as a unique stream segment.

The current balance in the administrative account is \$12,032.22.

We have a new representative from the Department of Agriculture; Rob Barthen

b. Report from Secretary.

No report was given.

c. Report from Political Entity.

No report was given

d. Report from Liaisons.

No reports were given

e. Report from GMA representatives.

David Jeffery gave an update on GMA 9. Genell Hobbs gave an update on GMA10

V. **Consider, discuss and take appropriate action to approve invoices.**
Motion by Genell Hobbs to approve the following invoices: WSP \$4,345.01 (3/3/18 – 3/30/18); WSP \$2,421.80 (3/31/18 – 5/4/18); WSP \$8,062.43 (5/5/18 – 6/1/18); WSP \$376.31 (6/2/18 – 6/29/18); WSP \$9,645.94 (6/30/18 – 8/3/18); WSP \$1,855.11 (8/4/18 – 8/31/18); WSP \$6,645.64 (9/1/18 – 9/28/18) and JP Morgan \$285.00 (Transcription Reimbursement for May meeting – paid to GMR Transcription with the Kerr County JP Morgan credit card); second by Joel McDaniel. The motion passed by a unanimous vote.

VI. **Texas Water Development Board Updates. (William Alfaro, Project Manager)**
Elizabeth McCoy (at meeting on behalf of William Alfaro) gave the following updates:

All of the Tech Memo's for each of the regions that have been submitted are posted online. Based on those, a data visualization map was created which plots the data in the planning database and shows what the needs are for each of the WUG's.

TWDB sent out communication about two water management strategy evaluation tools that are going to be available in December: (1) a conservation planning tool and (2) a uniform costing tool.

The socioeconomic impact analysis; the planning groups are required to look at the impacts of not meeting the water needs. In the past the TWDB performed the analysis on all of them; in the future the Planning Group must request the analysis be done. She reviewed the process on how to request the analysis.

The Uniform Standard Stakeholder Committee is going to be meeting to review the uniform standards for prioritization for projects in the regional water plans. She gave some background on how that committee was created.

The TWDB financial assistance workshop will be November the 8th at 10:00 a.m., at Schreiner University in Kerrville.

The state flood assessment draft report was posted for public comment in September. That public comment period closed the beginning of October. TWDB staff are working on considering the comments that were received and a final assessment report is going to be taken to the Board for consideration in December.

The Water for Texas Conference will be held Austin, January 23rd through 25th, 2019. Topics will include: Texas water policy, the state flood assessment, conservation, and innovative water supply solutions, and water communication.

VII. **Consider, discuss and take appropriate action to fill vacancy for Public Interest representing Val Verde, Edwards or Kinney Counties.**

Mr. Letz stated that one nomination (from Edwards County Judge, Souli Shanklin) was received for Max Martin. Mr. Martin was not able to be at the meeting today as he cannot leave his ranch due to the recent flooding. **Motion by Tully Shahan to approve Max Martin for the Public Interest representative to Val Verde, Edwards, and Kinney Counties; second by Jerry Simpton. The motion passed by a unanimous vote.**

VIII. **Consider, discuss and take appropriate action to fill vacancy for Public Interest representing Kerr, Bandera or Real Counties.**

Mr. Letz stated that one nomination was received from Bandera County River Authorities for Charles Flatten. **Motion by Joel Pigg to approve Charles Flatten for the Public Interest representing Kerr, Bandera or Real Counties; second by Michael Redman. The motion passed by a unanimous vote.**

IX. **Consider, discuss and take appropriate action to fill vacancy for Public Interest - Val Verde County.**

Mr. Letz stated that a verbal nomination was received from Jerry Simpton, as well as a letter from the Devils River Conservancy, for Dell Dickinson. **Motion by Jerry Simpton to approve Dell Dickinson for the Val Verde County Public Interest vacancy; second by Tully Shahan. The motion passed by a unanimous vote.** Mr. Dickinson was unable to attend today's meeting as he is unable to leave his ranch due to localized flooding.

X. **Update on the regional water planning schedule. (WSP)**

Ms. Herrera briefly reviewed the planning schedule timeline. She stated the Tech Memo is on the website for review and will remain there for an additional 14 days. After that time it will be submitted to the Water Development Board. Moving forward the Group will begin looking at the needs of the region and begin assessing upcoming water shortages which will start the strategy development. One of the requirements prior to developing the strategies is working on the Task 5A scope and budget. That will be presented at the next meeting.

Ms. Herrera gave a presentation regarding ground water.

Tony Smith gave a presentation regarding surface water.

XI. **Consider, discuss and take appropriate action to request that the Texas Water Development Board remove the water user group identified as Kerr County Steam Electric Power from the TWDB planning database.**

Motion by Ray Buck to request that Kerr County Steam Electric Power be removed from the TWDB Planning database; second by Joel Pigg. The motion passed by a unanimous vote. Ms. McCoy stated that the Group needs to send a letter stating the Group has approved the request to remove Steam Electric Power and send it to the TWDB.

XII. **Consider, discuss and take appropriate action to pursue or not pursue Simplified Planning for the Plateau Region Water Plan. (WSP)**

John Ashworth briefly described the Simplified Planning process. It is an option offered by the TWDB which reduces a significant amount of workload that's required in regional water planning. However, in order to pursue Simplified Planning the Group must answer in the affirmative either one of the following statements: (1) there is sufficient existing water supplies in the region to meet all water needs for the 50-year planning period (2) there are no significant changes to water availability, water supplies, or water demands in the region.

Mr. Ashworth reviewed the requirements for pursuing Simplified Planning. A brief discussion ensued. **Motion by Joseph McDaniel to not pursue simplified planning for the Plateau Region Water Plan; second by David Jeffery. The motion passed by a unanimous vote.**

XIII. **Consider, discuss, receive public comment, and take appropriate action to approve the Technical Memorandum as required by TWDB rule. (WSP)**

Mr. Letz noted that the public meeting to receive comments was posted properly. A Public Comment was made by Jerry Simpton. No other public comments were received.

Mr. Ashworth briefly discussed the “Plateau Regional Water Planning Area Technical Memorandum”. It was noted that the document mistakenly listed the “Far West Texas Water Planning Group” on the cover but Mr. Ashworth assured the Group that the material in the document was for the Plateau Water Planning Group. He stated no public comments have been received thus far, but the comment period will remain open for 14 more days. The deadline to submit the Tech Memo to the TWDB is November 9th and WSP will hand deliver the document.

Motion by Genell Hobbs to approve the Technical Memorandum with the one modification to change the cover page to reflect the Plateau Water Planning Group; second by Joel Pigg. The motion passed by a unanimous vote.

XIV. **Authorize the UGRA to submit the approved Technical Memorandum to the TWDB by the November 9, 2018 revised deadline. (UGRA)**

Motion by Gene Williams to authorize UGRA to submit the Technical Memorandum to the Texas Water Development Board; second by Joseph McDaniel. The motion passed by a unanimous vote.

XV. **Discuss upcoming planning activities. (WSP)**

Mr. Ashworth stated the Group will discuss the Task 5A scoping budget at the next meeting as well as the analysis of the proposed strategies.

He spoke briefly regarding the designation of the ecologically unique stream segments. He stated that the Group can recommend that streams be designated as ecologically unique; but the Legislature is the one who actually designates those. If it meets all the administrative correctness, the Water Development Board will put it into the State Water Plan as a recommendation. The Group briefly discussed: reservoirs, pipelines and Region H’s designation of streams and the flooding issues they have had .

XVI. **Set next meeting.**

The next meeting was set for January 30, 2019 at 10:00 AM in Leakey.



Question the existing
Imagine the impossible
Create the enduring

PLATEAU REGIONAL WATER PLANNING AREA TECHNICAL MEMORANDUM

Prepared for:

Texas Water Development Board

On behalf of Far West Texas Water Planning Group

October 24, 2018

Prepared by:

WSP USA

1101 S. Capital of Texas Hwy, B-220

Austin, Texas 78746

512-327-9640

INTRODUCTION

The following **Technical Memorandum** is in compliance with Texas Water Development Board (TWDB) Rule 31 TAC §357.12(c) and is required as documented in the Second Amended Guidelines for Regional Water Planning (Exhibit C, Section 13.1.1) (April 2018). The Plateau Region Water Planning Group recognizes that the tables presented in this report contain planning data that currently resides in the TWDB water planning database (DB 22), and that this data is subject to revision prior to submittal of the final 2021 Far West Texas Water Plan. The following memorandum contains the following required documents:

1. TWDB DB22 Population Projection.
2. TWDB DB22 Water Demand Report.
3. TWDB DB22 WUG Category Summary Report.
4. TWDB DB22 Source Water Availability Report.
5. TWDB DB22 Existing Water Supplies Report.
6. TWDB DB22 Identified Water Needs/Surpluses Report.
7. TWDB DB22 Source Water Balance Report.
8. TWDB DB22 WUG Data Comparison to 2016 RWP Report.
9. TWDB DB22 Source Data Comparison to 2016 RWP Report.
10. Approved modifications to reservoir or reservoir system firm yield, reallocated annual MAG volumes, or use of MAG Peak Factors.
11. Process used by the Regional Water Planning Group (RWPG) to identify potentially feasible water management strategies.
12. Potentially feasible water management strategies identified by the RWPG to date.
13. Versions, dates, and electronic files of all WAM models and runs used in determining surface water availability.
14. Methodologies used for RWPG-estimated groundwater availabilities to date.
15. Declaration of whether the RWPG intends to pursue simplified planning for the regional water Planning area.
16. Written Summary of All WAM and GAM models.
17. Public Comments Received on Technical Memorandum.

1. TWDB DB22 Population Projection Report

Region J Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER	122	140	150	155	157	158
GUADALUPE BASIN TOTAL	122	140	150	155	157	158
COUNTY-OTHER	1,114	1,282	1,376	1,414	1,438	1,450
NUECES BASIN TOTAL	1,114	1,282	1,376	1,414	1,438	1,450
BANDERA	1,875	2,160	2,316	2,380	2,420	2,442
BANDERA COUNTY FWSD 1	679	781	838	862	876	883
COUNTY-OTHER BANDERA RIVER RANCH 1	929	1,070	1,148	1,180	1,199	1,209
COUNTY-OTHER LAKE MEDINA SHORES	2,415	2,781	2,985	3,068	3,118	3,144
COUNTY-OTHER MEDINA WSC	895	1,031	1,107	1,137	1,156	1,166
COUNTY-OTHER	16,962	19,535	20,961	21,546	21,901	22,085
SAN ANTONIO BASIN TOTAL	23,755	27,358	29,355	30,173	30,670	30,929
BANDERA COUNTY TOTAL	24,991	28,780	30,881	31,742	32,265	32,537
ROCKSPRINGS	844	844	844	844	844	844
COUNTY-OTHER	136	136	136	136	136	136
COLORADO BASIN TOTAL	980	980	980	980	980	980
ROCKSPRINGS	415	415	415	415	415	415
COUNTY-OTHER BARKSDALE WSC	264	264	264	264	264	264
COUNTY-OTHER	391	391	391	391	391	391
NUECES BASIN TOTAL	1,070	1,070	1,070	1,070	1,070	1,070
COUNTY-OTHER	73	73	73	73	73	73
RIO GRANDE BASIN TOTAL	73	73	73	73	73	73
EDWARDS COUNTY TOTAL	2,123	2,123	2,123	2,123	2,123	2,123
COUNTY-OTHER	507	541	562	582	596	607
COLORADO BASIN TOTAL	507	541	562	582	596	607
KERRVILLE	25,658	26,638	27,217	27,792	28,203	28,522
KERRVILLE SOUTH WATER	2,821	2,969	3,057	3,143	3,206	3,254
COUNTY-OTHER CENTER POINT	161	172	178	184	189	192
COUNTY-OTHER CENTER POINT NORTH WATER SYSTEM	255	272	282	291	298	304
COUNTY-OTHER CENTER POINT TAYLOR SYSTEM	530	564	585	605	619	631
COUNTY-OTHER HILLS AND DALES ESTATES	202	216	223	231	237	241
COUNTY-OTHER NICKERSON FARM WATER SYSTEM	200	213	221	229	234	238
COUNTY-OTHER OAK FOREST SOUTH WATER	669	712	738	763	782	796
COUNTY-OTHER PARK PLACE SUBDIVISION	129	138	143	148	151	154
COUNTY-OTHER PECAN VALLEY	123	131	135	140	144	146
COUNTY-OTHER RUSTIC HILLS WATER	80	85	88	91	93	95
COUNTY-OTHER VERDE PARK ESTATES	178	189	196	203	208	211
COUNTY-OTHER WESTWOOD WATER SYSTEM	269	287	297	307	315	320
COUNTY-OTHER	20,583	21,982	22,813	23,636	24,226	24,679
GUADALUPE BASIN TOTAL	51,858	54,568	56,173	57,763	58,905	59,783
COUNTY-OTHER	6	7	7	7	8	8
NUECES BASIN TOTAL	6	7	7	7	8	8

Region J Water User Group (WUG) Population

	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER	273	291	302	313	321	327
SAN ANTONIO BASIN TOTAL	273	291	302	313	321	327
KERR COUNTY TOTAL	52,644	55,407	57,044	58,665	59,830	60,725
COUNTY-OTHER	81	82	82	82	82	82
NUECES BASIN TOTAL	81	82	82	82	82	82
BRACKETTVILLE	1,958	1,971	1,971	1,971	1,971	1,971
FORT CLARK SPRINGS MUD	1,259	1,267	1,267	1,267	1,267	1,267
COUNTY-OTHER	397	400	400	400	400	400
RIO GRANDE BASIN TOTAL	3,614	3,638	3,638	3,638	3,638	3,638
KINNEY COUNTY TOTAL	3,695	3,720	3,720	3,720	3,720	3,720
COUNTY-OTHER	35	35	35	35	35	35
COLORADO BASIN TOTAL	35	35	35	35	35	35
CAMP WOOD	747	747	747	747	747	747
LEAKEY	1,415	1,415	1,415	1,415	1,415	1,415
COUNTY-OTHER	1,132	1,132	1,132	1,132	1,132	1,132
NUECES BASIN TOTAL	3,294	3,294	3,294	3,294	3,294	3,294
REAL COUNTY TOTAL	3,329	3,329	3,329	3,329	3,329	3,329
DEL RIO UTILITIES COMMISSION	37,775	40,196	42,540	44,948	47,242	49,453
LAUGHLIN AIR FORCE BASE	1,767	1,951	2,129	2,239	2,239	2,239
COUNTY-OTHER	15,152	18,242	21,233	24,379	27,479	30,469
RIO GRANDE BASIN TOTAL	54,694	60,389	65,902	71,566	76,960	82,161
VAL VERDE COUNTY TOTAL	54,694	60,389	65,902	71,566	76,960	82,161
REGION J TOTAL POPULATION	141,476	153,748	162,999	171,145	178,227	184,595

2. TWDB DB22 Water Demand Projection Report

Region J Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER	13	14	15	15	15	15
LIVESTOCK	11	11	11	11	11	11
GUADALUPE BASIN TOTAL	24	25	26	26	26	26
COUNTY-OTHER	116	129	136	138	140	141
LIVESTOCK	47	47	47	47	47	47
IRRIGATION	182	182	182	182	182	182
NUECES BASIN TOTAL	345	358	365	367	369	370
BANDERA	342	383	404	413	419	423
BANDERA COUNTY FWSD 1	141	158	167	171	174	175
COUNTY-OTHER BANDERA RIVER RANCH 1	97	108	113	115	117	118
COUNTY-OTHER LAKE MEDINA SHORES	251	280	294	299	303	306
COUNTY-OTHER MEDINA WSC	93	104	109	111	112	113
COUNTY-OTHER	1,765	1,965	2,066	2,102	2,132	2,149
LIVESTOCK	185	185	185	185	185	185
IRRIGATION	764	764	764	764	764	764
SAN ANTONIO BASIN TOTAL	3,638	3,947	4,102	4,160	4,206	4,233
BANDERA COUNTY TOTAL	4,007	4,330	4,493	4,553	4,601	4,629
ROCKSPRINGS	198	194	191	190	190	190
COUNTY-OTHER	15	14	14	14	14	14
MINING	19	19	19	19	19	19
LIVESTOCK	106	106	106	106	106	106
IRRIGATION	66	66	66	66	66	66
COLORADO BASIN TOTAL	404	399	396	395	395	395
ROCKSPRINGS	98	96	94	94	94	94
COUNTY-OTHER BARKSDALE WSC	29	28	27	26	26	26
COUNTY-OTHER	43	41	39	39	39	39
MINING	25	25	25	25	25	25
LIVESTOCK	192	192	192	192	192	192
IRRIGATION	89	89	89	89	89	89
NUECES BASIN TOTAL	476	471	466	465	465	465
COUNTY-OTHER	8	8	7	7	7	7
MINING	45	45	45	45	45	45
LIVESTOCK	99	99	99	99	99	99
IRRIGATION	60	60	60	60	60	60
RIO GRANDE BASIN TOTAL	212	212	211	211	211	211
EDWARDS COUNTY TOTAL	1,092	1,082	1,073	1,071	1,071	1,071
COUNTY-OTHER	43	44	44	44	45	46
MINING	14	15	18	19	20	22
LIVESTOCK	166	166	166	166	166	166
IRRIGATION	61	61	61	61	61	61
COLORADO BASIN TOTAL	284	286	289	290	292	295
KERRVILLE	5,082	5,158	5,178	5,237	5,305	5,364
KERRVILLE SOUTH WATER	341	346	347	352	358	363
COUNTY-OTHER CENTER POINT	14	14	14	14	14	15
COUNTY-OTHER CENTER POINT NORTH WATER SYSTEM	22	22	22	22	23	23
COUNTY-OTHER CENTER POINT TAYLOR SYSTEM	45	45	46	46	47	48
COUNTY-OTHER HILLS AND DALES ESTATES	17	17	17	18	18	18

Region J Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
COUNTY-OTHER NICKERSON FARM WATER SYSTEM	17	17	17	17	18	18
COUNTY-OTHER OAK FOREST SOUTH WATER	56	57	57	58	59	60
COUNTY-OTHER PARK PLACE SUBDIVISION	11	11	11	11	11	12
COUNTY-OTHER PECAN VALLEY	10	11	11	11	11	11
COUNTY-OTHER RUSTIC HILLS WATER	7	7	7	7	7	7
COUNTY-OTHER VERDE PARK ESTATES	15	15	15	15	16	16
COUNTY-OTHER WESTWOOD WATER SYSTEM	23	23	23	23	24	24
COUNTY-OTHER	1,737	1,769	1,773	1,804	1,842	1,875
MANUFACTURING	20	21	21	21	21	21
MINING	62	65	82	83	91	98
STEAM ELECTRIC POWER	444	444	444	444	444	444
LIVESTOCK	546	546	546	546	546	546
IRRIGATION	1,239	1,239	1,239	1,239	1,239	1,239
GUADALUPE BASIN TOTAL	9,708	9,827	9,870	9,968	10,094	10,202
COUNTY-OTHER	1	1	1	1	1	1
LIVESTOCK	9	9	9	9	9	9
NUECES BASIN TOTAL	10	10	10	10	10	10
COUNTY-OTHER	23	23	24	24	24	25
LIVESTOCK	36	36	36	36	36	36
IRRIGATION	42	42	42	42	42	42
SAN ANTONIO BASIN TOTAL	101	101	102	102	102	103
KERR COUNTY TOTAL	10,103	10,224	10,271	10,370	10,498	10,610
COUNTY-OTHER	11	11	11	11	10	10
LIVESTOCK	100	100	100	100	100	100
IRRIGATION	1,300	1,300	1,300	1,300	1,300	1,300
NUECES BASIN TOTAL	1,411	1,411	1,411	1,411	1,410	1,410
BRACKETVILLE	608	602	594	593	592	592
FORT CLARK SPRINGS MUD	618	616	612	610	609	609
COUNTY-OTHER	53	52	51	51	51	51
LIVESTOCK	124	124	124	124	124	124
IRRIGATION	2,413	2,413	2,413	2,413	2,413	2,413
RIO GRANDE BASIN TOTAL	3,816	3,807	3,794	3,791	3,789	3,789
KINNEY COUNTY TOTAL	5,227	5,218	5,205	5,202	5,199	5,199
COUNTY-OTHER	4	4	3	3	3	3
LIVESTOCK	13	13	13	13	13	13
IRRIGATION	12	12	12	12	12	12
COLORADO BASIN TOTAL	29	29	28	28	28	28
CAMP WOOD	143	139	136	135	135	135
LEAKEY	193	186	180	178	177	177
COUNTY-OTHER	120	116	113	111	111	111
LIVESTOCK	138	138	138	138	138	138
IRRIGATION	258	258	258	258	258	258
NUECES BASIN TOTAL	852	837	825	820	819	819
REAL COUNTY TOTAL	881	866	853	848	847	847
DEL RIO UTILITIES COMMISSION	10,558	11,053	11,554	12,130	12,733	13,326
LAUGHLIN AIR FORCE BASE	1,018	1,114	1,215	1,277	1,276	1,276
COUNTY-OTHER	1,976	2,307	2,637	3,002	3,376	3,741

Region J Water User Group (WUG) Demand

	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
MINING	190	249	259	223	192	171
LIVESTOCK	410	410	410	410	410	410
IRRIGATION	2,319	2,319	2,319	2,319	2,319	2,319
RIO GRANDE BASIN TOTAL	16,471	17,452	18,394	19,361	20,306	21,243
VAL VERDE COUNTY TOTAL	16,471	17,452	18,394	19,361	20,306	21,243
REGION J TOTAL DEMAND	37,781	39,172	40,289	41,405	42,522	43,599

3. TWDB DB22 Category Summary Report

Region J Water User Group (WUG) Category Summary*

MUNICIPAL	2020	2030	2040	2050	2060	2070
POPULATION	77,213	81,354	84,756	88,023	90,845	93,452
DEMAND (acre-feet per year)	19,340	20,045	20,672	21,380	22,062	22,724
EXISTING SUPPLIES (acre-feet per year)	34,327	34,327	34,327	34,327	34,327	34,327
NEEDS (acre-feet per year)	1,374	1,454	1,472	1,532	1,602	1,662

COUNTY-OTHER	2020	2030	2040	2050	2060	2070
POPULATION	64,263	72,394	78,243	83,122	87,382	91,143
DEMAND (acre-feet per year)	6,635	7,257	7,717	8,159	8,616	9,043
EXISTING SUPPLIES (acre-feet per year)	19,906	19,906	19,906	19,906	19,906	19,906
NEEDS (acre-feet per year)	265	316	341	350	358	365

MANUFACTURING	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	20	21	21	21	21	21
EXISTING SUPPLIES (acre-feet per year)	48	48	48	48	48	48
NEEDS (acre-feet per year)	0	0	0	0	0	0

MINING	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	355	418	448	414	392	380
EXISTING SUPPLIES (acre-feet per year)	194	194	194	194	194	194
NEEDS (acre-feet per year)	221	281	294	259	229	210

STEAM ELECTRIC POWER	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	444	444	444	444	444	444
EXISTING SUPPLIES (acre-feet per year)	0	0	0	0	0	0
NEEDS (acre-feet per year)	444	444	444	444	444	444

LIVESTOCK	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	2,182	2,182	2,182	2,182	2,182	2,182
EXISTING SUPPLIES (acre-feet per year)	2,562	2,562	2,562	2,562	2,562	2,562
NEEDS (acre-feet per year)	357	357	357	357	357	357

IRRIGATION	2020	2030	2040	2050	2060	2070
DEMAND (acre-feet per year)	8,805	8,805	8,805	8,805	8,805	8,805
EXISTING SUPPLIES (acre-feet per year)	22,170	22,170	22,170	22,170	22,170	22,170
NEEDS (acre-feet per year)	117	117	117	117	117	117

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Category Summary report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

4. Source Water Availability Report

Region J Source Availability

GROUNDWATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
AUSTIN CHALK AQUIFER	KINNEY	RIO GRANDE	BRACKISH	4,928	4,928	4,928	4,928	4,928	4,928
EDWARDS-BFZ AQUIFER	KINNEY	NUECES	FRESH	6,319	6,319	6,319	6,319	6,319	6,319
EDWARDS-BFZ AQUIFER	KINNEY	RIO GRANDE	FRESH	2	2	2	2	2	2
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	GUADALUPE	FRESH	81	81	81	81	81	81
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	NUECES	FRESH	38	38	38	38	38	38
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	SAN ANTONIO	FRESH	1,890	1,890	1,890	1,890	1,890	1,890
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	COLORADO	FRESH	245	245	245	245	245	245
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	GUADALUPE	FRESH	1,015	1,015	1,015	1,015	1,015	1,015
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	NUECES	FRESH	5	5	5	5	5	5
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	SAN ANTONIO	FRESH	12	12	12	12	12	12
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	COLORADO	FRESH	2,305	2,305	2,305	2,305	2,305	2,305
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	NUECES	FRESH	1,631	1,631	1,631	1,631	1,631	1,631
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	RIO GRANDE	FRESH	1,740	1,740	1,740	1,740	1,740	1,740
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	KINNEY	NUECES	FRESH	12	12	12	12	12	12
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	KINNEY	RIO GRANDE	FRESH	70,329	70,329	70,329	70,329	70,329	70,329
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	COLORADO	FRESH	277	277	277	277	277	277
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	GUADALUPE	FRESH	3	3	3	3	3	3
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	NUECES	FRESH	7,243	7,243	7,243	7,243	7,243	7,243
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	VAL VERDE	RIO GRANDE	FRESH	50,000	50,000	50,000	50,000	50,000	50,000
ELLENBURGER-SAN SABA AQUIFER	KERR	GUADALUPE	FRESH	1,802	1,802	1,802	1,802	1,802	1,802
FRIO RIVER ALLUVIUM AQUIFER	REAL	NUECES	FRESH	2,145	2,145	2,145	2,145	2,145	2,145
HICKORY AQUIFER	KERR	COLORADO	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
NUECES RIVER ALLUVIUM AQUIFER	EDWARDS	NUECES	FRESH	1,787	1,787	1,787	1,787	1,787	1,787
NUECES RIVER ALLUVIUM AQUIFER	REAL	NUECES	FRESH	1,787	1,787	1,787	1,787	1,787	1,787
TRINITY AQUIFER	BANDERA	GUADALUPE	FRESH	76	76	76	76	76	76
TRINITY AQUIFER	BANDERA	NUECES	FRESH/ BRACKISH	903	903	903	903	903	903
TRINITY AQUIFER	BANDERA	SAN ANTONIO	FRESH/ BRACKISH	6,305	6,305	6,305	6,305	6,305	6,305
TRINITY AQUIFER	KERR	COLORADO	FRESH	318	318	318	318	318	318
TRINITY AQUIFER	KERR	GUADALUPE	FRESH/ BRACKISH	14,129	14,056	13,767	13,450	13,434	13,434
TRINITY AQUIFER	KERR	NUECES	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	KERR	SAN ANTONIO	FRESH	471	471	471	471	471	471
TRINITY AQUIFER ASR	KERR	GUADALUPE	FRESH	453	453	453	453	453	453
GROUNDWATER TOTAL SOURCE AVAILABILITY				178,251	178,178	177,889	177,572	177,556	177,556

*Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

Region J Source Availability

SURFACE WATER SOURCE TYPE				SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY *	2020	2030	2040	2050	2060	2070
COLORADO OTHER LOCAL SUPPLY	EDWARDS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	KERR	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	REAL	COLORADO	FRESH	0	0	0	0	0	0
COLORADO RUN-OF-RIVER	EDWARDS	COLORADO	FRESH	32	32	32	32	32	32
GUADALUPE OTHER LOCAL SUPPLY	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE RUN-OF-RIVER	BANDERA	GUADALUPE	FRESH	3	3	3	3	3	3
GUADALUPE RUN-OF-RIVER	KERR	GUADALUPE	FRESH	1,375	1,375	1,375	1,375	1,375	1,375
MEDINA LAKE/RESERVOIR	RESERVOIR	SAN ANTONIO	FRESH	0	0	0	0	0	0
NUECES LIVESTOCK LOCAL SUPPLY	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES LIVESTOCK LOCAL SUPPLY	REAL	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	KINNEY	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	REAL	NUECES	FRESH	0	0	0	0	0	0
NUECES RUN-OF-RIVER	BANDERA	NUECES	FRESH	5	5	5	5	5	5
NUECES RUN-OF-RIVER	EDWARDS	NUECES	FRESH	94	94	94	94	94	94
NUECES RUN-OF-RIVER	REAL	NUECES	FRESH	1,751	1,751	1,751	1,751	1,751	1,751
RIO GRANDE LIVESTOCK LOCAL SUPPLY	EDWARDS	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE LIVESTOCK LOCAL SUPPLY	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE OTHER LOCAL SUPPLY	KINNEY	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE OTHER LOCAL SUPPLY	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	KINNEY	RIO GRANDE	FRESH	3,616	3,616	3,616	3,616	3,616	3,616
RIO GRANDE RUN-OF-RIVER	VAL VERDE	RIO GRANDE	FRESH	13,776	13,776	13,776	13,776	13,776	13,776
SAN ANTONIO OTHER LOCAL SUPPLY	BANDERA	SAN ANTONIO	FRESH	0	0	0	0	0	0
SAN ANTONIO OTHER LOCAL SUPPLY	KERR	SAN ANTONIO	FRESH	0	0	0	0	0	0
SAN ANTONIO RUN-OF-RIVER	BANDERA	SAN ANTONIO	FRESH	2	2	2	2	2	2
SURFACE WATER TOTAL SOURCE AVAILABILITY				20,654	20,654	20,654	20,654	20,654	20,654
REGION J TOTAL SOURCE AVAILABILITY				198,905	198,832	198,543	198,226	198,210	198,210

*Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

5. TWDB DB22 Existing Water Supplies Report

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	34	34	34	34	34	34
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	9	9	9	9	9	9
GUADALUPE BASIN TOTAL			43	43	43	43	43	43
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	38	38	38	38	38	38
COUNTY-OTHER	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER	J	TRINITY AQUIFER BANDERA COUNTY	399	399	399	399	399	399
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	0	0	0	0	0	0
LIVESTOCK	J	TRINITY AQUIFER BANDERA COUNTY	44	44	44	44	44	44
IRRIGATION	J	NUECES RUN-OF-RIVER	5	5	5	5	5	5
IRRIGATION	J	TRINITY AQUIFER BANDERA COUNTY	279	279	279	279	279	279
NUECES BASIN TOTAL			765	765	765	765	765	765
BANDERA	J	TRINITY AQUIFER BANDERA COUNTY	534	534	534	534	534	534
BANDERA COUNTY FWSD 1	J	TRINITY AQUIFER BANDERA COUNTY	75	75	75	75	75	75
COUNTY-OTHER BANDERA RIVER RANCH 1	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER BANDERA RIVER RANCH 1	J	SAN ANTONIO RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER BANDERA RIVER RANCH 1	J	TRINITY AQUIFER BANDERA COUNTY	69	69	69	69	69	69
COUNTY-OTHER LAKE MEDINA SHORES	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER LAKE MEDINA SHORES	J	SAN ANTONIO RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER LAKE MEDINA SHORES	J	TRINITY AQUIFER BANDERA COUNTY	55	55	55	55	55	55
COUNTY-OTHER MEDINA WSC	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER MEDINA WSC	J	SAN ANTONIO RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER MEDINA WSC	J	TRINITY AQUIFER BANDERA COUNTY	58	58	58	58	58	58
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	379	379	379	379	379	379
COUNTY-OTHER	J	SAN ANTONIO RUN-OF-RIVER	0	0	0	0	0	0
COUNTY-OTHER	J	TRINITY AQUIFER BANDERA COUNTY	4,356	4,356	4,356	4,356	4,356	4,356
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER BANDERA COUNTY	111	111	111	111	111	111
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LIVESTOCK	J	TRINITY AQUIFER BANDERA COUNTY	85	85	85	85	85	85
IRRIGATION	J	GUADALUPE RUN-OF-RIVER	3	3	3	3	3	3
IRRIGATION	J	SAN ANTONIO RUN-OF-RIVER	2	2	2	2	2	2
IRRIGATION	J	TRINITY AQUIFER BANDERA COUNTY	684	684	684	684	684	684
SAN ANTONIO BASIN TOTAL			6,411	6,411	6,411	6,411	6,411	6,411
BANDERA COUNTY TOTAL			7,219	7,219	7,219	7,219	7,219	7,219
ROCKSPRINGS	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	871	871	871	871	871	871
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	57	57	57	57	57	57
MINING	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	7	7	7	7	7	7
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	471	471	471	471	471	471
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	COLORADO RUN-OF-RIVER	32	32	32	32	32	32

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	78	78	78	78	78	78
COLORADO BASIN TOTAL			1,516	1,516	1,516	1,516	1,516	1,516
ROCKSPRINGS		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
COUNTY-OTHER BARKSDALE WSC	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	110	110	110	110	110	110
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	155	155	155	155	155	155
COUNTY-OTHER	J	NUECES RIVER ALLUVIUM AQUIFER EDWARDS COUNTY	8	8	8	8	8	8
MINING	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	9	9	9	9	9	9
MINING	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	206	206	206	206	206	206
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	109	109	109	109	109	109
IRRIGATION	J	NUECES RUN-OF-RIVER	94	94	94	94	94	94
NUECES BASIN TOTAL			691	691	691	691	691	691
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	30	30	30	30	30	30
MINING	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	14	14	14	14	14	14
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	110	110	110	110	110	110
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER EDWARDS COUNTY	70	70	70	70	70	70
RIO GRANDE BASIN TOTAL			224	224	224	224	224	224
EDWARDS COUNTY TOTAL			2,431	2,431	2,431	2,431	2,431	2,431
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	64	64	64	64	64	64
MINING	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	3	3	3	3	3	3
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	47	47	47	47	47	47
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	92	92	92	92	92	92
IRRIGATION	J	TRINITY AQUIFER KERR COUNTY	0	0	0	0	0	0
COLORADO BASIN TOTAL			206	206	206	206	206	206
KERRVILLE	J	GUADALUPE RUN-OF-RIVER	150	150	150	150	150	150
KERRVILLE	J	TRINITY AQUIFER KERR COUNTY	3,605	3,605	3,605	3,605	3,605	3,605
KERRVILLE	J	TRINITY AQUIFER ASR KERR COUNTY	453	453	453	453	453	453
KERRVILLE SOUTH WATER	J	TRINITY AQUIFER KERR COUNTY	387	387	387	387	387	387
COUNTY-OTHER CENTER POINT	J	TRINITY AQUIFER KERR COUNTY	11	11	11	11	11	11
COUNTY-OTHER CENTER POINT NORTH WATER SYSTEM	J	TRINITY AQUIFER KERR COUNTY	23	23	23	23	23	23
COUNTY-OTHER CENTER POINT TAYLOR SYSTEM	J	TRINITY AQUIFER KERR COUNTY	43	43	43	43	43	43
COUNTY-OTHER HILLS AND DALES ESTATES	J	TRINITY AQUIFER KERR COUNTY	18	18	18	18	18	18
COUNTY-OTHER NICKERSON FARM WATER SYSTEM	J	TRINITY AQUIFER KERR COUNTY	22	22	22	22	22	22
COUNTY-OTHER OAK FOREST SOUTH WATER	J	TRINITY AQUIFER KERR COUNTY	80	80	80	80	80	80
COUNTY-OTHER PARK PLACE SUBDIVISION	J	TRINITY AQUIFER KERR COUNTY	14	14	14	14	14	14

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
	REGION		2020	2030	2040	2050	2060	2070
COUNTY-OTHER PECAN VALLEY	J	TRINITY AQUIFER KERR COUNTY	12	12	12	12	12	12
COUNTY-OTHER RUSTIC HILLS WATER	J	TRINITY AQUIFER KERR COUNTY	9	9	9	9	9	9
COUNTY-OTHER VERDE PARK ESTATES	J	TRINITY AQUIFER KERR COUNTY	16	16	16	16	16	16
COUNTY-OTHER WESTWOOD WATER SYSTEM	J	TRINITY AQUIFER KERR COUNTY	28	28	28	28	28	28
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	616	616	616	616	616	616
COUNTY-OTHER	J	GUADALUPE RUN-OF-RIVER	10	10	10	10	10	10
COUNTY-OTHER	J	TRINITY AQUIFER KERR COUNTY	7,636	7,636	7,636	7,636	7,636	7,636
MANUFACTURING	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	20	20	20	20	20	20
MANUFACTURING	J	GUADALUPE RUN-OF-RIVER	11	11	11	11	11	11
MANUFACTURING	J	TRINITY AQUIFER KERR COUNTY	17	17	17	17	17	17
MINING	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	14	14	14	14	14	14
MINING	J	GUADALUPE RUN-OF-RIVER	77	77	77	77	77	77
MINING	J	TRINITY AQUIFER KERR COUNTY	31	31	31	31	31	31
STEAM ELECTRIC POWER		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	230	230	230	230	230	230
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LIVESTOCK	J	TRINITY AQUIFER KERR COUNTY	143	143	143	143	143	143
IRRIGATION	J	GUADALUPE RUN-OF-RIVER	1,127	1,127	1,127	1,127	1,127	1,127
IRRIGATION	J	TRINITY AQUIFER KERR COUNTY	533	533	533	533	533	533
GUADALUPE BASIN TOTAL			15,336	15,336	15,336	15,336	15,336	15,336
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	3	3	3	3	3	3
NUECES BASIN TOTAL			3	3	3	3	3	3
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	3	3	3	3	3	3
COUNTY-OTHER	J	TRINITY AQUIFER KERR COUNTY	258	258	258	258	258	258
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	9	9	9	9	9	9
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU AQUIFER KERR COUNTY	0	0	0	0	0	0
IRRIGATION	J	TRINITY AQUIFER KERR COUNTY	0	0	0	0	0	0
SAN ANTONIO BASIN TOTAL			270	270	270	270	270	270
KERR COUNTY TOTAL			15,815	15,815	15,815	15,815	15,815	15,815
COUNTY-OTHER	J	EDWARDS-BFZ AQUIFER KINNEY COUNTY	29	29	29	29	29	29
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	5	5	5	5	5	5
LIVESTOCK	J	EDWARDS-BFZ AQUIFER KINNEY COUNTY	66	66	66	66	66	66
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	7	7	7	7	7	7
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-BFZ AQUIFER KINNEY COUNTY	2,357	2,357	2,357	2,357	2,357	2,357
NUECES BASIN TOTAL			2,464	2,464	2,464	2,464	2,464	2,464
BRACKETTVILLE	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	645	645	645	645	645	645
BRACKETTVILLE	J	RIO GRANDE RUN-OF-RIVER	0	0	0	0	0	0
FORT CLARK SPRINGS MUD	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	1,371	1,371	1,371	1,371	1,371	1,371
COUNTY-OTHER	J	AUSTIN CHALK AQUIFER KINNEY COUNTY	80	80	80	80	80	80

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	85	85	85	85	85	85
LIVESTOCK	J	AUSTIN CHALK AQUIFER KINNEY COUNTY	226	226	226	226	226	226
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	95	95	95	95	95	95
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	AUSTIN CHALK AQUIFER KINNEY COUNTY	952	952	952	952	952	952
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER KINNEY COUNTY	3,425	3,425	3,425	3,425	3,425	3,425
IRRIGATION	J	RIO GRANDE RUN-OF-RIVER	3,616	3,616	3,616	3,616	3,616	3,616
RIO GRANDE BASIN TOTAL			10,495	10,495	10,495	10,495	10,495	10,495
KINNEY COUNTY TOTAL			12,959	12,959	12,959	12,959	12,959	12,959
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	15	15	15	15	15	15
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	18	18	18	18	18	18
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	188	188	188	188	188	188
COLORADO BASIN TOTAL			221	221	221	221	221	221
CAMP WOOD	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LEAKEY		NO WATER SUPPLY ASSOCIATED WITH WUG	0	0	0	0	0	0
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	156	156	156	156	156	156
COUNTY-OTHER	J	FRIO RIVER ALLUVIUM AQUIFER REAL COUNTY	311	311	311	311	311	311
COUNTY-OTHER	J	NUECES RIVER ALLUVIUM AQUIFER REAL COUNTY	5	5	5	5	5	5
COUNTY-OTHER	J	NUECES RUN-OF-RIVER	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	176	176	176	176	176	176
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER REAL COUNTY	187	187	187	187	187	187
IRRIGATION	J	NUECES RUN-OF-RIVER	1,751	1,751	1,751	1,751	1,751	1,751
NUECES BASIN TOTAL			2,586	2,586	2,586	2,586	2,586	2,586
REAL COUNTY TOTAL			2,807	2,807	2,807	2,807	2,807	2,807
DEL RIO UTILITIES COMMISSION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	16,532	16,532	16,532	16,532	16,532	16,532
DEL RIO UTILITIES COMMISSION	J	RIO GRANDE RUN-OF-RIVER	7,466	7,466	7,466	7,466	7,466	7,466
LAUGHLIN AIR FORCE BASE	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	2,238	2,238	2,238	2,238	2,238	2,238
COUNTY-OTHER	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	4,609	4,609	4,609	4,609	4,609	4,609
MINING	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	39	39	39	39	39	39
MINING	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
LIVESTOCK	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	506	506	506	506	506	506
LIVESTOCK	J	LOCAL SURFACE WATER SUPPLY	0	0	0	0	0	0
IRRIGATION	J	EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER VAL VERDE COUNTY	276	276	276	276	276	276
IRRIGATION	J	RIO GRANDE RUN-OF-RIVER	6,310	6,310	6,310	6,310	6,310	6,310
RIO GRANDE BASIN TOTAL			37,976	37,976	37,976	37,976	37,976	37,976

Region J Water User Group (WUG) Existing Water Supply

WUG NAME	SOURCE REGION	SOURCE DESCRIPTION	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
			2020	2030	2040	2050	2060	2070
VAL VERDE COUNTY TOTAL			37,976	37,976	37,976	37,976	37,976	37,976
REGION J TOTAL EXISTING WATER SUPPLY			79,207	79,207	79,207	79,207	79,207	79,207

6. TWDB DB22 Identified Water Needs/Surpluses Report

Region J Water User Group (WUG) Needs/Surplus*

	(NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
BANDERA COUNTY - GUADALUPE BASIN						
COUNTY-OTHER	21	20	19	19	19	19
LIVESTOCK	(2)	(2)	(2)	(2)	(2)	(2)
BANDERA COUNTY - NUECES BASIN						
COUNTY-OTHER	321	308	301	299	297	296
LIVESTOCK	(3)	(3)	(3)	(3)	(3)	(3)
IRRIGATION	102	102	102	102	102	102
BANDERA COUNTY - SAN ANTONIO BASIN						
BANDERA	192	151	130	121	115	111
BANDERA COUNTY FWSD 1	(66)	(83)	(92)	(96)	(99)	(100)
COUNTY-OTHER BANDERA RIVER RANCH 1	(28)	(39)	(44)	(46)	(48)	(49)
COUNTY-OTHER LAKE MEDINA SHORES	(196)	(225)	(239)	(244)	(248)	(251)
COUNTY-OTHER MEDINA WSC	(35)	(46)	(51)	(53)	(54)	(55)
COUNTY-OTHER	2,970	2,770	2,669	2,633	2,603	2,586
LIVESTOCK	11	11	11	11	11	11
IRRIGATION	(75)	(75)	(75)	(75)	(75)	(75)
EDWARDS COUNTY - COLORADO BASIN						
ROCKSPRINGS	673	677	680	681	681	681
COUNTY-OTHER	42	43	43	43	43	43
MINING	(12)	(12)	(12)	(12)	(12)	(12)
LIVESTOCK	365	365	365	365	365	365
IRRIGATION	44	44	44	44	44	44
EDWARDS COUNTY - NUECES BASIN						
ROCKSPRINGS	(98)	(96)	(94)	(94)	(94)	(94)
COUNTY-OTHER BARKSDALE WSC	81	82	83	84	84	84
COUNTY-OTHER	120	122	124	124	124	124
MINING	(16)	(16)	(16)	(16)	(16)	(16)
LIVESTOCK	14	14	14	14	14	14
IRRIGATION	114	114	114	114	114	114
EDWARDS COUNTY - RIO GRANDE BASIN						
COUNTY-OTHER	22	22	23	23	23	23
MINING	(31)	(31)	(31)	(31)	(31)	(31)
LIVESTOCK	11	11	11	11	11	11
IRRIGATION	10	10	10	10	10	10
KERR COUNTY - COLORADO BASIN						
COUNTY-OTHER	21	20	20	20	19	18
MINING	(11)	(12)	(15)	(16)	(17)	(19)
LIVESTOCK	(119)	(119)	(119)	(119)	(119)	(119)
IRRIGATION	31	31	31	31	31	31
KERR COUNTY - GUADALUPE BASIN						
KERRVILLE	(874)	(950)	(970)	(1,029)	(1,097)	(1,156)
KERRVILLE SOUTH WATER	46	41	40	35	29	24
COUNTY-OTHER CENTER POINT	(3)	(3)	(3)	(3)	(3)	(4)
COUNTY-OTHER CENTER POINT NORTH WATER SYSTEM	1	1	1	1	0	0
COUNTY-OTHER CENTER POINT TAYLOR SYSTEM	(2)	(2)	(3)	(3)	(4)	(5)

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Needs/Surplus report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Surplus volumes are shown as positive values, and needs are shown as negative values in parentheses.

Region J Water User Group (WUG) Needs/Surplus*

COUNTY-OTHER HILLS AND DALES ESTATES	1	1	1	0	0	0
COUNTY-OTHER NICKERSON FARM WATER SYSTEM	5	5	5	5	4	4
COUNTY-OTHER OAK FOREST SOUTH WATER	24	23	23	22	21	20
COUNTY-OTHER PARK PLACE SUBDIVISION	3	3	3	3	3	2
COUNTY-OTHER PECAN VALLEY	2	1	1	1	1	1
COUNTY-OTHER RUSTIC HILLS WATER	2	2	2	2	2	2
COUNTY-OTHER VERDE PARK ESTATES	1	1	1	1	0	0
COUNTY-OTHER WESTWOOD WATER SYSTEM	5	5	5	5	4	4
COUNTY-OTHER	6,525	6,493	6,489	6,458	6,420	6,387
MANUFACTURING	28	27	27	27	27	27
MINING	60	57	40	39	31	24
STEAM ELECTRIC POWER	(444)	(444)	(444)	(444)	(444)	(444)
LIVESTOCK	(173)	(173)	(173)	(173)	(173)	(173)
IRRIGATION	421	421	421	421	421	421
KERR COUNTY - NUECES BASIN						
COUNTY-OTHER	(1)	(1)	(1)	(1)	(1)	(1)
LIVESTOCK	(6)	(6)	(6)	(6)	(6)	(6)
KERR COUNTY - SAN ANTONIO BASIN						
COUNTY-OTHER	238	238	237	237	237	236
LIVESTOCK	(27)	(27)	(27)	(27)	(27)	(27)
IRRIGATION	(42)	(42)	(42)	(42)	(42)	(42)
KINNEY COUNTY - NUECES BASIN						
COUNTY-OTHER	23	23	23	23	24	24
LIVESTOCK	(27)	(27)	(27)	(27)	(27)	(27)
IRRIGATION	1,057	1,057	1,057	1,057	1,057	1,057
KINNEY COUNTY - RIO GRANDE BASIN						
BRACKETTVILLE	37	43	51	52	53	53
FORT CLARK SPRINGS MUD	753	755	759	761	762	762
COUNTY-OTHER	112	113	114	114	114	114
LIVESTOCK	197	197	197	197	197	197
IRRIGATION	5,580	5,580	5,580	5,580	5,580	5,580
REAL COUNTY - COLORADO BASIN						
COUNTY-OTHER	11	11	12	12	12	12
LIVESTOCK	5	5	5	5	5	5
IRRIGATION	176	176	176	176	176	176
REAL COUNTY - NUECES BASIN						
CAMP WOOD	(143)	(139)	(136)	(135)	(135)	(135)
LEAKEY	(193)	(186)	(180)	(178)	(177)	(177)
COUNTY-OTHER	352	356	359	361	361	361
LIVESTOCK	38	38	38	38	38	38
IRRIGATION	1,680	1,680	1,680	1,680	1,680	1,680
VAL VERDE COUNTY - RIO GRANDE BASIN						
DEL RIO UTILITIES COMMISSION	13,440	12,945	12,444	11,868	11,265	10,672
LAUGHLIN AIR FORCE BASE	1,220	1,124	1,023	961	962	962
COUNTY-OTHER	2,633	2,302	1,972	1,607	1,233	868
MINING	(151)	(210)	(220)	(184)	(153)	(132)
LIVESTOCK	96	96	96	96	96	96

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Needs/Surplus report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Surplus volumes are shown as positive values, and needs are shown as negative values in parentheses.

Region J Water User Group (WUG) Needs/Surplus*

IRRIGATION	4,267	4,267	4,267	4,267	4,267	4,267
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*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Needs/Surplus report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Surplus volumes are shown as positive values, and needs are shown as negative values in parentheses.

7. TWDB DB22 Source Water Balance Report

Region J Source Water Balance (Availability - WUG Supply)

GROUNDWATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
AUSTIN CHALK AQUIFER	KINNEY	RIO GRANDE	BRACKISH	3,670	3,670	3,670	3,670	3,670	3,670
EDWARDS-BFZ AQUIFER	KINNEY	NUECES	FRESH	3,867	3,867	3,867	3,867	3,867	3,867
EDWARDS-BFZ AQUIFER	KINNEY	RIO GRANDE	FRESH	2	2	2	2	2	2
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	GUADALUPE	FRESH	38	38	38	38	38	38
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	NUECES	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU AQUIFER	BANDERA	SAN ANTONIO	FRESH	1,400	1,400	1,400	1,400	1,400	1,400
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	COLORADO	FRESH	39	39	39	39	39	39
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	GUADALUPE	FRESH	135	135	135	135	135	135
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	NUECES	FRESH	2	2	2	2	2	2
EDWARDS-TRINITY-PLATEAU AQUIFER	KERR	SAN ANTONIO	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	COLORADO	FRESH	821	821	821	821	821	821
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	NUECES	FRESH	1,042	1,042	1,042	1,042	1,042	1,042
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	EDWARDS	RIO GRANDE	FRESH	1,516	1,516	1,516	1,516	1,516	1,516
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	KINNEY	NUECES	FRESH	0	0	0	0	0	0
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	KINNEY	RIO GRANDE	FRESH	64,708	64,708	64,708	64,708	64,708	64,708
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	COLORADO	FRESH	56	56	56	56	56	56
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	GUADALUPE	FRESH	3	3	3	3	3	3
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	REAL	NUECES	FRESH	6,724	6,724	6,724	6,724	6,724	6,724
EDWARDS-TRINITY-PLATEAU, PECOS VALLEY, AND TRINITY AQUIFER	VAL VERDE	RIO GRANDE	FRESH	25,800	25,800	25,800	25,800	25,800	25,800
ELLENBURGER-SAN SABA AQUIFER	KERR	GUADALUPE	FRESH	1,802	1,802	1,802	1,802	1,802	1,802
FRIO RIVER ALLUVIUM AQUIFER	REAL	NUECES	FRESH	1,834	1,834	1,834	1,834	1,834	1,834
HICKORY AQUIFER	KERR	COLORADO	FRESH	0	0	0	0	0	0
HICKORY AQUIFER	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
NUECES RIVER ALLUVIUM AQUIFER	EDWARDS	NUECES	FRESH	1,779	1,779	1,779	1,779	1,779	1,779
NUECES RIVER ALLUVIUM AQUIFER	REAL	NUECES	FRESH	1,782	1,782	1,782	1,782	1,782	1,782
TRINITY AQUIFER	BANDERA	GUADALUPE	FRESH	76	76	76	76	76	76
TRINITY AQUIFER	BANDERA	NUECES	FRESH/ BRACKISH	181	181	181	181	181	181
TRINITY AQUIFER	BANDERA	SAN ANTONIO	FRESH/ BRACKISH	389	389	389	389	389	389
TRINITY AQUIFER	KERR	COLORADO	FRESH	318	318	318	318	318	318
TRINITY AQUIFER	KERR	GUADALUPE	FRESH/ BRACKISH	1,501	1,428	1,139	822	806	806
TRINITY AQUIFER	KERR	NUECES	FRESH	0	0	0	0	0	0
TRINITY AQUIFER	KERR	SAN ANTONIO	FRESH	150	150	150	150	150	150
TRINITY AQUIFER ASR	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
GROUNDWATER TOTAL SOURCE WATER BALANCE				119,635	119,562	119,273	118,956	118,940	118,940

*Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

Region J Source Water Balance (Availability - WUG Supply)

SURFACE WATER SOURCE TYPE				SOURCE WATER BALANCE (ACRE-FEET PER YEAR)					
SOURCE NAME	COUNTY	BASIN	SALINITY*	2020	2030	2040	2050	2060	2070
COLORADO OTHER LOCAL SUPPLY	EDWARDS	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	KERR	COLORADO	FRESH	0	0	0	0	0	0
COLORADO OTHER LOCAL SUPPLY	REAL	COLORADO	FRESH	0	0	0	0	0	0
COLORADO RUN-OF-RIVER	EDWARDS	COLORADO	FRESH	0	0	0	0	0	0
GUADALUPE OTHER LOCAL SUPPLY	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE RUN-OF-RIVER	BANDERA	GUADALUPE	FRESH	0	0	0	0	0	0
GUADALUPE RUN-OF-RIVER	KERR	GUADALUPE	FRESH	0	0	0	0	0	0
MEDINA LAKE/RESERVOIR	RESERVOIR	SAN ANTONIO	FRESH	0	0	0	0	0	0
NUECES LIVESTOCK LOCAL SUPPLY	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES LIVESTOCK LOCAL SUPPLY	REAL	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	KINNEY	NUECES	FRESH	0	0	0	0	0	0
NUECES OTHER LOCAL SUPPLY	REAL	NUECES	FRESH	0	0	0	0	0	0
NUECES RUN-OF-RIVER	BANDERA	NUECES	FRESH	0	0	0	0	0	0
NUECES RUN-OF-RIVER	EDWARDS	NUECES	FRESH	0	0	0	0	0	0
NUECES RUN-OF-RIVER	REAL	NUECES	FRESH	0	0	0	0	0	0
RIO GRANDE LIVESTOCK LOCAL SUPPLY	EDWARDS	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE LIVESTOCK LOCAL SUPPLY	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE OTHER LOCAL SUPPLY	KINNEY	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE OTHER LOCAL SUPPLY	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	KINNEY	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	VAL VERDE	RIO GRANDE	FRESH	0	0	0	0	0	0
SAN ANTONIO OTHER LOCAL SUPPLY	BANDERA	SAN ANTONIO	FRESH	0	0	0	0	0	0
SAN ANTONIO OTHER LOCAL SUPPLY	KERR	SAN ANTONIO	FRESH	0	0	0	0	0	0
SAN ANTONIO RUN-OF-RIVER	BANDERA	SAN ANTONIO	FRESH	0	0	0	0	0	0
SURFACE WATER TOTAL SOURCE WATER BALANCE				0	0	0	0	0	0

REGION J TOTAL SOURCE WATER BALANCE	119,635	119,562	119,273	118,956	118,940	118,940
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*Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

8. TWDB DB22 WUG Data Comparison to 2016 RWP Report

Region J Water User Group (WUG) Data Comparison to 2016 Regional Water Plan (RWP)*

	2020 PLANNING DECADE			2070 PLANNING DECADE		
	2016 RWP	2021 RWP	DIFFERENCE (%)	2016 RWP	2021 RWP	DIFFERENCE (%)
BANDERA COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,541	5,388	112.0%	2,541	5,388	112.0%
PROJECTED DEMAND TOTAL	2,493	2,335	-6.3%	3,033	2,842	-6.3%
WATER SUPPLY NEEDS TOTAL	0	259	100.0%	493	355	-28.0%
BANDERA COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	703	973	38.4%	703	973	38.4%
PROJECTED DEMAND TOTAL	432	946	119.0%	432	946	119.0%
WATER SUPPLY NEEDS TOTAL	129	75	-41.9%	129	75	-41.9%
BANDERA COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	298	249	-16.4%	298	249	-16.4%
PROJECTED DEMAND TOTAL	297	243	-18.2%	297	243	-18.2%
WATER SUPPLY NEEDS TOTAL	13	5	-61.5%	13	5	-61.5%
BANDERA COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	660	609	-7.7%	660	609	-7.7%
PROJECTED DEMAND TOTAL	191	483	152.9%	236	598	153.4%
WATER SUPPLY NEEDS TOTAL	0	66	100.0%	0	100	100.0%
EDWARDS COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	362	360	-0.6%	362	360	-0.6%
PROJECTED DEMAND TOTAL	96	95	-1.0%	87	86	-1.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
EDWARDS COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	443	383	-13.5%	443	383	-13.5%
PROJECTED DEMAND TOTAL	227	215	-5.3%	184	215	16.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
EDWARDS COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	523	787	50.5%	523	787	50.5%
PROJECTED DEMAND TOTAL	523	397	-24.1%	523	397	-24.1%
WATER SUPPLY NEEDS TOTAL	16	0	-100.0%	16	0	-100.0%
EDWARDS COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	89	30	-66.3%	89	30	-66.3%
PROJECTED DEMAND TOTAL	89	89	0.0%	89	89	0.0%
WATER SUPPLY NEEDS TOTAL	22	59	168.2%	22	59	168.2%
EDWARDS COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	919	871	-5.2%	919	871	-5.2%
PROJECTED DEMAND TOTAL	295	296	0.3%	283	284	0.4%
WATER SUPPLY NEEDS TOTAL	98	98	0.0%	94	94	0.0%
KERR COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	5,349	8,863	65.7%	5,349	8,863	65.7%
PROJECTED DEMAND TOTAL	2,029	2,041	0.6%	2,196	2,199	0.1%
WATER SUPPLY NEEDS TOTAL	6	6	0.0%	8	10	25.0%
KERR COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,405	1,752	24.7%	1,405	1,752	24.7%
PROJECTED DEMAND TOTAL	842	1,342	59.4%	719	1,342	86.6%

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Data Comparison to 2016 RWP report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

Region J Water User Group (WUG) Data Comparison to 2016 Regional Water Plan (RWP)*

	2020 PLANNING DECADE			2070 PLANNING DECADE		
	2016 RWP	2021 RWP	DIFFERENCE (%)	2016 RWP	2021 RWP	DIFFERENCE (%)
WATER SUPPLY NEEDS TOTAL	14	42	200.0%	12	42	250.0%
KERR COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	891	432	-51.5%	891	432	-51.5%
PROJECTED DEMAND TOTAL	890	757	-14.9%	890	757	-14.9%
WATER SUPPLY NEEDS TOTAL	130	325	150.0%	130	325	150.0%
KERR COUNTY MANUFACTURING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	34	48	41.2%	34	48	41.2%
PROJECTED DEMAND TOTAL	25	20	-20.0%	34	21	-38.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
KERR COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	106	125	17.9%	106	125	17.9%
PROJECTED DEMAND TOTAL	76	76	0.0%	120	120	0.0%
WATER SUPPLY NEEDS TOTAL	12	11	-8.3%	21	19	-9.5%
KERR COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,364	4,595	94.4%	2,364	4,595	94.4%
PROJECTED DEMAND TOTAL	5,201	5,423	4.3%	5,474	5,727	4.6%
WATER SUPPLY NEEDS TOTAL	3,224	874	-72.9%	3,507	1,156	-67.0%
KERR COUNTY STEAM ELECTRIC POWER WUG TYPE						
PROJECTED DEMAND TOTAL	0	444	100.0%	0	444	100.0%
WATER SUPPLY NEEDS TOTAL	0	444	100.0%	0	444	100.0%
KINNEY COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	291	199	-31.6%	291	199	-31.6%
PROJECTED DEMAND TOTAL	95	64	-32.6%	90	61	-32.2%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
KINNEY COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	7,833	10,350	32.1%	7,833	10,350	32.1%
PROJECTED DEMAND TOTAL	6,730	3,713	-44.8%	6,730	3,713	-44.8%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
KINNEY COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	422	394	-6.6%	422	394	-6.6%
PROJECTED DEMAND TOTAL	422	224	-46.9%	422	224	-46.9%
WATER SUPPLY NEEDS TOTAL	22	27	22.7%	22	27	22.7%
KINNEY COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,016	2,016	0.0%	2,016	2,016	0.0%
PROJECTED DEMAND TOTAL	1,159	1,226	5.8%	1,136	1,201	5.7%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
REAL COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	1,108	487	-56.0%	1,108	487	-56.0%
PROJECTED DEMAND TOTAL	280	124	-55.7%	257	114	-55.6%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
REAL COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,365	2,126	-10.1%	2,365	2,126	-10.1%
PROJECTED DEMAND TOTAL	238	270	13.4%	191	270	41.4%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Data Comparison to 2016 RWP report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

Region J Water User Group (WUG) Data Comparison to 2016 Regional Water Plan (RWP)*

	2020 PLANNING DECADE			2070 PLANNING DECADE		
	2016 RWP	2021 RWP	DIFFERENCE (%)	2016 RWP	2021 RWP	DIFFERENCE (%)
REAL COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	261	194	-25.7%	261	194	-25.7%
PROJECTED DEMAND TOTAL	261	151	-42.1%	261	151	-42.1%
WATER SUPPLY NEEDS TOTAL	33	0	-100.0%	33	0	-100.0%
REAL COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	0	0	0.0%	0	0	0.0%
PROJECTED DEMAND TOTAL	134	336	150.7%	126	312	147.6%
WATER SUPPLY NEEDS TOTAL	134	336	150.7%	126	312	147.6%
VAL VERDE COUNTY COUNTY-OTHER WUG TYPE						
EXISTING WUG SUPPLY TOTAL	4,513	4,609	2.1%	4,513	4,609	2.1%
PROJECTED DEMAND TOTAL	1,937	1,976	2.0%	3,694	3,741	1.3%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
VAL VERDE COUNTY IRRIGATION WUG TYPE						
EXISTING WUG SUPPLY TOTAL	2,795	6,586	135.6%	2,795	6,586	135.6%
PROJECTED DEMAND TOTAL	2,460	2,319	-5.7%	2,026	2,319	14.5%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
VAL VERDE COUNTY LIVESTOCK WUG TYPE						
EXISTING WUG SUPPLY TOTAL	533	506	-5.1%	533	506	-5.1%
PROJECTED DEMAND TOTAL	533	410	-23.1%	533	410	-23.1%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
VAL VERDE COUNTY MINING WUG TYPE						
EXISTING WUG SUPPLY TOTAL	186	39	-79.0%	186	39	-79.0%
PROJECTED DEMAND TOTAL	190	190	0.0%	171	171	0.0%
WATER SUPPLY NEEDS TOTAL	4	151	3675.0%	0	132	100.0%
VAL VERDE COUNTY MUNICIPAL WUG TYPE						
EXISTING WUG SUPPLY TOTAL	29,199	26,236	-10.1%	29,199	26,236	-10.1%
PROJECTED DEMAND TOTAL	11,657	11,576	-0.7%	14,703	14,602	-0.7%
WATER SUPPLY NEEDS TOTAL	0	0	0.0%	0	0	0.0%
REGION J						
EXISTING WUG SUPPLY TOTAL	68,209	79,207	16.1%	68,209	79,207	16.1%
PROJECTED DEMAND TOTAL	39,802	37,781	-5.1%	44,937	43,599	-3.0%
WATER SUPPLY NEEDS TOTAL	3,857	2,778	-28.0%	4,626	3,155	-31.8%

*WUG supplies and projected demands are entered for each of a WUG’s region-county-basin divisions. The needs shown in the WUG Data Comparison to 2016 RWP report are calculated by first deducting the WUG split’s projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG county and category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

9. TWDB DB22 Source Data Comparison to 2016 RWP Report

Region J Source Data Comparison to 2016 Regional Water Plan (RWP)

	2020 PLANNING DECADE			2070 PLANNING DECADE		
	2016 RWP	2021 RWP	DIFFERENCE (%)	2016 RWP	2021 RWP	DIFFERENCE (%)
BANDERA COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	7,967	9,293	16.6%	7,967	9,293	16.6%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	104	10	-90.4%	104	10	-90.4%
EDWARDS COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	7,425	7,463	0.5%	7,425	7,463	0.5%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	304	126	-58.6%	304	126	-58.6%
KERR COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	16,576	18,450	11.3%	15,881	17,755	11.8%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	1,683	1,375	-18.3%	1,683	1,375	-18.3%
KINNEY COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	81,587	81,590	0.0%	81,587	81,590	0.0%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	1,187	3,616	204.6%	1,187	3,616	204.6%
REAL COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	11,461	11,455	-0.1%	11,461	11,455	-0.1%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	2,215	1,751	-20.9%	2,215	1,751	-20.9%
VAL VERDE COUNTY						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	24,988	50,000	100.1%	24,988	50,000	100.1%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	14,111	13,776	-2.4%	14,111	13,776	-2.4%
REGION J						
GROUNDWATER AVAILABILITY TOTAL (acre-feet per year)	150,004	178,251	18.8%	149,309	177,556	18.9%
SURFACE WATER AVAILABILITY TOTAL (acre-feet per year)	19,604	20,654	5.4%	19,604	20,654	5.4%

10. Approved Modifications to Reservoir or Reservoir System Firm Yield, Reallocated Annual MAG Volumes, or Use of MAG Peak Factors

The following hydrologic variances to the Plateau Region's portions of the Rio Grande, Nueces, Colorado, and Guadalupe/San Antonio River Basins WAM were requested by the Planning Group in a letter to the TWDB dated February 15, 2018, and were reviewed and approved by the TWDB in a letter dated April 30, 2018. No other modifications to reservoir or reservoir system firm yield, reallocated annual MAG volumes, or use of MAG Peak Factors are considered in this Plan.

11. Process Used by the Regional Water Planning Group to Identify Potentially Feasible Water Management Strategies

1. Review and consider recommended water management strategies adopted by the Plateau Region Water Planning Group for the 2016 Plateau Region Water Plan.
2. Review and consider any issues identified in the most current TWDB Water Loss Audit Report, including leak detection and supply side analysis.
3. Solicit current water planning information, including specific water management strategies of interest from WUGs and WWP with identified needs.
4. Review and consider the most recent Water Supply Management, Water Conservation, and/or Drought Contingency Plans, where available, from WUGs and WWP with identified needs.
5. As required by TWC §16.053(e)(3), and 31 TAC §357.34(c) the RWPGs shall consider, **but not be limited to considering**, the following types of water management strategies for all identified water needs:
 - Conservation
 - Drought 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)34
 - 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
 - Rainwater harvesting
6. Consider other potentially feasible water management strategies suggested by planning group members, stakeholders, and the public.
 7. Based on the above reviews and considerations, establish a preliminary list of potentially feasible water management strategies. At a discussion level, consider the following feasibility concerns for each strategy:
 - Water supply source availability during drought-of-record conditions
 - Cost/benefit
 - Water quality
 - Threats to agriculture and natural resources
 - Impacts to the environment, other water resources, and basin transfers
 - Socio-economic impacts
 8. Based on the above discussion level analysis, select a final list of potentially feasible water management strategies for further technical evaluation using detailed analysis criteria.

12. Potentially Feasible Water Management Strategies Identified by the RWPG to Date

County	WUGs and WWP Entities Potentially Served by WMSs	Source Basin	Water Management Strategy Title	
Bandera	City of Bandera	San Antonio	Reuse treated wastewater effluent for irrigation use	
			Promote, design & install rainwater harvesting systems	
			Additional Lower Trinity well and lay necessary pipeline	
			Additional Middle Trinity wells within City water infrastructure	
	*Bandera County Other	San Antonio	Water loss audit and main-line repair for Bandera County FWSD #1	
			Water loss audit and main-line repair for Bandera River Ranch #1	
			Water loss audit and main-line repair for Medina WSC	
			**Vegetative Management	
			Drought Management (BCRAGD)	
			Additional well for Pebble Beach Subdivision	
			Additional wells to provide emergency supply to VFD	
Additional well for Town of Median				
*Bandera County Irrigation	San Antonio	Additional groundwater wells		
		*Bandera County Livestock		
Edwards	*City of Rocksprings	Colorado	Water loss audit and main-line repair	
		Nueces	Additional groundwater well	
	Edwards County Other	Nueces	Water loss audit and main-line repair for Barksdale WSC	
			Additional well in the Nueces River Alluvium Aquifer	
			**Vegetative Management	
	*Edwards County Mining	Colorado	Additional groundwater wells	
		Nueces	Additional groundwater wells	
		Rio Grande	Additional groundwater wells	
	Kerr	*City of Kerrville	Guadalupe	Increase wastewater reuse
				Water loss audit and main-line repair
Purchase water from UGRA				
Increased water treatment and ASR capacity				
*Loma Vista WS		Guadalupe	Conservation: Public information	
			Additional groundwater well	
*Kerr County Other		Guadalupe	Water loss audit and main-line repair for Center Point WWW	
			Water loss audit and main-line repair for Hills & Dales WWW	
			Water loss audit and main-line repair for Rustic Hills Water	
			Water loss audit and main-line repair for Verde Park Estates WWW	
			Conservation: Public information	
		Colorado	Conservation: Public information – Water shortage met with J-32	
		Nueces	Conservation: Public information – Water shortage met with J-32	
		Guadalupe	** Vegetative management - UGRA	
			UGRA Acquisition of surface water rights ² (EKCRWSP)	
			KCCC Acquisition of surface water rights ² (EKCRWSP)	
			Construction of surface water treatment facilities and transmission lines ² (EKCRWSP)	
Construction of ASR facility ² (EKCRWSP)				
Construction of well field for dense, rural areas ² (EKCRWSP)				
Construction of desalination plan ² (EKCRWSP)				
Construction of Ellenburger Aquifer water supply well ² (EKCRWSP)				
*Kerr County Irrigation	San Antonio	Additional groundwater well		
*Kerr County Livestock	Colorado	Additional groundwater wells		
*Kerr County Livestock	Guadalupe	Additional groundwater wells		
*Kerr County Livestock	San Antonio	Additional groundwater well		
*Kerr County Mining	Colorado	Additional groundwater well		
	Guadalupe	Additional groundwater well		

County	WUGs and WWP Entities Potentially Served by WMSs	Source Basin	Water Management Strategy Title
Kinney	City of Brackettville	Rio Grande	Water loss audit and main-line repair
			Increase supply to Spoford with new water line
			Increase storage facility.
	Fort Clark Springs MUD	Rio Grande	Increase storage facility.
	Kinney County Other	Rio Grande	**Vegetative Management
*Kinney County Livestock	Rio Grande	Additional groundwater wells	
Real	*City of Leakey	Nueces	Water loss audit and main-line repair
			Additional groundwater well
			Develop interconnections between wells within the City
	* City of Camp Wood	Nueces	Conservation: Public information
			Additional groundwater wells
	Real County Other	Nueces	Water loss audit and main-line repair for Real WSC
			**Vegetative Management
*Real County Livestock	Nueces	Additional well for Oakmont Saddle WSC	
Val Verde	City of Del Rio	Rio Grande	Water loss audit and main-line repair
			Develop a wastewater reuse program
			Water treatment plant expansion
			Drill and equip new wells and connect to distribution system.
	Val Verde County Other		**Vegetative Management
*Val Verde Mining		Additional groundwater well	

²Eastern Kerr County Regional Water Supply Project

*WUGs with a projected future supply deficit in 2016 Plan

13. Versions, Dates, and Electronic Files of all WAM Models and Runs Used in Determining Surface Water Availability

Basin	Model Name	Version Date	File Name	Modification	Purpose	Model Run By	Model Run Date
Colorado	Colorado WAM Full Authorization Scenario 3	1-Feb-18	C3_RegJFYs-BASE.dat	No modification	Identification of Minimum Annual Diversions for Run 3 Scenario and source supply for all decades	Carollo	9-May-18
Guadalupe and San Antonio	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-BASE.dat	No modification	Identification of Minimum Annual Diversions for Run 3 Scenario and source supply for all decades	Carollo	27-Jun-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1932_2.DAT		Determine the firm yield of impoundment associated with 18-1932 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1943_1.DAT		Determine the firm yield of impoundment associated with 18-1943 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1947_2.DAT		Determine the firm yield of impoundment associated with 18-1947 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1961_1.DAT		Determine the firm yield of impoundment associated with 18-1961 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1970_2.DAT		Determine the firm yield of impoundment associated with 18-1970 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C1996_1.DAT		Determine the firm yield of impoundment associated with 18-1996 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2008_1.DAT		Determine the firm yield of impoundment associated with 18-2008 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2122_1.DAT		Determine the firm yield of impoundment associated with 19-2122 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2130.DAT		Determine the firm yield of impoundment associated with 19-2130 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2445_1.DAT		Determine the firm yield of impoundment associated with 18-2445 for all decades	Carollo	16-May-18
Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-C2447_2.DAT	Determine the firm yield of impoundment associated with 18-2447 for all decades	Carollo	16-May-18		

Basin	Model Name	Version Date	File Name	Modification	Purpose	Model Run By	Model Run Date
Guadalupe and San Antonio	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-P3769_1.DAT	No modification	Determine the firm yield of impoundment associated with Application 18-3769 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-P5331_2.DAT		Determine the firm yield of impoundment associated with 18-5331 for all decades	Carollo	16-May-18
	Guadalupe San Antonio WAM Full Authorization Scenario 3	17-Oct-14	gsa_run3_RegJFYs-P5394.DAT		Determine the firm yield of impoundment associated with 18-5394 for all decades	Carollo	16-May-18
Nueces	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-BASE.DAT	No modification	Identification of Minimum Annual Diversions for Run 3 Scenario and source supply for all decades	Carollo	16-May-18
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-C3176_1.DAT		Determine the firm yield of impoundment associated with 21-3176 for all decades	Carollo	16-May-18
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-C3177_1.DAT		Determine the firm yield of impoundment associated with 21-3177 for all decades	Carollo	16-May-18
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-P4169_2.DAT		Determine the firm yield of impoundment associated with 21-4169 for all decades	Carollo	16-May-18
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-P4405_1.DAT		Determine the firm yield of impoundment associated with 21-4405 for all decades	Carollo	16-May-18
	Nueces WAM Full Authorization Scenario 3	7-Jan-13	N_RUN3_RegJFYs-P5305_1.DAT		Determine the firm yield of impoundment associated with 21-5305 for all decades	Carollo	16-May-18
Rio Grande	Rio Grande WAM Full Authorization Scenario 3	1-Feb-18	RG3_RegJFYs-BASE.dat	No modification	Identification of Minimum Annual Diversions for Run 3 Scenario and source supply for all decades	Carollo	18-May-18
	Rio Grande WAM Full Authorization Scenario 3	1-Feb-18	RG3_RegJFYs-2672.DAT		Determine the firm yield of impoundment associated with 23-2672 for all decades	Carollo	27-Jun-18
	Rio Grande WAM Full Authorization Scenario 3	1-Feb-18	RG3_RegJFYs-62302679001.DAT		Determine the firm yield of impoundment associated with 23-2679 for all decades	Carollo	10-May-18

Note: Electronic files are attached separately

14. Groundwater Availability Methodology

Source Supply	County	Basin	Methodology
Austin Chalk Aquifer	Kinney	Rio Grande	0.6% of average annual rainfall over the outcrop as recharge.
Nueces River Alluvium Aquifer	Edwards	Nueces	Recharge plus 0.1 volume of water in storage. See process documentation in Appendix 3B of the 2011 Plateau Region Water Plan.
	Real	Nueces	
Frio River Alluvium Aquifer	Real	Nueces	
Ellenburger/San Saba Aquifer	Kerr	Colorado	Hydraulic conductivity of 0.007 acre-feet/acre/year over 286,000 acres of prime production zone in eastern Kerr County.
		Guadalupe	
Edwards-BFZ Aquifer	Kinney	Nueces	GMA10 MAG
		Rio Grande	
Edwards Group of the Edwards-Trinity (Plateau) Aquifer	Kerr	Colorado	GMA9 Non-Relevant, TWDB modeled
		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	
	Val Verde	Rio Grande	
Trinity Aquifer	Bandera	Guadalupe	GMA9 MAG
		Nueces	
		San Antonio	
	Kerr	Colorado	
		Guadalupe	
		Nueces	
		San Antonio	

15. Declaration of Whether the RWPG Intends to Pursue Simplified Planning for the Regional Water Planning Area

The following statement will be included if the Planning Group votes to not pursue simplified planning

The option to implement *simplified planning* was presented at a public meeting of the Plateau Region Water Planning Group on October 24, 2018 as Agenda Item 6.

6. *Consider, discuss and take appropriate action to pursue or not pursue Simplified Planning for the Plateau Region Water Plan.*

Following consideration and discussion, the Plateau Region Water Planning Group voted unanimously to not pursue *simplified planning* and instructed the Planning Group consultants to continue forward in completing the 2021 Plateau Region Water Plan.

16. Written Summary of All WAM and GAM Models

Summary information is previously provided in Sections 10 and 13.

17. Public Comments Received on Technical Memorandum

Note: The following statement will be included if no public comment is received.

Following a 14-day public notice period, the Chairman of the Plateau Region Water Planning Group at a Planning Group public meeting on October 24, 2018 in Leakey Texas called for public comments on the proposed Plateau Region Technical Memorandum. No comments were presented by the public in attendance. Also, no written comments from the public were received prior to the meeting. Following the public Planning Group meeting, an additional 14-day period was observed to receive public comments. At the close of this period no further public comments were received.

Texas Water Development Board

P.O. Box 13231, 1700 N. Congress Ave.
Austin, TX 78711-3231, www.twdb.texas.gov
Phone (512) 463-7847, Fax (512) 475-2053

Mr. Raymond Buck
General Manager
Upper Guadalupe River Authority
125 Lehmann Dr., Ste. 100
Kerrville, Texas 78028

RE: Regional Water Planning Contract with the Upper Guadalupe River Authority; Contract No. 1548301838, Technical Memorandum

Dear Mr. Buck:

Staff members of the Texas Water Development Board (TWDB) have completed their review of the Technical Memorandum under the above referenced contract and found the deliverable to be administratively complete.

The TWDB recognizes that estimates and assignment of water supply and need volumes remain dynamic throughout the planning cycle and may change after receipt of the Technical Memorandum. All state water plan database (DB22) data entry should be completed and data checks and any associated appeals resolved by the submittal of the Initially Prepared Regional Water Plan.

The TWDB acknowledges Region J's declaration in its Technical Memorandum not to pursue simplified planning.

Additionally, as Region J continues to allocate water source availability and begins evaluations of potentially feasible water management strategies, we encourage you to coordinate with your neighboring regions to proactively identify and work cooperatively to avoid potential interregional conflicts.

If you have any questions, please feel free to contact William Alfaro of our Regional Water Planning staff at 512-463-4741 or via email at william.alfaro@twdb.texas.gov.

Sincerely,



Jessica Zuba
Deputy Executive Administrator
Water Supply and Infrastructure

Date: 11/27/18

cc: Mr. Jonathan Letz, RWPG Chair
Ms. Jody Grinstead, Kerr County Commissioner's Court
Ms. Jennifer Herrera, WSP USA
Mr. John Ashworth, WSP USA
Mr. William Alfaro, TWDB

Our Mission

To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas

Board Members

Peter M. Lake, Chairman | Kathleen Jackson, Board Member | Brooke T. Paup, Board Member

Jeff Walker, Executive Administrator

Minutes
Plateau Water Planning Group
Regular Meeting - Leakey, Texas
January 30, 2019
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Wednesday, January 30, 2019, beginning at 10:00 A.M. at The Frio Canyon Baptist Church, 919 US-83, Leakey, Real County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joel Pigg, Real County; Gene Williams, Kerr County; Scott Loveland, Kerr County; Jody Grinstead; John Ashworth, WSP and LBG-Guyton & Associates; Jennifer Herrera, WSP and LBG-Guyton & Associates; William Alfaro, Texas Water Development Board; Sarah Backhouse, Texas Water Development Board; Chad Norris, Texas Parks and Wildlife; Charlie Wiedenfeld, Kerr County; Michael Redman for David Mauk, Bandera County; Charlie Flatten, Kerr/Bandera/Real Counties; Dell Dickinson, Val Verde County; Max Martin, Edwards/Val Verde/Kinney Counties; Wes Robinson, Kinney County; Homer Stevens, Bandera County; Rene Villarreal, Kinney County; Feather Wilson, Bandera County; Kendria Ray, Ernie DeWinne; Sky Lewey; Robin Barthen, Texas Department of Agriculture; Julie Lewey, Clint Carter, Chris Childs and Jeepers Ragsdale.

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

It was determined that a quorum was present.

II. Public Comments.

No public comments were received.

III. Approval of minutes from the October 24, 2018, Regular Meeting.

Motion by Feather Wilson to approve the October 24, 2018 minutes; second by Rene Villarreal. The motion passed by a majority vote. Those not present at the 10/24/18 meeting abstained from the vote.

IV. Reports.

a. Report from Chair.

The balance in the account as of the end of 2018 is \$12,032.22.

Mr. Letz gave a brief report on the November meeting of the Planning Group Chairs. The meeting was to review the prioritization that was used for the previous plan and determine if any changes were needed for the next Plan. The final decision was to leave it as is.

b. Report from Secretary.

No report was given.

c. Report from Political Entity.

No report was given.

d. Report from Liaisons.

Feather Wilson gave an update on Region K. Charlie Flatten gave an update on Region L.

e. Report from GMA representatives.

Gene Williams said the next GMA 9 meeting is scheduled for February 4th in Kerrville.

- IV. Consider, discuss and take appropriate action to approve invoices.**
Motion by Gene Williams to approve the following invoices: WSP \$9,821.49 (9/28/18-11/02/18); WSP \$2,755.64 (11/3/18-11/30/18); WSP \$2,788.98 (12/1/18-12/28/18) and JP Morgan (GMA Transcriptions) \$227.50 – 10/24/18 transcripts. Second by Wes Robinson. The motion passed by a unanimous vote.
- VI. Consider, discuss and take appropriate action to re-appoint Members whose terms have expired.**
Motion by Ray Buck to reappoint the following individuals for a 5 year term (new terms will expire 12/31/23): Wes Robinson, Tully Shahan, Joseph McDaniel, Max Martin, Charlie Flatten, Homer Stevens, Roland Trees, Jerry Simpton and Otila Gonzales; second by Michael Redman. The motion passed by a unanimous vote.
- VII. Consider, discuss and take appropriate action to re-appoint Officers whose terms have expired.**
Motion by Max Martin to reappoint Jonathan Letz as the Chair, Joel Pigg as Vice Chair and Gene Williams as Secretary; second by Rene Villarreal. The motion passed by a unanimous vote.
- VIII. Texas Water Development Board Updates. (William Alfaro, Project Manager)**
Mr. Alfaro briefly discussed the following items:
- The abridged applications for the 2019 SWIFT program are due February 1st by 5:00 pm.
- Final versions of the project assessments were presented to the Board at the December meeting and the full report is available online.
- No significant changes were made at the Uniform Standard Stake Holder Committee Meeting (Chairs Meeting). He reviewed 4 small changes with the Group.
- The TWDB staff has developed a water management strategy guidance document that will be available for use after Board approval. The uniform costing tool and the conservation planning tool (including the user guides) are now available on the TWDB website. He briefly described the document.
- Mr. Alfaro spoke briefly regarding the Technical Memorandums and the Initially Prepared Plans (IPP).
- TWDB recently developed the public water system viewer to facilitate the correction of the digital maps for all communities. It is available for public viewing and downloading and will allow the Public Water System's to update and verify their service area boundaries.
- Social economic impact analysis; the rule requires a socioeconomic impact assessment be done if water needs will not be met. The group may request that the Texas Water Development Board perform that analysis by submitting a request to the project manager via email. Those requests are due by July 2019. Socioeconomic impact analysis will be developed based on the needs in the state-wide planning database as of May 31st, 2019 in order for the reports to be available by the end of 2019. This would allow the report to be included in the Initially Prepared Plan.
- IX. Consider, discuss and take appropriate action to request the TWDB to develop the 2021 Plateau Region's Socioeconomic Impact Assessment.**
Mr. Ashworth briefly described what was involved in the assessment. Motion by Wes Robinson

to request the Texas Water Development Board develop the 2021 Plateau Region's Socioeconomic Impact Analysis.; second by Ray Buck. The motion passed by a unanimous vote.

X. Update on the regional water planning schedule. (WSP)

Ms. Herrera briefly reviewed the schedule stating we are in the beginning of our water strategy development which puts the Group in place to begin strategy development. That entails working with communities and municipalities to determine if they have a water need and what strategies they would like to have in the plan. The strategies in the previous plan will be brought over to the new plan and updated as needed.

Mr. Letz briefly explained the process (for the new members). The first phase of the Plan addresses water demand which is driven by population (which is driven by the state numbers). The second phase is water supply, which looks at all the supplies in all the regions. Once we know the demand and supply the math is done to figure out where there is a deficit going forward. Once a deficit is discovered, a water management strategy is added to the Plan. A brief discussion ensued regarding water management strategies and interaction with other regions. Ms. Herrera explained the importance of having strategies in the plan (in order to be eligible for state SWIFT funding).

Ms. Herrera reminded the Group that at the last meeting they requested that the steam electric company showing in Kerr County be removed from the Plan (as there isn't one in Kerr County). She said the TWDB projection staff is aware of issue and those changes/amendments will go before the Board at their March meeting. After that meeting she will request clean tables from the Board; deleting the steam-electric power user.

She reminded the Group that at the last meeting they decided not to pursue the simplified planning process. She briefly discussed the reasoning for the decision with the new members.

She informed the Group that the Technical Memorandum had been submitted to, and approved by, the Water Development Board.

XI. Discuss Planning Group review of Draft Chapter 3. (WSP)

Ms. Herrera stated that she and Mr. Ashworth have been drafting and updating Chapter Three – the regional water supply source chapter of the plan. It was noted that when the Board decided to go from city-based planning to utility-based planning it changed some of the figures and content in the chapter. She noted that changes in the chapter can be changed up until the time of the IPP. She requested any comments from the Group to be submitted to the consultants by February 20th. Mr. Ashworth pointed out a few specific changes to the chapter.

XII. Consider, discuss, receive public comment, and take appropriate action to approve the Task 5A Scope and Budget for water management strategy evaluations. Authorize UGRA to submit the approved Task 5A Scope and Budget to the TWDB. (WSP)

Mr. Ashworth explained that a very large percent of the energy and budget in regional water planning goes toward the analysis of water management strategies. The purpose of regional water planning is trying to solve future water problems by finding out what those problems are and recommending strategies for how communities can meet their needs in the future. The Texas Water Development Board is the agency who determines what water needs are needed in the future and how to solve and deficits. All 16 regions in the state turn in their regional plans with a large chapter showing how much money is needed state-wide to solve all the water issues in the state so the Legislature knows how much money the Water Development Board needs to set aside. The Board has mandated that the planning groups develop the Task 5A Scope and Budget because it is such a crucial part of regional water planning, and they want to make sure that the

planning groups take it seriously. This evaluation shows what strategies the planning group currently has in mind. They may change in the future, but the preliminary list of strategies are broken up and listed here - with an estimate of what workload it is going to take to accomplish analyzing each of the strategies and what portion of the budget is going to go to it. He explained the process of evaluating a strategy.

Mr. Ashworth stated that the Water Development Board will not issue funding for the strategy analysis until they receive the Task 5A Scope and Budget. He stated that the Board has already taken a first look at ours and have informed the consultants that they have some comments. So what is being presented today will not be the final version. He stated that our next agenda item (Item XIII) will request permission to authorize UGRA and the consultants to negotiate with the Water Development Board to complete the task. Mr. Alfaro stated that there would not be significant changes to the proposal. TWDB might suggest rearranging the strategies as to how they are categorized, but it there wouldn't be any major changes.

Mr. Ashworth was asked to explain the intra region process from a state point.

Motion by Feather Wilson to approve the Task 5A Scope or Work and Budget; second by Dell Dickinson. The motion passed by a unanimous vote.

XIII. Authorize the consultant or UGRA to work with the TWDB on any follow-up information that might be required.

Motion by Max Martin to authorize the consultants and UGRA to work with TWDB on any follow-up information that might be required; second by Joel Pigg. The motion passed by a unanimous vote.

XIV. Authorize UGRA to negotiate and execute the subsequent TWDB contract amount.

Mr. Letz explained that since PWPG is not a legal entity, they cannot sign a contract. Therefore, the political sub-division for each region handles the money and accounting and UGRA does that for PWPG. **Motion by Gene Williams to authorize UGRA to execute the contract with the Water Development Board and that contract will be to authorize this funding; second by Michael Redman. The motion passed by a unanimous vote.**

XV. Discuss for informative purposes the process for consideration of recommending ecologically unique stream segments. (WSP)

A lengthy discussion ensued regarding the pros and cons of recommending ecologically unique stream segments. The following documents were discussed: Mr. Alfaro's handout entitled "Designating Unique Stream Segments and Unique Reservoir Sites"; letter from the Bandera River Authority (dated 1/24/19) listing their proposed segments from the Medina River, Sabinal River and West Verde Creek; letter from the Devils River Conservancy (dated 1/28/19) requesting that the Devils River in Val Verde County be designated; letter from the Llano River Watershed Alliance (dated 10/18/18) requesting that the South Llano River in Edwards County be designated; and a booklet prepared by WSP entitled "Plateau Water Planning Region Material for Consideration of Ecologically Unique River and Stream Segments". Numerous people shared their views on the subject and how best to handle it if the Group (PWPG) decides it is something they would like to pursue. Some of the members believed this task is outside the purview of the Water Planning Group and others disagreed. Mr. Letz suggested preparing a process to approve the streams instead of recommending any streams. It was agreed that the matter would be placed on the next agenda for further consideration and action.

XVI. Set next meeting.

The next meeting was set for May 15, 2019.

TO: Plateau Region Water Planning Group
FROM: WSP USA - Planning Group Consultant
SUBJECT: Request to Obtain a Notice-to-Proceed on Task 5A
DATE: January 30, 2019
PROJECT: Scope of Work and Budget Allocation for Task 5A Water Management Strategy Analysis

TWDB Task 5A includes the development and evaluation of water management strategies and completion of Chapter 5 of the 2021 Plateau Region Water Plan. This task considers all statutory requirements and TWDB guidance. The scope items that are necessary for statutory compliance are outlined in the executed contracts; however, specific scopes of work for the evaluations of potentially feasible water management strategies are to be developed by the regions. All funds for this task are contingent upon written notice-to-proceed. The total budget in the executed contract for the Task 5A effort is \$76,608.

The Plateau Region Water Planning Group presented to the public for comment its overall methodology for identifying potentially feasible water management strategies (Attachment 3) on February 15, 2018 and gave final approval to the process and its inclusion in the Technical Memorandum on October 24, 2018.

The Plateau Region Water Planning Group, following an opportunity for public input, approved this Task 5A Scope and Budget for submittal to the TWDB at a public planning group meeting in Leakey, Texas on January 30, 2019.

This document contains the following Attachments:

Attachment 1 – TWDB Exhibit C Guidelines – 5.2 Water Management Strategy Evaluations

Attachment 2 – Plateau Region Potentially Feasible Water Management Strategies

Attachment 3 - Methodology for Identifying and Selecting Potentially Feasible Water Management Strategies

Attachment 4 – Plateau Region Potential Strategy Scope of Work and Budget (TWDB-Formatted Spreadsheet)

SCOPE OF WORK FOR WATER MANAGEMENT STRATEGIES (TASK 5A) FUNDS

Strategies to be included in the 2021 Plateau Region Water Plan were discussed at Planning Group open meetings where the Planning Group chose to include the current list of potentially feasible strategies that fulfilled the following conditions:

- (1) Strategies that help to relieve a water supply needs condition;
- (2) Strategies from the 2016 Plan that are still considered viable;
- (3) Strategies from WUGs that currently have water supply projects requested for funding before the TWDB;
- (4) Strategies from WUGs that have specifically asked to be included in the 2021 Plan;
- (5) Strategies to meet conditions expressed in a public survey performed earlier this planning period;
- (6) Strategies that address TWDB water loss audit issues; and
- (7) Strategies that consider the most recent Water Supply Management, Water Conservation, and/or Drought Contingency Plans where available.

To facilitate the development of the scope of work for water management strategies, a preliminary needs assessment has been conducted to better identify entities that will require additional water. Based on this assessment, new and existing strategies are developed to meet the projected needs of 18 WUGs that are identified as having supply deficits over the 50-year planning period. Other strategies are developed for entities that have expressed their specific needs for projects to be included in the regional plan, or that demonstrated a significant water main loss. A total of 71 potentially feasible strategies are grouped into nine categories based on their similar origin of source, components of a regional project, or infrastructure need including. In addition, budget expense is reserved for unanticipated additional strategies, database development, and chapter preparation.

- Conservation – Initiatives
- Conservation – Water Loss and Audit and Main Line Repair
- Conservation - Vegetative Management
- Reuse
- Groundwater Development
- Surface Water Development
- ASR
- Infrastructure Development
- Eastern Kerr County Regional Water Supply Project

The evaluation of all strategies will be in accordance with the Regional Water Planning Guidelines. This will include the evaluation of reliability, cost, environmental issues, impacts to agricultural and rural areas, natural resources and other issues deemed relevant by the Region.

Conservation Initiatives

Public conservation awareness is the first critical component of a municipal water management program as significant water use reduction can be achieved through conservation awareness programs. This strategy grouping identifies WUGs with identified water supply needs that can benefit by actively increasing their public conservation outreach.

Drought management provides a process for actively initiating water-reduction declarations, monitoring, and enforcement. This group of strategies identifies those entities that have enforcement authority and that can have a positive on water-use management during declared drought events.

Rainwater harvesting is one of the new water management practices recognized and supported by the Texas Water Development Board. This practice is highly recommended for regions of the State where existing water supplies are significantly reduced during drought periods, yet where some rainfall still occurs. This practice is particularly appropriate for the Hill Country portion of the Plateau Region. It is recognized that this strategy in itself may not produce sufficient volumes of water to totally replace all of the volume of water that is reduced during drought periods. However, the volumes produced from rainwater harvesting when used to replace existing supplies for specified purposes will result in the extended longevity of preexisting supplies. A case in point is its implementation in the City of Bandera where existing groundwater supplies have been diminishing for several years. A municipal rainwater harvesting program using roofs of municipal buildings as catchment areas will provide a new beneficial water supply for the city. The municipal rainwater harvesting program will also encourage other private home and land owners to consider rainwater harvesting on their own properties, which will likewise reduce pumping impacts on the local Trinity Aquifer.

Scope of Work

- Identify existing conservation efforts and potential for increased public awareness of benefits of conservation measures through public education.
- Identify entities with drought management authority and evaluate effectiveness of their programs.
- Evaluate specific sites (municipal and public buildings) in the City of Bandera that are appropriate for rainwater catchment and storage equipment. Evaluate water savings in both supplies generated and cost of providing rainwater for public land irrigation or other appropriate uses. This strategy is cosponsored by the Bandera County River Authority and Groundwater District.

Entities Potentially Receiving Water from Public Conservation Programs WMSs:

2 Municipal and County Other WUGs

Entities with Drought Management Authority WMSs:

1 Groundwater District WUG

Entities Potentially Receiving Water from Rainwater Harvesting WMSs:

1 Municipal WUG

TOTAL TASK BUDGET: \$1,532

Conservation – Water Loss Audits and Main Line Repair

Reported municipal use generally includes a variable amount of water that does not reach the intended consumer due to water leaks in the distribution lines, unauthorized consumption, storage tank overflows, and other wasteful factors. For some communities, attending to these issues can be a proactive conservation strategy that may result in significant water savings.

Scope of Work

- Identify WUGs that reported a water loss of 10 percent or more in a 2015 to 2017 TWDB water-loss assessment survey. Evaluate potential for performing a new water-loss audit and replacing identified water line segments.

Entities Potentially Receiving Water from Water-Loss Audits and Line Replacement WMSs:

11 Municipal and County Other WUGs

TOTAL TASK BUDGET: \$1,532

Conservation – Vegetative Management

Vegetative Management strategies include two concepts of managing natural environments that positively impact groundwater / surface water interactions, which result in greater base flows to the headwaters of rivers and streams in the Plateau Region. Because the regional water planning process is based on minimal rainfall during a drought of record occurrence, the allowable volume of water generated by this strategy is assumed to be zero. However, during average or better rainfall periods vegetative management is a wise conservation tool. The analysis of Strategy J-12 in the 2016 Plateau Region Water Plan indicates that as much as 10,500 acre-feet per year of additional water in the upper Guadalupe river shed in western Kerr County can be generated by a properly designed brush clearing program. The UGRA has been successfully coordinating with NRCS on such a program for the past several years.

A second aspect of this conservation strategy grouping is the systematic management of invasive phreatophytes such as *Arundo donax* that are significantly damaging natural drainages and reducing existing water availability. In recent years, these plants with high evapotranspiration rates have proliferated in counties that contain the headwaters of several rivers on the Edwards Plateau (including all counties in the Plateau Region). Horticulturalists have estimated that one acre of *A. donax* uses 5.62 acre-feet of water annually, that is about three times as much water as native plants.

Brush Control and Land Stewardship are the 7th and 18th recommended conservation practice strategies in the TWDB Special Report – Water Conservation Implementation Task Force Report to the 79th Legislature (2004).

Scope of Work

- Identify and evaluate areas where improved brush management programs will positively improve potential for increased groundwater and surface water source supplies. Re-evaluate the volume of water potentially generated by this program during average rainfall periods as estimated in Strategy J-12 of the 2016 Plateau Region Water Plan. Estimate future water volumes potentially available due this program. Develop specific

management principal recommendations that would reduce the potential misuse of the management principals such as total clear cutting of large areas.

- Identify and recognize areas where invasive plant species management has successfully been applied. Recommend additional stretches of streams where similar management practices will likely result in improved hydrologic conditions. Estimate the volume of water that will be generated along each selected stretch of water way.

Entities Potentially Receiving Water from Brush and Invasive Species Management WMSs:

6 County Other WUGs

TOTAL TASK BUDGET: \$1,532

Reuse

Water recycling is reusing treated wastewater for beneficial purposes such as agricultural and landscaping irrigation, industrial processes, or other purposes considered non-potable. This group of strategies identifies municipalities that would benefit from developing a water reuse program or expansion of an existing program.

Scope of Work

- Identify and evaluate municipal water systems that can potentially improve or develop new wastewater reuse applications to assist in meeting future water needs.
- Evaluate the available supplies and appropriate sizing required for identified potential new wastewater collection and treatment facilities.

Entities Potentially Receiving Water from Waste Water Reuse WMSs:

3 Municipal WUGs

TOTAL TASK BUDGET: \$3,830

Groundwater Development

Groundwater development includes the establishment of new water well infrastructure capable of capturing new or additional groundwater source supplies.

Scope of Work

- Identify WUGs that may benefit from projects that develop additional groundwater supplies. Evaluate projects pertaining to the drilling of new water wells.
- Identify WUGs that may benefit from projects that develop additional water supplies by constructing groundwater desalinating facilities. Evaluate potential brackish groundwater supply, water quality issues, and disposal issues.
- Evaluate the potential for developing additional usable water supplies from the Ellenburger Aquifer. Consider the cost of drilling and development of an Ellenburger well in Kerr County. This aquifer has not been previously evaluated in this area.

Entities Potentially Receiving Water from Drilling New Wells or Wellfields WMSs:

19 Municipal, County Other, Irrigation and Mining WUGs

Entities Potentially Receiving Water from Constructing Desalination Facilities WMSs:

1 County Other WUGs

Entities Potentially Receiving Water from Drilling and Development of Ellenburger Aquifer Water-Supply Wells WMSs:

1 County Other WUG

TOTAL TASK BUDGET: \$11,4910

Surface Water Development

Surface water development includes the acquisition of new or additional water rights and the construction of new surface water reservoirs.

Scope of Work

- Evaluate existing water rights, potential for voluntary transfer of rights, and consideration of most beneficial diversion points.
- Evaluate potential for developing an off-channel reservoir in Kerr County.

Entities Potentially Receiving Water from Surface Water WMSs:

2 Municipal and County Other WUGs

TOTAL TASK BUDGET: \$3,830

ASR

Aquifer storage and recovery (ASR) is the process of injecting treated surface water into an underground reservoir (aquifer), storage of that water for a period, and recapturing (pumping) of the stored water for later use. The City of Kerrville is the only municipality in the Region that currently operates an ASR facility. This group of strategies looks at the potential to increase Kerrville's ASR capacity and to consider an ASR option for the proposed Eastern Kerr County Regional Project.

Scope of Work

- Identify WUGs that may benefit from projects that develop additional water supplies by constructing ASR facilities. Evaluate potential sources for ASR injection, water quality issues, geologic capacity to receive, store, and deliver injected supplies.

Entities Potentially Receiving Water from Construction of ASR Facilities WMSs:

2 Municipal and County Other WUGs

TOTAL TASK BUDGET: \$3,064

Infrastructure Development

This group of strategies considers the construction of new or expansion of existing water-supply treatment and storage facilities, and the establishment of emergency interconnections. Infrastructure development strategies must demonstrate an increase in treated water supply volume either as a new supply or through demand reduction.

Scope of Work

- Evaluate the available supplies and appropriate sizing required for the infrastructure improvements to increase supply.

- Evaluate appropriate sizing required for identified new-source water treatment facilities.
- Evaluate expansion of existing treatment facilities.
- Evaluate expansion of existing or construction of new water storage facilities.
- Identify and evaluate potential for emergency interconnects with surrounding communities.

Entities Potentially Receiving Water from Water Treatment WMSs:

1 Municipal and County Other WUGs

Entities Potentially Receiving Water from Water Storage WMSs:

2 Municipal WUGs

Entities Potentially Receiving Water from Water Supply Source Interconnection WMSs:

2 Municipal and County Other WUGs

TOTAL TASK BUDGET: \$7,661

Eastern Kerr County Regional Water Supply Project

The Eastern Kerr County Regional Water Supply Project (EKCRWSP) is a planned regional operation intended to coordinate several water-development projects into a single provider facility that can better serve the water-supply needs of a growing population in eastern Kerr County. Current sponsors of the regional project include the Kerr County Commissioners' Court (KCCC) and the Upper Guadalupe River Authority (UGRA). Individual projects to be developed are listed below, and their scope of work descriptions are provided in the appropriate supply source grouping above.

Supply Source Projects

- UGRA acquisition of surface water rights
- KCCC acquisition of surface water rights
- Construction of an off-channel surface water storage
- Construction of a surface water treatment facility and main distribution lines
- Construction of an ASR facility
- Construction of a wellfield for densely populated rural areas
- Construction of a brackish groundwater desalination facility
- Construction of an Ellenburger Aquifer water supply source

Entities Potentially Receiving Water from the EKCRWSP WMSs:

11 County Other Communities

TOTAL TASK BUDGET: \$15,323

Other Projects That May Be Considered:

There are other projects that are currently being considered by water entities in the Region but we do not have specific information on the projects. These include projects by entities that fall within the “County Other” WUG category that provide water to areas of the Region with concentrated rural population. These projects will be developed and evaluated for the 2021 Plateau Region Water Plan as more information becomes available. Other strategies will be approved by the PRWPG with concurrence of the TWDB prior to evaluation.

TOTAL TASK BUDGET: \$7,661

Data Base Entry

As required by the TWDB rules, all water management strategies that are recommended or adopted as alternate strategies must be entered into the TWDB database for the 2022 State Water Plan. Also, specific reports must be included in the 2021 Plateau Region Water Plan. The effort to enter this data and coordinate with the TWDB has historically taken considerable effort. With the redesign of the database, it may become more efficient but all data will need to be re-entered. Specific tasks associated with the database entry include:

Scope of Work

- Define each water management strategy (WMS) in accordance with the specific requirements of the database.
- Assign WUGs and WWPs to a specific WMSs. Enter the amount of supply received for each decade. Enter other data required for the WMS source, user and seller, as appropriate.
- Enter capital costs and annual costs for each WUG/WWP as appropriate.
- Coordinate with shared regions as appropriate.
- Perform appropriate QC checks on data entry.
- Coordinate with TWDB database staff.
- Prepare required reports and include in the 2021 Plateau Region Water Plan.

Entities

All WUGs and WWPs receiving water from a WMS.

TOTAL TASK BUDGET: \$7,661

Report Preparation and Coordination

Chapter 5 of the 2021 Plateau Region Water Plan is one of the most important chapters in the Plan. This chapter is the compilation of the recommended future direction for water supply in the Region. The basics of the strategy development and technical evaluations are included in the scopes of work for the specific strategy types. This task is for the effort to compile all the information developed into Chapter 5 of the 2021 Plateau Region Water Plan. It also includes coordination with the Water Planning Group on the draft chapter and the incorporation of comments for the final chapters in the Initially Prepared Plan and Final Plan.

TOTAL TASK BUDGET: \$11,491

Fee Summary

TASK NUMBER	TASK DESCRIPTION	BUDGET
1	Conservation - Initiatives	\$1,532
2	Conservation – Water Loss Audit and Repair	\$1,532
3	Conservation – Vegetative Management	\$1,532
4	Conservation – Reuse	\$3,830
5	Groundwater Development	\$11,491
6	Surface Water Development	\$3,830
7	ASR	\$3,064
8	Infrastructure Development	\$7,661
9	Eastern Kerr County Regional Water Supply Project	\$15,323
10	Other Strategies	\$7,661
11	Database Entry	\$7,661
12	Report Preparation	\$11,491
	Total	\$76,608

ATTACHMENT NO. 1

TWDB Exhibit C Guidelines

5.2 Water Management Strategy Evaluations

All potentially feasible WMSs and WMSPs shall be evaluated in accordance with 31 TAC §357.34. This information shall be included in Chapter 5 of the IPP and final adopted RWP along with additional narrative description and other relevant materials and documentation associated with the RWPG's identification of potentially feasible WMSs considered for the region.

As necessary, RWPGs shall update or redevelop any previous WMS or WMSP evaluations (e.g., developed for other RWPs) to meet current rule and guidance requirements, reflect changed physical or socioeconomic conditions that have since occurred, reflect changes in water project configurations or conditions, consider newly identified WUGs or WWPs, reflect more recent or updated costs, reflect more recent information related to potential impacts to natural or agricultural resources, or, to accommodate changes in identified water needs.

Existing water rights, water contracts, and option agreements shall be protected, although amendments to these may be recommended realizing that consent of owners would be needed for implementation.

WMS and WMSP data presented in the IPP and final adopted RWP shall be structured in a way that is compatible with DB22 as outlined in the TWDB's Contract Exhibit D *Guidelines for Regional Water Planning Data Deliverables*. To facilitate public comprehension of the adopted RWPs and the interactive State Water Plan, the naming conventions for WMSs/WMSPs used in DB22 should also be used in the IPP and final adopted RWP.

All recommended WMSs and WMSPs that are entered into DB22 and prioritized by RWPGs shall be designed to reduce the consumption of water; reduce the loss or waste of water; improve the efficiency in the use of water; or develop, deliver, or treat additional water supply volumes to WUGs or WWPs when implemented in at least one planning decade such that additional water is available during drought of record conditions. Therefore, WMSs that would not produce a measurable yield in at least one planning decade may not be a recommended WMS. Any other RWPG recommendations regarding permit modifications, operational changes, and/or other infrastructure that do not meet these requirements shall be indicated as such and presented separately in the RWP; and shall not be eligible for funding from the State Water Implementation Fund for Texas (SWIFT).

Regional water plans are stand-alone plans and require consideration of all potentially feasible strategies. Any previously recommended strategy that will be recommended in a new RWP must be updated, evaluated, and recommended anew.

RWPGs shall evaluate WMSs and associated WMSPs based on criteria specified in 31 TAC §357.34 and §357.35 including strategy/project water quantities generated, reliability, financial costs, and environmental impacts. For all WMSs and WMSPs previously identified in the 2016 RWPs, RWPGs shall develop and/or update financial costs using the most current version of the WMSP costing tool provided by the TWDB. For remaining evaluation criteria, each RWPG shall determine the degree to which conditions have changed or new information has become

available and update the WMS and WMSP evaluations accordingly. All evaluation criteria shall also be met for newly identified WMSs and WMSPs.

Water conservation strategies, drought management strategies, and WMSs related to reducing water losses shall be considered along with all other categories of WMSs. Active water conservation strategies are those that conserve water over and beyond what would happen anyway as result of passive water conservation measures that stem from federal and state legislation requiring more efficient plumbing fixtures in new building construction. When evaluating and recommending WMSs and WMSPs, each RWPG shall:

1. consider active water conservation as potentially feasible WMSs for WUGs for which the water conservation requirements contained in TWC §11.1271 apply;
2. consider active water conservation strategies for WUGs and WWP WUG customers with identified needs;
3. document the reasons, if an RWPG does not recommend specific potentially feasible active conservation WMSs to meet needs for a specific WUG or WWP WUG customer;
4. if TWC §11.085(l) applies to a proposed IBT, include water conservation measures at the highest practicable level of water conservation and efficiency achievable (includes existing conservation as well as that proposed within a WMS) for each WUG or WWP WUG customer that is recommended to rely on a WMS involving the IBT; 39 and
5. present recommended conservation WMSs associated with an IBT WMS analysis by WUG and WWP WUG customers. Recommended conservation WMS information will be tabulated in a DB22 generated standardized report for each WUG with an associated recommended WMS that requires an IBT. This report shall be included in the IPP and final adopted RWP.

A separate subchapter (in accordance with 31 TAC §357.34(h)) shall consolidate and present all conservation recommendations for the RWPA.

RWPGs shall consider WMSs to address any issues identified in the information provided by the TWDB from the water loss audits performed by retail public utilities pursuant to 31 TAC §357.34(g)(2)(D).

RWPGs shall also consider drought management WMSs for each identified water need, and shall include drought management measures for each WUG to which TWC §11.1272 applies that are consistent with any applicable TCEQ guidance. Drought management strategies associated with Drought Management Plans also decrease water demand requirements similar to conservation WMSs, although there are some basic differences. For example, water conservation and drought management strategies differ in their longevity—conservation WMSs are generally implemented on a permanent basis, whereas drought management strategies are implemented on a temporary basis during times of severe drought or other emergencies that can limit existing water supplies. If, after considering drought management measures for each WUG with a need to which TWC §11.1272 does not apply, a RWPG does not select drought management as a WMS for an individual WUG with a need, they shall document the reason.

Documentation of the reason(s) why aquifer storage and recovery, seawater desalination, and brackish groundwater desalination WMSs were not recommended shall also be provided. This documentation of reasons may be included as shown in the Table E template of this guidance or elsewhere in the plan document as deemed appropriate by the RWPG.

Water quantities produced by recommended WMSs and WMSPs shall be based on water availability in accordance with Section 3. Additionally, WMSs shown as providing a supply in a planning decade, must come online in or prior to that initial decade year (31 TAC §357.10(21)). For example, if a WMS is shown as providing supply in the 2040 decade, it is assumed to come online in or prior to the year 2040. Given the immediacy of the WMS to deliver water by the initial year of the planning decade, WMSs and WMSPs given a 2020 decade during this planning cycle should be limited to those projects that can be constructed and delivering water within no more than 12 months from the statutory adoption deadline (January 5, 2022) of the state water plan. However, feasibility criteria defined⁴⁰ in SB 1511, 85th Legislative Session, shall inform the RWPG process for development of the 2021 RWP.

ATTACHMENT NO. 2

Plateau Region Potentially Feasible Water Management Strategies

County	Water User Group	Strategy Source Basin	Water Management Strategy
Bandera	City of Bandera	San Antonio	Reuse treated wastewater effluent for irrigation use
			Promote, design & install rainwater harvesting systems
			Additional Lower Trinity well and lay necessary pipeline
			Additional Middle Trinity wells within city water infrastructure
			Surface water acquisition, treatment and ASR (ALTERNATE)
	*Bandera County FWSD#1	San Antonio	New strategy - Additional groundwater well
	*Bandera County Other - Bandera River Ranch #1	San Antonio	Water loss audit and main-line repair
	*Bandera County Other - Lake Medina Shores	San Antonio	Additional groundwater wells
	*Bandera County Other - Medina WSC	San Antonio	Additional groundwater well for the Town of Medina
	Bandera County Other	San Antonio	Drought management (BCRAGD)
Additional groundwater well for Pebble Beach Subdivision			
Additional groundwater wells to provide emergency supply to VFD			
Water loss audit and main-line repair for Enchanted River Estates			
	Nueces	Drought management (BCRAGD)	
*Bandera County Irrigation	San Antonio	Additional groundwater wells	
*Bandera County Livestock	*Guadalupe	Additional groundwater well	
	*Nueces	Additional groundwater well	
Edwards	*City of Rocksprings	*Nueces	Additional groundwater well
	Edwards County Other - Barksdale WSC	Nueces	Additional groundwater well in the Nueces River Alluvium Aquifer
	Edwards County Other	Nueces	Vegetative Management
	*Edwards County Mining	*Nueces	Additional groundwater wells
		*Colorado	Additional groundwater wells
		*Rio Grande	Additional groundwater wells
Kerr	*City of Kerrville	Guadalupe	Increase wastewater reuse
			Water loss audit and main-line repair
			Purchase water from UGRA
			Increased water treatment and ASR capacity
	Kerr County Other - *Center Point	Guadalupe	*** EKCRWSP
	Kerr County Other - Center Point North WS	Guadalupe	*** EKCRWSP
	Kerr County Other - *Center Point Taylor System		*** EKCRWSP
	Kerr County Other - Hills and Dales Estate	Guadalupe	*** EKCRWSP
Kerr County Other - Nickerson Farm WS	Guadalupe	*** EKCRWSP	
Kerr County Other - Oak Forest South Water	Guadalupe	*** EKCRWSP	

(continued) ATTACHMENT NO. 2

Plateau Region Potentially Feasible Water Management Strategies

County	Water User Group	Strategy Source Basin	Water Management Strategy	
Kerr	Kerr County Other - Park Place Subdivision	Guadalupe	*** EKCRWSP	
	Kerr County Other - Pecan Valley	Guadalupe	*** EKCRWSP	
	Kerr County Other - Rustic Hills Water	Guadalupe	*** EKCRWSP	
	Kerr County Other - Verde Park Estates	Guadalupe	Water loss audit and main-line repair for Verde Park Estates *** EKCRWSP	
	Kerr County Other - Westwood WS	Guadalupe	*** EKCRWSP	
	*Kerr County Other	*Nueces	Conservation: Public information - Water shortage met with Guadalupe Basin strategies	
		Guadalupe	Water loss audit and main-line repair for Community Water Group WSC Vegetative management - UGRA	
	*Kerr County Irrigation	San Antonio	Additional groundwater well	
	*Kerr County Livestock	*Colorado	Additional groundwater wells	
		*Guadalupe	Additional groundwater wells	
		*San Antonio	Additional groundwater well	
		*Nueces	Additional groundwater well	
*Kerr County Mining	Colorado	Additional groundwater well		
Kinney	City of Brackettville	Rio Grande	Increase supply to Spoford with new water line Increase storage facility	
		Rio Grande	Water loss audit and main-line repair Increase storage facility	
	Kinney County Other	Rio Grande	Vegetative Management	
		Nueces	Vegetative Management	
	*City of Camp Wood	Nueces	Conservation: Public information Additional groundwater wells	
*City of Leakey	Nueces	Additional groundwater well Develop interconnections between wells within the City		
Real	Real County Other	Nueces	Water loss audit and main-line repair for Real WSC Vegetative Management Additional groundwater well for Oakmont Saddle WSC	
		City of Del Rio	Rio Grande	Water loss audit and main-line repair Additional groundwater well Water treatment plant expansion Develop a wastewater reuse program
			Rio Grande	Water loss audit and main-line repair for Val Verde County WCID Comstock Water loss audit and main-line repair for San Pedro Canyon Subdivision (Upper) Water loss audit and main-line repair for Tierra Del Lago Vegetative Management
	*Val Verde County Mining	Rio Grande	Additional groundwater well	

* WUG with a supply need.

***** Eastern Kerr County Regional Water Supply Project Strategies**

East Kerr County Regional Water Supply Project	Guadalupe	UGRA acquisition of surface water rights
		KCCC acquisition of surface water rights
		Construction of an off-channel surface water storage
		Construction of surface water treatment facilities and main distribution transmission lines
		Construction of an ASR facility
		Construction of a wellfield for dense rural areas
		Construction of a brackish groundwater desalination facility
		Construction of an Ellenburger Aquifer water supply source

ATTACHMENT NO. 3

Methodology for Identifying and Selecting Potentially Feasible Water Management Strategies

1. Review and consider recommended water management strategies adopted by the water planning group for the 2016 Plateau Region Water Plan.
2. Review and consider any issues identified in the most current TWDB Water Loss Audit Report, including leak detection and supply side analysis.
3. Solicit current water planning information, including specific water management strategies of interest from WUGs and WWP with identified needs.
4. Review and consider the most recent Water Supply Management, Water Conservation, and/or Drought Contingency Plans, where available, from WUGs and WWP with identified needs.
5. Consider potentially feasible water management strategies that may include, but are not limited to (*Chapter 357 Subchapter C §357.34*):
 - Extended use of existing supplies including:
 - a. System optimization and conjunctive use of water resources
 - b. Reallocation of reservoir storage to new uses
 - c. Voluntary redistribution of water resources including contracts, water marketing, regional water banks, sales, leases, options, subordination agreements, and financing agreements
 - d. Subordination of existing water rights through voluntary agreements
 - e. Enhancement of yields of existing sources
 - f. Improvement of water quality including control of naturally occurring chlorides
 - New supply development including:
 - a. Construction and improvement of surface water and groundwater resources
 - b. Brush control
 - c. Precipitation enhancement
 - d. Desalination
 - e. Water supply that could be made available by cancellation of water rights
 - f. Rainwater harvesting
 - g. Aquifer storage and recovery
 - Conservation and drought management measures including demand management
 - Reuse of wastewater
 - Interbasin transfers of surface water
 - Emergency transfers of surface water
6. Consider other potentially feasible water management strategies suggested by planning group members, stakeholders, and the public.
7. Based on the above reviews and considerations, establish a preliminary list of potentially feasible water management strategies. At a discussion level, consider the following feasibility concerns for each strategy:
 - Water supply source availability during drought-of-record conditions
 - Cost/benefit
 - Water quality
 - Threats to agriculture and natural resources
 - Impacts to the environment, other water resources, and basin transfers
 - Socio-economic impacts
8. Based on the above discussion level analysis, select a final list of potentially feasible water management strategies for further technical evaluation using detailed analysis criteria.

ATTACHMENT NO. 4

**Plateau Region Potential Strategy Scope of Work and Budget
(TWDB-Formatted Spreadsheet)**

PLATEAU REGION POTENTIAL WATER MANAGEMENT STRATEGIES - TASK 5A - SCOPE OF WORK AND BUDGET

Strategy Type(s)														Overall TWDB Task Number	SubTask WMS evaluation number	SubTask WMS	SubTask Scope of Work Write-up	Deliverable	SubTask Budget (\$)	WUG(s) &/OR WWP Entities Potentially Served by WMS(s)	Addressing a changed condition from previous cycle? If yes, describe the changed condition.	When was this WMS identified by RWPG as potentially feasible?	Was the WMS evaluated in any previous Regional Water Planning Cycles?	Is evaluation a limited update to previous technical evaluation information? If no, indicate specific update in subtask sow column E.
ASR	Conservation/Drought Management	Groundwater Desal	Groundwater Dvlp	Reuse	New Major Reservoir	Other Surface Water	Seawater Desal	Conjunctive Use	Other WMS (Subordination, etc)	Region														
	X										J	5A	1	Conservation - Initiatives	Specific strategies under this subtask include: public conservation information distribution, drought management, and rainwater harvesting. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of planned activities, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 1,532	4 WUGs See attached scope of work	Yes. The new TWDB municipal conservation tool will be used for better cost estimates.	Some strategies in this group were identified in previous Plans. The rest were identified in 2018.	Yes - 2016 Plan Strategies: J-2, 26, 32, 34A, 32B, 53, 68, 69	Yes		
	X										J	5A	2	Conservation - Water Loss Audit and Main Line Repair	Specific strategies under this subtask: identification of water utilities that show a significant water loss on the most recent audit. <u>See attached scope of work.</u>	Water management strategy documentation will include identification of water utilities that show a 10% or more water loss on the most recent audit, length of repair, and volume of water saved.	\$ 1,532	11 WUGs See attached scope of work	Yes. Six new WUGs are identified with greater than 10% water loss.	Some strategies in this group were identified in previous Plans. The rest were identified in 2018.	Yes - 2016 Plan Strategies: J-6, 7, 8, 15, 17, 23, 28, 29, 30, 31, 47, 55, 58, 62	Yes		
	X										J	5A	3	Conservation - Vegetative Management	Specific strategies under this subtask include: vegetative and rangeland management, and invasive species control. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of acreage under consideration, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 1,532	6 WUGs See attached scope of work	Yes. The new TWDB brush management tool will be used for better cost estimates.	Some strategies in this group were identified in previous Plans. The rest were identified in 2018.	Yes - 2016 Plan Strategies: J-9, 19, 33, 51, 59, 66	Yes		
				X							J	5A	4	Reuse	Specific strategies under this subtask include: wastewater treatment for reuse. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of planned facilities, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 3,830	3 WUGs See attached scope of work	No	Some strategies in this group were identified in previous Plans.	Yes - 2016 Plan Strategies: J-1, 22, 65	No		
			X								J	5A	5	Groundwater Development	Specific strategies under this subtask include: drill new wells or expand existing wellfields, construct desalination facilities, and continue exploration and development of Ellenburger Aquifer. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of planned facilities, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 11,491	21 WUGs See attached scope of work	Yes. One new WUG with a groundwater development strategy is added.	Some strategies in this group were identified in previous Plans. The rest were identified in 2018.	Yes - 2016 Plan Strategies: J-4, 5, 10, 11, 12, 13, 14, 16, 18, 20, 21, 27, 42, 43, 44, 45, 46, 52, 54, 56, 60, 61, 63, 67	No		
											J	5A	6	Surface Water Development	Specific strategies under this subtask include: obtain additional or utilize existing water rights, and construct offchannel storage reservoir. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of anticipated water rights acquisition, planned facilities, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 3,830	2 WUGs See attached scope of work	No	Some strategies in this group were identified in previous Plans.	Yes - 2016 Plan Strategies: J-6	No		

PLATEAU REGION POTENTIAL WATER MANAGEMENT STRATEGIES - TASK 5A - SCOPE OF WORK AND BUDGET

Strategy Type(s)														Overall TWDB Task Number	SubTask WMS evaluation number	SubTask WMS	SubTask Scope of Work Write-up	Deliverable	SubTask Budget (\$)	WUG(s) &/OR WWP Entities Potentially Served by WMS(s)	Addressing a changed condition from previous cycle? If yes, describe the changed condition.	When was this WMS identified by RWPG as potentially feasible?	Was the WMS evaluated in any previous Regional Water Planning Cycles?	Is evaluation a limited update to previous technical evaluation information? If no, indicate specific update in subtask sow column E.
ASR	Conservation/Drought Management	Groundwater Desal	Groundwater Dvlp	Reuse	New Major Reservoir	Other Surface Water	Seawater Desal	Conjunctive Use	Other WMS (Subordination, etc)	Region														
X										J	5A	7	ASR	Specific strategies under this subtask include: construction of ASR facilities. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of planned facilities, aquifer storage capacity, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 3,064	2 WUGs See attached scope of work	No	Some strategies in this group were identified in previous Plans.	Yes - 2016 Plan Strategies: J-25, 1A	No			
										X	J	5A	8	New or Expansion of Infrastructure Facilities	Specific strategies under this subtask include: construct new or expand existing water treatment, storage or other infrastructure facilities; establish new or emergency interconnections. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of planned facilities, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 7,661	5 WUGs See attached scope of work	No	Some strategies in this group were identified in previous Plans.	Yes - 2016 Plan Strategies: J-48, 49, 50, 57, 64	No		
X			X							X	J	5A	9	Eastern Kerr County Regional Water Supply Project	The EKCWSP is in the planning stage and includes: *UGRA acquisition of surface water rights; *KCCC acquisition of surface water rights; *Construction of an off-channel surface water reservoir; *Construction of a surface water treatment facility and transmission lines; Construction of ASR facility; *Construction of a wellfield; *Construction of a desalination facility; * Construction of an Ellenburger aquifer water-supply well. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of anticipated water rights acquisitions, planned facilities, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 15,323	11 WUGs See attached scope of work	Yes. The Ellenburger aquifer well has advanced from an exploratory test well to an active water supply well. The planning and design of various facility components have advanced.	Some strategies in this group were identified in previous Plans.	Yes - 2016 Plan Strategies: J-34 tthru J-41	No		
										J	5A	10	Other Strategies	Other strategies will be approved by the PRWPG with concurrence of the TWDB prior to evaluation. <u>See attached scope of work.</u>	Water management strategy documentation will include description and discussion of planned facilities, firm DOR supply, environmental factors, engineering & costing considerations, and implementation issues.	\$ 7,661	See attached scope of work	Undetermined	Undetermined	Undetermined	Undetermined			
										J	5A	11	Database Entry	<u>See attached scope of work.</u>	Completed water management strategy entry into DB17.	\$ 7,661	See attached scope of work	na	na	na	na			
										J	5A	12	Report Preparation	<u>See attached scope of work.</u>	Completed Chapter 5.	\$ 11,491	See attached scope of work	na	na	na	na			
												REGION-SPECIFIC SUBTASKS TOTAL BUDGET		\$ 76,608										

CHAPTER 3
REGIONAL WATER SUPPLY
SOURCES

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3 REGIONAL WATER SUPPLY SOURCES

From the semi-arid Hill Country to the arid Rio Grande Basin, both groundwater and surface water are critical resources for the livelihood of the citizens of the Plateau Region and the environment in which they reside. Chapter 3 explores the current and future availability of all water supply resources in the Region including groundwater, surface water, springs, and reuse. The water demand and supply availability analysis developed in Chapters 2 and 3, respectively, form the basis for identifying in Chapter 4 the areas within the Plateau Region that potentially could experience supply shortages in future years. The following tables list water supplies available to meet future needs (demands) reported in Chapter 2:

- Table 3-1 lists groundwater and surface water availability as estimated in each identified source (aquifer, river, spring) by county and river basin. Water source availability analyses, including water-quality concerns, are discussed in more detail in Section 3.1 (groundwater) and Section 3.2 (surface water).
- Table 3-2 lists water supplies available to municipal utilities and general water use categories based on the current infrastructure ability of each to obtain water supplies. These abilities primarily include existing infrastructure, water-rights limitations, and Groundwater Conservation District (GCD) permit limitations.
- Table 3-3 lists water supplies available to Del Rio Utilities as a wholesale water provider.

Only three municipal utilities within the Plateau Region derive municipal supplies from surface water or spring sources. The City of Kerrville currently uses surface water from the Guadalupe River in conjunction with their groundwater supply. Kerrville also injects excess treated surface water into the Trinity Aquifer through an aquifer storage and recovery (ASR) facility. The City of Del Rio obtains most of its water supply from San Felipe Springs, which issues from the Edwards limestone. The spring water is treated to drinking water standards in a new microfiltration plant prior to distribution. For planning purposes, San Felipe Springs is recognized as a surface water source that falls within the Rio Grande Run-of-River. Camp Wood in Real County is supplied from Old Faithful Springs on a tributary of the Nueces River. All other communities in the Region are totally dependent on groundwater sources for their supplies. All water supplies based upon contracts are assumed to be renewed.

Table 3-1. Water Source Availability (Acre-Feet per Year)

Groundwater	County	Basin	Salinity*	2020	2030	2040	2050	2060	2070
Austin Chalk Aquifer	Kinney	Nueces	Brackish	875	875	875	875	875	875
Austin Chalk Aquifer	Kinney	Rio Grande	Brackish	1,894	1,894	1,894	1,894	1,894	1,894
Edwards-BFZ Aquifer	Kinney	Nueces	Fresh	6,319	6,319	6,319	6,319	6,319	6,319
Edwards-BFZ Aquifer	Kinney	Rio Grande	Fresh	2	2	2	2	2	2
Edwards-Trinity (Plateau) Aquifer	Bandera	Guadalupe	Fresh	81	81	81	81	81	81
Edwards-Trinity (Plateau) Aquifer	Bandera	Nueces	Fresh	38	38	38	38	38	38
Edwards-Trinity (Plateau) Aquifer	Bandera	San Antonio	Fresh	1,890	1,890	1,890	1,890	1,890	1,890
Edwards-Trinity (Plateau) Aquifer	Kerr	Colorado	Fresh	245	245	245	245	245	245
Edwards-Trinity (Plateau) Aquifer	Kerr	Guadalupe	Fresh	1,015	1,015	1,015	1,015	1,015	1,015
Edwards-Trinity (Plateau) Aquifer	Kerr	Nueces	Fresh	5	5	5	5	5	5
Edwards-Trinity (Plateau) Aquifer	Kerr	San Antonio	Fresh	12	12	12	12	12	12
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Edwards	Colorado	Fresh	2,305	2,305	2,305	2,305	2,305	2,305
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Edwards	Nueces	Fresh	1,631	1,631	1,631	1,631	1,631	1,631
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Edwards	Rio Grande	Fresh	1,740	1,740	1,740	1,740	1,740	1,740
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Kinney	Nueces	Fresh	12	12	12	12	12	12
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Kinney	Rio Grande	Fresh	70,329	70,329	70,329	70,329	70,329	70,329
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Real	Colorado	Fresh	277	277	277	277	277	277
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Real	Guadalupe	Fresh	3	3	3	3	3	3
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Real	Nueces	Fresh	7,243	7,243	7,243	7,243	7,243	7,243
Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	Val Verde	Rio Grande	Fresh	50,000	50,000	50,000	50,000	50,000	50,000
Ellenburger-San Saba Aquifer	Kerr	Guadalupe	Fresh	1,802	1,802	1,802	1,802	1,802	1,802
Frio River Alluvium Aquifer	Real	Nueces	Fresh	2,145	2,145	2,145	2,145	2,145	2,145
Hickory Aquifer	Kerr	Colorado	Fresh	0	0	0	0	0	0
Hickory Aquifer	Kerr	Guadalupe	Fresh	0	0	0	0	0	0
Nueces River Alluvium Aquifer	Edwards	Nueces	Fresh	1,787	1,787	1,787	1,787	1,787	1,787
Nueces River Alluvium Aquifer	Real	Nueces	Fresh	1,787	1,787	1,787	1,787	1,787	1,787
Trinity Aquifer	Bandera	Guadalupe	Fresh	76	76	76	76	76	76
Trinity Aquifer	Bandera	Nueces	Fresh/Brackish	903	903	903	903	903	903
Trinity Aquifer	Bandera	San Antonio	Fresh/Brackish	6,305	6,305	6,305	6,305	6,305	6,305
Trinity Aquifer	Kerr	Colorado	Fresh	318	318	318	318	318	318

Table 3-1 (Continued). Water Source Availability (Acre-Feet per Year)

Groundwater	County	Basin	Salinity*	2020	2030	2040	2050	2060	2070
Trinity Aquifer	Kerr	Guadalupe	Fresh/Brackish	14,129	14,056	13,767	13,450	13,434	13,434
Trinity Aquifer	Kerr	Nueces	Fresh	0	0	0	0	0	0
Trinity Aquifer	Kerr	San Antonio	Fresh	471	471	471	471	471	471
Trinity Aquifer ASR	Kerr	Guadalupe	Fresh	453	453	453	453	453	453
Groundwater Total Source Availability				176,092	176,019	175,730	175,413	175,397	175,397

Surface Water	County	Basin	Salinity	2020	2030	2040	2050	2060	2070
Colorado Run-Of-River	Edwards	Colorado	Fresh	32	32	32	32	32	32
Guadalupe Run-Of-River	Bandera	Guadalupe	Fresh	3	3	3	3	3	3
Guadalupe Run-Of-River	Kerr	Guadalupe	Fresh	1,375	1,375	1,375	1,375	1,375	1,375
Medina Lake/Reservoir	Bandera	San Antonio	Fresh	0	0	0	0	0	0
Nueces Run-Of-River	Bandera	Nueces	Fresh	5	5	5	5	5	5
Nueces Run-Of-River	Edwards	Nueces	Fresh	94	94	94	94	94	94
Nueces Run-Of-River	Real	Nueces	Fresh	1,751	1,751	1,751	1,751	1,751	1,751
Rio Grande Run-Of-River	Kinney	Rio Grande	Fresh	3,616	3,616	3,616	3,616	3,616	3,616
Rio Grande Run-Of-River	Val Verde	Rio Grande	Fresh	13,776	13,776	13,776	13,776	13,776	13,776
San Antonio Run-Of-River	Bandera	San Antonio	Fresh	2	2	2	2	2	2
Surface Water Total Source Availability				20,654	20,654	20,654	20,654	20,654	20,654
Region J Total Source Availability				198,905	198,832	198,543	198,226	198,210	198,210

* Salinity field indicates whether the source availability is considered 'fresh' (less than 1,000 mg/L), 'brackish' (1,000 to 10,000 mg/L), 'saline' (10,001 mg/L to 34,999 mg/L), or 'seawater' (35,000 mg/L or greater). Sources can also be labeled as 'fresh/brackish' or 'brackish/saline', if a combination of the salinity types is appropriate.

Table 3-2. Existing Supply (Acre-Feet per Year)

		2020	2030	2040	2050	2060	2070
Bandera County							
Guadalupe Basin							
County-Other	Edwards-Trinity (Plateau) Aquifer	34	34	34	34	34	34
Livestock	Edwards-Trinity (Plateau) Aquifer	9	9	9	9	9	9
Guadalupe Basin Total Existing Supply		43	43	43	43	43	43
Nueces Basin							
County-Other	Edwards-Trinity (Plateau) Aquifer	38	38	38	38	38	38
County-Other	Nueces Run-of-River	0	0	0	0	0	0
County-Other	Trinity Aquifer	399	399	399	399	399	399
Livestock	Edwards-Trinity (Plateau) Aquifer	0	0	0	0	0	0
Livestock	Trinity Aquifer	44	44	44	44	44	44
Irrigation	Nueces Run-of-River	5	5	5	5	5	5
Irrigation	Trinity Aquifer	279	279	279	279	279	279
Nueces Basin Total Existing Supply		765	765	765	765	765	765
San Antonio Basin							
Bandera	Trinity Aquifer	534	534	534	534	534	534
Bandera County FWSD 1	Trinity Aquifer	75	75	75	75	75	75
County-Other Bandera River Ranch 1	Trinity Aquifer	69	69	69	69	69	69
County-Other Lake Medina Shores	Trinity Aquifer	55	55	55	55	55	55
County-Other Medina WSC	Trinity Aquifer	58	58	58	58	58	58
County-Other	Edwards-Trinity (Plateau) Aquifer	379	379	379	379	379	379
County-Other	San Antonio Run-Of-River	0	0	0	0	0	0
County-Other	Trinity Aquifer	4,356	4,356	4,356	4,356	4,356	4,356
Livestock	Edwards-Trinity (Plateau) Aquifer	111	111	111	111	111	111
Livestock	Trinity Aquifer	85	85	85	85	85	85
Irrigation	Guadalupe Run-Of-River	3	3	3	3	3	3
Irrigation	San Antonio Run-Of-River	2	2	2	2	2	2
Irrigation	Trinity Aquifer	684	684	684	684	684	684
San Antonio Basin Total Existing Supply		6,411	6,411	6,411	6,411	6,411	6,411
Bandera County Total Existing Supply		7,219	7,219	7,219	7,219	7,219	7,219
Edwards County							
Colorado Basin							
Rocksprings	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	871	871	871	871	871	871
County-Other	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	57	57	57	57	57	57
Mining	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	7	7	7	7	7	7
Livestock	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	471	471	471	471	471	471
Irrigation	Colorado Run-Of-River	32	32	32	32	32	32
Irrigation	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	78	78	78	78	78	78
Colorado Basin Total Existing Supply		1,516	1,516	1,516	1,516	1,516	1,516
Nueces Basin							
County-Other Barksdale WSC	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	110	110	110	110	110	110
County-Other	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	155	155	155	155	155	155
County-Other	Nueces River Alluvium Aquifer	8	8	8	8	8	8

Table 3-2 (Continued). Existing Supply (Acre-Feet per Year)

		2020	2030	2040	2050	2060	2070
Edwards County							
Nueces Basin							
Mining	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	9	9	9	9	9	9
Livestock	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	206	206	206	206	206	206
Irrigation	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	109	109	109	109	109	109
Irrigation	Nueces Run-of-River	94	94	94	94	94	94
Nueces Basin Total Existing Supply		691	691	691	691	691	691
Rio Grande Basin							
County-Other	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	30	30	30	30	30	30
Mining	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	14	14	14	14	14	14
Livestock	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	110	110	110	110	110	110
Irrigation	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	70	70	70	70	70	70
Rio Grande Basin Total Existing Supply		224	224	224	224	224	224
Edwards County Total Existing Supply		2,431	2,431	2,431	2,431	2,431	2,431
Kerr County							
Colorado Basin							
County-Other	Edwards-Trinity (Plateau) Aquifer	64	64	64	64	64	64
Mining	Edwards-Trinity (Plateau) Aquifer	3	3	3	3	3	3
Livestock	Edwards-Trinity (Plateau) Aquifer	47	47	47	47	47	47
Irrigation	Edwards-Trinity (Plateau) Aquifer	92	92	92	92	92	92
Colorado Basin Total Existing Supply		206	206	206	206	206	206
Guadalupe Basin							
Kerrville	Guadalupe Run-Of-River	150	150	150	150	150	150
Kerrville	Trinity Aquifer	3,605	3,605	3,605	3,605	3,605	3,605
Kerrville	Trinity ASR	453	453	453	453	453	453
Kerrville South Water	Trinity Aquifer	387	387	387	387	387	387
County-Other Center Point	Trinity Aquifer	11	11	11	11	11	11
County-Other Center Point North WS	Trinity Aquifer	23	23	23	23	23	23
County-Other Center Point Taylor System	Trinity Aquifer	43	43	43	43	43	43
County-Other Hills & Dales Estates	Trinity Aquifer	18	18	18	18	18	18
County-Other Nickerson Farm WS	Trinity Aquifer	22	22	22	22	22	22
County-Other Oak Forest South Water	Trinity Aquifer	80	80	80	80	80	80
County-Other Park Place Subdivision	Trinity Aquifer	14	14	14	14	14	14
County-Other Pecan Valley	Trinity Aquifer	12	12	12	12	12	12

Table 3-2 (Continued). Existing Supply (Acre-Feet per Year)

		2020	2030	2040	2050	2060	2070
Kerr County							
Guadalupe Basin							
County-Other Rustic Hills Water	Trinity Aquifer	9	9	9	9	9	9
County-Other Verde Park Estates	Trinity Aquifer	16	16	16	16	16	16
County-Other Westwood WS	Trinity Aquifer	28	28	28	28	28	28
County-Other	Edwards-Trinity (Plateau) Aquifer	616	616	616	616	616	616
County-Other	Guadalupe Run-Of-River	10	10	10	10	10	10
County-Other	Trinity Aquifer	7,636	7,636	7,636	7,636	7,636	7,636
Manufacturing	Edwards-Trinity (Plateau) Aquifer	20	20	20	20	20	20
Manufacturing	Guadalupe Run-Of-River	11	11	11	11	11	11
Manufacturing	Trinity Aquifer	17	17	17	17	17	17
Mining	Edwards-Trinity (Plateau) Aquifer	14	14	14	14	14	14
Mining	Guadalupe Run-Of-River	77	77	77	77	77	77
Mining	Trinity Aquifer	31	31	31	31	31	31
Livestock	Edwards-Trinity (Plateau) Aquifer	230	230	230	230	230	230
Livestock	Trinity Aquifer	143	143	143	143	143	143
Irrigation	Guadalupe Run-Of-River	1,127	1,127	1,127	1,127	1,127	1,127
Irrigation	Trinity Aquifer	533	533	533	533	533	533
Guadalupe Basin Total Existing Supply		15,336	15,336	15,336	15,336	15,336	15,336
Nueces Basin							
County-Other	Edwards-Trinity (Plateau) Aquifer	0	0	0	0	0	0
Livestock	Edwards-Trinity (Plateau) Aquifer	3	3	3	3	3	3
Nueces Basin Total Existing Supply		3	3	3	3	3	3
San Antonio Basin							
County-Other	Edwards-Trinity (Plateau) Aquifer	3	3	3	3	3	3
County-Other	Trinity Aquifer	258	258	258	258	258	258
Livestock	Edwards-Trinity (Plateau) Aquifer	9	9	9	9	9	9
Irrigation	Edwards-Trinity Plateau Aquifer	0	0	0	0	0	0
Irrigation	Trinity Aquifer	0	0	0	0	0	0
San Antonio Basin Total Existing Supply		270	270	270	270	270	270
Kerr County Total Existing Supply		15,815	15,815	15,815	15,815	15,815	15,815
Kinney County							
Nueces Basin							
County-Other	Edwards-BFZ Aquifer	29	29	29	29	29	29
County-Other	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	5	5	5	5	5	5
Livestock	Edwards-BFZ Aquifer	66	66	66	66	66	66
Livestock	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	7	7	7	7	7	7
Irrigation	Edwards-BFZ Aquifer	2,357	2,357	2,357	2,357	2,357	2,357
Nueces Basin Total Existing Supply		2,464	2,464	2,464	2,464	2,464	2,464
Rio Grande Basin							
Brackettville	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	645	645	645	645	645	645
Brackettville	Rio Grande Run-Of-River	0	0	0	0	0	0
Fort Clark Springs MUD	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	1,371	1,371	1,371	1,371	1,371	1,371
County-Other	Austin Chalk Aquifer	80	80	80	80	80	80
County-Other	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	85	85	85	85	85	85

Table 3-2 (Continued). Existing Supply (Acre-Feet per Year)

		2020	2030	2040	2050	2060	2070
Kinney County							
Rio Grande Basin							
Livestock	Austin Chalk Aquifer	226	226	226	226	226	226
Livestock	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	95	95	95	95	95	95
Irrigation	Austin Chalk Aquifer	952	952	952	952	952	952
Irrigation	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	3,425	3,425	3,425	3,425	3,425	3,425
Irrigation	Rio Grande Run-Of-River	3,616	3,616	3,616	3,616	3,616	3,616
Rio Grande Basin Total Existing Supply		10,495	10,495	10,495	10,495	10,495	10,495
Kinney County Total Existing Supply		12,959	12,959	12,959	12,959	12,959	12,959
Real County							
Colorado Basin							
County-Other	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	15	15	15	15	15	15
Livestock	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	18	18	18	18	18	18
Irrigation	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	188	188	188	188	188	188
Colorado Basin Total Existing Supply		221	221	221	221	221	221
Nueces Basin							
Camp Wood	Nueces Other Local Supply	0	0	0	0	0	0
Leakey	Frio River Alluvium Aquifer	298	298	298	298	298	298
County-Other	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	156	156	156	156	156	156
County-Other	Frio River Alluvium Aquifer	311	311	311	311	311	311
County-Other	Nueces River Alluvium Aquifer	5	5	5	5	5	5
County-Other	Nueces Run-of-River	0	0	0	0	0	0
Livestock	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	176	176	176	176	176	176
Irrigation	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	187	187	187	187	187	187
Irrigation	Nueces Run-of-River	1,751	1,751	1,751	1,751	1,751	1,751
Nueces Basin Total Existing Supply		2,884	2,884	2,884	2,884	2,884	2,884
Real County Total Existing Supply		3,105	3,105	3,105	3,105	3,105	3,105
Val Verde County							
Rio Grande Basin							
Del Rio Utilities	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	0	0	0	0	0	0
Del Rio Utilities	Rio Grande Run-Of-River	7,466	7,466	7,466	7,466	7,466	7,466
Laughlin AFB	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	931	931	931	931	931	931
County-Other	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	3,364	3,364	3,364	3,364	3,364	3,364
Mining	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	39	39	39	39	39	39
Livestock	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	506	506	506	506	506	506
Irrigation	Edwards-Trinity (Plateau), Pecos Valley & Trinity Aquifer	276	276	276	276	276	276
Irrigation	Rio Grande Run-Of-River	6,310	6,310	6,310	6,310	6,310	6,310
Rio Grande Basin Total Existing Supply		18,892	18,892	18,892	18,892	18,892	18,892
Val Verde County Total Existing Supply		18,892	18,892	18,892	18,892	18,892	18,892
Region J Total Existing Supply		60,421	60,421	60,421	60,421	60,421	60,400

Table 3-3. Del Rio Utilities Wholesale Water Provider Supply (Acre-Feet per Year)

County	Basin	Wholesale Water Provider	Receiving Entity	2020	2030	2040	2050	2060	2070
Val Verde	Rio Grande	Del Rio Utilities	City of Del Rio	6,135	6,135	6,135	6,135	6,135	6,135
			Laughlin AFB	871	871	871	871	871	871
			County Other (6%)	460	460	460	460	460	460
Total Wholesale Supply				7,466	7,466	7,466	7,466	7,466	7,466

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3.1 GROUNDWATER RESOURCES

The principal aquifers in the Plateau Region are the Trinity, Edwards-Trinity (Plateau), Edwards (Balcones Fault Zone), Austin Chalk, Frio and Nueces River Alluviums, and new to this Plan, the Ellenburger-San Saba Aquifer (Figure 3-1). Aquifer descriptions provided in this chapter are relatively limited; more detailed hydrogeological characterization of the aquifers may be obtained from reports published by the TWDB, USGS, UTBEG, and other agencies and universities. The water quality of aquifers is relatively good and a detailed discussion on water-quality characteristics and issues is provided in Chapter 1, Section 1.4.5.

Two water-source characterization studies were conducted during a previous planning period. The first study (*Occurrence of Significant River Alluvium Aquifers in the Plateau Region, 2010*) identifies and quantifies viable groundwater sources in shallow alluvial aquifers that parallel many of the major streams in the Region. As a result of the study, substantial volumes were estimated for the Frio and Nueces River Alluvium Aquifers in Real and Edwards Counties.

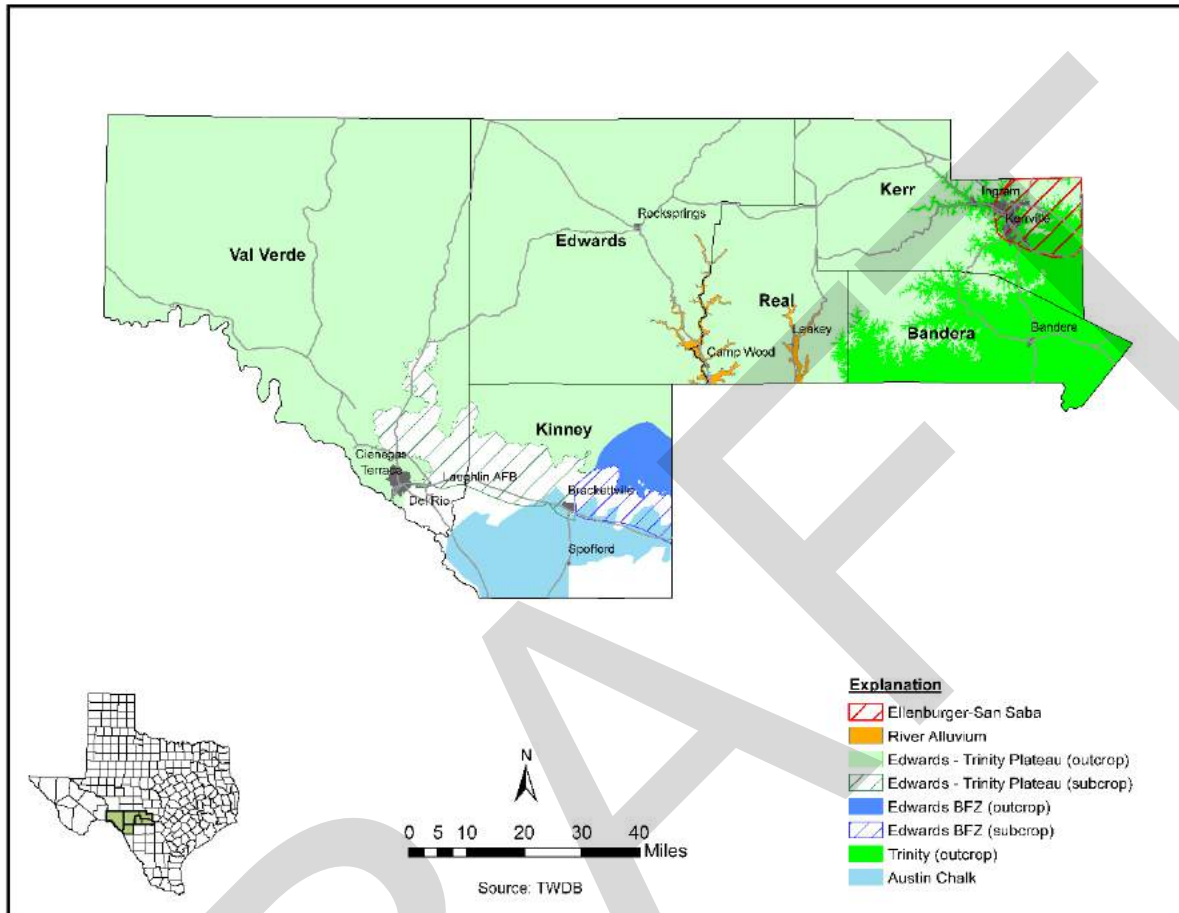
The second study (*Groundwater Data Acquisition in Edwards, Kinney and Val Verde Counties, Texas, 2009*) was performed to assist in the further characterization of the Edwards and associated aquifers in the western part of the Plateau Region. The project included four general tasks: (1) review of existing aquifer evaluations, field studies and new well data; (2) performance of dye tracer tests to analyze groundwater flow direction and speed; (3) measurement of water levels in wells during two seasonal periods; and (4) review of recent water quality sampling projects. These two reports can be viewed at (www.ugra.org/plateau-water-planning-group).

The Ellenburger-San Saba Aquifer is added to this Plan as a new source. Recent test hole exploration, pumping test results, and water chemistry analysis have verified this Aquifer as a potential source of water to meet the supply needs of northeastern Kerr County.

Over much of the Region, water levels generally fluctuate with seasonal precipitation and are highly susceptible to declines during drought conditions. Water levels generally recover during wet periods; however, a long-term decline is being observed in some Trinity Aquifer wells in the eastern portion of the Region where pumping is exceeding the capacity of the local Aquifer to fully recharge.

Discharge from the aquifers occurs naturally through springs and artificially by pumping from wells. Some discharge also occurs through leakage from one water-bearing unit to another and through natural down-gradient flow out of the Region.

Figure 3-1. Groundwater Sources



3.1.1 Groundwater Availability

Base flow to the many rivers and streams that flow through the Plateau Region is principally generated from the numerous springs that issue from rock formations that form the major aquifers in the Region. The Plateau Region contains the headwaters of the Guadalupe, San Antonio, Medina, Sabinal, Frio, Nueces, and West Nueces Rivers; and tributaries to the Rio Grande and Colorado River such as the Pecos, Devils, and South Llano Rivers. Flow in these rivers and streams is critical to the Plateau Region in that it provides municipal drinking water, supplies irrigation and livestock needs, maintains environmental habitat, and supports a thriving ecological and recreational tourist economy. Water users downstream of the Plateau Region (Regions K, L, and M) likewise have a stake in maintaining and protecting spring-fed base flows of rivers that originate in the Plateau Region.

It is thus recognized that sustaining flow in these important rivers and streams is highly dependent on maintaining an appropriate water level in the aquifer systems that feed the supporting springs. With the sustainability of local water supplies and the economic welfare of the Region in mind, the PWPG defines *groundwater availability as a maximum level of aquifer withdrawal that results in an acceptable level of long-term aquifer impact such that the base flow in rivers and streams is not significantly affected beyond a level that would be anticipated due to naturally occurring conditions.* In so defining groundwater

availability, the planning group establishes a policy decision to protect the long-term water supply and related economic needs of the Plateau Region. The PWPG acknowledges and supports GCD’s regulatory authority over permitted withdrawals from aquifers within their respective boundaries.

Groundwater availability as listed in Table 3-1 in this 2021 Plateau Region Water Plan is based on the Modeled Available Groundwater (MAG) volumes that may be produced on an average annual basis to achieve a Desired Future Condition (DFC) as adopted by Groundwater Management Areas (GMAs) (per Texas Water Code §36.001). The GMA process is explained in more detail in Chapter 1, Section 1.1.5. Groundwater availability for these sources is calculated by modeling or standard geohydrologic methods. Table 3-4 lists the methodology used to calculate groundwater source availability.

Table 3-4. Groundwater Availability Methodology

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.
		Nueces	0.6% (0.006) of average annual rainfall (22 in) over the aquifer outcrop (87,549 acres) as recharge.
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	Hydraulic conductivity 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-Relevant, TWDB modeled
		Guadalupe	
		Nueces	
		San Antonio	
	Bandera	Guadalupe	GMA9 MAG
		Nueces	
Edwards-Trinity (Plateau), Pecos Valley, Trinity Aquifer	Edwards	Colorado	GMA7 MAG
		Nueces	
		Rio Grande	
	Kinney	Nueces	
		Rio Grande	
	Real	Colorado	
		Nueces	
	Val Verde	Rio Grande	
Trinity Aquifer	Bandera	Guadalupe	GMA9 MAG
		Nueces	
		San Antonio	
	Kerr	Colorado	
		Guadalupe	
		Nueces	
		San Antonio	

3.1.2 Trinity Aquifer

Located mostly in the Hill Country counties of Bandera and Kerr, the Trinity Aquifer system is composed of deposits of sand, clay and limestone of the Glen Rose and Travis Peak formations of the Lower Cretaceous Trinity Group where they are not overlain by Edwards Limestone. Limited exposures of Trinity also occurs in southern Edwards and Real Counties. The water-bearing units include, in descending order, the Glen Rose Limestone, Hensell Sand, Cow Creek Limestone, Sligo Limestone and Hosston Sand. The Glen Rose formation is divided informally into upper and lower members. Based on their hydrologic relationships, the water-bearing rocks of the Trinity Group, collectively referred to as the Trinity Aquifer system, are organized into the following aquifer units.

Aquifer	Formations
Upper Trinity	Upper Member of the Glen Rose Limestone
Middle Trinity	Lower Member of the Glen Rose Limestone, Hensell Sand and Cow Creek Limestone
	Pine Island / Hammet Shale (confining bed)
Lower Trinity	Sligo Limestone and Hosston Sand

Because of fractures, faults and other hydrogeological factors, the Upper, Middle and Lower Trinity Aquifer units often are in hydraulic communication with one another and collectively should be considered a leaky-aquifer system.

3.1.2.1 Upper and Middle Trinity Aquifer

The upper member of the Glen Rose, when weathered on the land surface, creates the distinctive "stair-step" topography found throughout the hilly terrain of the Hill Country. The upper Glen Rose, which forms the Upper Trinity Aquifer, often contains water with total dissolved solids (TDS) often exceeding 1,000 milligrams per liter (mg/l), especially in wells that penetrate "gyp" (evaporite) beds. Water percolating through evaporite beds has a tendency to be high in sulfate and generally should be sealed off in a well. Upper Trinity wells are generally shallow and are mostly used for domestic and livestock purposes.

The Middle Trinity Aquifer, consisting of lower Glen Rose, Hensell, and Cow Creek formations, generally contains TDS of less than 1,000 mg/l. In the Hill Country region, the primary contribution to poor water-quality occurs in wells that do not adequately case off water from evaporite beds in the upper part of the Glen Rose (Upper Trinity Aquifer). Water levels in Upper and Middle Trinity wells fluctuate with seasonal precipitation and are highly susceptible to declines during drought conditions. Radium has been detected in some Trinity wells in Kerr County.

3.1.2.2 Lower Trinity Aquifer in Bandera and Kerr Counties

Separating the Middle and Lower Trinity is the Hammett Shale (sometimes referred to as the Pine Island Shale). The approximately 60-foot thick formation acts as a confining bed, or barrier to cross-formational flow in most areas, and thus divides the producing sections of the Middle and Lower Trinity Aquifer units.

The Lower Trinity Aquifer is composed of sandy limestone, sand, clay and shale of the Sligo and Hosston formation. The Lower Trinity thins toward the northeast and is completely missing or coalesces with upper Trinity units near the Llano Uplift. The Lower Trinity is principally a water supply source for the Cities of Bandera and Kerrville and for a few private water-supply companies and resorts.

Yields from wells completed into the Lower Trinity are generally unpredictable and vary greatly. The greater depth and difficulty of sealing off the Hammett Shale make completing wells into the Lower Trinity more difficult and more expensive. However, in some areas, the Lower Trinity has higher yields and better water quality than shallower aquifers. Recharge to the Lower Trinity in Bandera and Kerr Counties likely occurs primarily by lateral underflow from the north and west. The overlying Hammett Shale mostly prevents vertical movement of water downward except possibly in highly fractured or faulted areas.

3.1.3 Edwards-Trinity (Plateau) Aquifer

The Edwards-Trinity (Plateau) Aquifer consists of lower Cretaceous age saturated limestone and dolomite formations of the Edwards Group and underlying sediments of the Trinity Group where they occur underlying the Edwards Plateau. The upper Edwards portion of the aquifer system is generally more porous and permeable than the underlying Trinity. Numerous springs that form the headwaters of several eastward and southerly flowing rivers, occur where the contact between the base of the Edwards and the top of the Trinity is exposed at the land surface. See Section 3.3 for a more detailed discussion pertaining to groundwater / surface water relationship.

In Kinney and Val Verde Counties, the Edwards Aquifer consists of groundwater contained in the Salmon Peak and McKnight units of the Devils River Limestone. Aquifer thickness is as much as 1,000 feet. San Felipe and Los Moras Springs in Val Verde and Kinney Counties issue from the Edwards and is the primary municipal supply source for the City of Del Rio.

Recharge to the aquifer occurs primarily by the downward percolation of surface water from streams draining off the Edwards Plateau to the north and west and by direct infiltration of precipitation on the outcrop. Some water enters the Region in the aquifer as underflow from counties up gradient (generally north).

The Glen Rose Limestone is the primary unit in the underlying Trinity in the southern part of the Plateau. The Aquifer generally exists under water-table conditions; however, where the Glen Rose is fully saturated and a zone of low permeability occurs near the base of the overlying Edwards, artesian conditions exist.

Reported well yields commonly range from less than 50 gallons per minute (gpm) where saturated thickness is thin to more than 1,000 gpm where large-capacity wells are completed in jointed and cavernous limestone. There are little pumping withdrawals from the Aquifer over most of its extent, and water levels have generally fluctuated only with seasonal precipitation. In some local instances, water levels have declined as a result of increased pumping.

3.1.4 Edwards (BFZ) Aquifer

In the Plateau Region, the Edwards-Balcones Fault Zone (BFZ) Aquifer is designated only in eastern Kinney County at its westernmost extent. The Edwards portion of the Edwards-Trinity (Plateau) Aquifer and the Edwards of the Edwards (BFZ) Aquifer are the same geologic formation and their boundary is arbitrarily established by the TWDB. There is no significant hydrologic boundary between the outcrops of these two aquifer systems, thus groundwater in the Edwards-Trinity freely moves down gradient into the Edwards (BFZ).

The Edwards (BFZ) Aquifer exists under water-table conditions in the outcrop and under artesian conditions where it is confined below the overlying Del Rio Clay in its downdip extent. Water in the Aquifer generally moves from the recharge zone toward natural discharge points such as Las Moras Springs at Brackettville. Additional water is lost from the Kinney County area as underflow that leaves the County to the east into Uvalde County (Region L). Very little pumping has occurred from this Aquifer in Kinney County, and therefore water levels have remained relatively constant with only minor changes over time.

3.1.5 Austin Chalk Aquifer

The Austin Chalk Aquifer occurs in the southern half of Kinney County primarily south of Highway 90. A veneer of sand and gravel deposits cover much of the southwest portion of Kinney County, which provides a soil base for agricultural production. Crops grown in this area are irrigated with mostly brackish quality groundwater pumped from the underlying Austin Chalk Aquifer. Much less production is apparent in the Nueces River Basin in the eastern part of the County. Recharge to the Austin Chalk is from precipitation and stream loss over the outcrop area and likely from Edwards Aquifer underflow through faults located up-gradient.

A wide range of production rates exists for wells completed in the Austin Chalk. The best production from the Aquifer occurs in areas that have been fractured or contain numerous solution openings. Most wells only discharge enough water for domestic or livestock use, but a few wells are large enough for irrigation purposes. The largest reported yield for an Austin Chalk well in Kinney County is 2,000 gpm (Bennett and Sayre, 1962). Most of the more productive wells completed in the Austin Chalk are located along Las Moras Creek.

3.1.6 Frio River Alluvium Aquifer

The Frio River Alluvium in central Real County extends over an area of approximately 9,530 acres. Recharge to the Aquifer is from stream loss and direct infiltration of precipitation. Water supplies for the City of Leakey and other rural domestic homes are derived from this small Aquifer. Because of the limited extent of this Aquifer and its shallow water table, the aquifer system is readily susceptible to diminished supplies during drought conditions and potentially from over pumping. Also, due to its shallow nature, the Aquifer is susceptible to contamination from surface sources.

3.1.7 Nueces River Alluvium Aquifer

The Nueces River Alluvium between Edwards and Real Counties extends over an area of approximately 24,450 acres. Recharge to the Aquifer is from stream loss and direct infiltration of precipitation. Water

supplies for the Community of Barksdale and rural domestic homes are derived from this small Aquifer. As with the Frio Alluvium, the Nueces River Alluvium Aquifer is readily susceptible to diminished supplies during drought conditions and potentially from over pumping, and to contamination from surface sources.

3.1.8 Ellenburger – San Saba Aquifer

Recent advances in aquifer research has suggested the desirability of adding the Ellenburger-San Saba Aquifer in Kerr County to the list of available groundwater sources in the Plateau Planning Region. Although no production wells in the Ellenburger are currently in use, the Headwaters GCD has authorized rules for future permitting of this resource.

An exploratory test well (Headwaters GCD Monitor Well #17) in the northeast corner of Kerr County was completed in the Ellenburger Limestone to a total depth of 1,153 feet below land surface in December 2016. A subsequent 24-hour pumping test was performed on the test well, which produced 600 gallons per minute with 69 feet of drawdown. The results suggest a transmissivity range of 7,920 to 12,670 gpd/ft. Water samples were collected and analyzed for chemical quality. Total dissolved solids are 498 mg/l and all constituents are within both primary and secondary drinking-water standards.

Groundwater Management Area 9 (GMA9) is currently classifying the Ellenburger-San Saba Aquifer in Kerr County as non-relevant, and therefore the Texas Water Development Board (TWDB) has not issued a MAG volume for this Aquifer in Kerr County. The TWDB Llano Uplift Groundwater Availability Model (LUGAM) (Shi and others, 2017) does include the Ellenburger-San Saba as layer 5.

The Headwaters GCD has been assisted by a voluntary group of local geologists that has refined the structural component of the conceptual model. Their findings are that the most potentially viable part of the Aquifer lies within the eastern half of the County and that within this portion the hydraulic conductivity can be defined between two values, 0.3 feet/day in the less permeable portion and 3.5 feet/day in the more productive areas.

Based on this refined structure and resulting hydraulic conductivities, LBG-Guyton (now WSP USA) was tasked with running the TWDB LUGAM with the above modifications for the identified 286,000-acre eastern portion of Kerr County. To assess the impact of Ellenburger pumping on water level decline, 20 hypothetical wells were added to the selected area and five pumping scenarios (2,000; 5,000; 10,000; 15,000 and 20,000 acre-feet per year) were applied to these wells. The potential groundwater availability calculated for these five pumping scenarios are as follows:

<u>Pumping Scenario</u>	<u>Annual Availability (acre-feet/acre)</u>	<u>Annual Availability (gallons/acre)</u>
<u>2,000 acre-feet/year</u>	<u>0.007</u>	<u>2,300</u>
<u>5,000 acre-feet/year</u>	<u>0.017</u>	<u>5,700</u>
<u>10,000 acre-feet/year</u>	<u>0.035</u>	<u>11,400</u>
<u>15,000 acre-feet/year</u>	<u>0.052</u>	<u>17,100</u>
<u>20,000 acre-feet/year</u>	<u>0.07</u>	<u>22,800</u>

Calculated water-level declines resulting from the above pumping scenarios ranged from a minimum of less than five feet with the 2,000 acre-feet/year, to an average of 35 to 40 feet with the 20,000 acre-feet/year pumping rate.

For Regional Water Planning purposes, it is proposed that until actual production is monitored, the 2021 Plateau Region Plan will adopt a conservative Ellenburger-San Saba Aquifer availability rate of 0.007 acre-feet/acre/year over the 286,000-acre productive area or a total of 2,002 acre-feet/year. This volume is subdivided between the Colorado and Guadalupe river basins in eastern Kerr County into 200 acre-feet/year and 1,802 acre-feet/year respectfully.

~~Located along many of the streams and rivers are shallow alluvial floodplains composed of sediments ranging from clay and silt to sand, gravel, cobbles and boulders. Wells completed in these deposits supply small to moderate quantities of water mostly for domestic and livestock purposes. However, because these wells are relatively shallow, many are prone to going dry during drought conditions. The alluvium is often in direct hydraulic connection with the rivers and streams that meander through them.~~

~~In addition, the TWDB has identified the downdip extents of the Ellenburger San Saba and the Hickory Aquifers in northeast Kerr County. Because no known wells have penetrated these aquifers in Kerr County, very little is known about their water-bearing characteristics. These aquifers are mentioned as possible resources but are not currently included in the supply analysis for this Plan. There is strong interest in Kerr County to explore the potential for developing a new water supply from the Ellenburger.~~

3.1.9 Public Supply Use of Groundwater

All communities in the Plateau Region rely partially or completely on groundwater supply sources. Even the spring sources (classified as surface water) used by Del Rio and Camp Wood originate from aquifers. The higher concentration of wells in Kerr and Bandera Counties related to population growth may present water supply availability problems in the future. Public supply wells serving communities in Edwards, Kinney, Real and Val Verde Counties are not anticipated to have long-term declines due to the relatively smaller quantities of water that are needed to serve these communities. Also, no long-term water-quality deterioration has been detected in groundwater supplies for these communities. Long-term viability of the aquifers serving these other communities appears to be acceptable. However, new wells should be located outside the local areas of pumping influence of the existing wells. Although no evidence of contamination from surface sources have been detected in public-supply groundwater sources in the Plateau Region, a wellhead protection program should be considered by all communities.

3.1.9.1 City of Bandera

The City of Bandera is primarily dependent on wells completed into the Lower Trinity Aquifer and must compete for this water with numerous private wells in the County. However, a new Middle Trinity well was recently completed, which will provide some backup to the Lower Trinity well supply. Long-term viability of the Trinity Aquifer as a supply source for Bandera and outlying areas will require implementation of management policies aimed at establishing withdrawals based on the sustainable yield of the Aquifer.

City of Bandera Well No. 69-24-202 shows a consistent decline from the 1950s through the 1990s, with a total of approximately 400 feet of water level decline. Most of the water withdrawn by Bandera public supply wells is produced from the Lower Trinity (Hosston) which receives very little vertical recharge

and an undetermined amount of lateral underflow from the north and west of the well fields. Because of the continuous water-level decline in these well fields, the City, with the assistance of the BCragd, should monitor levels to anticipate production reductions.

3.1.9.2 Bandera County FWSD #1

Bandera County FWSD #1 obtains its water from wells completed in the Trinity Aquifer. This District currently has four active wells and competes for this water with numerous private wells within the County. Growing subdivisions will increase water demands, causing the District to consider the need for additional supply.

3.1.9.3 City of Kerrville

The City of Kerrville is dependent on conjunctive use of surface water from the Guadalupe River and groundwater from Lower Trinity Aquifer wells. Kerrville Wells No. 4 and No. 11 experienced declines of as much as 200 feet through the early to mid-1980s. Between the early to mid-1980s and the early 1990s, water levels in these two wells increased by as much as 200 feet in response to the decreased pumpage by the City when surface water sources were brought on-line. Since 1998, water levels have remained relatively constant.

The only long-term water-quality degradation trend observed in Kerrville public-supply wells is noted in the increase in sodium, chloride and total dissolved solids in the City's Travis Well No. 14 during the late 1960s to mid-1970s. The well showed steady increases in sodium (18 to 72 mg/l), chloride (55 to 200 mg/l), and total dissolved solids (417 to 624 mg/l) between 1968 and 1976. This corresponded with the time period that large drawdowns in water levels were occurring in the Kerrville area. The City mixes water from Well No. 14 with water from all other sources to maintain acceptable overall quality.

The City of Kerrville operates an aquifer storage and recovery (ASR) operation where treated surface water is injected into the Lower Trinity Aquifer to maintain aquifer pressure and provide a source for peak demand periods.

Specific strategies to meet Kerrville's future water needs are addressed in Chapter 5. If additional wells are needed for increasing supply needs, the City should consider locating new wells outside the local area of pumping influence. The City should also cooperate with efforts of the local Groundwater Conservation Districts to establish aquifer management policies.

3.1.9.4 City of Rocksprings

The City of Rocksprings obtains its water supply from wells completed in the Edwards Limestone of the Edwards-Trinity (Plateau) Aquifer. This rural community has little competition for groundwater and, thus, its supply is considered dependable. A new well has been drilled and is currently being connected to the City's distribution system.

3.1.9.5 City of Brackettville and Fort Clark Springs MUD

Water wells completed in the Edwards portion of the Edwards-Trinity (Plateau) Aquifer produce water used for municipal supply in these two adjacent communities. Las Moras Springs, an identified major spring, also exists at the same location of the Fort Clark Springs wells. Under existing conditions, there appears to be sufficient supply to meet futures needs. The Kinney County GCD is currently evaluating potential impacts that might result from increased future pumping within the District.

3.1.9.6 City of Camp Wood

Camp Wood located in southwestern Real County derives its water supply from Old Faithful Springs. The spring has reportedly always flowed. However, with increasing population and the drilling of additional wells in the area, the spring may experience decreasing flow during drought periods in the future.

3.1.9.7 City of Leakey

The City of Leakey obtains its water supply from four shallow wells ranging in depth from 34 to 42 feet in the Frio River Alluvium Aquifer. An additional well has recently been constructed and an application for an operation permit is being filed with the Real-Edwards Conservation and Reclamation District. The City must compete for groundwater from this small Aquifer with numerous private domestic wells. Trinity Aquifer wells in the local area have proven to be unreliable and often contain poor-quality groundwater.

3.1.9.8 City of Del Rio

The City of Del Rio is supplied with water from San Felipe Springs, which issue from the Edwards portion of the Edwards-Trinity (Plateau) Aquifer. The water is collected through pumps set in the springs, treated with microfiltration and chlorine and then distributed to the City, Laughlin Air Force Base, and outlying neighborhoods.

The average discharge of San Felipe Springs since Lake Amistad was filled is about 110 cubic feet per second or about 80,000 acre-feet/yr. During recent droughts, the spring discharge has fallen below 50 cfs or, extrapolated over one year, about 36,000 acre-feet. Recent droughts as compared to the 1950s drought would be appropriate to use as a drought-condition gage because the filling of Amistad Lake has generally increased the springflow after the late 1960s.

3.1.10 Agricultural Use of Groundwater

Because of the arid conditions and lack of well-developed soils over much of the Region, irrigated agricultural activities are generally limited in most of the counties. Low well yields common throughout much of the Region also limit the development of large-scale irrigation. Water quality however, is not generally a limiting factor for irrigation in the Region. Kinney County has the greatest amount of agricultural use of water. The acreage of land irrigated by groundwater in the year 2000 in each county as reported in TWDB Report 347 is, from most to least, Kinney, 4,865 acres; Bandera, 173 acres; Val Verde, 145 acres; Kerr, 57 acres; Edwards, 40 acres; and Real, 15 acres. The PWPG is concerned about the accuracy of the irrigation surveys and believes that there is significantly more irrigation water use than is documented. For example, the Headwaters Groundwater Conservation District in Kerr County documents approximately 700 acres being irrigated just with groundwater.

A review of historical and current data suggests that there has been no long-term change in regional water levels or water quality as a result of agricultural pumping. Local water-level declines occur during the irrigation season but generally recover during the off-season. Although irrigation conservation efficiencies could be improved, currently used equipment and practices are not resulting in depletion of the aquifers. At the current rate of agricultural use, groundwater of sufficient quantity in the Edwards-Trinity (Plateau), Edwards (BFZ), and Austin Chalk Aquifers should remain available for future agricultural use. However, the competition for Trinity Aquifer water between municipal and agricultural

needs in Bandera and Kerr Counties is increasing. The Bandera County River Authority and Groundwater District and the Headwaters Groundwater Conservation District are both actively involved in managing the use of groundwater in these counties.

3.1.11 Brackish Groundwater Desalination Sources

As expressed in Chapter 1, Section 1.4.5, most groundwater in the Plateau Region contains total dissolved-solids (TDS) concentrations of less than 1,000 mg/l and thus meets drinking water standards. Groundwater of slightly poorer quality (1,000 to 3,000 mg/l) occurs in the Trinity Aquifer in some areas. Elevated levels of calcium-sulfate resulting from the dissolution of evaporate beds in the upper Glen Rose is the primary source of higher TDS groundwater. Productivity from this Aquifer source makes desalination a marginal option at this time.

3.2 SURFACE WATER SUPPLIES

The Plateau Region ~~is unique within all planning regions in that it~~ straddles several different river basins, rather than generally following a single river basin or a large part of a single river basin (Figure 3-1). From west to east, these basins include the Rio Grande, Nueces, Colorado, San Antonio, and Guadalupe. The headwaters of three of these river basins (Nueces, San Antonio, and Guadalupe), as well as major tributaries of the Rio Grande and Colorado River, originate in this Region.

Available surface water supplies under drought-of-record conditions depend on two components: water that is physically present (usually substantially reduced during a drought-of-record since by definition it is the most severe) and the authorized amount per existing water right adjudications. Use of the Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAMs) allows for the performance of a simulation of availability and diversion for all water rights in a river basin based on naturalized flows over a specified hydrologic period. These models generally follow an appropriation of water in priority date order, but appropriation order from upstream to downstream may also be simulated. The TCEQ WAMs of the five Plateau Region river basins have been used to determine surface water availability during a drought-of-record. The simulations used to determine water availability assume that all water rights in each basin are allowed to divert the full authorized amount when water is available, following appropriation in priority date order. They also [reflect the conservative assumption](#) that no return flows are present, [as is consistent with both TWDB regional planning guidelines and TCEQ modeling of water availability and permitting](#). Municipal run-of-river calculations use the unmodified TCEQ WAM Run 3 to insure that all monthly demands are fully met. Area-capacity of major reservoirs was adjusted to reflect sedimentation conditions for ~~2000~~ [2020](#) through ~~2060~~ [2070](#). Drought-of-record source amounts by county and river basin are provided in Table 3-1. Water Source Availability (Acre-Feet per Year). A list of all authorized surface water rights in the Region is available in Appendix 3A.

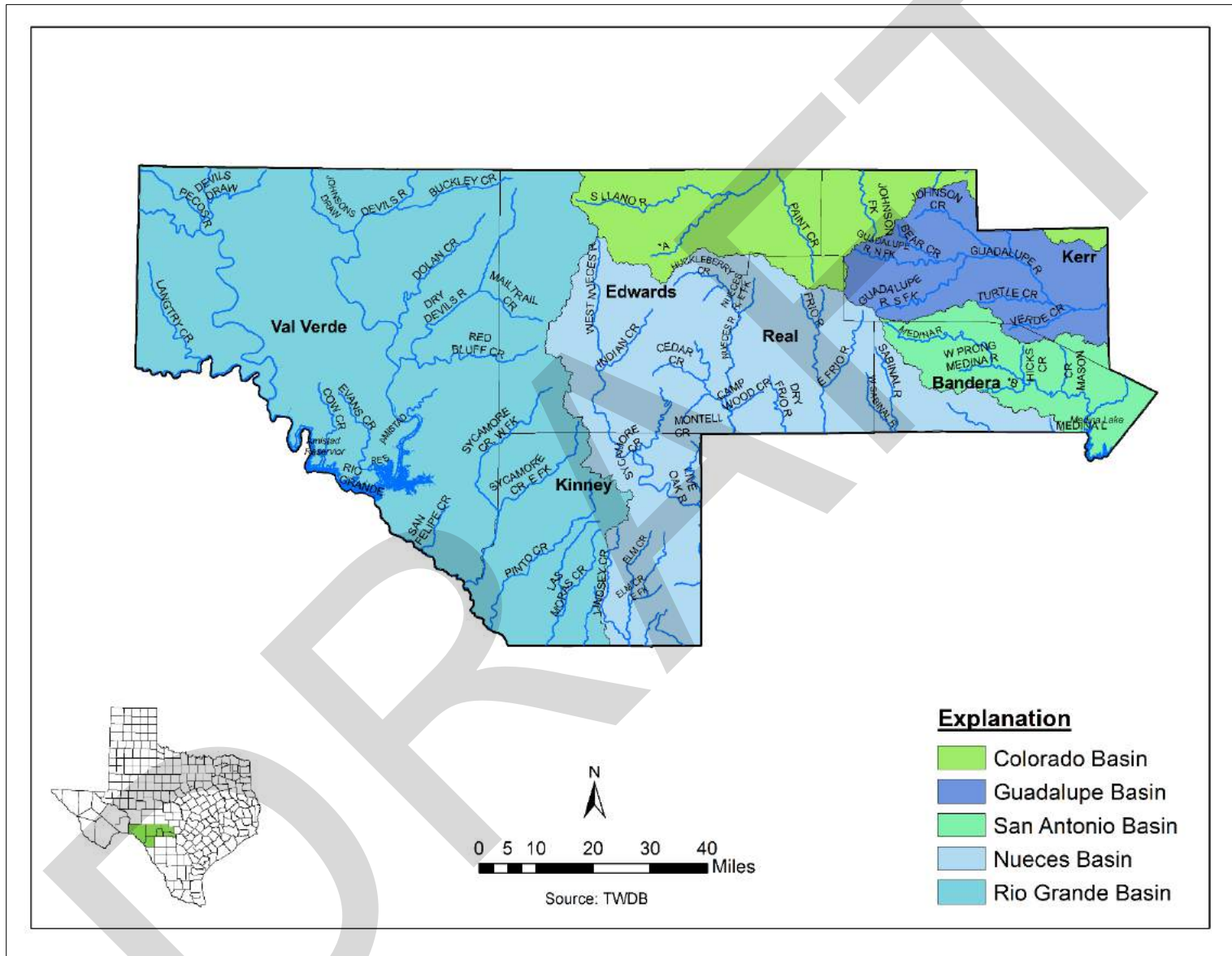


Figure 3-1. Surface Water Sources

The term "run-of-the-river" is used to distinguish water rights with diversion points directly on a watercourse from water rights with diversion points on a reservoir. Generally, run-of-the-river water rights, also referred to as "direct diversions", are less dependable than water rights on reservoirs because of the lack of storage. However, run-of-the-river diversions are often very convenient, especially for irrigators and small entities, because a diversion point on a watercourse can be located extremely close to the location where the water will actually be consumed, thereby negating the need to pipe the water over long distances.

Diversions under a drought-of-record are extracted from results of a WAM simulation for each basin. For purposes of this *Plan*, a drought-of-record supply for run-of-the-river diversions is categorized by use (municipal, irrigation, industrial and other) and by county. Supply amounts on river segments have always been difficult to assess due to the lack of storage to catch excess flows. In this *Plan*, the reliable supply for run-of-the-river diversions [for non-municipal use](#) is expressed as the minimum annual diversion for each category during the hydrologic period considered in the water availability models. [The reliable supply for run-of-the-river diversions for municipal use is expressed as the minimum monthly diversion amount that is available in all months of the hydrologic period considered in the water availability models.](#)

Drought-of-record supply amounts for reservoirs are on a firm-yield basis. To understand firm yield, one must understand the concept of "mass balance" - the simple but true principle of physics that mass can neither be created nor be destroyed (i.e., what goes in has to come out). In practical terms as applied to a reservoir, the water going in (inflows from drainage areas of tributaries feeding the reservoir site [and direct precipitation upon the reservoir itself](#)) equals the water going out (evaporation off the lake surface plus water spilled over the dam plus any water allowed to pass through the dam to satisfy senior water rights downstream plus the demand placed on the reservoir plus other factors which may exist). The operation of a reservoir is simulated under various demands, iterating the simulation to find a demand that the reservoir can supply consistently throughout a repeat of the historical hydrologic record. Demand is termed the "firm yield" of the reservoir if for every year of the historical hydrologic record (even during a drought-of-record) the reservoir can supply the demand placed on it.

Canyon Reservoir and the Medina/Diversion system are potential water supply reservoirs for the Plateau Region's future water needs. Although neither reservoir currently serves a water need within the Region, both reservoirs could likely do so in the future. Although recreational use of streams and lakes serves an important function in the Plateau Region, its use has no impact on reservoir yields, as these uses are non-consumptive.

3.2.1 Rio Grande Basin (Including the Pecos and Devils River)

The Rio Grande, or Rio Bravo as it is known in Mexico, forms the border between the United States and Mexico. International treaties govern the ownership and distribution of the water in this river. Under the 1906 Treaty, the United States is obligated to deliver 60,000 acre-feet annually from the Rio Grande to Mexico, except in the cases of severe drought or serious accident to the irrigation system in the United States. Diversion of this allotment occurs upriver in El Paso. The 1944 Treaty addresses the waters in the international segment of the Rio Grande from Fort Quitman, Texas to the Gulf of Mexico. The United States receives 1/3 of the flow from six tributaries (Rio Conchos, San Diego, San Rodrigo, Escondido,

Salado Rivers, and Las Vacas Arroyo), provided that the running average over a five-year period cannot be less than 350,000 acre-feet/yr.

While the International Boundary and Water Commission is responsible for implementing the allocation of water on the U.S. side, the Watermaster office of TCEQ administers the allocation of Texas' share of the international waters. The two reservoirs located in the middle of the lower Rio Grande, the Amistad and Falcon, store the water regulated by the Watermaster. The Watermaster oversees Texas' share of water in the Rio Grande and its Texas tributaries from Fort Quitman to Amistad Dam, excluding drainage basins of the Pecos River and Devils River.

The Pecos River forms a portion of the boundary between Terrell County in the Far West Texas Region and Crockett County in Region F before reaching Langtry in Val Verde County in the Plateau Region. The Devils River originates in Sutton County and proceeds generally southward through Val Verde County before reaching Amistad International Reservoir. There are no surface-water rights on the Pecos and Devils Rivers within the Plateau Region.

Flow of the Pecos River within the Plateau Region is inconsistent, with livestock and wildlife watering apparently being the only use made of whatever water that may remain in the River. Independence Creek, a large spring-fed creek in northern Terrell County west of Val Verde County, is the most important of the few remaining freshwater tributaries to the lower Pecos River. Independence Creek's contribution increases the Pecos River water volume by 42 percent at the confluence and reduces the total suspended solids by 50 percent, thus improving both water quantity and quality (Nature Conservancy of Texas descriptive flier).

Flows of the Devils River are gaged at the Pafford Crossing near Comstock in Val Verde County. This gage (USGS 08449400) began recording in 1978 and was discontinued in 1985. Therefore, it does not record flows for the 1950s. However, from 1978 through 1985 the flows are consistently between approximately 100 and 300 cfs, with rare spikes ranging from 4,000 cfs up to 50,000 cfs. These spikes result from unusually intense but short rainfall events. In absence of data for the 1950s drought period, and considering the generally low and undependable flows within the Devils River, a realistic estimate of the drought-of-record amount of supply from the Devils River within the Plateau Region is zero.

3.2.2 Amistad International Reservoir on the Rio Grande

The Amistad International Reservoir is located on the border between the United States and Mexico near the City of Del Rio, and was constructed jointly by the two nations. It was completed in 1968 with a maximum capacity of 5,250,000 acre-feet, 3,505,000 acre-feet of which are used for water conservation. The water is distributed among downstream users of Mexico and the United States. Amistad is not a source of supply for the Plateau Region, as the City of Del Rio and downstream irrigators in Val Verde County obtain their supply primarily from San Felipe Springs and Creek. Thus, the constraints on Amistad Reservoir as a source of water supply for the Plateau Region are the existing water rights held by water rights holders and enforced by the Rio Grande Watermaster.

Goodenough Spring is inundated by Lake Amistad and was at one time considered the third largest spring in Texas. The spring, which discharges from the Edwards-Trinity (Plateau) Aquifer, still provides a significant flow contribution to the Rio Grande.

3.2.3 The Nueces River Basin

The upper Nueces River Basin lies in Edwards, Real, Bandera, and Kinney Counties, with the main stem Nueces forming a portion of the border between Real County and Edwards County. Headwater tributaries of the Nueces River located in the Plateau Region include the Sabinal River and Hondo Creek in Bandera County, the West Nueces River in Edwards and Kinney Counties, and the Frio, East Frio, and Dry Frio Rivers in Real County. Although undocumented, there appears to be a significant amount of underflow occurring through gravel beds that line long stretches of the river bottom.

Total authorized diversions by water rights on the Nueces River within the Plateau Region are 11,419 acre-feet/year. Most of this amount (10,116 acre-feet/year or 88 percent) is for irrigation use. Diversions for municipal use total 1,259 acre-feet/year. The City of Camp Wood holds the largest municipal right for 1,000 acre-feet/year. Small water rights for other uses have a total authorized diversion of 44 acre-feet/year.

~~The drought of record for the Nueces River Basin appears to have occurred not in the 1950s, but in 1996. USGS gages on the Sabinal River, Hondo Creek and West Nueces River seem to substantiate this assertion; flows at these gages during 1996 were significantly reduced from expected historical flows. The locations of gages USGS 08198500 (Sabinal River at Sabinal in eastern Uvalde County) and USGS 08200700 (Hondo Creek at King Waterhole near Hondo in central Medina County) are outside the Plateau Region, but the gages themselves measure flows from drainage areas lying within counties of the Plateau Region. The location of USGS gage 08190500 on the West Nueces River is near Brackettville in Kinney County.~~

~~An internal TWDB memorandum dated May 26, 1998 cites the Sabinal and Hondo gages as having experienced streamflows in calendar years 1994 through 1996 significantly reduced from expected historical flows, and cites the West Nueces gage as having experienced streamflow in calendar years 1994 and 1995 significantly reduced from expected historical flows. The memorandum defines "significantly reduced" as showing a 40 percent or more difference between the historical and the recent year non-exceedance probabilities. (It should be noted that for all three of these gages, 1997 flows were higher than the 1994 through 1996 flows.)~~

~~Flows for the main stem Nueces River are gaged at USGS 08192000 near Uvalde in Uvalde County. These gaged flows for a period of record of 1939 through 1997 indicate a low annual flow of 3.63 cfs (approximately 2,650 acre-feet/year), occurring in 1956. Flows for the Frio River are gaged at USGS 08195000 at Concan in Uvalde County. These gaged flows for a period of record of 1930 through 1997 indicate a low annual flow of 8.8 cfs (approximately 6,424 acre-feet/year), occurring in 1956. For these areas, the 1950s drought was evidently the drought of record.~~

The TCEQ Water Availability Model for the Nueces River Basin was used to evaluate surface water supplies. The model includes data through the year 1996, and addresses the drought-of-record of the 1950's. ~~occurring in 1996 for the localized areas on the Sabinal River and Hondo Creek.~~

3.2.4 Colorado River Basin

The headwaters of the South Llano River, a tributary of the Colorado River, lie in Edwards County. There are three water rights on the South Llano River and Paint Creek within the Plateau Region for irrigation use. The combined authorized amount of these rights is 180 acre-feet/year.

The TCEQ Colorado River Basin WAM was used to evaluate the supply for these rights. This model covers the period ~~1940-1998~~ [2013](#). Hydrologic data for these streams suggest that the drought-of-record occurred ~~during the 1950s~~ [in 2011](#). The minimum annual diversion for the three rights is ~~43~~ [32](#) acre-ft/yr.

3.2.5 San Antonio River Basin

The headwaters of the San Antonio River lie in Bandera County. Most water right authorizations from the San Antonio Basin are run-of-the-river diversions for irrigation use. Run-of-the-river diversions exclude authorizations on Medina Lake. Eight authorized water rights on the Medina River main stem total 236 acre-feet/year. Of these eight water right holders on the River, six use the water for irrigation. The sum of these six irrigation rights totals 227 acre-feet/year. Of the remaining two water right holders, one is for 9 acre-feet of water per year used by an individual for municipal purposes, and the other is for a non-consumptive recreation reservoir owned by the City of Bandera. This recreation-only reservoir is for non-consumptive use only.

Since the Guadalupe-San Antonio WAM covers the period 1934-1989, it is appropriate to consider if the drought of 1996 exceeded the severity of the drought of the mid-1950s. USGS gage 08178880 on the Medina River at Bandera just downstream of State Highway 173 gives a lowest annual streamflow amount at 33.7 cubic feet per second (cfs) (approximately 24,600 acre-feet/year) in 1996. However, this gage did not begin recording until 1982, and therefore records from the 1950s drought are missing and cannot be compared directly to the low flows of 1996. Data for the 1950s at the Bandera gage as extracted from the Guadalupe-San Antonio River Basin WAM indicates an annual naturalized flow of ~~10,500-2,662~~ acre-feet in 1956. Regulated flows would be even lower once upstream diversions and impoundments are accounted for. Therefore, based on estimates of the Guadalupe-San Antonio Basins WAM, the drought of the 1950s represents the drought-of-record conditions for the San Antonio Basin in the Plateau Region.

3.2.6 Medina Lake on the Medina River

Medina Lake was constructed in 1911 to provide irrigation water for farmers to the southwest of San Antonio. Although commonly referred to as Medina Lake, the lake is actually a system consisting of Medina Lake and Diversion Lake. Impounded in 1913, Diversion Lake is approximately 4 miles downstream of Medina Lake.

Diversions from the dual-lake system are authorized only from Diversion Lake, as per the water right held by Bexar-Medina-Atascosa Water Control and Improvement District #1 (BMAWCID#1).

BMAWCID#1's Adjudication Certificate No. 19-2130C authorizes the District to divert up to 65,830 acre-feet/year of water for irrigation, municipal and industrial use, up to 750 acre-feet/year specifically for domestic and livestock purposes, and up to 170 acre-feet/year specifically for municipal use.

BMAWCID#1 has signed contracts to supply several irrigators and a development corporation with water. In January 2000, BMAWCID#1 signed a contract with Bexar Metropolitan Water Authority indicating that BMAWCID#1 will sell 20,000 acre-feet/year to the Authority for municipal use.

Bandera County currently has a Water Supply Agreement with BMAWCID#1 for purchase of up to 5,000 acre-feet/year; however, this agreement is not currently associated with the infrastructure necessary to carry out the purchase and subsequent distribution of the water.

Loss of impounded water from Medina Lake to the Trinity Aquifer and Diversion Lake to the Edwards Aquifer reduces the firm yield of the system. This loss has long been known to be substantial. Quantification of water recharging the aquifers has been elusive, as different estimates of recharge have resulted in different firm-yield estimates for the system. In 1957, a Bureau of Reclamation study estimated the firm annual yield of the Medina Lake/Diversion Lake system to be 27,500 acre-feet/year if the lake system were operated under an agricultural (irrigation) demand only scenario, but it estimated 29,700 acre-feet/year as the firm yield for municipal and industrial demand. Due to effects of seepage around the dam and of recharge to the underlying aquifers, Espey Huston estimated a firm yield of zero for Medina Lake in 1994, based on the relationship they found between the Lake stage and recharge. HDR Engineering modified the Espey Huston stage-recharge curves for its Trans-Texas report and cited 8,770 acre-feet/year as the firm yield. According to previous communications, HDR assumed diversions would be from Medina Lake rather than from Diversion Lake and that all irrigation use would be curtailed. This assumption does not comply with existing conditions as regards to water right authorizations.

The latest USGS report, "Assessment of Hydrogeology, Hydrologic Budget, and Water Chemistry of the Medina Lake Area, Medina and Bandera Counties, Texas," maintains that earlier methods of estimating recharge (Lowry, Espey Huston curves as modified by HDR for the Trans-Texas report) overestimate recharge. Overestimation of recharge would result in an underestimation of firm yield; however, the USGS report did not include a firm-yield estimate for the reservoir system.

The TCEQ Guadalupe-San Antonio River Basins WAM incorporates the HDR Trans-Texas method of estimating recharge and probably provides the best overall data (water rights, inflows determined by water rights) available at this time. The model was thus used to determine a firm yield of the Medina/Diversion system of zero acre-feet/year.

3.2.7 Guadalupe River Basin

Within the Plateau Region, the Guadalupe River Basin occurs almost exclusively within Kerr County. The Basin drains approximately 510 square miles at Kerrville, and approximately 839 square miles at Comfort near the eastern county line. The River originates almost entirely within western Kerr County as three branches (Johnson Creek, North Fork, and South Fork) merge west of Kerrville to form the main river course. A study report titled Spring Flow Contribution to the Headwaters of the Guadalupe River in Western Kerr County (2005) was prepared for the PWPG (<http://www.ugra.org/plateau-water-planning-group>).

The total amount of authorized water rights for the Guadalupe River within the Plateau Region is 21,020 acre-feet/year. Municipal use accounts for 8,076 acre-feet/year. Holders of these water rights include the City of Kerrville, the Upper Guadalupe River Authority (UGRA), and independent persons.

The City of Kerrville and the UGRA own the largest municipal water rights. Certificate of Adjudication 1996 and Permit 3505 are held solely by Kerrville. UGRA and Kerrville hold Permit 5394 jointly. Authorized diversions from the Guadalupe River associated with these water rights are taken from an 840-acre on-channel reservoir located in the City of Kerrville and are pumped from the reservoir to Kerrville's water treatment plant. A summary of the pertinent information for their water rights is shown in Table 3-5.

Texas Parks and Wildlife Department owns a continuous flow-through water right for 5,780 acre-feet/year used for the Heart of the Hills Fisheries Science Center, consumptive use is approximately 400 acre-feet/year. Industrial use permits are authorized for 17 acre-feet/year and irrigation rights for 6,904 acre-feet/year. The remaining water-rights holders use their water for mining, hydroelectric power, and recreation. One individual holds a water right (35,125 acre-feet/year) for hydroelectric use; however, this right has not been exercised. Kerr County holds the rights for three non-consumptive recreation-use reservoirs in and near Kerrville.

Table 3-5. Municipal Water Rights for Kerrville and UGRA

Water Rights Permit	Authorized Diversion (acre-ft/yr)	Permit Holder	Priority Data	Storage (acre-feet)	Restrictions
1996 (amended 4/10/98)	150 (mun) 75 (irr)	Kerrville	4/4/1914		
3505	3,603	Kerrville	5/23/1977	840	Max diversion rate = 9.7 cfs Divert only when reservoir is above 1,608 ft msl
5394 (amended 4/10/98)	2,169	Kerrville (Kerrville Municipal use)	1/6/1992	Utilizes the storage authorized for Permit 3505	Max combined diversion rate for water rights #3505 and #5394 = 15.5 cfs. Minimum instream flow requirements vary from 30 to 50 cfs during year.
	2,000	UGRA (County Municipal use)			

Note: Permit 1996 authorizes a total diversion of 225 acre-feet/year, of which 150 acre-feet/year is designated for municipal use and 75 acre-feet/year for irrigation purposes.

During winter months when there is surplus surface water supply, a portion of the treated water is injected into the Lower Trinity Aquifer for subsequent use during the typically dry summer months. This aquifer storage and recovery (ASR) program has been in full operation since 1998.

Both the City of Kerrville and the UGRA have within their authorizations (Permits Nos. 5394B and 5394A respectively) a Special Condition addressing the seasonal distribution of allowed diversions. The Special Condition stipulates that during the months of October through May, the permittees may divert only when the flow of the Guadalupe River exceeds 40 cfs, and during the months of June through September, the permittees are authorized to divert only when the flow of the Guadalupe River exceeds 30 cfs. Another Special Condition common to both permittees is that, when inflows to Canyon Reservoir are less than 50 cfs, each permittee is to restrict diversions to allow a flow of at least 50 cfs to pass through. Yet another Special Condition imposed on both permittees is that diversions may be made only when the level of UGRA Lake is above 1,608 feet above mean sea level.

Pursuant to a Memorandum of Understanding (MOU) between the Guadalupe-Blanco River Authority (GBRA) and the Commissioner's Court of Kerr County, the South Central Texas Water Planning Group (Region L) recognizes a potential commitment of approximately 2,000 acre-feet/year from the firm yield of Canyon Reservoir for the calendar years 2021 through 2050. GBRA's hydrology studies indicate that a commitment of about 2,000 acre-feet/year would be necessary to allow permits for 6,000 acre-feet/year to be issued by TCEQ for diversions in Kerr County.

Data from the Corps of Engineers show a computed inflow into Lake Canyon of 132,900 acre-feet/year in 1996. The Guadalupe-San Antonio WAM estimates naturalized flows to be 27,800 acre-feet in 1956. The USGS gage 08167000 on the Guadalupe River at Comfort gives a lowest annual streamflow amount of

14.5 cfs (approximately 10,585 acre-feet/year) occurring in 1956. This gage has been recording since 1939. Interestingly, statistics for the gage include the fact that, for water years 1939 through 1997, the mean annual runoff was 157,800 acre-feet or approximately 216 cfs, and that 90 percent of these flows exceeded 25 cfs. This puts the 1956 occurrence of 14.5 cfs within the 0 to 10 percent non-exceedance category. In calendar year 1996, the annual mean was 151 cfs and the median was 85 cfs. The mean and median for 1997 exceeded the 1996 values. These facts seem to substantiate that the drought-of-record for Kerr County occurred in 1956, not in 1996, as consistent with most other areas of the State.

3.2.8 San Felipe Springs

The City of Del Rio has a water right authorizing it to divert 11,416 acre-feet/year from San Felipe Springs for municipal use. San Felipe Manufacturing and Irrigation Company has a water right authorizing it to divert 4,962 acre-feet/year for irrigation use and 50 acre-feet/year for industrial use. No data exists for flows during the drought of the 1950s. The only available records are from USGS gage 08452800 maintained by the IBWC at San Felipe Springs that covers the period of February 1961 to present. The minimum annual amount during this time period was 36,580 acre-feet/year (occurring in 1963).

3.2.9 Old Faithful Springs

Issuing from the upper Glen Rose Limestone portion of the Edwards-Trinity (Plateau) Aquifer and shallow creek alluvium, Old Faithful Springs is the sole-source water supply for the City of Camp Wood. The Spring has been a dependable source and was reported to have continuously flowed during the 1950s drought. There is current concern that the increase in the number of wells being drilled in the area may lower the local water table and thus negatively impact spring flow. The Spring is privately owned and may not be available for City use after the current contract expires.

3.2.10 Surface Water Rights

The right to use surface water from streams and lakes is permitted through the State of Texas. A list of all authorized surface water rights in the Region is available in Appendix 3A.

Major downstream water rights include those in Region L supplied by the Guadalupe-Blanco River Authority out of Canyon Lake and by the Bexar-Medina-Atascosa WCID#1 out of the Medina/Diversion system. The firm yields of Canyon and Medina limit the amount of water available for appropriation in both the Plateau Region and Region L. Major downstream water rights in Region M (i.e., cities and irrigators on the Rio Grande downstream from Amistad Reservoir) do not limit the amount of water available for appropriation in the Plateau Region because currently the Plateau Region does not depend on the Falcon-Amistad system. TCEQ's Lower Rio Grande Watermaster allocates water rights on the Rio Grande according to the supply in the Amistad Reservoir and in accordance with the 1944 International Treaty with Mexico.

3.3 GROUNDWATER/SURFACE WATER RELATIONSHIP

In the natural environment, water is constantly in transition between the land surface and underground aquifers. Under certain conditions, stream losses percolate downward to underlying aquifers as recharge; while in other cases, aquifers give up water to the land surface in the form of springs and seeps.

Most of the Plateau Region occurs at higher elevations that constitute the headwaters of the numerous streams and tributaries that frequent this Region. At these elevations, significant quantities of water exit the aquifer systems through springs and form the base flow of the surface streams. Downstream, only a portion of that water may reenter the underground system. For this reason, these streams are generally gaining throughout much of their extent within the Plateau Region. Spring flows are also environmentally important in that they are the primary source of water for wildlife in the area. These discharges from springs are thus the primary source of continuous flow to the rivers downstream and, therefore, their protection is warranted.

Some of the largest springs in the Region, such as San Felipe Springs (Val Verde County) and Las Moras Springs (Kinney County), issue from the Edwards limestone. However, numerous other springs issue from either the Edwards or Glen Rose Limestones. Many of the springs, such as Fessenden Spring (Kerr County), issue near the contact between the Edwards and the upper Glen Rose Limestones. Smaller springs are more prevalent where they issue from the Glen Rose, particularly in Bandera and Kerr Counties.

Most springs located in the headwaters of rivers that traverse the eastern part of the Region issue from the contact between the Edwards limestone and underlying upper Glen Rose limestone. Most well production in this area is from deeper aquifers and, therefore, little impact to spring flow from the pumping is anticipated. However, as new development expands to the west, care should be given to potential water level declines that could diminish spring flow and base flow to the rivers.

Springs located in the western part of the Region issue primarily from the Edwards Limestone. Because of limited pumping of groundwater from wells in the Del Rio area, San Felipe Springs has not had to compete for source water. A significant increase in groundwater pumpage immediate updip and to the east of the springs may lower the water table sufficiently to affect flow from the springs. Because much of the recharge areas for the contributing zones of these western springs occur in remote areas, very little information is available concerning the relationship between the springs and the underlying aquifers.

Gain/loss studies are needed to identify stream segments that are critical to aquifer recharge and spring discharge. The studies can be used to identify where recharge structures would be most efficient and where most river base-flow gain occurs. Specific candidate areas occur over the plateau area that is underlain by Edwards Limestone, especially in the upper tributaries of all the rivers. Gain/loss studies of tributaries in the vicinity of Del Rio would be beneficial in understanding the recharge areas that contribute to San Felipe Springs.

Two supplemental study reports were prepared for the *Plateau Region Water Plan* that address springs. The first report (Springs of Kinney and Val Verde Counties, 2005) considers the location and geohydrology of springs in Kinney and Val Verde Counties, and the second report (Spring Flow Contribution to the Headwaters of the Guadalupe River in Western Kerr County, Texas, 2005) relates springflow in western Kerr County to base flow in the three branches of the upper Guadalupe River.

3.4 WATER REUSE

While recycling is a term generally applied to aluminum cans, glass bottles, and newspapers, water can be recycled as well. Water recycling is reusing treated wastewater for beneficial purposes such as agricultural and landscape irrigation, industrial processes, toilet flushing, and replenishing a groundwater aquifer (referred to as groundwater recharge or ASR for aquifer storage and recovery). Water is sometimes recycled and reused onsite; for example, when an industrial facility recycles water used for cooling processes. A common type of recycled water is water that has been reclaimed from municipal wastewater, or sewage. The term "water recycling" is generally used synonymously with water reclamation and water reuse.

Kerrville treats its wastewater to the strictest set of standards in the State of Texas, which nearly meets drinking water standards. The treated wastewater is pumped through a dedicated pipeline for reuse as irrigation water for the Scott Schreiner Municipal Golf Course, the Hill Country Youth Soccer Fields, and the golf course at Comanche Trace Ranch & Golf Club. Additional treated water is sold by the truckload for construction projects. The remaining wastewater is released into Third Creek, which flows into Flatrock Lake on the Guadalupe River. That water is then available for use downstream of Kerrville. Future expansion of Kerrville's reuse project is anticipated to yield approximately 1 million gallons per day. The Cities of Bandera and Camp Wood also provide treated wastewater for non-potable uses.

3.5 LOCAL SUPPLY

“Local Supplies” are limited, unnamed individual surface water supplies that, separately, are available only to particular non-municipal WUGs. These supplies are generally contained within “stock tanks” that catch precipitation runoff and are used primarily for livestock watering, but at times may be available for other local needs such as mining. For planning purposes, the volume of runoff water in these catchment basins is considered to be significantly reduced during drought-of-record conditions and does not include any groundwater that might be pumped into them. **No documentation has been identified that quantifies the available supply during a drought of record for these local supplies. Thus, per TWDB guidelines established for the regional water planning process, it has been assumed for the purposes of the 2021 Plateau Region Water Plan that all local supplies not represented by a specific, identified water right are zero ac-ft per year.**

**APPENDIX 3A
AUTHORIZED SURFACE WATER
RIGHTS**

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**APPENDIX 3A. AUTHORIZED SURFACE WATER RIGHTS
AS EXTRACTED FROM TCEQ'S ACTIVE WATER RIGHTS MASTER FILE**

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
2027-000	6	Bandera	7720000000	ROBERT L PARKER SR ET AL	VERDE CRK	IRRG	8	3		
2028-000	6	Bandera	7750000000	HOWARD E BUTT	PALMER CRK	OTHER			30	
2103-000	6	Bandera	5903000000	O S PETTY	HONEY CRK	IRRG	96	38		
2104-000	6	Bandera	5902000000	CLARENCE E LAUTZENHEISER	N PRONG MEDINA RIVER	IRRG	20.24	23.85		AMEND 9/29/88, 8/22/89
2105-000	6	Bandera	5901500000	STEVEN L PRICHARD TRUSTEE	MICKLE	IRRG	5.44	8.16	5	
2105-000	6	Bandera	5901500000	NEAL INCORPORATED	MICKLE	IRRG	7.32	10.99	5	
2106-000	6	Bandera	5901450000	BREWINGTON LAKE RANCH ASSN	BREWINGTON CRK	REC	190		190	
2107-000	6	Bandera	5901100000	JOEL HELD, TRUSTEE/JJJ RANCH	N PRONG MEDINA RIVER	IRRG	19	25		OUT OF A 1666.5 ACRE TRACT
2108-000	6	Bandera	5900100000	BEN & KAY MAYBERRY FAM PART	ROCKY CRK	IRRG	19.82	14.41		ALSO KERR CO
2108-000	6	Bandera	5900100000	WALTER A WILLOUGHBY	ROCKY CRK	IRRG	24.18	17.59		ALSO KERR CO
2109-000	6	Bandera	5897200000	NEVIN MARR	N PRONG MEDINA RIVER	IRRG	2	10		AMEND 1-21-83 INCREASE ACRES
2110-000	6	Bandera	5897000000	DONALD F & MARTHA M MEAD	N PRONG MEDINA RIVER	IRRG	21	12		
2111-000	6	Bandera	5896000000	TEXAS PETROLEUM CO. TR EST	COLLINS CRK	IRRG	4	2	16	
2112-000	6	Bandera	5894500000	MRS MARY WINKENHOWER	ELAM CRK	IRRG	27	27		JOINTLY OWNS 27 AF TO IRR 27 ACRES
2113-000	6	Bandera	5894000000	SUSAN CRAWFORD TRACY	W PRONG MEDINA RIVER	IRRG	35	45		OUT OF A 156 ACRE TRACT
2114-000	6	Bandera	5892000000	PHIL A GROTHUES ET UX	UNNAMED TRIB	IRRG	5.705	20.715		
2114-000	6	Bandera	5892000000	INMANN T DABNEY JR ET UX	UNNAMED TRIB	IRRG	6.542	23.756		
2114-000	6	Bandera	5892000000	RICHARD E WILSON	UNNAMED TRIB	IRRG	3.753	13.629		
2115-000	6	Bandera	5891500000	DAVID R SCHMIDT MD ET AL	BAUERLEIN CRK	IRRG	15	16		
2116-000	6	Bandera	5891000000	PAUL LAVON GARRISON	W PRONG MEDINA RIVER	IRRG	36	36		
2116-000	6	Bandera	5891000000	GEORGE C. YAX	W PRONG MEDINA RIVER	IRRG	15	15	162	
2117-000	6	Bandera	5889000000	G. MILTON JOHNSON, ET UX	MEDINA RIVER	IRRG	7	7		OUT OF A 175.5 ACRE TRACT
2118-000	6	Bandera	5888870000	DAVID J BRASK	UNNAMED TRIB	IRRG	16	16		
2119-000	6	Bandera	5888090000	RAYMOND HICKS	MEDINA RIVER	IRRG	3	8		
2120-000	6	Bandera	5888051000	BANDERA ELECTRIC COOP INC	MEDINA RIVER	IRRG	2	4		7/8/82 ADD DIV PT
2121-000	6	Bandera	5888087000	ANN DARTHULA MAULDIN	INDIAN CRK	IRRG	31.03	8.27		
2121-000	6	Bandera	5888087000	TOLBERT S WILKINSON ET UX	INDIAN CRK	IRRG	69.47	18.53		AMEND 7/30/90

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
2121-000	6	Bandera	5888087000	JOHN W DINSE ET UX	INDIAN CRK	IRRG	49.5	13.2		
2122-000	6	Bandera	5887330000	DON HICKS	MEDINA RIVER	MUNI	9			
2123-000	6	Bandera	5887150000	DON F TOBIN	MEDINA RIVER	IRRG	152	61		OUT OF A 452 ACRE TRACT
2124-000	6	Bandera	5887130000	EVANGELINE RATCLIFFE WILSON	SAN JULIAN CRK	IRRG	3	5		
2125-000	6	Bandera	5887129000	PETER K SHAVER ET UX	SAN JULIAN CRK	IRRG	18	30		
2126-000	6	Bandera	5887105000	STANLEY D ROSENBERG ET UX	MEDINA RIVER	IRRG	47	36		
2127-000	6	Bandera	5887100000	JERRY B PARKER ET AL	MEDINA RIVER	IRRG	16	8		
2128-000	6	Bandera	5887050000	JOE H BERRY	SADDLE CRK	IRRG	14	12	3	
2129-000	6	Bandera	5887000000	JOE H BERRY	PRIVILEGE CRK	IRRG	40	33	110	
2135-000	6	Bandera	5660000000	KITTIE NELSON FERGUSON	SAN GERONIMO CRK	IRRG	5	5	28	
3176-000	6	Bandera	2851020000	TEXAS PARKS & WILDLIFE DEPT	CAN CRK	MUNI	7			
3176-000	6	Bandera	2851020000	TEXAS PARKS & WILDLIFE DEPT	CAN CRK	IRRG		3		
3177-000	6	Bandera	2850500000	BETTY F LEIGHTON	SABINAL RIVER	MUNI	4			
3178-000	6	Bandera	2850000000	KING & JEWEL FISHER	SABINAL RIVER	IRRG	40	56	2	AMENDED 6/21/96
3179-000	6	Bandera	2825000000	JOHN K HARRELL	SABINAL RIVER	IRRG	28.196	95.257		
3179-000	6	Bandera	2825000000	BARBARA JEAN GROTH ET VIR	SABINAL RIVER	IRRG	8.804	29.743		
3184-000	6	Bandera	2675000000	ENRIQUE S PALOMO ET UX	SPRING CRK	IRRG	10	5	42	
3185-000	6	Bandera	2651700000	W H THOMPSON JR	WILLIAMS CRK	IRRG	15	5	2	CURRENT OWNER UNKNOWN, 5/98
3186-000	6	Bandera	2651500000	DOROTHY BAIRD MATTIZA	WILLIAMS CRK	IRRG	128	88	73	
3187-000	6	Bandera	2651000000	CHESTER N POSEY ET UX	WILLIAMS CRK	IRRG	23	21	15	
3188-000	6	Bandera	2650000000	W J SCHMIDT	HONDO CRK	IRRG	24	47	16	
3693-000	1	Bandera	5887260000	GERALD H PERSYN	UNNAMED TRIB BANDERA CRK	REC			11	
3824-000	1	Bandera	5887295000	CITY OF BANDERA	MEDINA RIVER	REC			22	
3825-000	1	Bandera	7718000000	ROBERT L PARKER SR ET AL	VERDE CRK	REC			277	
3853-000	1	Bandera	5888230000	ROCK CLIFF RESERVOIR LAND ASSN	SPIRES CRK	REC			925.4	AMENDED 2/17/98: IMPOUNDMENT AND EXP
3909-000	1	Bandera	5888150000	MAUDEEN M MARKS	MONTAGUE HOLLOW	REC			500	DOMESTIC, LIVESTOCK & REC
3944-000	1	Bandera	5887120000	CONOCO INCORPORATED	UNNAMED TRIB MEDINA RIVER	REC			180	2 DAMS
3949-000	1	Bandera	5886550000	CASTLE LAND & LIVESTOCK CO INC	BEAR CRK	REC	33		33	DOM & LIVESTOCK - SC
4026-000	1	Bandera	5887125000	HILL COUNTRY MANAGEMENT CORP	SAN JULIAN	REC			3	ALSO DOM & LIVESTOCK

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
5097-000	1	Bandera	5890300000	DON CODY ET UX	W PRONG MEDINA RIVER	IRRG	120	72		EXP 2/2/2016 BY CONTRACT 1610;AMEND 9/94 BOTTLED WATER, .049 RES
5186-000	1	Bandera	2824000000	HILL COUNTRY SPRING WATER TX	SPRING	MUNI	161			
5204-000	1	Bandera	2840000000	ROGER E. CANTER ET UX	SABINAL RIVER	IRRG	60	20		
5305-000	1	Bandera	2621000000	UTOPIA SPRING WATER INC	W SECO CRK	MUNI	72			
5339-000	1	Bandera	5888089000	YMCA/GREATER HOUSTON AREA	INDIAN CRK	REC			30	
5342-000	1	Bandera	5890200000	RENE H GRACIDA	W PRONG MEDIA	REC			7	
5475-000	1	Bandera	2850600000	GALLERIA HOLDING, LTD	JERNIGAN CRK	IRRG	26	18	63	2 RESERVOIRS
5575-000	1	Bandera	2850900000	ALBERT R GAGE ET UX	MARLER CRK	IRRG	12	6		SC: FLOW RESTRICTIONS
1527-000	6	Edwards	1750010000	ADDISON LEE PFLUGER	HUFFMAN SPRING	IRRG	32	20	1	
1528-000	6	Edwards	1735000000	RUTH MCLEAN BOWERS	PAINT CREEK	IRRG	60	54	58	CO 134, 2 RES
2451-000	6	Edwards	1750000000	ADDISON LEE PFLUGER ET AL	S LLANO RIVER	IRRG	88	74	7	AMEND 5/9/83
3017-000	6	Edwards	9520000000	RAY H EUBANK	RUTH DRAW	IRRG	50	50		AMEND 7/3/84
3023-000	6	Edwards	9195000000	DONALD P TARPEY	NUECES RIVER	IRRG	108	27		
3024-000	6	Edwards	9170000000	DOUGLAS B & MARGARET MARSHALL	NUECES RIVER	IRRG	65	43		
3038-000	6	Edwards	8900000000	ROYCE I REID ESTATE	PULLIAM CRK	IRRG	48	20		
3039-000	6	Edwards	8800000000	OLGA H. CLOUDT, ET AL	PULLIAM CRK	IRRG	75	50	8	
3039-000	6	Edwards	8800000000	OLGA H. CLOUDT, ET AL	PULLIAM CRK	IRRG	30	20		
3040-000	6	Edwards	8790000000	J R WILLIAMS ET AL	PULLIAM CRK	IRRG	34	17		
3041-000	6	Edwards	8780000000	JOSEPH C WILLIAMS	PULLIAM CRK	IRRG	60	44		1/2 INTEREST IN 60 AF FOR IRR OF 44 AC
3042-000	6	Edwards	8779000000	J R WILLIAMS ET AL	PULLIAM CRK	IRRG	22	13		
3043-000	6	Edwards	8760000000	JOY JERNIGAN OWENS	PULLIAM CRK	IRRG	32	16		
3044-000	6	Edwards	8700010000	SUSAN PETTY ARNIM ET AL	CEDAR CRK	IRRG	6	12		
3044-000	6	Edwards	8700010000	SUSAN PETTY ARNIM ET AL	CEDAR CRK	IRRG	20			
3044-000	6	Edwards	8700010000	SUSAN PETTY ARNIM ET AL	CEDAR CRK	IRRG	4	20		
3046-000	6	Edwards	8460500000	NORMA JEAN EASLEY	PULLIAM CRK	IRRG	30	59		
3047-000	6	Edwards	8400000000	BRUCE I HENDRICKSON ET UX	CLEAR CRK	IRRG	6	6	11	
3048-000	6	Edwards	8340000000	L A MALACHEK ET AL	PULLIAM CRK	IRRG	27	14		
3049-000	6	Edwards	7630010000	EDWARDS CO INVEST. PARTNER	PULLIAM CRK	IRRG	250	400		
3049-000	6	Edwards	7630010000	BRUCE I HENDRICKSON ET UX	PULLIAM CRK	IRRG	350	150		

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
3070-000	6	Edwards	7041600000	E B CARRUTH, JR, TRUST	W NUECES RIVER	IRRG	200	184		
3070-000	6	Edwards	7041600000	E B CARRUTH, JR, TRUST	W NUECES RIVER	REC			19	
3957-000	1	Edwards	8550000000	S A WILLIAMS	CEDAR CRK	IRRG	40	40		AMEND 1/13/87
4006-000	1	Edwards	8790100000	BAY-HOUSTON TOWING CO	PULLIAM	IRRG	150	75		
4278-000	1	Edwards	8920000000	BERRYMAN INVESTMENTS INC	PULLIAM CRK	IRRG	4.34	7.38		OWNS DAM & RESERVOIR
4278-000	1	Edwards	8920000000	SAM P WORDEN ET UX	PULLIAM CRK	IRRG	5.66	9.62		
1930-000	6	Kerr	9570000000	HERSHEL REID ET UX	FLAT ROCK CRK	IRRG	69	66	35	
1932-000	6	Kerr	9560000000	PRESBYTERIAN MO-RANCH ASSEMBLY	N FRK GUADALUPE RIVER	MUNI	60			AMEND 6/7/94
1932-000	6	Kerr	9560000000	PRESBYTERIAN MO-RANCH ASSEMBLY	N FRK GUADALUPE RIVER	IRRG	14	7		AMEND 6/7/94
1932-000	6	Kerr	9560000000	PRESBYTERIAN MO-RANCH ASSEMBLY	N FRK GUADALUPE RIVER	REC	25		20	AMEND 6/7/94
1934-000	6	Kerr	9527000000	CHARLES K HICKEY JR ET AL	DRY CRK	IRRG	0.45	0.68		
1934-000	6	Kerr	9527000000	KATHY JAN FREEMAN	DRY CRK	IRRG	1.55	2.32		
1935-000	6	Kerr	9525100000	CHARLES K HICKEY JR ET AL	N FRK GUADALUPE RIVER	IRRG	8	8		
1936-000	6	Kerr	9523000000	WILLIAM H ARLITT JR ET UX	N FRK GUADALUPE RIVER	IRRG	17	6	5	
1936-000	6	Kerr	9523000000	WILLIAM H ARLITT JR ET UX	INDIAN CRK	IRRG	134	48		
1937-000	6	Kerr	9515200000	BOY SCOUTS- ALAMO AREA	BEAR CRK	REC			10	
1938-000	6	Kerr	9515000000	LOUIS H STUMBERG	N FRK GUADALUPE RIVER	IRRG	2	4		
1938-000	6	Kerr	9515000000	LOUIS H STUMBERG	N FRK GUADALUPE RIVER	IRRG	15	22		
1939-000	6	Kerr	9512000000	LOUIS H STRUMBERG	GRAPE CRK	IRRG	3	6	6	
1940-000	6	Kerr	9511000000	B E QUINN III ET AL	N FRK GUADALUPE RIVER	IRRG	32	16	10	
1941-000	6	Kerr	8154502000	DELMAR SPIER AGENT	TURTLE CRK	IRRG	6	9	5	
1943-000	6	Kerr	9505000000	J CONRAD PYLE, ET AL	N FRK GUADALUPE RIVER	MUNI	14			
1945-000	6	Kerr	9485010000	JOHN P HILL	N FRK GUADALUPE RIVER	IRRG	25	20		
1946-000	6	Kerr	9485000000	JOHN P HILL ADMINISTRATOR	N FRK GUADALUPE RIVER	IRRG	11	9		
1947-000	6	Kerr	9480000000	GUAD VALLEY LOT OWNERS ASSN	N FRK GUADALUPE RIVER	IRRG	6	10		AMEND 3/6/91
1947-000	6	Kerr	9480000000	GUAD VALLEY LOT OWNERS ASSN	N FRK GUADALUPE RIVER	MUNI	3			
1948-000	6	Kerr	9489000000	JOHN H DUNCAN	BRUSHY CRK	IRRG	7	7		
1949-000	6	Kerr	9488000000	WILLIAM O CARTER, TRUSTEE	HONEY CRK	IRRG	6	2		OUT OF A 80 ACRE TRACT
1949-000	6	Kerr	9488000000	WILLIAM O CARTER, TRUSTEE	HONEY CRK	IRRG	27	9		

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
1950-000	6	Kerr	9487000000	JOHN H DUNCAN	HONEY CRK	IRRG	6	20	13	ALSO USE 7
1953-000	6	Kerr	9476000000	LAURA B LEWIS ET VIR	N FRK GUADALUPE RIVER	IRRG	40	24		
1956-000	6	Kerr	9897000000	RIVER INN ASSOC OF UNIT OWNERS	S FRK GUADALUPE RIVER	REC			50	
1956-000	6	Kerr	9897000000	RIVER INN ASSOC OF UNIT OWNERS	S FRK GUADALUPE RIVER	MUNI	10			AMEND 4/19/84, 1/4/85
1957-000	6	Kerr	9880000000	BILLIE R VALICEK	S FRK GUADALUPE RIVER	REC			10	
1958-000	6	Kerr	9780000000	T J MOORE ESTATE	CYPRESS CRK	IRRG	20	10	100	
1961-000	6	Kerr	9670000000	LAVERNE CRIDER MOORE ET VIR	S FRK GUADALUPE RIVER	MUNI	3			
1961-000	6	Kerr	9670000000	LAVERNE CRIDER MOORE ET VIR	S FRK GUADALUPE RIVER	IRRG	1	3		
1963-000	6	Kerr	9620000000	LAWRENCE L GRAHAM ET AL	S FRK GUADALUPE RIVER	IRRG	2	12	21	AMEND 9/10/85
1963-000	6	Kerr	9620000000	LAWRENCE L GRAHAM ET AL	S FRK GUADALUPE RIVER	REC			16	AMENDS 5/26/83 CHG PUR USE & ADD RES
1964-000	6	Kerr	9400000000	VIRGINIA MOORE JOHNSTON	TEGENER	IRRG	10	10	12	
1967-000	6	Kerr	9305000000	SARAH HICKS BUSS	UNNAMED TRIB	REC	20			ALSO USE 1, AMEND 3/19/91
1968-000	6	Kerr	9261000000	LOUIS DOMINGUES	GUADALUPE RIVER	IRRG	10	20		
1969-000	6	Kerr	9260000000	TOMMIE SMITH BLACKBURN	GUADALUPE RIVER	INDU	15		15	USE 2: MILLING
1969-000	6	Kerr	9260000000	TOMMIE SMITH BLACKBURN	KELLY CRK	IRRG	49	80		USE 3 - DIVERTING FROM KELLY CREEK
1969-000	6	Kerr	9260000000	TOMMIE SMITH BLACKBURN	GUADALUPE RIVER	IRRG	59			USE 3 - DIVERTING FROM GUADALUPE RIVER
1969-000	6	Kerr	9260000000	TOMMIE SMITH BLACKBURN	GUADALUPE RIVER	HYDRO				USE 5: NONCONSUMPTIVE
1970-000	6	Kerr	9220000000	CARL HAWKINS	GUADALUPE RIVER	MUNI	10			
1970-000	6	Kerr	9220000000	CARL HAWKINS	GUADALUPE RIVER	IRRG	32	25		
1971-000	6	Kerr	9140000000	COUNTY OF KERR	GUADALUPE RIVER	REC			450	
1972-000	6	Kerr	9110000000	WESLEY ELLEBRACHT	WELSH BR	IRRG	0.8	0.8		
1972-000	6	Kerr	9110000000	WELCH CREEK PARTNERS LTD	WELSH BR	IRRG	5.15	5.15		
1972-000	6	Kerr	9110000000	ARANSAS BAY COMPANY	WELSH BR	IRRG	0.05	0.05		
1973-000	6	Kerr	9100000000	SHELTON RANCHES INC	SMITHS BR	IRRG	10	10	6	
1974-000	6	Kerr	9050000000	SHELTON RANCHES INC	SMITHS BR	IRRG	70	35	15	ALSO JOHNSON CREEK
1975-000	6	Kerr	9025000000	TEXAS PARKS & WILDLIFE DEPT	FESSENDEN BR	INDU	400			FISH HATCHERY & GAME PRESERVE
1975-000	6	Kerr	9025000000	TEXAS PARKS & WILDLIFE DEPT	FESSENDEN BR	INDU	5780		72	2 IMP & A POND; USES 3, 1 & 7; EXP 2012
1976-000	6	Kerr	8950000000	F P ZOCH III TRUST & ZEE RANCH	FESSENDEN BR	IRRG	29	14		
1976-000	6	Kerr	8950000000	F P ZOCH III TRUST & ZEE RANCH	FESSENDEN BR	REC			184	

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
1977-000	6	Kerr	8839000000	TEXAS CATHOLIC BOYS' HOME	JOHNSON CRK	IRRG	23	23	23	
1978-000	6	Kerr	8815000000	A J RUST	JOHNSON CRK	IRRG	33	65		
1979-000	6	Kerr	8808000000	KEITH S MEADOW	BYAS CRK	IRRG	18	6		
1980-000	6	Kerr	8805000000	A L MOORE	JOHNSON CRK	IRRG	12	6		
1981-000	6	Kerr	8800000000	JACK D CLARK JR ET AL	JOHNSON CRK	IRRG	32	16		
1981-000	6	Kerr	8800000000	JACK D CLARK JR ET AL	JOHNSON CRK	IRRG	143	76		OUT OF A 111.9 ACRE TRACT
1982-000	6	Kerr	8775000000	LOLA DEAN SMITH	JOHNSON CRK	IRRG	133	50	12	
1983-000	6	Kerr	8770000000	N V MAMIMAR	JOHNSON CRK	IRRG	32	17		JOINTLY OWN 32 & 67 AF TO IRR 17 & 35
1983-000	6	Kerr	8770000000	N V MAMIMAR	JOHNSON CRK	IRRG	67	35		AC JOINTLY OWN 32 & 67 AF TO IRR 17 & 35
1983-000	6	Kerr	8770000000	DAVID J COPELAND ET UX	JOHNSON CRK	IRRG				AC JOINTLY OWN 32 & 67 AF TO IRR 17 & 35
1983-000	6	Kerr	8770000000	DAVID J COPELAND ET UX	JOHNSON CRK	IRRG				AC JOINTLY OWN 32 & 67 AF TO IRR 17 & 35
1984-000	6	Kerr	8750000000	MICHAEL E & GAIL SEARS	JOHNSON CRK	IRRG	1	2		
1985-000	6	Kerr	8746000000	ROBERT B O'CONNOR JR ET UX	JOHNSON CRK	IRRG	80	31		
1987-000	6	Kerr	8744000000	REGINALD E WARREN JR	JOHNSON CRK	IRRG	90	30		
1988-000	6	Kerr	8720000000	JIMMIE L QUERNER SR ESTATE	FALL BR	IRRG	128	64		ALSO GILLESPIE CO
1990-000	6	Kerr	8650000000	DOROTHY L JENKINS ET AL	JOHNSON CRK	IRRG	3	1		
1991-000	6	Kerr	8615001000	LAZY HILLS GUEST RANCH INC	HENDERSON BR	IRRG	21	28		
1992-000	6	Kerr	8600000000	MARK A RYLANDER ET AL	JOHNSON CRK	IRRG	23	15		
1993-000	6	Kerr	8550000000	ROY LITTLEFIELD	JOHNSON CRK	IRRG	50	50	4	
1994-000	6	Kerr	8500000000	M H & MARY FRANCES	GUADALUPE RIVER	IRRG	5	4		
1995-000	6	Kerr	8451000000	MONTGOMERY HENRY GRIFFIN CONSTRUCTION CO	GOAT CRK	IRRG	11	11	6	
1996-000	6	Kerr	8287000000	KERRVILLE, CITY OF	GUADALUPE RIVER	MUNI	150			AMEND 3/19/91, 4/10/98: DIV PT #4.SC.
1996-000	6	Kerr	8287000000	KERRVILLE, CITY OF	GUADALUPE RIVER	IRRG	75	44	75	AMEND 3/19/91, 4/10/98: DIV PT #4.SC.
1997-000	6	Kerr	8310000000	DARRELL G LOCHTE ET AL	GUADALUPE RIVER	MINE	143			
1997-000	6	Kerr	8310000000	DARRELL G LOCHTE ET AL	GUADALUPE RIVER	INDU	2			
1998-000	6	Kerr	8295000000	C W SUNDAY	TOWN CRK	IRRG	22.3	22.3	10	
1998-000	6	Kerr	8295000000	JOSE A LOPEZ ET UX	TOWN CRK	IRRG	4.18	4.18		
1999-000	6	Kerr	8297000000	KERRVILLE STATE HOSPITAL	UNNAMED TRIB GUADALUPE RIVER	REC	44		44	

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
2000-000	6	Kerr	8260010000	RIVERHILL COUNTRY CLUB INC	GUADALUPE RIVER	IRRG	350	160	70	8/31/87
2001-000	6	Kerr	8255000000	CARL D. MEEK	GUADALUPE RIVER	IRRG	295	194		AMEND 4/9/92,5/12/95.DIFF PRIORITY DATES
2002-000	6	Kerr	8230000000	COMANCHE TRACE RANCH & GOLF CL	GUADALUPE RIVER	IRRG	136	99		
2003-000	6	Kerr	8250000000	WHEATCRAFT, INC.	GUADALUPE RIVER	IRRG	42	21		
2003-000	6	Kerr	8250000000	SHELTON RANCH CORPORATION	GUADALUPE RIVER	MINE	10			
2004-000	6	Kerr	8200000000	COUNTY OF KERR	GUADALUPE RIVER	REC			720	ALSO USE 8
2005-000	6	Kerr	8185500000	HARRIET BOCKHOFF ESTATE	GUADALUPE RIVER	IRRG	59	98		
2006-000	6	Kerr	8174000000	FARM CREDIT BANK OF TEXAS	GUADALUPE RIVER	IRRG	179.06	512.55		AMEND 2/3/88,6/18/90. MAX COMB. CFS:4.0
2006-000	6	Kerr	8174000000	FARM CREDIT BANK OF TEXAS	GUADALUPE RIVER	IRRG	83.94			AMEND 2/3/88, 6/18/90
2006-000	6	Kerr	8174000000	1967 SHELTON TRUSTS PART ET AL	GUADALUPE RIVER	IRRG	106.9	78.55		AMEND 2/3/88, 6/18/90
2006-000	6	Kerr	8174000000	1967 SHELTON TRUSTS PART ET AL	GUADALUPE RIVER	IRRG	50.1			AMEND 2/3/88, 6/18/90
2006-000	6	Kerr	8174000000	KENNETH W WHITEWOOD ET UX	GUADALUPE RIVER	IRRG	34.04			AMEND 2/3/88, 6/18/90, 11/22/96
2006-000	6	Kerr	8174000000	KENNETH W WHITEWOOD ET UX	GUADALUPE RIVER	IRRG	15.96			AMEND 2/3/88, 6/18/90, 11/22/96
2006-000	6	Kerr	8174000000	KENNETH W WHITEWOOD ET UX	GUADALUPE RIVER	IRRG	100	76		AMEND 2/3/88, 6/18/90, 11/22/96
2007-000	6	Kerr	8160000000	RAY ELLISON JR	SPRING CRK	IRRG	31	31	50	
2008-000	6	Kerr	8156160000	LUTHERAN CAMP CHRYSALIS	TURTLE CRK	MUNI	11		12	
2009-000	6	Kerr	8155750000	FRANCIS C & WILLADEAN BOLEN	BUSHWACK CRK	IRRG	5	5	5	
2010-000	6	Kerr	8155700000	G ROBERT SWANTNER JR ET UX	BUSHWACK CRK	IRRG	7	5	5	OUT OF 68.8 ACRE TRACT
2011-000	6	Kerr	8155000000	H J GRUY	TURTLE CRK	IRRG	80	50	10	
2012-000	6	Kerr	8154501000	SANDRA BLAIR	TURTLE CRK	IRRG	1	1	5	
2013-000	6	Kerr	8154500000	FELIX R & LILLIAN STEILER REAL	WEST CRK	IRRG	11	12		
2014-000	6	Kerr	8152000000	LEAH MARTHA STEPHENS	TURTLE CRK	IRRG	6.36	5.63		
2014-000	6	Kerr	8152000000	BENNO OOSTERMAN ET UX	TURTLE CRK	IRRG	6.36	5.63		
2014-000	6	Kerr	8152000000	JOHN M LEBOLT TRUSTEE	TURTLE CRK	IRRG	9.02	7.98		
2015-000	6	Kerr	8151000000	JAMES E NUGENT	GUADALUPE RIVER	IRRG	27	21		
2016-000	6	Kerr	8150500000	DORIS J HODGES	GUADALUPE RIVER	IRRG	8	8		
2017-000	6	Kerr	8050000000	COUNTY OF KERR	GUADALUPE RIVER	REC			87	ALSO USE 8
2018-000	6	Kerr	8049000000	LEE ANTHONY MOSTY	GUADALUPE RIVER	IRRG	154	94		
2020-000	6	Kerr	7970000000	ROBERT LEE MOSTY	GUADALUPE RIVER	IRRG	60	30		

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2021-000	6	Kerr	7940000000	RAYMOND F MOSTY ET AL	GUADALUPE RIVER	IRRG	103	45	5	
2022-000	6	Kerr	7950000000	ROBERT LEE MOSTY	GUADALUPE RIVER	IRRG	17	119	20	
2023-000	6	Kerr	7935000000	ROY A GREEN	GUADALUPE RIVER	IRRG	7	3		
2024-000	6	Kerr	7924990000	CARL E RHODES	GUADALUPE RIVER	IRRG	114	125		
2025-000	6	Kerr	7925000000	HARRY J WRAY	GUADALUPE RIVER	IRRG	155	80		JOINTLY OWNS 155 AF TO IRR 80 ACRES
2025-000	6	Kerr	7925000000	DAVID B WRAY	GUADALUPE RIVER	IRRG				JOINTLY OWNS 155 AF TO IRR 80 ACRES
2025-000	6	Kerr	7925000000	BYNO SALSAMAN ET UX	GUADALUPE RIVER	IRRG				JOINTLY OWNS 155 AF TO IRR 80 ACRES
2026-000	6	Kerr	7920000000	ELGIN JUNG	GUADALUPE RIVER	IRRG	3.309	2.118		
2026-000	6	Kerr	7920000000	ZANE H ROBINSON ET UX	GUADALUPE RIVER	IRRG	53.945	34.52		
2026-000	6	Kerr	7920000000	RONNIE W SCHLOTTMAN ET UX	GUADALUPE RIVER	IRRG	17.83	11.41		
2026-000	6	Kerr	7920000000	KENNETH W WHITEWOOD ET UX	GUADALUPE RIVER	IRRG	149.916	44.72		AMENDED 11/22/96
2029-000	6	Kerr	7710000000	ROLAND WALTERS	PRISON CANYON	IRRG	25	200	420	& CO 010, 10/5/82 ADD DIV PT
2030-000	6	Kerr	7704000000	JAMES S ERNST	UNNAMED TRIB VERDE CRK	IRRG	247		120	
2030-000	6	Kerr	7704000000	PETE R SMITH	UNNAMED TRIB VERDE CRK	IRRG	19			
2031-000	6	Kerr	7701000000	JOSEPH PAUL MILLER ET UX	GUADALUPE RIVER	IRRG	115	80		AMEND 11/4/85
2032-000	6	Kerr	7700700000	DAVID M LEIBOWITZ ET UX	GUADALUPE RIVER	IRRG	10	6		
2033-000	6	Kerr	7699900000	JAVIER G REYES ET UX	GUADALUPE RIVER	IRRG	90	90		
2034-000	6	Kerr	7699500000	CHESTER P HEINEN ET AL	GUADALUPE RIVER	IRRG	2	6		
2037-000	6	Kerr	7652500000	GENE ARTHUR ALLERKAMP	CYPRESS CRK	IRRG	5	6.33		
2037-000	6	Kerr	7652500000	JANICE CHARLOTTE BULLARD	CYPRESS CRK	IRRG	5	6.34		
2037-000	6	Kerr	7652500000	ROMAN LUNA ET UX	CYPRESS CRK	IRRG	10	12.67		
2037-000	6	Kerr	7652500000	CURTIS BERNARD ALLERKAMP	CYPRESS CRK	IRRG	5	6.33		
2037-000	6	Kerr	7652500000	WERNER WAYNE ALLERKAMP	CYPRESS CRK	IRRG	5	6.33		
2038-000	6	Kerr	7652000000	HARRY E REEH	CYPRESS CRK	IRRG	15	15		
2039-000	6	Kerr	7650500000	FRED SAUR	CYPRESS CRK	IRRG	7	7		
2040-000	6	Kerr	7650000000	A C & DOROTHY PFEIFFER	CYPRESS CRK	IRRG	10	5		
2041-000	6	Kerr	7645000000	THOMAS L BRUNDAGE ET AL	CYPRESS CRK	IRRG	134	57		AMEND 2/1/85
2042-000	6	Kerr	7644800000	E J & VIRGINIA DOWER	CYPRESS CRK	IRRG	209	125		
2043-000	6	Kerr	7644600000	MARY LEE EDWARDS	CYPRESS CRK	IRRG	19.57	14.68		
2043-000	6	Kerr	7644600000	EDGAR SEIDENSTICKER ET UX	CYPRESS CRK	IRRG	16.85	12.63		

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2043-000	6	Kerr	7644600000	L J MANNERING ET UX	CYPRESS CRK	IRRG	3.58	2.69		
2437-000	6	Kerr	9550000000	CHLOE CULLUM KEARNEY ET AL	N FRK GUADALUPE RIVER	REC			100	D&L. RESERVOIR JOINTLY OWNED BY SEVERAL.
2437-000	6	Kerr	9550000000	DAN W BACON ET UX	N FRK GUADALUPE RIVER	REC				D&L. RESERVOIR JOINTLY OWNED BY SEVERAL.
2438-000	6	Kerr	9528000000	LUTZ ISSLIEB ET AL	N FRK GUADALUPE RIVER	IRRG	30	18	30	
2439-000	6	Kerr	9510000000	DALE B AND MARSHA G ELMORE	N FRK GUADALUPE RIVER	IRRG	8	8	20	AMEND 10/29/90
2440-000	6	Kerr	9507000000	L F SCHERER	N FRK GUADALUPE RIVER	IRRG	1	1		
2441-000	6	Kerr	9490000000	SILAS B RAGSDALE	N FRK GUADALUPE RIVER	IRRG	21	105		
2442-000	6	Kerr	9486000000	LUTHER GRAHAM	HONEY CRK	IRRG	28	14	17	
2443-000	6	Kerr	9476500000	JOHN H DUNCAN	HONEY CRK	IRRG	40	20	25	
2444-000	6	Kerr	9980000000	BRUCE F. HARRISON	S FRK GUADALUPE RIVER	IRRG	6	3	10	
2444-000	6	Kerr	9980000000	BRUCE F. HARRISON	S FRK GUADALUPE RIVER	REC			17	
2445-000	6	Kerr	9680000000	CAMP MYSTIC INC	CYPRESS CRK	IRRG	12	15		
2445-000	6	Kerr	9680000000	CAMP MYSTIC INC	CYPRESS CRK	MUNI	14		20	
2446-000	6	Kerr	9675000000	BOB/KAT INC	S FRK GUADALUPE RIVER	IRRG	10	10		
2446-000	6	Kerr	9675000000	BOB/KAT INC	S FRK GUADALUPE RIVER	MUNI	10			
2447-000	6	Kerr	9625000000	CAMP LA JUNTA INC	S FRK GUADALUPE RIVER	IRRG	26	15	30	
2447-000	6	Kerr	9625000000	CAMP LA JUNTA INC	S FRK GUADALUPE RIVER	MUNI	14			& RECREATION
2448-000	6	Kerr	9350000000	ALICE CYNTHIA SIMKINS	TEGENER CRK	IRRG	6	5		
2449-000	6	Kerr	9310000000	BILLIE ZUBER ET AL	GUADALUPE RIVER	IRRG	17	25.5		AMEND 9/24/93:ADD ACREAGE.JUNIOR PRIORITY
2450-000	6	Kerr	7999000000	ROBERT L MOSTY ET AL	GUADALUPE RIVER	IRRG	158	117		
3769-000	1	Kerr	8300010000	CITY OF KERRVILLE	GUADALUPE RIVER	MUNI	3603		840	
3769-000	1	Kerr	8300010000	CITY OF KERRVILLE	GUADALUPE RIVER	IRRG		192		USING 2450 AF WASTEWATER FROM SEWAGE.SC
3846-000	1	Kerr	7715000000	T & R PROPERTIES	PALMER CRK	REC	322		322	
3896-000	1	Kerr	8276000000	KENNETH W & MARCIA C MULFORD	RATTLESNAKE	MUNI			13	3 TRACTS 34.55 AC, ALSO REC
3904-000	1	Kerr	8275500000	CITY OF KERRVILLE	QUINLAN CRK	IRRG	80	56	10	& REC-2 RES-146-AC TR-EXPIRES 20 YEARS
4007-000	1	Kerr	7703100000	PECAN VALLEY RANCH OWNERS ASSO	ELM CRK	REC			157	ALSO DOMESTIC & LIVESTOCK
4034-000	1	Kerr	9040000000	SHELTON RANCHES INC	JOHNSON CRK	REC			122	2 RES, SEE FILE, & ADJ 1974
4223-000	1	Kerr	9105000000	SHELTON RANCHES INC	JOHNSON CRK	IRRG	20	14	39	

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
4298-000	1	Kerr	8294800000	ALISON B MENCAROW LIVING TRUST	TOWN CRK	IRRG	12	18		AMEND 12/10/91
4486-000	1	Kerr	7644900000	JAY & HILDA POTH	CYPRESS CRK	IRRG	70	35		RATE SEE 18-2041
5060-000	1	Kerr	8710000000	HORACE COFER ASSOCIATES, INC	FALL BR CRK	IRRG	10	12		
5122-000	1	Kerr	8150800000	JAMES C STORM	GUADALUPE RIVER	IRRG	75	50	8	
5315-000	1	Kerr	8294000000	DANA G KIRK TRUSTEE	E TOWN CRK	OTHER				PRIVATE WATER
5322-000	1	Kerr	8705000000	E RAND SOUTHARD ET UX	FALL BR	REC				
5331-000	1	Kerr	9660000000	KATHLEEN B FLOURNOY, ET AL	S FRK GUADALUPE RIVER	MUNI	15		30	& RECREATION
5331-000	1	Kerr	9660000000	KATHLEEN B FLOURNOY, ET AL	S FRK GUADALUPE RIVER	IRRG	96	30		
5348-000	1	Kerr	9526000000	BRYON DONZIS	N FRK GUADALUPE RIVER	IRRG	5	4		
5352-000	1	Kerr	9650000000	BONITA OWNERS ASSOC INC	S FRK GUADALUPE RIVER	IRRG	2	2		
5394-000	1	Kerr	8300010000	UPPER GUADALUPE RIVER AUTH	GUADALUPE RIVER	MUNI	1661			FIRM YIELD BASIS. AMENDED 4/10/98. SCS.
5394-000	1	Kerr	8300010000	UPPER GUADALUPE RIVER AUTH	GUADALUPE RIVER	MUNI	339			FIRM YIELD BASIS. AMENDED 4/10/98. SCS.
5394-000	1	Kerr	8300010000	CITY OF KERRVILLE	GUADALUPE RIVER	MUNI	761			FIRM YIELD BASIS. AMENDED 4/10/98. SCS.
5394-000	1	Kerr	8300010000	CITY OF KERRVILLE	GUADALUPE RIVER	MUNI	339			RUN OF RIVER BASIS. AMENDED 4/10/98.SCS
5394-000	1	Kerr	8300010000	CITY OF KERRVILLE	GUADALUPE RIVER	MUNI	1069			RUN OF RIVER BASIS. AMENDED 4/10/98.SCS
5402-000	1	Kerr	8155300000	TURTLE CREEK INDUSTRIES INC	TURTLE CRK	REC				
5444-000	1	Kerr	8490000000	EUGENE D ELLIS ET UX	GUADALUPE RIVER	IRRG	10	25.5		
5479-000	1	Kerr	7701250000	CITY SOUTH MANAGEMENT CORP	GUADALUPE RIVER	IRRG	566	283		AMENDED 3/13/98
5495-000	1	Kerr	9800000000	LOIS & JOSEPH WESSENDORF ET AL	S FRK GUADALUPE RIVER	REC			9	
5521-000	1	Kerr	8300050000	DON D WILSON	GUADALUPE LAKE	IRRG	30	30		GUADALUPE RIVER
5531-000	1	Kerr	8185700000	LEE ROY COSPER ET UX	GUADALUPE RIVER	IRRG	80	40		
5536-000	1	Kerr	7701350000	ROBERT H & CHARLOTTE JENNINGS	GUADALUPE RIVER	IRRG	400	200		
5541-000	1	Kerr	9476150000	BASHARDT LTD	N FRK GUADALUPE RIVER	IRRG	14	15		
5641-000	1	Kerr		MARLIN R MARCUM		IRRG	1	2		SUBJECT TO MAINT OF CONTRACT & AGREEMENT
5737-000	1	Kerr		SYLVIA SIEKER		IRRG	1			
12246-000	1	Kerr		ELIZABETH CARTER		REC			6.84	
2671-000	6	Kinney	4950000000	MAVERICK CO WCID 1	RIO GRANDE	IRRG	134900	45000		& CO 162, AMEND 8/22/86,9/22/88,10/30/98
2671-000	6	Kinney	4950000000	MAVERICK CO WCID 1	RIO GRANDE	MUNI	2049			AMEND 8/22/86,9/22/88,10/30/98

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
2671-000	6	Kinney	4950000000	MAVERICK CO WCID 1	RIO GRANDE	REC	196			AMEND 8/22/86,9/22/88,10/30/98
2671-000	6	Kinney	4950000000	MAVERICK CO WCID 1	RIO GRANDE	HYDRO	1085966			AMEND 8/22/86,9/22/88,10/30/98
2673-000	6	Kinney	4950000000	LENDELL MARTIN ET UX	MUD CRK	IRRG	52	35	16	
2674-000	6	Kinney	4950000000	CLYDE M BRADLEY	MUD CRK	IRRG	20	15		RATE SEE 23-2673
2675-000	6	Kinney	4950000000	SHERWOOD GAINES TRUSTEE	MUD CRK	IRRG	60	30		RATE SEE 23-2673
2676-000	6	Kinney	4950000000	JEWEL FOREMAN ROBINSON	PINTO CRK	IRRG	252	126		
2678-000	6	Kinney	4950000000	JOHNNY E RUTHERFORD	PINTO CRK	IRRG	135	90		
2679-000	6	Kinney	4950000000	CITY OF BRACKETTVILLE	LAS MORAS SPRING	MUNI	3			
2680-000	6	Kinney	4950000000	ELISE AULGUR HUNTSMAN ET AL	LAS MORAS CRK	IRRG	15	15		JOINT OWNER OF 15 AF TO IRR 15 ACRES
2680-000	6	Kinney	4950000000	ANN A LEGG & ERNESTINE A LOPEZ	LAS MORAS CRK	IRRG				JOINT OWNER OF 15 AF TO IRR 15 ACRES
2681-000	6	Kinney	4950000000	EARL H NOBLES	LAS MORAS CRK	IRRG	10	10		
2682-000	6	Kinney	4950000000	BERNARD C MEISCHEN ET AL	LAS MORAS CRK	IRRG	25	25		
2682-000	6	Kinney	4950000000	CHARLES W GAEBLER ET AL	LAS MORAS CRK	IRRG	75	75		+50 AF FROM 7 RES FOR STOCK RAISING
2683-000	6	Kinney	4950000000	ANDREW P MALINOVSKY JR	LAS MORAS CRK	IRRG	60	30		
2684-000	6	Kinney	4950000000	BEN S JONES	ELM CRK	IRRG	47	26	6	
2686-000	6	Kinney	4950000000	ROBERT H MEISCHEN, ET AL	LAS MORAS CRK	IRRG	300	300		
2686-000	6	Kinney	4950000000	ROBERT H MEISCHEN, ET AL	LAS MORAS CRK	MUNI	50			4 RESERVOIRS
2687-000	6	Kinney	4950000000	CELIA R DE PLAZA, ET AL	LAS MORAS CRK	IRRG	110	55		
2913-000	6	Kinney	4950000000	MOODY RANCHES INC	RIO GRANDE	IRRG	5500	3000	17	
2913-000	6	Kinney	4950000000	MOODY RANCHES INC	RIO GRANDE	IRRG	500	250		
3071-000	6	Kinney	7023010000	LLOYD L DAVIS	W NUECES RIVER	OTHER			25	IMPOUNDMENT
4365-000	1	Kinney	7028000000	ROBERT L MOODY JR	SPRING BR	REC	10		42	4 RES
4389-000	1	Kinney	4950000000	FORT CLARK SPRINGS ASSOC INC	LAS MORAS CRK	REC				
4517-000	1	Kinney	4950000000	FORT CLARK SPRINGS ASSOC INC	LAS MORAS CRK	REC			3	
1610-000	9	Medina	5700000000	L KEN EVANS	MEDINA RIVER	IRRG	20			LAKE MEDINA, EXP 2016
3016-000	6	Real	9615000000	JOHN H WATTS III ET UX	E PRONG NUECES RIVER	IRRG	4	2		SC. TWO PRIORITY DATES. AMEND 7/10/98
3016-000	6	Real	9615000000	JOHN H WATTS III ET UX	E PRONG NUECES RIVER	IRRG	54	27		SC. TWO PRIORITY DATES. AMEND 7/10/98
3018-000	6	Real	9450000000	LEWIS CLECKLER ET UX	SPRING CRK	IRRG	22.7	12.1		BULLHEAD HOLLOW
3018-000	6	Real	9450000000	EL CAMINO GIRL SCOUT COUNCIL	SPRING CRK	IRRG	7.3	3.9		BULLHEAD HOLLOW
3019-000	6	Real	9410000000	SARAH M DAVIS	BULLHEAD CRK	IRRG	80	40		

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
3019-000	6	Real	9410000000	SARAH M DAVIS	BULLHEAD CRK	IRRG		13		
3020-000	6	Real	9320000000	H C MCCARTY JR ET UX	BULLHEAD CRK	IRRG	34.736	17.368		
3020-000	6	Real	9320000000	F WALTER CONRAD JR ET UX	BULLHEAD CRK	IRRG	85.264	42.632		
3021-000	6	Real	9198500000	DSD, INC	BULLHEAD CRK	IRRG	418	210		
3022-000	6	Real	9190000000	MARVIN L BERRY	UNNAMED TRIB NUECES RIVER	IRRG	259	300	14	TRIB OF NUECES RIVER
3022-000	6	Real	9190000000	MARVIN L BERRY	UNNAMED TRIB NUECES RIVER	IRRG	485			
3025-000	6	Real	9150000000	WILLIAM C & WANDA LEA LANE	DRY CRK	IRRG	40	20	1	
3026-000	6	Real	9075000000	JOHN A DANIEL ET UX	DRY CRK	IRRG	16	8	90	
3027-000	6	Real	9050000000	J F ALSOP	DRY CRK	IRRG	20	10		
3028-000	6	Real	9040000000	CLARENCE W HARRISON ET UX	DRY CRK	IRRG	15.43	7.72	43	
3028-000	6	Real	9040000000	CLARENCE W HARRISON ET UX	DRY CRK	REC			4	
3028-000	6	Real	9040000000	W THOMAS TAYLOR ET UX	DRY CRK	IRRG	4.36	2.18		
3029-000	6	Real	9008000000	HENRY D ENGELKING	NUECES RIVER	IRRG	43	52		
3034-000	6	Real	9004000000	HERBERT C JEFFRIES ET UX	NUECES RIVER	IRRG		2		SEE ADJ 3030
3036-000	6	Real	9000000000	SALVADOR ORTIZ ET AL	NUECES RIVER	IRRG	125	50		
3037-000	6	Real	8950000000	DAVID WELDON TINDLE	NUECES RIVER	IRRG	25	25		
3050-000	6	Real	8000000000	W A MALEY	E CAMP WOOD CRK	IRRG	28	14		
3051-000	6	Real	7980000000	ROBERT J LLOYD ET UX	E CAMP WOOD CRK	IRRG	1.42	1.42		
3051-000	6	Real	7980000000	WANNA LOU LLOYD	E CAMP WOOD CRK	IRRG	4.08	4.08		
3052-000	6	Real	7970000000	BARRY BLANKS MCHALEK ET UX	E CAMP WOOD CRK	IRRG	5	5		SEE ADJ 3051
3053-000	6	Real	7960000000	BARRY BLANKS MCHALEK ET UX	E CAMP WOOD CRK	IRRG	1	1		SEE ADJ 3051
3054-000	6	Real	7950000000	JOHN CHAMBERS ET AL	E CAMP WOOD CRK	IRRG	10	10		SEE ADJ 3051
3055-000	6	Real	7900000000	WILLIAM C & PATRICIA K SUTTON	E CAMP WOOD CRK	IRRG	105	130	2	
3056-000	6	Real	7810000000	ROY GIBBENS	E CAMP WOOD CRK	IRRG	18	9	4	
3056-000	6	Real	7810000000	ROY GIBBENS	E CAMP WOOD CRK	IRRG	2			
3057-000	6	Real	7800000000	MAGELEE V SWIFT	E CAMP WOOD CRK	IRRG	21	16	8	SEE ADJ 3056
3057-000	6	Real	7800000000	MAGELEE V SWIFT	E CAMP WOOD CRK	IRRG	10	4	4	
3058-000	6	Real	7740000000	DOROTHY MERRITT ANDERSON	NUECES RIVER	IRRG	8	8		
3059-000	6	Real	7730000000	F L JR & CHARLOTTE HATLEY	NUECES RIVER	IRRG	11	7		

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
3060-000	6	Real	7631000000	E E GILDART	NUECES RIVER	IRRG	42	21		
3060-000	6	Real	7631000000	E E GILDART	NUECES RIVER	IRRG	54	26		
3060-000	6	Real	7631000000	E E GILDART	NUECES RIVER	IRRG	35	46		
3061-000	6	Real	7630000000	E E GILDART	NUECES RIVER	IRRG	31	31		
3062-000	6	Real	7550000000	JOANNE FRIEND	NUECES RIVER	IRRG	46	46		
3145-000	6	Real	3900000000	GEORGE S HAWN INTERESTS ET AL	S P/L P W FRIO RIVER	REC			27	
3145-000	6	Real	3900000000	GEORGE S HAWN INTERESTS ET AL	S P/L P W FRIO RIVER	REC			68	
3145-000	6	Real	3900000000	GEORGE S HAWN INTERESTS ET AL	S P/L P W FRIO RIVER	IRRG	156	78		
3146-000	6	Real	3850000000	JAMES W HALE ET AL	W FRIO RIVER	REC			16	
3147-000	6	Real	3810000000	DIAMOND J RANCH INC	W FRIO RIVER	IRRG	165	55		
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	REC	3.5		10	
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	IRRG	6.5	2		UPPER SINGING HILLS RESERVOIR
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	REC	11		11	UNNAMED DOWNSTREAM RESERVOIR (D-0340)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	IRRG	34.8	12.9		UNNAMED RESERVOIR (D-0340)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	IRRG	6.7	2.5		UNNAMED RESERVOIR (D-0340)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	REC	25.08		25.08	LINNET'S WINGS DAM (D-0220);AMEND 3/91
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	IRRG	3.2	1.2		LINNET'S WINGS DAM (D-0220)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	REC	34		68.7	LAITY LODGE DAM (D-0240);AF/WATERFALL
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	IRRG	4	2		LAITY LODGE DAM (D-0240)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	REC	5.51		5.51	LOWER SINGING HILLS DAM (D-0280)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	IRRG	4.1	1.5		LOWER SINGING HILLS DAM (D-0280)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	REC	2.64		2.64	SILVER CREEK DAM (D-0300)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	REC	0.24		0.24	LOWER SILVER CREEK DAM (D-0320)
3148-000	6	Real	3750000000	H. E. BUTT FOUNDATION	E FRIO RIVER	REC	17.86		17.86	ECHO VALLEY DAM (D-0360)
3149-000	6	Real	3660000000	ORA L ROGERS ESTATE	E FRIO RIVER	IRRG	30	28		
3150-000	6	Real	3655000000	R F BINDOCK	E FRIO RIVER	IRRG	3	11		
3151-000	6	Real	3620000000	KATHERINE MAXINE MORELAND	E FRIO RIVER	IRRG	67	30		
3152-000	6	Real	3600000000	DAN AULD, JR	E FRIO RIVER	IRRG	324	162		

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
3153-000	6	Real	3490000000	JOHN J BURDITT, ET AL	UNNAMED TRIB E FRIO RIVER	IRRG	15	50		
3153-000	6	Real	3490000000	JOHN J BURDITT, ET AL	UNNAMED TRIB E FRIO RIVER	IRRG	23			
3154-000	6	Real	3430000000	JAMES TREES	YOUNGBLOOD SPRING	IRRG	2	6		
3155-000	6	Real	3420000000	LOTTIE N WRIGHT	FRIO RIVER	IRRG	164	43		
3156-000	6	Real	3400000000	H P COOPER ET AL	FRIO RIVER	IRRG	20	22		
3156-000	6	Real	3400000000	H P COOPER ET AL	FRIO RIVER	IRRG	2			
3157-000	6	Real	3350000000	E F BAYOUTH, MD PENSION PLAN	FRIO RIVER	IRRG	250	125		AMEND 1/9/85. CURRENT OWNER UNKNOWN 5/98 ALSO COUNTY 232
3158-000	6	Real	3375000000	LOMBARDY IRRIGATION CO	FRIO RIVER	IRRG	1600	800	6	
3159-000	6	Real	3294000000	SAM G HARRISON	FRIO RIVER	IRRG	140	70		
3160-000	6	Real	3290000000	GRACIA BASSETT HABY	FRIO RIVER	IRRG	60	100		JOINTLY OWNS 60 AF TO IRR 100 ACRES
3160-000	6	Real	3290000000	THEODORE R REED TRUSTEE	FRIO RIVER	IRRG				JOINTLY OWNS 60 AF TO IRR 100 ACRES
3161-000	6	Real	3289500000	R L HUBBARD	DRY FRIO CRK	IRRG	17	21		
3162-000	6	Real	3287500000	CARL A. DETERING, JR., ET AL	UNNAMED TRIB BUFFALO CRK	IRRG	5	25	15	
3180-000	6	Real	2799000000	LANA J STORMONT	UNNAMED TRIB W SABINAL RIVER	IRRG	5	10		
3878-000	1	Real	3645000000	C B SLABAUGH	CYPRESS CRK	IRRG	40	30		68-AC TR, SC, AMEND 11/12/84
3978-000	1	Real	9421000000	N M FITZGERALD JR ESTATE	FLYNN CRK	IRRG	187	63		156.95-AC TR, SC
4008-000	1	Real	9172500000	DOUGLAS B & MARGARET MARSHALL	NUECES RIVER	IRRG	400	200		AMEND 12/15/81 INCR AC-FT, ACRES, CFS
4094-000	1	Real	3905500000	GEORGE S HAWN INTERESTS ET AL	W FRIO RIVER	IRRG	56	28	9	OUT OF 1118 ACRES
4169-000	1	Real	7910000000	ROARING SPRINGS RANCH INC	CAMP WOOD CRK	IRRG	15	10	41	6 RES & REC
4169-000	1	Real	7910000000	ROARING SPRINGS RANCH INC	CAMP WOOD CRK	MUNI	15			
4405-000	1	Real	7760000000	CITY OF CAMP WOOD	UNNAMED TRIB NUECES RIVER	MUNI	1000			
4405-000	1	Real	7760000000	CITY OF CAMP WOOD	UNNAMED TRIB NUECES RIVER	IRRG	83	16		
4413-000	1	Real	8240000000	WILLIAM C SUTTON ET UX	CAMP WOOD CRK	REC			2	
5009-000	1	Real	3830000000	JACKSON L BABB ET AL	W FRIO RIVER	IRRG	60	30		
2653-000	6	Val Verde	4950000000	PHIL B FOSTER	CIENEGAS CRK &/OR THE RIO GRANDE	IRRG	122.25	61.13		AMEND 10/15/91
2653-000	6	Val Verde	4950000000	DAVID B TERK ET AL	CIENEGAS CRK	IRRG	27.75	13.87		AMEND 10/15/91
2654-000	6	Val Verde	4950000000	THURMAN W OWENS	CIENEGAS CRK	IRRG	26	13		RATE SEE 23-2653

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
2655-000	6	Verde	4950000000	JOSE C OVIEDO ET UX	CIENEGAS CRK	IRRG	28	14		RATE SEE 23-2653
2656-000	6	Verde	4950000000	RANDOLPH J N & SHARON M ABBEY	CIENEGAS CRK	IRRG	68	43		RATE SEE 23-2653
2657-000	6	Verde	4950000000	RONALD J PERSYN ET UX	CIENEGAS CRK	IRRG	150	75		RATE SEE 23-2653
2657-000	6	Verde	4950000000	RONALD J. PERSYN, ET UX	CIENEGAS CRK	IRRG	150	68		SEE 23-2653 RATE; AMEND 10/89
2657-000	6	Verde	4950000000	RONALD J. PERSYN, ET UX	CIENEGAS CRK	IRRG		89		AMEND 8/2/94
2659-000	6	Verde	4950000000	JOHN F QUALIA	CIENEGAS CRK	IRRG	112	56		FOR RATE SEE 23-2653
2660-000	6	Verde	4950000000	JOSE A CORTINAS ET AL	CIENEGAS CRK	IRRG	16	5		
2660-000	6	Verde	4950000000	LJB ENTERPRISES	CIENEGAS CRK	IRRG	296	99		
2661-000	6	Verde	4950000000	BARBARA GULICK RATHKE, ET AL	CIENEGAS CRK	IRRG	120	40	10	
2662-000	6	Verde	4950000000	CAPITOL AGGREGATES INC	CIENEGAS CRK	MINE	166	17		AMEND 11/2/87
2663-000	6	Verde	4950000000	ALFREDO GUTIERREZ JR	CIENEGAS CRK	IRRG	24	8		
2664-000	6	Verde	4950000000	SAN FELIPE A MFG & I COMPANY	SAN FELIPE CRK	IRRG	4950	1700		AMEND 12/16/88, 10/31/94
2664-000	6	Verde	4950000000	SAN FELIPE A MFG & I COMPANY	SAN FELIPE CRK	IRRG	6		6	IMPOUNDMENT #1
2664-000	6	Verde	4950000000	SAN FELIPE A MFG & I COMPANY	SAN FELIPE CRK	IRRG	6		6	IMPOUNDMENT #2
2664-000	6	Verde	4950000000	SAN FELIPE A MFG & I COMPANY	SAN FELIPE CRK	INDU	50			AMENDMENT EXP 12/31/96
2665-000	6	Verde	4950000000	JOSE OVIEDO JR ET UX	SAN FELIPE CRK	IRRG	60	40		AMENDED 9/13/96
2666-000	6	Verde	4950000000	PETRA ABREGO MUNOZ	SAN FELIPE CRK	IRRG	23.56	7.85		
2669-000	6	Verde	4950000000	RODOLFO MOTA	SAN FELIPE CRK	IRRG	6	2		
2670-000	6	Verde	4950000000	VICTOR D BOLNER	SAN FELIPE CRK	IRRG	6	3		
2672-000	6	Verde	4950000000	CITY OF DEL RIO	SAN FELIPE CRK	MUNI	4416			
2672-000	6	Verde	4950000000	CITY OF DEL RIO	SAN FELIPE CRK	MUNI	7000			
2811-000	6	Verde	4950000000	RIO BRAVO INC	CIENEGAS CRK &/OR THE RIO GRANDE	IRRG	51.08	997.97	47	& REC/DOM, AMEND 1/84,6/91
2811-000	6	Verde	4950000000	DAVID B TERK	CIENEGAS CRK	IRRG	114.64	95.38		
2912-000	6	Verde	4950000000	MOODY RANCHES INC	SAN FELIPE CRK	IRRG	800	400	10	

Water Right Number	Type	County	River Order Permit	Name	Stream	Use	Amount in Ac-Ft/Yr	Acreage	Res Cap in Ac-Ft	Remarks
3880-000	1	Val Verde	4950000000	SOUTH TEXAS ELECTRIC CO-OP INC	RIO GRANDE	HYDRO	1500000			AMEND 12/14/87. POWER POOL WITH MEDINA.
3880-000	1	Val Verde	4950000000	MEDINA ELECTRIC CO-OP INC	RIO GRANDE	HYDRO				AMEND 12/14/87. POWER POOL WITH S.TX.EL.
5506-000	1	Val Verde	4950000000	DEL RIO, CITY OF	SAN FELIPE CRK	REC			0.19	WATER PARK LANDING POOL

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Minutes
Plateau Water Planning Group
Regular Meeting - Leakey, Texas
May 15, 2019
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Wednesday, May 15, 2019, beginning at 10:00 A.M. at The Frio Canyon Baptist Church, 919 US-83, Leakey, Real County, Texas. Present at the meeting were: Kathleen Jackson, Texas Water Development Board; Ray Buck, Kerr County; Jonathan Letz, Kerr County; Gene Williams, Kerr County; Grant Terry (for Scott Loveland, Kerr County); Jody Grinstead; John Ashworth, WSP and LBG-Guyton & Associates; Jennifer Herrera, WSP and LBG-Guyton & Associates; William Alfaro, Texas Water Development Board; Chad Norris, Texas Parks and Wildlife; Charlie Wiedenfeld, Kerr County; Michael Redman, Bandera County; David Mauk, Bandera County; Charlie Flatten, Kerr/Bandera/Real Counties; Dell Dickinson, Val Verde County; Max Martin, Edwards/Val Verde/Kinney Counties; Feather Wilson, Bandera County; Carl Schwing; Joseph McDaniel, Jerry Simpton, Val Verde County; Genell Hobbs, Kinney County; Tooter Trees, Real County; David Jeffery, Bandera County; Tyson Broad, Tina Ashley, Ernie DeWinne; and Andrea Croskey, Texas Water Development Board.

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

It was noted that a quorum was present.

II. Public Comments.

No public comments were made.

III. Remarks from Kathleen Jackson, TWDB Director

Director Jackson thanked the Board for the work they do. She spoke briefly regarding: trends she is seeing as she travels across the state including people taking an interest in water conservation and looking at multiple water management strategies; the first major reservoir to be built in Texas in 30 years; SWIFT funding; brackish water (inland and desal plants); using surface water first; TWDB's pilot program that is working with communities with populations of less than 10,000 to provide engineering consultant work to help them get their operating procedures up to date.

She encouraged the members to contact her with any thoughts or ideas they may have. She congratulated UGRA on the Rainwater Harvesting Award they received

IV. Approval of minutes from the January 30, 2019, Regular Meeting.

Motion by Ray Buck to approve the January 30, 2019 minutes; second by Max Martin. The motion passed by a unanimous vote.

V. Reports.

a. Report from Chair.

Chairman Letz stated the balance in the administrative account is \$11,599.72

b. Report from Secretary.

No report was given

c. Report from Political Entity.

No report was given

d. Report from Liaisons.

Carl Schwing gave a brief update on Region M Chairman, Tomas Rodriguez. Joseph McDaniel gave a brief update on Region L.

- e. Report from GMA representatives.
Feather Wilson spoke briefly regarding Senate Bill 1010

VI. **Consider, discuss and take appropriate action to approve invoices.**

Motion by Gene Williams to approve the following invoices: WSP - \$9216.02 (12/29/18 through 2/1/19); WSP - \$10, 876.67 (2/2/19 through 3/1/19); WSP - \$2,213.25 (3/2/19 through 3/29/19); and JP Morgan (credit card) – Paid to GMR Transcription - \$250.00 (transcript of 1/30/19 mtg); second by Joseph McDaniel. The motion passed by a unanimous vote.

VII. **Consider, discuss and take appropriate action to accept resignation of Joel Pigg.**

Chairman Letz informed the Group that Joel accepted a new job and is no longer eligible to be a board member. Motion by Joseph McDaniel to accept the resignation of Joel Pigg; second by Ray Buck. The motion passed by a unanimous vote.

VIII. **Consider, discuss and take appropriate action to appoint a new Vice-Chair.**

Motion by Tooter Trees to nominate Genell Hobbs as the Vice-Chair; second by Jerry Simpton. The motion passed by a unanimous vote.

IX. **Texas Water Development Board Updates. (William Alfaro, Project Manager)**

Mr. Alfaro congratulated UGRA for their rain catcher award. Ray Buck briefly described the “EduScape” (educational landscape) project that won the award. A brief discussion ensued regarding whether or not water providers must be informed when people install rainwater collection systems.

Mr. Alfaro said that TWDB was working on the drought preparedness recommendations that were submitted to them. They met on April 16 and will be sending a formal letter to each of the regional water planning groups.

He spoke briefly regarding the updated Chapter Seven template that is now on the TWDB website and two new educational materials: one related to the function of the regional water planning group (what they do) and one related to SWIFT prioritization process.

Upcoming deadlines:

- May 31st – data due for Socioeconomic Impact Analysis Report
- March 3, 2020 – due date for Initially Prepared Plan (IPP)
- September – contract amendment related to funding

Although TWDB did not lobby for any of the Bills before the Legislature but they are tracking some of them. After the session is complete Mr. Alfaro will give the Group and update on the Bills that passed, how they may affect the planning process, and how the Water Development Board is expecting to address them.

X. **Update on the regional water planning schedule. (WSP)**

Ms. Herrera briefly discussed the regional water planning timeline. WSP is currently working on developing and updating strategies as well as unique stream segments.

She recapped items that were discussed at the last meeting:

- Approved requesting the Board to conduct a socioeconomic impact analysis.
- Discussion regarding draft chapter three.
- The Task 5A scope and budget was approved by the Board. Region J was then funded that extra dollar amount to proceed with strategy development.
- Discussed ecologically unique stream segments.

She discussed things to be discussed at today's meeting:
Water management strategy evaluation process.
Unique stream segments

XI. **Review process for recommending Water Management Strategies. Discuss relevance of current list of Potentially Feasible Strategies.**

Ms. Herrera explained the process that is used to determine whether or not a planning area is projected to have any water shortages within the 50-year planning cycle and whether or not a water strategy is needed or not. Water strategies are developed for entities that show a need. Strategies from the previous plan are carried over to the new plan for those entities that are still interested in having those strategies in the plan for funding purposes. Previously the planning group agreed to a conservation commitment for any utility or WUG experiencing a water loss greater than 10%.

The new unified costing tool provided by Water Development Board has included some cost changes with steel, and there are just enough economic impacts there that made some changes with the tools. So, new strategies are going in through a new tool that will account for those current costs.

Mr. Ashworth discussed his handout entitled "Potentially Feasible Water Management Strategies" in depth. A brief discussion ensued regarding interregional work. Mr. McDaniel stated that AquaTexas may have an interest in surface water rights at the new plant for the Center Point Waste Water Project in Kerr County. Mr. Letz stated that it's more of an ideal right now and that they are looking at the feasibility of various options right now. Mr. Ashworth briefly described how water demand strategies are designated and how the entities are notified. He stressed that part of the PWPG board members responsibility is to make sure that the people they represent understand the need for them to participate in this process if they think they're going to need Water Development Board funding. Mr. Alfaro stated that there is a process that can be followed to request amending the population predictions. Mr. Ashworth stressed that the Group is only making recommendations; they are not telling any entity that they need to do any of these things. The Group is trying to give them a little education of what to expect over the next 50 years and make some justifiable suggestions in how they might solve their water needs.

Mr. Ashworth reminded the Group that WSP is working with well water and aquifer sources and they have subcontracted with Carollo Engineering to do the work on surface water. He stated that TWDB has a very good interactive site that shows water data for each area.

XII. **Consider, discuss and take appropriate action to approve process for recommending Unique Stream Segments within the PWPG.**

Chairman Letz spoke briefly regarding his handout entitled "Draft: Procedure for PWPG recommending a Unique Stream Segment "USS"". He acknowledged that based on the last meeting that there is a lot of differing opinions on this subject. He stated the document was a good starting point for the discussion. A lengthy discussion ensued regarding the procedures and whether or not this fell under the purview of the planning group at all as well as who would be responsible any related costs. Mr. Norris spoke briefly regarding a report that had already been prepared by Texas Parks and Wildlife that included Region J ecologically significant stream segments they found to be unique. Mr. Alfaro reminded the Group that the planning group is not required make any recommendations; it's up to the planning group whether or not they want to make any recommendations. Tyson Broad expressed his concern with any procedures being put in place as the process "for unique stream segments and reservoir designations" are already codified in 357 of the statute. The discussion continued at length.

Motion by Ray Buck to approve Procedure for Recommending a Unique Stream Segment as amended today; second by Dell Dickinson. The motion passed by a majority vote of 11 to 3. Those voting in favor were: Ray Buck, Dell Dickinson, Jonathan Letz, David Jeffery, Charlie Wiedenfeld, Gene Williams, Genell Hobbs, Tooter Trees, Jerry Simpton, Max Martin and Joseph McDaniel. Those voting against were: Feather Wilson, Dave Mauk and Charlie Flatten. *A copy of the final procedures is attached to these minutes.

XIII. **Consider, discuss and take appropriate action to consider potential Unique Stream Segments and authorize consultants to begin further evaluation.**

Mr. Ashworth discussed his handout entitled “Requested Unique Stream Segments”. Letters and Resolutions were received for the following rivers from the following groups:

- Devil’s River – Texas nature Conservancy
- Nueces, Frio and Sabinal Rivers – Nueces River Authority (Con Mims)
- South Llano River – Llano River Watershed Alliance and Ruth B Russell
- Medina, Sabinal Rivers and West Verde Creek (Bandera County) – Bandera County River Authority and Groundwater District
- Guadalupe River and Tributaries (Kerr County) – Upper Guadalupe River Authority and Headwaters Groundwater Conservation District

Chairman Letz stated that based on the prior motion the direction would be for the consultants to work the entities or individuals that have submitted these to help them with the process and provide guidance for them (not do the work for them). The process should be from a standpoint that the cost would come from the local entities or individuals. Then, if the Commissioners’ Court in that county approves them, the Group can vote to concur with the recommendations at the next meeting.

Mr. Norris reminded the Group about the report previously prepared by Parks and Wildlife and stated that would be a good reference to use and Texas Parks and Wildlife would be happy to assist where needed.

Motion by Charlie Wiedenfeld to table further discussion until we have received recommendations from the county commissioners’ court for these stream segments; second by Joseph McDaniel. The motion passed by a unanimous vote.

XIV. **Hill Country Trinity Aquifer Brackish Groundwater Study Stakeholder Presentation. (Mark Robinson)**

Ms. Andrea Croskrey made the presentation on behalf of Mark Robinson. Ms. Croskrey works for the Texas Water Development Board mapping brackish groundwater for their program called BRACS. She stated that they are starting projects that map brackish groundwater in the Hill Country Trinity Aquifer and Edwards Trinity Plateau Aquifer. She provided an outline of their study and explained the meaning of brackish water as it pertains to their study. She briefly reviewed the study topics including: brackish groundwater production zones (required by House Bill 30), recommending groundwater monitoring for those zones and working with stakeholders in those areas, criteria for the zone designation, mapping the stratigraphy, lithology and measured water quality. Once the study is complete they will provide a final report and solicit comments from the stakeholders then the Board will possibly designate any brackish groundwater zones. She requested any data the members could share with them including: aquifer tests, water chemistry, geophysical well logs and injection well data. A brief discussion ensued regarding geophysical logs, geophysical signatures, log calculations and how to calculate total zone salts.

Ms. Croskrey spoke briefly regarding the preliminary maps that were put out about a year ago stating that work was contracted out. She said there were some inconsistencies in the Hill Country

data so they decided to do a whole study for the Hill County and not just use the data that the contractor provided. Mr. Martin asked what Legislature's purpose was in directing TWDB to do this study. Director Jackson stated she believed it was to get a better understanding of the aquifer as a whole. A brief discussion ensued. Mr. Letz stated that the Legislature needs to be watched closely because there are frequent movements to centralize groundwater.

XV. Set next meeting.

The next meeting will be in August.

MINUTES
(Agenda Addendum done due to change of venue)
Plateau Water Planning Group
Regular Meeting - Leakey, Texas
August 15, 2019
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Thursday, August 15, 2019, beginning at 10:00 A.M. at Leakey Church of Christ, 229 3rd Street, Leakey, Real County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Gene Williams, Kerr County; Scott Loveland, Kerr County; Jody Grinstead; John Ashworth, WSP; Jennifer Herrera, WSP; William Alfaro, Texas Water Development Board; Chad Norris, Texas Parks and Wildlife; Charlie Wiedenfeld, Kerr County; Michael Redman, Bandera County; Charlie Flatten, Kerr/Bandera/Real Counties; Dell Dickinson, Val Verde County; Max Martin, Edwards/Val Verde/Kinney Counties; Feather Wilson, Bandera County; Jerry Simpton, Val Verde County; Genell Hobbs, Kinney County; Tooter Trees, Real County; David Jeffery, Bandera County; Tina Ashley, Wes Robinson, Kinney County; Homer Stevens, Bandera County; Lee Sweeten, Edwards County; Robin Barthen, Texas Department of Agriculture; Kendria Ray, Texas State Soil and Water Conservation Board; John Byrum, Nueces River Authority; Cameron Blezinger; Real Edwards Conservation Reclamation District.

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

Mr. Letz called the meeting to order and noted that there was a late change of venue, but attendance was not affected.

II. Public Comments.

No public comments were made.

III. Approval of minutes from the May 15, 2019, Regular Meeting.

Motion by Charlie Wiedenfeld to approve the May 15, 2019, minutes; second by Tooter Trees. The motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

Mr. Letz reported the balance in the bank account is \$11,259.00.

He informed the Group that the freshwater mussels in the Guadalupe Basin are very close to being listed as an endangered species.

b. Report from Secretary.

No report was given.

c. Report from Political Entity.

No report was given.

d. Report from Liaisons.

Feather Wilson gave a report on Region K.

e. Report from GMA representatives.

Michael Redman gave a report on GMA 9; Genell Hobbs gave an update on GMA10.

V. Consider, discuss and take appropriate action to approve invoices.

Motion by Genell Hobbs to approve the following invoices: WSP – Invoice #86454 (\$17,899.42), WSP Invoice #874830 (\$14,013.80), WSP Invoice #880069 (\$2,858.04), WSP Invoice #845142 (\$999.89) and JP Morgan (credit card) – paid to GMR Transcription - \$150.00 and \$190.00 (transcript of 5/15/19 mtg); second by Gene Williams. The motion passed by a unanimous vote.

VI. Consider, discuss and take appropriate action to announce vacancy of GMA 7 position (previously Joel Pigg).

Vacancy was announced. No action was taken.

VII. Consider, discuss and take appropriate action to authorize the UGRA to negotiate and execute TWDB Contract Amendment that will Increase authorized funds to the full contract amount.

Mr. Ashworth stated that this is the final amendment to the contract that we've been working on this year. It authorizes the final output of money (for the strategy work). **Motion by Dell Dickinson to authorize UGRA to negotiate and execute TWDB Contract Amendment that will increase authorized funds to the full contract amount; second by Max Martin. The motion passed a unanimous vote.**

VIII. Consider, discuss and take appropriate action regarding nominations for the Interregional Planning Council.

Mr. Letz explained that the Water Development Board, through some legislation passed at the last session, is putting together an Interregional Planning Council whose purpose is to improve coordination between regional water planning groups. The Council will help facilitate dialogue regarding regional management strategies and share operational best practices of the regional water planning process. They will hold at least one public meeting and prepare a report to the Texas Water Development Board on their work. The Water Development Board is requesting that each region nominate at least one person for this. **Motion by Tooter Trees to nominate Ray Buck; second by Max Martin. The motion passed by a unanimous vote.**

IX. Texas Water Development Board Updates. (William Alfaro, Project Manager)

Mr. Alfaro spoke briefly regarding the following topics:

Implementation survey - relates to water management studies that were in the 2016 Regional Water Plan and the State Water Plan.

House Bill 807 - the requirements of HB 807 are effective immediately and the Water Development Board will provide guidance on how the Planning Group can meet the new requirements.

Planning Data Dashboard - useful in searching for historical and regional water planning data, water use, and historical statewide plan data.

Drought Preparedness Council (DPC) recommendations. Water planning groups must take recommendations from the DPC

Socioeconomic impacts report development - TWDB is working on preparing those reports and are expecting to have the final reports ready by the end of this year. TWDB representatives will be available, if requested, to present those report results to the Planning Group. The information will be posted on the Planning Data Dashboard also.

86th Texas Legislature: Updates Relevant to Regional Water Planning. Mr. Alfaro stated that three House Bills are directly related to regional water planning: House Bill 807, House Bill 721, and House Bill 723.

House Bill 807 is effective immediately and requires the Water Development Board to appoint an Interregional Planning Council that will be made from one representative for each of the 16 regions involved in the development of the regional water plans.

Mr. Alfaro explained that the Bill included the following requirements:

1. Reporting “unnecessary or counterproductive” drought response strategies in Chapter 7
2. Defining thresholds for identified water needs that are “significant”
3. List municipal WUG’s in each RWPG in Subchapter 5B
4. Document progress in encouraging cooperation between WUG’s in Chapter 11
5. Include any legislative recommendations the planning group believes would improve the water planning process in Chapter 8.

A brief discussion ensued regarding how to pay for these extra requirements. Mr. Ashworth said they would work closely with TWDB to make sure the requirements are met. Mr. Letz pointed out that these new requirements are not part of the contract that our political subdivision has with the consultants, so he is uncertain how they can be paid for the work. Mr. Alfaro agreed that the changes are not part of the contract; but the changes are required by statute now.

TWDB has started the ruling process for this Bill and is looking for feedback from the planning groups. They are hoping to have the new rules ready in spring of next year so they have set an August 19th deadline to submit any input related to the rules.

Mr. Letz stated that he would write a letter to TWDB expressing the Groups concerns; and would submit the letter to TWDB by the August 19th deadline.

Mr. Norris shared how Region L handled the various aspects of the Bill

House Bill 721 – has two requirements for TWDB:

1. Look at strategies of ASR projects and aquifer projects in the State Water Plan
2. Conduct a statewide survey to identify the relative suitability of various major and minor aquifers for use in ASR projects or aquifer recharge projects and prepare a report of the survey.

House Bill 723 - requires TCEQ to develop updated runs for Brazos, Neches, Red, and Rio Grande River Basins by December 1, 2022.

Mr. Alfaro spoke briefly regarding Senate Bill 7 and Senate Bill 8:

Senate Bill 7 is aimed at providing flood funding through multiple funds

Senate Bill 8 establishes a state and regional flood planning process administered by TWDB:

The process will be similar to the water planning process
 Planning will be by river basin
 First Flood Plan is due by January 2023
 State Flood Plan is due September 2024

Mr. Letz said there was a flood stakeholder meeting in Kerrville that addressed this Bill and that process would mirror the water planning process. The Group would include many of the same interest groups as PWPG. He encouraged the Group members to become involved in the Flood Planning process if they were interested in doing that. Mr. Flatten stated that specific agency, especially river authorities, should be paying attention to the process because there are funding mechanisms involved.

X. Update on the regional water planning schedule. (WSP)

Ms. Herrera reviewed the items discussed at the last meeting including: reviewed some of the strategy development they had been working on, walked through our potentially feasible list of

strategies and talked about ecologically unique stream segments.

She stated that the IPP draft is due in March 2020. She spoke briefly about Chapter 7 (drought chapter) and said it has been modified because it's a utility-based plan and not a state based plan. She said they would have a Chapter 7 draft ready for review at the next meeting.

She stated the focal point now is meeting with clients to redefine strategies that were either in the previous plan or add new strategies into this plan.

She stated they are beginning to develop Chapter 8, which is the process of developing the water policy and planning recommendation chapter.

XI. Discuss process for developing Planning Group water policy and water planning recommendations. (WSP)

Mr. Ashworth informed the Group that Chapter 8 is PWPG's opportunity to speak to the Legislature and/or the Water Development Board. This is where they can make their voices heard. PWPG members develop the Chapter themselves. It is not developed by the consultants, though they will assist in any way possible. In the 2016 plan, this chapter was broken into general recommendations, water management recommendations, water planning, and water data and studies. He suggested that the Group look at the Chapter 8 from the previous plan and be thinking of any changes they want to make. He added that it would be best to have this chapter completed by the end of the year. Mr. Ashworth suggested that a process be determined on how to update the chapter. Mr. Letz suggested having Jody email a copy of Chapter 8 to each member and ask for comments and/or changes. Then it can be approved at the next meeting. Mr. Buck asked how we would handle comments that are not agreed on by the Group as a whole (i.e. unique stream segments). Mr. Letz said if there are specific items that are not agreed upon by the members, then the Group would vote on them one by one.

XII. Discuss progress on development of water management strategies. (WSP)

Mr. Ashworth explained that water management strategies are intended to develop, deliver, and/or treat additional water supply volumes or conserve water for an entity and they must have a non-zero capital cost. In most cases it's a capital cost for infrastructure needs. A brief discussion ensued regarding which management strategies are suitable to go in the plan, and which are not, as well as water loss audits. Mr. Ashworth reiterated that in order for a project to get funded through the Water Development Board, it needs to be in this plan. The Group spoke briefly regarding various projects/strategies and whether or not they should be included in the Plan and the process by which that is done. Mr. Ashworth went over his handout entitled "Table 5-2. Summary of Water Management Strategy Evaluations" with the Group. He noted that the costs listed under "Total Capital Cost" do not show the Operations & Maintenance costs, the impacts, or what the description is. He said that information would be provided prior to the next meeting.

A brief discussion ensued regarding livestock numbers, land management, brush control and conservation. Mr. Ashworth stated that he would like to list success stories from UGRA and the Nueces River Authority in this Plan. The Group briefly discussed the possibility of adding hyperlinks in the plan to direct people to the TWDB's website; thus making it easier to search for various reports and studies relevant to Region J. Mr. Ashworth reminded the Group that the Region J website (hosted by UGRA) has valuable information on it also.

Mr. Ashworth asked the Group members to send he or Jennifer an email regarding their specific management strategies needs and they can work on them one-on-one. He would like to have the list finalized in November, so they can begin to fine-tune it to get the costs and information in there properly.

XIII. Set next meeting.

Jennifer noted that there is a March 3rd deadline for the IPP, so she suggested setting up the next 3 meetings. Meetings were set for the following dates: November 21, 2019 – January 23, 2020 and February 12, 2020. All meetings will be held in Leakey, TX.

Minutes
Plateau Water Planning Group
Regular Meeting - Leakey, Texas
November 21, 2019
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Thursday, November 21, 2019, beginning at 10:00 A.M. at The Frio Canyon Baptist Church, 919 US-83, Leakey, Real County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Gene Williams, Kerr County; Joseph McDaniel Kerr County; Jody Grinstead; John Ashworth, WSP; Jennifer Herrera, WSP; William Alfaro, Texas Water Development Board; Charlie Wiedenfeld, Kerr County; Dell Dickinson, Val Verde County; Genell Hobbs, Kinney County; Tooter Trees, Real County; David Jeffery, Bandera County; Tina Ashley, Wes Robinson, Kinney County; Homer Stevens, Bandera County; Lee Sweeten, Edwards County; Carl Schwing; Grady Douglass, Real/ Edwards County; Hayli Phillips, Bandera County; Ernie DeWinnie; Ann Peay; Melissa Grote; and Ross Potter

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.

A quorum was present.

II. Public Comments.

No public comments were received.

III. Approval of minutes from the August 15, 2019, Regular Meeting.

Motion by Tooter Trees to approve the minutes of the August 15, 2019, meeting; second by Joseph McDaniel. The motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

Mr. Letz said the balance in the administrative account is \$11,057.22

b. Report from Secretary.

No report was given

c. Report from Political Entity.

No report was given

d. Report from Liaisons.

Joseph McDaniel gave an update on Region L. Carl Schwing gave an update on Region M.

e. Report from GMA representatives.

Hayli Phillips gave an update on GMA 9. Genell Hobbs gave an update on GMA 7.

V. Consider, discuss and take appropriate action to approve invoices.

Motion by Lee Sweeten to pay the following invoices: WSP (8/31/19 – 9/27/19) for \$11,643.89; WSP (8/3/19 – 8/30/19) for \$7,096.04; WSP (6/29/19 – 8/2/19) for \$11,243.98 and JP Morgan (for GMR transcriptions) for \$202.50; second by Gene Williams. The motion passed by a unanimous vote.

VI. Consider, discuss and take appropriate action to appoint Genell Hobbs to fill the GMA 7 vacancy (previously held by Joel Pigg).

Motion by Wes Robinson to appoint Genell Hobbs as the GMA 7 representative; second by Lee Sweeten. The motion passed by a unanimous vote.

VII. **Texas Water Development Board Updates. (William Alfaro, Project Manager)**

Mr. Alfaro spoke briefly regarding:

Proposed new rules the Water Development Board is considering regarding: Texas Infrastructure Resilience Fund, Flood Financial Assistance, State Flood Planning and Chapter 357 (to incorporate new House Bill 807 requirements).

TWBD Contract Amendment #5. The contract was fully executed in September 2019, increasing funds by \$57,482 (bringing the total to \$331,983).

The Socioeconomic Analysis Report. PWPG requested the Water Development Board to perform the analysis at our last meeting. TWDB has been working on it and has prepared the report for Region J (report was sent out this past Monday). He asked of the group would like to have a presentation on the report. The group agreed that they would like to have a presentation. Mr. Letz suggested that it be done at one of our future meetings (after the February meeting).

Drought Management Costing Tool – used to assist planning groups in evaluating the economic impact of the water volumes reduced by implementation of drought management strategies.

The IPP deadline is March 3, 2020. TWDB prepared a schematic that the planning groups can use to review the process. It outlines the posting requirements for the public hearing and adoption of the IPP as well as the adoption of the final plan. A brief discussion ensued regarding the posting requirements specifically regarding the requirement to post in a “newspaper of general circulation in each county”. Mr. Letz noted that Real County does not have a newspaper. It was asked if the information could be put on their website instead. Mr. Alfaro said he would verify that putting it on the website would be a suitable replacement for the newspaper. Mr. Robinson said he believed publishing requirements for the newspaper are only applicable if there is a newspaper in circulation in that county. Mr. Trees said the newspapers that are in Real County are: Uvalde, Rock Springs and the Kinney Broadcaster. Mr. Robinson said that any of those would qualify as general circulation newspapers. Mr. Alfaro agreed that the newspaper doesn’t have to be from the county, as long as it’s in circulation there.

VIII. **Consider, discuss, and take appropriate action to authorize the UGRA to execute consultant contract amendments.**

Mr. Ashworth explained that there are three amendments involved with the current contract: (1) the request for an extension of the deadline to submit the tech memo, (2) the Task 5A scope of work and (3) this one deals with the amount of money that’s being allowed - \$57,000. **Motion by Lee Sweeten to authorize UGRA to execute the contract amendments; second by David Jeffery. The motion passed by a unanimous vote**

IX. **Consider, discuss, and take appropriate action to authorize the Planning Group Consultants to perform evaluations of water management strategies previously categorized as “Other Strategies” in the scope of work developed for the water planning contract (TWDB Guideline item 5.11 Developing the Scope of Work for Task 5A).**

Mr. Ashworth explained that approximately two years ago the consultants completed a Water Development Board spreadsheet where they took all the potentially feasible strategies, grouped

them into categories and described the type of work that had to be done on each one of them. Then took the strategy budget and broke it into each one of those categories. In the process of doing that 17 additional strategies (all conservation strategies) have been added to the list. One of the requirements for developing strategies is that any WUG with a need has to have a conservation strategy. So those additional 17 strategies will now become a part of the full list of water management strategies. Therefore, the group needs to vote to authorize spending \$7,000 for the consultants to perform the evaluation and develop the new strategies. A discussion ensued regarding the new strategies. **Motion by Dell Dickinson to authorize spending \$7,000 to allow the consultants to evaluate the 17 additional water strategies; second by Wes Robinson. The motion passed by a unanimous vote.**

X. **Update on the regional water planning schedule. (WSP)**

Ms. Herrera spoke briefly regarding the March 3rd IPP submittal date. She stated that at the last meeting the group decided on three potential future meeting dates (today's meeting, January 23rd and February 12th). She stated that she and Mr. Ashworth believe they may be able to get everything accomplished in January and there may not be a need to meet in February. They hope to have the draft IPP done for the January meeting, and have it ready to submit after discussions at that meeting. She said they hope to have the remaining chapters on the website before Christmas. The group reviewed the schematic provided by TWDB in detail and determined that:

TWDB has a 120-day comment period for the IPP

There is a 30-day minimum notice for the public hearing on IPP

There is a 60-day public comment period for IPP

There is a 90-day federal and state agency comment period for the IPP

The final IPP plan is due by October 14, 2020

TWDB will publish the final plan in January 2021.

It was agreed that if the Public Hearing on the IPP was held in April it would give the consultants enough time to make adjustments to the plan based on comments from TWDB and the public in order to get the final plan approved and submitted by the October 14, 2020 deadline. **Motion by Wes Robinson to set the Public Hearing on the IPP for April 23, 2020 at 10:00 AM; second by Ray Buck. The motion passed by a unanimous vote.** It was agreed that each of the entities would receive electronic copies (not a hard copy) of the IPP.

Ms. Herrera briefly reviewed what was discussed at the last meeting. She requested that if any of the members would like to see anything changed in the Chapters (especially Chapter 5) that those comments be sent to them no later than the first week in December.

XI. **Discuss process for Planning Group review of Plateau Water Plan draft chapters, including responses to HB 807 planning requirements. (WSP)**

Mr. Ashworth briefly reviewed the draft chapters that have been distributed to the group, and posted on the PWPG website that is hosted by UGRA.

Chapter 1 - overall regional description

Chapter 2 - population and water demand

Chapter 3 - water supply

Chapter 4 - needs analysis

Chapter 5 – recommended water management strategies

Chapter 6 – impacts and consistency

Chapter 7 – drought response

Chapter 8 – recommendations and ecologically unique river and stream segments

Chapter 9 - water infrastructure finance analysis

Chapter 10 - public participation and plan adoption

Chapter 11 - implementation and comparison to previous plans

Mr. Ashworth discussed his handout entitled “House Bill 807 Requirements Addressed in the 2021 Plateau Region Water Plan”.

The group briefly discussed the drought of record (1950’s versus 2000’s) and ASR assessments. **Motion by Joseph McDaniel to set the significant identified water needs at anything greater than 800-acre feet per year; second by Tooter Trees. The motion passed by a unanimous vote.**

XII. **Review and discuss current water management strategy evaluations and conservation recommendations (Task 5A and 5B). (WSP)**

Mr. Ashworth reiterated that the management strategies must generate a new water supply. They must have: a description, location, volume of water produced as well as capital, operation, and maintenance cost. He stated they must have strategies for WUGs with needs. He stated that we are carrying over strategies that are appropriate from the previous plan. We are also including strategies for any WUG that has a water loss of greater than 10 percent. We are going to continue to contain our vegetative management strategy recommendation for every county and every river basin within that county. He briefly reviewed Tables 5-2, 5-3, 5-4.

A brief discussion ensued regarding Public Water Systems (PWS), water project impacts on other entities and SWIFT funding.

XIII. **Discuss development of Chapter 8 – Planning Group policy and planning recommendation. (WSP)**

Mr. Ashworth informed the members that the TWDB lists the title on this chapter as Water Policy and Planning Recommendations; this is the chapter that comes directly from the planning group. He supplied the members with the language from the 2016 Chapter 8 plan for their review and recommendations. The members were asked to submit any requested changes directly to Ms. Herrera or Mr. Ashworth.

XIV. **Consider, discuss and take appropriate action to reschedule the February 12, 2020, meeting.**

Mr. Letz stated that he had a conflict with the February 12th date, but that conflict has since been resolved. However, based on earlier conversations at today’s meeting there may not be a need for this meeting. The group will decide at the January 23, 2020 meeting if they will need to meet in February.

XV. **Set next meeting.**

The next meeting was set for January 23, 2020 at 10:00 AM in Leakey, Texas.

Minutes
Plateau Water Planning Group
Regular Meeting - Leakey, Texas
January 23, 2020
10:00 AM

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Regular Meeting on Thursday, January 23, 2020, beginning at 10:00 A.M. at The Frio Canyon Baptist Church, 919 US-83, Leakey, Real County, Texas. Present at the meeting were: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Jerry Simpton, Val Verde County; Gene Williams, Kerr County; Joseph McDaniel Kerr County; Jody Grinstead; John Ashworth, WSP; William Alfaro, Texas Water Development Board; Feather Wilson, Bandera County; Max Martin, Edward/Val Verde/Kinney; County; Charlie Wiedenfeld, Kerr County; Dell Dickinson, Val Verde County; Tooter Trees, Real County; Michael Redman, Bandera County; David Jeffery, Bandera County; Tina Ashley, Wes Robinson, Kinney County; Homer Stevens, Bandera County; Lee Sweeten, Edwards County; Carl Schwing; Scott Loveland, Kerr County; Grady Douglass, Real/Edwards County; Rusty Ray, Texas State Soil and Water Conservation Board; Chad Norris, Texas Parks and Wildlife; Robin Barthen, Texas Department of Agriculture.

I. Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings

Law.

A quorum was present.

II. Public Comments.

No public comments were given.

III. Approval of minutes from the November 21, 2019, Regular Meeting.

Motion by Lee Sweeten to approve the November 21, 2019 minutes with the one correction he submitted to Jody (which had already been corrected); second by Tooter Trees. The motion passed by a unanimous vote.

IV. Reports.

a. Report from Chair.

Chairman Letz stated that the balance in the account at the first of the year was \$11,057.22

Chairman Letz informed the Board that he received a letter from Charlie Flatten stating that he no longer fits the criteria to be a member; so his position is vacant at this time and will be posted appropriately.

b. Report from Secretary.

No report was given.

c. Report from Political Entity.

No report was given

d. Report from Liaisons.

The representatives stated that there were no updates to be given

e. Report from GMA representatives.

Wes Robinson gave a report, on behalf of Genell, for GMA 7 and GMA 10

William Alfaro spoke briefly regarding the following topics:

- The SWIFT program is open now and applications are due February 3, 2020.
- TWDB is accepting applications for the fiscal year 2020 water conservation grants.
- On January 16th the Water Planning Board appointment members for the Interregional

Planning Council. The Council will meet at least twice a year. Ray Buck is the PWPG representative. The Council has the following main purposes:

- Improve coordination between regional water planning groups and TWDB in meeting the goals of the water planning process
- Facilitating communication regarding water management strategies
- Sharing some best practices of the regional water planning process.
- 1/13/20 email sent from Sarah Backhouse sent to the RWPG Chairs providing information on:
 - Definition of interregional conflict in regional water planning
 - Encouraged coordination prior to identification of potential interregional conflict
 - Process and timeline if a conflict is identified.
- IPP Requirements:
 - Posting in a newspaper in each county. Jody reviewed the newspapers she plans to use to publish the notice:
 - Bandera Bulletin for Bandera County
 - Texas Mohair Weekly for Edwards County
 - Hill Country Community Journal for Kerr County
 - Del Rio News Herald for Kinney County and Val Verde County
 - Uvalde Later News for Real County*
 - *The Board Members said to use the Canyon Broadcaster for Real County.

A brief discussion ensued regarding the types of projects that TWDB will fund with grants.

- V. **Consider, discuss and take appropriate action to approve invoices.**
Motion by Lee Sweeten to approve the following invoices: WSP (11/2/19-11/29/19) Invoice #915625 for \$17,205.29, WSP (9/28/19 – 11/1/19) Invoice #911310 for \$26,606.28 and Transcript of 11/21/19 meeting (paid to GMR via JP Morgan credit card) for \$285.00; second by Joseph McDaniel. The motion passed by a unanimous vote.

- VI. **Update on the regional water planning schedule. (WSP)**
Mr. Ashworth reviewed the timeline for the Initially Prepared Plan:
 - March 3rd - due date March 3rd
 - March 23rd - last day to send out notice
 - April 23rd – Public Hearing
 - June 22nd – last day for public comments
 - July 21st – last day for comments from Federal and State agencies
 - August 21st – last day for comments from TWDB
 - October 14th – Final Plan is due

He stated that we need to complete the strategy prioritization during the summer months.

- VII. **Review and discuss final changes to the IPP chapters. (WSP)**
Mr. Ashworth stated that all of the comments received since the last meeting have been put into the plan and have been posted on the website; and that the handout from today's meeting gives the location within the plan for each of the five House Bill 807 requirements. He stated that additional materials are still needed within the plan (tables in Chapter 4) in order for it to be administratively complete; but until the database is complete the tables don't get generated. The database must be completed by the March 3rd IPP deadline. He various items in Chapters 5, 9, 10 and 11.

Mr. Ashworth stated that in his judgment the plan is administratively complete and could be adopted with the assumption that the consultants will complete what needs to be completed. He stated that the following sentence (at the suggestion of Dell Dickinson – and approved at a previous meeting by the Board) has been added to Chapter 8, Section 8-5, “The Plateau Water Planning Group has in place a procedure for recommended a unique stream segment.”. Mr. Dickinson stated that he didn't have a problem with that section he just thought it was somewhat incomplete; it needed a proactive statement stating that Region J in fact had a policy in hand that would allow this process to move

forward. The Group agreed that it doesn't provide the process, it merely acknowledges the policy.

A brief discussion ensued regarding drought response strategies, water restrictions and how the TWDB is dealing with recent legislative changes. Mr. Ashworth suggested adding the following paragraph to the IPP: "The Plateau Water Planning Group recognizes that while drought preparedness including drought contingency plans are an important tool in some instances, in some instances drought cannot be prepared for. It must be responded to. The Planning Group maintains that drought contingency plans developed by the local individual water providers are the best available tool for drought management. The Planning Group fully supports the use and implementation of individual drought contingency plans during times of drought. The Planning Group has reviewed provided drought contingency plans and specific drought response strategies proposed in this plan and find no unnecessary or counterproductive variations to exist".

A brief discussion ensued regarding setting specific goals for the gallons per day and Table 5-6. Mr. Dickinson asked if PWPG would essentially be telling another entity what they could do with their water and Mr. Ashworth clarified that all the PWPG is doing is making recommendations – they cannot tell anyone what they can do with their water. The Group briefly discussed why they believed Val Verde does not have a groundwater conservation district.

VIII. Adopt and certify as complete the Plateau Region IPP subject to authorized final changes to be made prior to submittal. (WSP)

Jonathan Letz stated there were two options: approve it today knowing minor changes can be made or meet on February 12th and approve it at that date. A brief discussion ensued. **Motion by Joseph McDaniel to approve the Initial Prepared Plan as currently presented with the understanding that the consultant will make the additions that we previously outlined the; second by Tooter Trees.** Mr. Sweeten stated that he had some reservations about approving it before seeing the changes put in the plan. Mr. Ashworth stated that all of the suggestions Mr. Sweeten had made have been put in the plan already. Chairman Letz said that even though Mr. Sweeten was on the Board, he is still able to submit a public comment if he disagrees with anything. Mr. Sweeten agreed that the IPP can be approved, and if it needs to be changed. Mr. Ashworth cautioned that the only thing that we don't want to change after adopting the IPP is the numbers that go into the database; changing how a sentence is worded or adding sentences is something that can be done easily. **The motion passed by a unanimous vote.**

Mr. Letz asked whether or not a motion was needed that allowed him to complete a cover letter, as part of the certification process, stating that the IPP is complete and has been adopted by the RWPG. It was suggested that he does have a motion for that. **Motion by Max Martin authorize the Chair to include a certification letter with the submission of the IPP; second by Wes Robinson. The motion passed by a unanimous vote.**

IX. Authorize the UGRA to submit the Plateau Region IPP to the TWDB by the March 3, 2020 deadline.

Motion by Grady Douglass to authorize the UGRA to submit the region IPP to the Water Development Board by March 3rd (via the consultants); second by Joseph McDaniel. The motion passed by a unanimous vote.

X. Authorize the UGRA to post notice for the IPP public hearing on April 23, 2020.

Motion by Lee Sweeten to authorize UGRA to post notice for the IPP public hearing (via Admin. Assistant Jody Grinstead) for April 23, 2020 in Leakey, Texas; second by Michael Redman. The motion passed by a unanimous vote.

XI. Set next meeting.

The February 12, 2020 meeting was cancelled. The next regular meeting will be held on April 23, 2020 along with the Public Hearing.

**Minutes
Plateau Water Planning Group
Public Hearing
Via Teleconference
April 23, 2020
10:00 AM**

Notice having been duly given the Plateau Water Planning Group (PWPG) conducted a Public Hearing on Thursday, April 23, 2020, beginning at 10:00 A.M.

Due to the COVID-19 pandemic the Public Hearing was held via teleconference after proper notice having been given.

Present at the public hearing: Jonathan Letz, Kerr County; Feather Wilson, Bandera County; John Ashworth, WSP; William Alfaro, TWDB; Rob Barthen, Department of Agriculture; Skip Newsom, Jody Grinstead; Tony Smith, Carollo Group; Sara Backhouse, TWDB; Scott Loveland, Kerr County; Genell Hobbs, Kinney County; Ray Buck, Kerr County and Tara Bushnoe with UGRA (hosted the meeting)

Mr. Ashworth read the following statement: The purpose of the 2021 Plateau Region Water Plan is to provide a document that water planners can reference for long and short term water management recommendations. The plan [inaudible] and recommends water management strategies to meet those needs for the Plateau Region which includes Bandera, Edwards, Kerr, Kinney, Real and Val Verde counties. Water supply availability under drought of records conditions is considered in the planning process to ensure that water demands can be met under the worst of circumstances. The plan recognizes and protects existing water rights, water contracts, and other option agreements. Groundwater availability is limited to model available groundwater declarations based on groundwater management area, desired future conditions established by the regions groundwater conservation districts. This 2021 Plateau Region Draft Plan or Initially Prepared Plan contains 89 recommended water management strategies for water users including municipal, rural, industrial, irrigation, mining, livestock and environmental water users. Each strategy includes an analysis of capital cost, supply generated and potential impacts. Conservation is always considered as the first strategy option. We are here today to take your comments on this draft plan. A response to each of your comments will be addressed in the final plan that is scheduled to be delivered to the Texas Water Development Board in October of this year. This plan along with the plans from the other 15 water planning regions in the state will be incorporated into the 2022 state water plan. Thank you. Chairman Letz.

Mr. Letz noted that Mr. Newsom was the only member of the public that was present at the hearing. Mr. Newsom stated that he planned to submit his comments in writing prior to the June deadline. He asked there would be another open forum to discuss any responses from the consultants once the comments were submitted; whether or not there will be an opportunity for any additional feedback. Mr. Ashworth stated there would be at least 2 more regional water planning group meetings at which time the planning group members can make their final adjustments to the plan; so potentially any additional issues could be addressed at that time. However, this public hearing is intended to be the main focus of getting final comments from the public.

Chairman Letz asked Mr. Barthen of he had any comments. He stated that their Assistant Commissioner for water issues, Dan Hunter, has reviewed the different plans and they do not see any issues that would affect agriculture.

Chairman Letz closed the hearing.

MINUTES
Plateau Water Planning Group
Regular Meeting
Zoom Video Conference
Initiated and Chaired at
Upper Guadalupe River Authority
125 Lehmann Drive, Ste. 100
Kerrville, Texas
October 22, 2020
10:00 AM

Notice having been given that a Regular Meeting of the Plateau Water Planning Group (PWPG) will be held on Thursday, October 22, 2020, beginning at 10:00 A.M. The meeting will be initiated and chaired at UGRA, 125 Lehmann Drive, Ste. 100, Kerrville, Texas. **Present in person**: Ray Buck, Kerr County; Jonathan Letz, Kerr County; Joseph McDaniel Kerr County; John Ashworth, WSP; Charlie Wiedenfeld, Kerr County; Dell Dickinson, Val Verde County; Tooter Trees, Real County; David Jeffery, Bandera County; Jody Grinstead; Tara Bushnoe, UGRA (hosted the meeting); James Beach, WSP; **Present via Zoom**: Gene Williams, Kerr County; William Alfaro, Texas Water Development Board; Feather Wilson, Bandera County; Max Martin, Edward/Val Verde/Kinney County; Wes Robinson, Kinney County; David Barrera for Scott Loveland, Kerr County; Genell Hobbs, Kinney County; Hayli Phillips for David Mauk, Bandera County; Otila Gonzalez, Del Rio/Val Verde County; Jennifer Herrera, WSP; Sarah Backhouse, TWDB; Rusty Ray, Texas State Soil and Water Conservation Board; Rob Barthen, Texas Department of Agriculture; Kimberly Rhodes; Travis Linscomb, UGRA (helped host the meeting).

- I. **Call to Order, Roll Call, Certification of Quorum in Compliance with Texas Open Meetings Law.**
- II. **Public Comments.**
- III. **Approval of minutes from the January 23, 2020 Regular Meeting and the April 23, 2020 Public Hearing on the Initially Prepared Plan.** *Motion by Ray Buck to approve the minutes of the January 23, 2020 meeting; second by Charlie Wiedenfeld. The motion passed by unanimous vote*
- IV. **Reports.**
 - a. **Report from Chair.**
 - As of September 30, 2020 the current balance in the bank account is \$9,474.17
 - 2 nominations were received for the vacancy for Public Interest. That position will be filled once we start the new planning cycle.
 - There was a Chairs' conference call September 18th that he was not able to attend. The minutes show they addressed the planning schedule and a report from the Inter-regional Planning Council. Most of the meeting was related to public participation and coordination between the different regions.
 - b. **Report from Secretary.**
No report was given
 - c. **Report from Political Entity.**
No report was given
 - d. **Report from Liaisons.**
No reports were given
 - e. **Report from GMA representatives.**
No reports were given

V. Consider, discuss and take appropriate action to approve invoices.

Motion by Dell Dickinson to approve the following invoices: WSP (11/30/19 – 12/27/19) - \$7,579.14; WSP (12/28/19 – 1/31/20) - \$8,733.14; WSP (2/1/20 – 2/28/20) - \$21,291.03; WSP (3/1/20 – 3/27/20) - \$5,080.47; WSP (3/28/20 – 6/26/20) - \$2,090.56; WSP (6/27/20 – 7/31/20) - \$3,590.21; WSP (8/1/20 – 8/28/20) - \$4,613.82; GMR Transcription (1/23/20 meeting) - \$135.00 as well the following IPP Fees (that will be reimbursed from account TWDB – via UGRA)

JP Morgan (USPS – certified mailing fees) - \$133.65

JP Morgan (USPS – postage for mailing notices) - \$330.00

Affordable Printing (envelopes for notices) - \$92.55

JP Morgan (Office Depot – flash drives for IPP copies) - \$51.96

Office Depot (labels for mail out) - \$49.99

Texas Mohair Weekly (Public Notice) - \$55.70

Hill Country Community Journal (Public Notice) - \$116.25

Bandera Bulletin (Public Notice) - \$80.00

JP Morgan (Del Rio Herald) – Public Notice - \$190.00

Canyon Broadcaster (Public Notice) - \$70.00

Second by Charlie Wiedenfeld. The motion passed by unanimous vote

VI. Texas Water Development Board Updates. (William Alfaro, Project Manager)

Mr. Alfaro gave the following updates:

- The Water Development Board extended the final plan submittal deadline to November 5th.
- He presented the timeline for the initial contracts for the next cycle. TWDB is anticipating posting the first request for applications during March and April 2021.

Regional Water Planning Groups must:

Designate the political subdivision for the next cycle

Authorize them to apply for the funding

Post the notice for the application

Execute the contract with the Water Development Board

After that the Groups must:

Authorize the technical consultants for the next cycle

Hold a pre-application public meeting to receive input from the public.

Political Subdivisions must:

Apply for the funding

Procure technical consultants

Execute the contract with the Water Development Board.

- Revisions to Chapter 357 were adopted by the Board on June 4th, and were effective beginning June 28th.
- A new section on the TWDB website (Water Planning Educational Information) developed to provide more detailed information on water availability and existing supplies.
- Water Planning Area boundary review process. The process is required every five years. TWDB anticipates soliciting stakeholder input this month.
- Update on Flood Planning. On October 1st, the Water Development Board designated the initial membership for the 15 regional flood planning groups. They will start meeting this week. Additional information can be found on the TWDB website.

VII. Review Responses to TWDB, TPWD, and Public Comments.

John Ashworth stated that the group left the IPP open for comments from the public, Water Development Board and Parks and Wildlife. Responses were received from everyone.

Public Response consisted of a single written letter Skip Newsome. He suggested that we don't have as much control over our knowledge of the Edwards Trinity Plateau Aquifer out in the western part of Region J, and that there needs to be a better understanding of this resource. The very edge of the model covers this area, but the edges of models are not all that accurate. Mr. Dickinson stated that Mr. Newsome's letter is probably the best presentation he has seen to date on the reality of what's going on with regard to the water in Val Verde County and he fully supports Mr. Newsome's conclusion. He said he believes that Jerry Simpton supports it also. He said the Texas Water Foundation is hosting a roundtable discussion with various stakeholders in Del Rio on November 13th to determine future water needs and resources for Val Verde County. Mr. Ashworth stated that Mr. Newsome's letter, in its entirety, is in Chapter 10 of the water plan.

Parks and Wildlife was complimentary of the plan. They had a few suggestions that have been incorporated into the plan.

Water Development Board had 53 comments on the IPP. Mr. Ashworth is working with TWDB to make sure everything that is required is in the plan. The Boards comments and the responses to them are in Chapter 10.

VIII. Review Major Revisions to the Initially Prepared Plan.

Mr. Ashworth reviewed some of the substantial changes to the Plan:

Chapter 1 and 2 did not change much

Chapter 3 – Items were added to Table 3.4 explaining the availability analysis methodologies.

Chapter 4 – Added a needs surplus table for water user groups by category and by major water provider by category.

Chapter 5 – Numerous revisions were made:

Deleted vegetative management strategies (after much debate with TWDB)

*since vegetative management is a key issue in this region they moved that paragraph to the front part of Chapter 5, under its own section number.

Added one additional strategy for Lackland Air Force Base to meet a need that had been overlooked.

Revised Tables 5.2, and 5.3 – which list all of the strategies

Chapter 6 - Added Section 6.4 to discuss unmet needs.

Chapter 7 - Added some model drought contingency plans for irrigation district, retail public water suppliers, and wholesale public water suppliers (will be referenced on the planning group's UGRA website and not put in the plan itself)

Added additional drought triggers into Table 7.8 to make sure that met the guidelines.

Chapter 8 – Deleted recommendations to form a Groundwater Conservation District in Val Verde County.

Added information about the need for better understanding, and better science on the Edwards Trinity Plateau Aquifer.

Added the Plateau Water Planning Group's procedures for considering unique stream segments.

Added the UGRA Board of Director's memo pertaining to their concern about the process of recommending ecologically unique streams as part of what's in the regional water planning process.

Chapter 9 – Added an Infrastructure Finance Survey

Chapter 10 – Added responses to comments from the IPP

Chapter 11 - Deleted certain tables that were identical to what is in the Water Development Board's tech tables in the Executive Summary.

Added two tables that had not appeared before in the IPP (a comparison of the 2016, and 2021 Strategy Projects).

Mr. Letz noted that the Planning Group has always believed that brush control should be included in the plan but the Water Development Board says it doesn't. He stated that he would like TWDB to acknowledge that science shows that brush management and land stewardship enhance water supply. Land stewardship, and land management is included as a source in the Water Code so TWDB needs to come up with a way to fund that. He believes they are probably the most cost-effective things that can be done, and they definitely enhance water statewide. TWDB seems to be focusing completely on urban areas, and leaving out the rural areas; which is where most of the water is actually coming from.

Mr. Alfaro stated that some planning groups have brush control and land management as part of their strategies. However TWDB does not have enough information at this time to measure the additional supply that the strategy would supply. Also, if it were able to be measured, it would need to be available during drought conditions. He stated that this region needs to work a little bit more in developing that science/background so they would be able to measure that new supply. Mr. Buck stated that the science has already been incorporated in a model done by the Texas State Soil and Water Conservation Board. It showed exactly (for Kerr County) what the impact of brush control does in the Guadalupe River, and in Canyon Lake. Mr. Ray, with the State Soil and Water Conservation Board, stated that on their website there are some reports on what they have done in different water sheds, on what brush management accomplishes to the water supply.

IX. Discussion and Action to Approve the Final Project Prioritization List and Submittal to the TWDB.

Mr. Ashworth reviewed his project prioritization list and assumptions memo with the group. The Group briefly discussed the documents. Mr. Wilson suggested that Mr. Ashworth look at the report Larry French prepared regarding groundwater availability. *Motion by Joseph McDaniel to approve the Final Project Prioritization List as suggested to be amended today; second by Charlie Wiedenfeld. The motion passed by a unanimous vote.*

X. Consideration and Adoption of the Final 2021 Plateau Region Water Plan with Authorization of Consultant/Political Subdivision to Make Non-substantial Edits.

Motion by Feather Wilson to approve the Adoption of the Final 2021 Plateau Region Water Plan, and Authorize Political Subdivision to make any Non-Substantial Edits as may be necessary; second by Wes Robinson. The motion passed by unanimous vote

XI. Authorization of the Upper Guadalupe River Authority to Submit the Adopted 2021 Plateau Region Water Plan to the Texas Water Development Board.

Motion by David Jeffery to authorize the Upper Guadeloupe River Authority to Submit the Adopted 2021 Plan to Texas Water Development Board; second by Charlie Wiedenfeld. The motion passed by unanimous vote.

The Group thanked John Ashworth for all of his hard work and congratulated him on his retirement.

XII. Discussion regarding the 6th cycle (2021-2026) of regional water planning.

Mr. Letz let the Group know that the management side (UGRA as the political subdivision, He as the Chair and Jody as the Administrative Assistant were willing to stay in place for another cycle).

XIII. Consider discuss and take appropriate action to designate a Political Subdivision to administer the Plateau Region Planning Group for the 6th cycle of Regional Water Planning.

Motion by Dell Dickinson to designate Upper Guadalupe River Authority as the Political Subdivision for the 6th Cycle of Regional Water Planning; second by: Joseph McDaniel. The motion passed by unanimous vote.

XIV. Consider, discuss and take appropriate action to authorize the Plateau Region Political Subdivision to provide public notice, submit a grant application to the TWDB, and execute a contract with the TWDB on behalf of the Plateau Region Water Planning Group for initial funding of the 6th cycle of Regional Water Planning.

Motion by Tooter Trees to authorize the Plateau Region Political Subdivision to Provide Public Notice to Grant Application to Texas Water Development Board, and execute a Contract with Texas Water Development Board on behalf of the Plateau Region Water Planning Group for Initial Funding for the 6th Cycle of Water Planning; second by: Charlie Wiedenfeld. The motion passed by unanimous vote. Mr. Buck noted that the UGRA Board will have to approve the designation also, and he has confidence that they will.

XV. Consider, discuss and take appropriate action to authorize the Plateau Region Political Subdivision to provide public notice and hold a pre-planning public meeting to obtain public input on development of the 2026 Regional Water Plan and 2027 State Water Plan.

Motion by Wes Robinson to authorize Plateau Region Political Subdivision to Provide Public Notice, and Hold Pre-Planning Public Meeting to Obtain Public Input for the Development of the 2026 Regional Water Plan, and the 2027 State Water Plan; second by Feather Wilson. The motion passed by unanimous vote.

XVI. Consider, discuss and take appropriate action to authorize the Plateau Region Political Subdivision to solicit Technical Consultants for the 2026 Regional Water Plan in accordance with 31 TAC 355.92(c).

Motion by Joseph McDaniel to authorize Plateau Regional Political Subdivision to Solicit Technical Consultants for the 2026 Regional Water Plan in Accordance with 31 TAC 355.92(c); second by Dell Dickinson. The motion passed by unanimous vote

XVII. Update regarding the Interregional council.

Ray Buck gave a brief update. He stated that many of the participants in his committee wanted to look at the state as a whole. They want to put all the water resources in a bucket, because it belongs to all the people. Though he is a little concerned about the process, he believes they came out with a good product. He gave a recap of the document, but said the entire document can be found on the TWDB website. The highlights of the document include:

Enhancing regional coordination

Looking for opportunities for interregional coordination – instead of just conflicts

Recommends looking at conflicts from the beginning of the planning cycle and work then into the planning process.

Recommends long-range visionary planning; greater than a 50-year plan

Recommends adding TCEQ as a member of our regional planning groups.

Recommend state-funded technical studies and financial assistance to address any interregional conflicts.

XVIII. Set next meeting.

No meeting date was set.