DRAFT MINUTES

Lower Colorado Regional Water Planning Group Water Modeling Committee Meeting July 12, 2023

LCRA Dalchau Service Center, Room A226 3505 Montopolis Drive, Austin, TX

9:00 A.M.

Meeting Minutes:

1. Call to Order, Introductions and Roll Call – Teresa Lutes, Committee Chair

Chair Lutes called the meeting to order at 9:01 A.M.

Attendance:

Committee Members:

Teresa Lutes, Municipalities Monica Masters, River Authorities Mitchell Sodek, GMA-8 Jim Brasher, GMA-15 David Lindsay, Recreation Mike Reagor, Small Municipalities

Other attendees:

Barbara Johnson, Industry Christianne Castleberry, Water Utilities Jason Homan, alternate for Environmental Earl Foster, alternate for Small Municipalities Sue Thornton, alternate for Recreation Lann Bookout, TWDB Richard Hoffpauir, Hoffpauir Consulting Leonard Oliver, LCRA Sara Eatman, Austin Water Helen Gerlach, Austin Water Marisa Flores Gonzalez, Austin Water Nick Zackoff, Lake Buchanan Conservation Jordan Furnans, LRE Shannon Hamilton, CTWC Robert Adams, Plummer Adam Conner, FNI

Augusto Villalon, FNI Jon Albright, FNI Justin Durant, FNI Neil Deeds, INTERA

2. Welcome and Introductions – Chair Lutes

Attendees identified themselves and their affiliation (captured above).

3. Receive public comments on specific issues related to agenda items 4 through 10 - limited to 3 minutes per person

None.

4. Overview and discussion of Water Availability Modeling in Regional Water Planning

Jon Albright and Chair Lutes went over the meeting materials and led a discussion of the following topics.

- (a) Purpose and role of committee
- (b) TWDB guidelines for surface water availability modeling
- (c) Region K Cutoff Model and assumptions used for the previous planning cycle

The committee discussed the basis for the cutoff model, and how the model reflects in Region F water rights going first in sequence prior to Region K water rights going in sequence. This is due to how the system generally is operated with Region K not make priority calls on Region F. Other discussion occurred on whether sufficient water was available under low flow conditions to meet senior calls, and the likelihood of a "futile call".

Some additional discussion occurred on the concept of firm yield and how LCRA's water management plan related to this and the concept of interruptible water.

(d) Potentially needed updates to assumptions for Region K Cutoff Model

[minutes combined in next section]

(e) Hydrologic variance request to Texas Water Development Board (TWDB)

Chair Lutes led the discussion of hydrologic variance request and the current modeling assumptions shown in Table A. She noted that some updates need to be made, for example on item 6, change from 2015 to 2020. She also said that in the next meeting we will go through this table in detail, and note what changes are needing to made. Ms. Lutes also suggested that the table headers be synced to match the earlier slide that described the three models.

The committee discussed whether the latest permit amendments were included in the model, and the consulting team noted that we would consider recent permits approved by TCEQ, but would have to set a cutoff soon.

The TWDB representative noted that the TWDB had developed a new checklist that will be required to be submitted as part of any HVR.

The committee discussed the process of submitting the HVR, and the need to get the HVR approved prior to significant modeling occurring. The consultants noted that the bulk of the modeling needed to occur in the next three months or so.

One committee member expressed concerns that the current drought would not be captured in the modeling because the underlying hydrology was based on a period of record that did not include recent years.

(f) Surface water availability modeling in the RWP

No additional discussion.

5. Next Meeting Date

Chair Lutes suggested that one or two meetings occur in the next two months. The consultant team indicated they would send out a schedule poll to help schedule those meetings.

The committee discussed the potential for a hybrid meeting. Some members favored that option while others suggested it should be a "listen only" option due to the difficulty in attributing comments to hybrid participants and technology reliability issues. There was general agreement that this would be the approach, and the consultant team indicated they would attempt to implement this approach of a "listen only" hybrid meeting.

6. New/Other Business (Time Permitting)

None.

7. Public Comments

Jordan Furnans suggested that public comment/questions not be allowed during the main part of the meeting to improve meeting effectiveness.

8. Adjourn

Chair Lutes adjourned the meeting at 10:01 am.

DRAFT MINUTES

Lower Colorado Regional Water Planning Group Water Modeling Committee Meeting August 21, 2023

Freese and Nichols, 10431 Morado Circle, Building 5, Suite 300, Conference Room "Capital of Texas", Austin, Texas 78759 10:00 A.M.

Meeting Minutes:

1. Call to Order, Introductions and Roll Call – Teresa Lutes, Committee Chair

Chair Lutes called the meeting to order at 10:01 A.M.

Attendance:

Committee Members – in person:

Teresa Lutes, Municipalities
Monica Masters, River Authorities
Jim Brasher, GMA-15
David Lindsay, Recreation
Mike Reagor, Small Municipalities
Barbara Johnson, Industry
Christianne Castleberry, Water Utilities

Other attendees – in person:

Jason Homan, alternate for Environmental
Earl Foster, alternate for Small Municipalities
Sue Thornton, alternate for Recreation
Richard Hoffpauir, Hoffpauir Consulting
Leonard Oliver, LCRA
Sara Eatman, Austin Water
Helen Gerlach, Austin Water
Marisa Flores Gonzalez, Austin Water
Jordan Furnans, LRE
Robert Adams, Plummer
Adam Conner, FNI
Philip Taucer, FNI
Neil Deeds, INTERA

Virtual attendees (not verified):

Annette Keaveny
Augusto Villalon
Cindy Smiley
Jason Afinowicz
Jo Karr Tedder
Kevin Perez
Shannon Hamilton
Tom Harrison

2. Welcome and Introductions – Chair Lutes

Attendees identified themselves and their affiliation.

3. Receive public comments on specific issues related to agenda items 4 through 10 - limited to 3 minutes per person

Sue Thornton showed a picture of the Colorado River with low flow, stressing that inflows are very low at this time of significant drought. Ms. Thornton also made comments on behalf of Cindy Smiley. Ms. Thornton read Ms. Smiley's written comments, again stressing the importance of conservation and highlighting the current drought and stresses on water supplies in the region.

No virtual comments received.

4. Discuss Region K Cutoff Model and assumptions for hydrologic variance request to Texas Water Development Board (TWDB)

Philip Taucer of FNI went over the basics of Region K Cutoff Model and the Hydrologic Variance Request (HVR).

The committee discussed the period of record in the water availability model (WAM), currently 1940 – 2016. Some expressed concerns that the hydrology needs to be updated to include current drought conditions. There was a suggestion that the hydrology should be updated in this cycle, but others noted that the plan development process scope and timeline does not allow for this to occur.

Review Assumptions in the Cutoff Model

Chair Lutes led the discussion on HVR assumptions table. In the following, notes are recorded as attributed to the assumptions as numbered in the table.

- 1. The committee discussed whether new water rights were still being allocated.
- 2. Committee noted that this is the "cutoff" assumption.

3. Repeated discussion of interest in updating the naturalized flows/hydrology to reflect current drought conditions.

Chair Lutes noted that Column 2 should say "yes" for this table row, consultants indicated they would correct the table.

- 4. General discussion of water rights versus "reality" or operational based approach on modeling alternatives.
- 5. Discussion of potential for sedimentation reducing firm yield in reservoirs over time.
- 6. Discussion of environmental flows and LCRA's approach to considering environmental flows. One member noted a concern that environmental flows were being underestimated in the modeling, and that the planning process schedule was too tight for meaningful changes to occur in underlying assumptions.
- 7. No discussion.
- 8. Barbara Johnson suggested that the acronym "STP" be clarified, consultants said they would do this.
- 9. No comments.
- 10. Consultant team noted that they need to update date.
- 11. Chair Lutes asked that "LCRA" be inserted between "2020" and "WMP". David Lindsay shared a handout regarding modeling assumptions, and discussed firm yield and how recent trends might be considered with respect to including interruptible water. The committee discussed the concepts of firm yield, interruptible water, and their context in the various model alternatives.
- 12. Chair Lutes asked that "LCRA" be added similar to #11. One committee member proposed including environmental flow requirements in the firm yield modeling, similar to proposal to include interruptible water in the firm yield modeling in item #11 discussion.
- 13. No comment.
- 14. No comment.
- 15. Short discussion on which demands were included.
- 16. No comment.
- 17. No comment.
- 18. No comment.
- 19. No comment.

Chair Lutes led a discussion of the hydrologic variance request (HVR) checklist requirements. Ms. Lutes asked members to review these requirements prior to the next meeting.

The consulting team asked that comments on draft HRV checklist be sent prior to the next meeting, and that the team would get comment responses completed prior to the next meeting, anticipating an action item on recommending the HVR packet to the full planning group for action at the October planning group meeting.

5. Take action as appropriate on Region K Cutoff Model and assumption recommendations for current planning cycle for hydrologic variance request to TWDB

Chair Lutes suggested this item was tabled for the next meeting, none were opposed.

6. Review and discuss TWDB guidelines related to uncertainty and Drought(s) Worse Than the Drought of Record (DWDOR)

Chair Lutes led this discussion. One committee member suggested that a more quantitative analysis be performed, but others indicated that the scope, budget, and schedule was not sufficient to accommodate this, since the draft modeling should be complete by the December timeframe.

Chair Lutes asked that the committee review new TWDB guidelines in Task/Chapter 7, regarding planning for uncertainty and droughts worse than the drought of record.

The committee discussed adding a recommendation that TWDB/Legislature provide funding for modeling the DWDOR, and generally agreed this would be valuable.

7. Discuss how groundwater modeling and Modeled Available Groundwater (MAG) data feed into groundwater availability/supply estimates (time permitting)

Chair Lutes asked that this item was tabled for the next meeting, none opposed. Sue Thornton asked for an eventual discussion on aquifer storage and recovery.

8. Next meeting date

Noted as September 18, 1:00 p.m.

9. Future Agenda Items

- a) Input on draft HVR
- b) Discussion of recommendation regarding uncertainty and DWDOR that would go back to the full planning group.

10. Public comment

None.

11. Adjournment

Barbara Johnson moved to adjourn the meeting, Christianne Castleberry seconded.

Chair Lutes adjourned the meeting at 12:06 p.m.



DRAFT MINUTES

Lower Colorado Regional Water Planning Group Water Modeling Committee Meeting September 18, 2023

Freese and Nichols, 10431 Morado Circle, Building 5, Suite 300, Conference Room "Capital of Texas", Austin, Texas 78759

1:00 P.M.

Meeting Minutes:

1. Call to Order, Introductions and Roll Call – Teresa Lutes, Committee Chair

Meeting was called to order at 1:00 P.M. by Chair Lutes.

Attendance:

Committee Members – in person:

Teresa Lutes, Municipalities
Monica Masters, River Authorities
Jim Brasher, GMA-15
David Lindsay, Recreation
Mike Reagor, Small Municipalities
Barbara Johnson, Industry
Christianne Castleberry, Water Utilities
Earl Foster, alternate for Small Municipalities (Committee Member Lauri Gillam)
Carol Olewin, Public Interest

Other attendees – in person:

Jason Homan, alternate for Environmental Lann Bookout, TWDB
Sue Thornton, alternate for Recreation
Richard Hoffpauir, Hoffpauir Consulting
Leonard Oliver, LCRA
Sara Eatman, Austin Water
Helen Gerlach, Austin Water
Marisa Flores Gonzalez, Austin Water
Jordan Furnans, LRE
Robert Adams, Plummer
Adam Conner, FNI
Neil Deeds, INTERA
Jon Albright, FNI

Cindy Smiley, CTWC Andrew Weir, SAWDF

Virtual attendees:

Annette Keaveny, LCRA Kay Wischkaemp, HCUWCD Kevin Perez, FNI Shannon Hamilton, CTWC

2. Welcome and Introductions – Chair Lutes

Attendees identified themselves and their affiliations.

3. Receive public comments on specific issues related to agenda items 4 through 10 - limited to 3 minutes per person

Andy Weir, Simsboro Aquifer Defense Fund, spoke regarding managed available groundwater (MAGs) and surface/groundwater interactions.

Jordan Furnans, representing CTWC, spoke about MAG and some concerns regarding their development. Mr. Furnans also expressed his thoughts about "Slide 5" of the presentation, regarding Lake Buchanan and Travis firm supplies.

Sue Thorton, Alternate for Recreation, spoke about concerns of feeling constrained by lack of time to adequately review meeting materials.

6. Review and discuss TWDB guidelines related to uncertainty and Drought(s) Worse Than the Drought of Record (DWDOR)

Chair Lutes asked that item 6 be moved up to this position in the agenda, there was no opposition. Chair Lutes led the discussion of planning for uncertainty and Drought Worse than Drought of Record.

General discussion focused on new TWDB guidance on incorporation of planning for uncertainty and droughts worse than the drought of record into the regional water planning process (Task 7 – Drought). Some members expressed general support for use of the new guidance in Task 7 (some largely qualitative in nature) along with conducting a mid-cycle study to explore tools and methods to further advance planning for uncertainty and DWDR in preparation for quantitative analysis in the next planning round.

4. Discuss Region K Cutoff Model and assumptions for hydrologic variance request (HVR) to Texas Water Development Board (TWDB)

4a. Presentation to address comment from previous committee meeting.

Leonard Oliver, LCRA, presented follow-up information to help clarify the assumptions made in calculating firm yield and how that process has different elements than the in the LCRA Water

Management Plan (WMP). It was noted that the WMP is a short-term operational plan that includes stored water uses for both firm and interruptible customers, as well as environmental flows.

Some additional discussion on how environmental flows are incorporated followed.

4b. Answer questions on comments we received on draft HVR checklist and responses.

Chair Lutes led a discussion on comments received on the draft hydrologic variance request (HVR) and initial checklist responses.

The committee discussed the responses. Some time was spent discussing whether firm or safe yield should form the basis for the modeling, with the understanding that firm yield is the basis that has been used in prior planning rounds. There was more discussion of needing to explore planning for uncertainty and DWDOR in preparation for next planning round including defining and quantifying safe yield, for example. One member expressed frustration that more could not be done to incorporate current drought hydrologic conditions into the modeling this planning cycle.

4c. Review draft HVR checklist

Request by Cindy Smiley for public comment prior to this discussion. Ms. Smiley asked that the planning group use safe yield rather than firm yield in determining water availability.

Chair Lutes led a discussion of HVR checklist. One member suggested creating more consistency between the checklist and the assumption table. The consultants proposed a potential change that could improve this consistency.

4d. Review updated assumption table

Chair Lutes led a discussion of the assumption table. This discussion included additional comments regarding the use of safe yield versus firm yield.

5. Take Action, as Needed

Monica Masters moved that the committee recommend to the full planning group submittal of the HVR and associated materials, as presented, to TWDB. Christianne Castleberry seconded the motion. The motion passed with one opposing vote by David Lindsay.

Chair Lutes led a discussion of the accompanying cover letter and recommended that the letter contain information about the current drought, and the plan for additional mid-cycle study regarding planning for uncertainty and DWDOR. Ms. Lutes suggested that the cover letter be drafted prior to the October planning group meeting for inclusion in the full planning group meeting materials packet for consideration at the meeting.

Some additional discussion occurred regarding the timeline for updating the naturalized flows (hydrology) included the water availability model (WAM) (which currently extend through 2016).

6. Review and discuss TWDB guidelines related to uncertainty and Drought(s) Worse Than the Drought of Record (DWDOR)

This agenda item was handled previously in the meeting (between items 3 and 4).

7. Groundwater Discussion

Chair Lutes suggested that the groundwater discussion be tabled for next meeting, and none opposed.

8. Next meeting date

No next meeting date was set, but the consultants indicated they would follow up with a poll.

9. Future Agenda Items

1. Groundwater and managed available groundwater (MAGs) will likely be discussed in the next meeting.

10. Public comment

Jordan Furnans commented regarding whether environmental flows should be considered interruptible, and that Central Texas Water Coalition (CTWC) had an alternative model that was more up to date on hydrology than the current WAM.

11. Adjournment

Motion to adjourn by Barbara Jordon, seconded by Jason Homan. None opposed.

Chair Lutes adjourned the meeting at 2:49p.

October 23, 2023 9:00 AM

Region K Water Modeling Committee Meeting



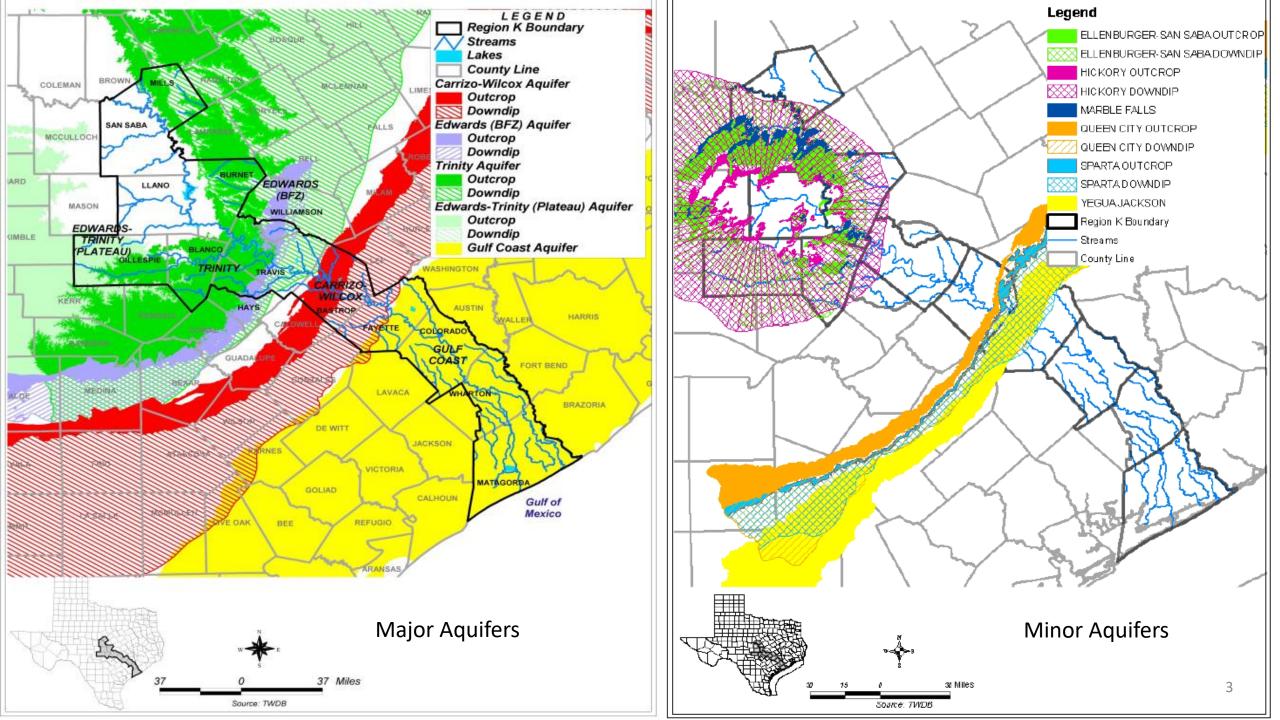


Agenda Item 5: Groundwater Availability

Discuss how groundwater modeling and Modeled Available Groundwater (MAG) data feed into groundwater availability/supply estimates







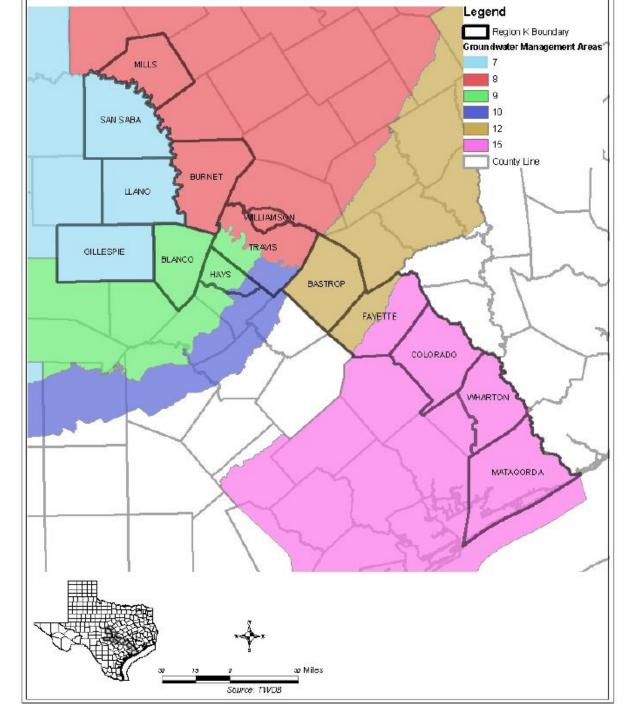
Groundwater Planning

- Groundwater Management Areas (GMAs) set Desired Future Conditions (DFCs) which is a "future state of the aquifer"
- Texas Water Development Board runs groundwater models to determine how much pumping can occur while meeting DFCs
 - This pumping is called "modeled available groundwater" (MAG)
 - MAG values were available early 2023, and finalized/amended in May 2023



GMAs in Region K

• GMAs 7, 8, 9, 10, 12, 15





How are the MAGs Used in **Regional Planning?**

- If a MAG has been established for a particular aquifer, the TWDB requires that the MAG be considered the maximum amount of groundwater available
- Where a MAG is not established for an aguifer, the local GCD or GMA representative should be consulted regarding an appropriate availability volume
- Some flexibility by decade is available through "MAG peaking factors"





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Modeled Available Groundwater (MAG) **Peak Factor**

Texas Water Code (TWC) §36.1132 requires management of groundwater production on a long-term basis to achieve applicable desired future conditions. In practice, this may include variations in pumping from year to year, for example, in response to relative wet and dry periods. Modeled available groundwater (MAG) is the amount of water that the Texas Water Development Board (TWDB) Executive Administrator determines may be produced on an average annual basis to achieve a desired future condition. Most of the MAG values were developed using groundwater availability models calibrated for long-term average, not drought of record, conditions

In response to stakeholder concerns during the fourth cycle of regional water planning, the TWDB revised its planning rules to include a MAG Peak Factor that ensures regional water plans have the ability to fully reflect how, under current statute, groundwater conservation districts anticipate managing groundwater production under drought conditions.

What is the MAG Peak Factor?

The purpose of the MAG Peak Factor is to

- provide reasonable flexibility and temporary accommodation of increased groundwater pumping above the MAG;
- accommodate anticipated fluctuations in pumping between wet and dry periods, or to account for other shifts in the timing of pumping while remaining consistent with desired
- allow regional water planning groups to develop plans that reflect more realistic drought condition groundwater availability and pumping, where appropriate; and
- maintain the integrity of the regional and state water plan-

The use of proposed MAG Peak Factors requires review and approval by relevant groundwater conservation districts, groundwater management areas, regional water planning groups, and the TWDB Executive Administrator.

Subject to many factors, the MAG Peak Factor might be considered in instances, for example, where

 actual pumping in wetter years is expected to fall below the MAG, thereby allowing intermittent pumping of volumes greater than the MAG during drought; or,

 groundwater pumping in early decades is expected to consistently remain well below the MAG, thereby accommodating pumping volumes somewhat higher than the MAG in later decades—all while achieving the desired future condition.

The MAG is the amount of water that can be produced on an annual average basis, instead of the amount that can be permitted. Groundwater conservation districts must consider MAGs, along with other factors in TWC §36.1132, when issuing permits for groundwater production. Accordingly, the MAG Peak Factor reflects groundwater available for pumping, not permitting, and is utilized for regional water planning purposes only. The MAG Peak Factor is not intended as a limit to permits or as guaranteed approval or pre-approval of any future permit application.

How does the process work?

It is not a mandatory requirement that regional water planning groups utilize MAG Peak Factors in the development of their regional water plans. Rather, it is the decision of each planning group, in concurrence with the relevant groundwater conservation district and groundwater management area, to determine what, if any, MAG Peak Factor is appropriate for planning efforts. A groundwater conservation district may also initiate the use of the MAG Peak Factor. The definition specifies that a MAG Peak Factor would be expressed as a percentage of modeled available groundwater (e.g., greater than 100 percent) and would represent the quantified annual groundwater availability for planning purposes.

Regional water planning groups must request the TWDB Executive Administrator's approval of each MAG Peak Factor. Each planning group request for MAG Peak Factors must

- include written approval from both the relevant groundwater conservation district, if one exists within the particular aguifer-region-county-basin split, and representatives of the groundwater management area;
- include the technical basis for the request in sufficient detail to support groundwater conservation district, groundwater management area, and the Executive Administrator evaluation; and
- document how the MAG Peak Factor will not prevent the associated groundwater conservation district(s) from managing groundwater resources to achieve the desired future condition(s).

MAGs by Aquifer (pivot table from TWDB, filtered to Region K)



RWP27 Aquifer Name	ability Sum 2030	ility Sum 2040	pility Sum 2050	ility Sum 2060	pility Sum 2070	ility Sum 2080
® Carrizo-Wilcox Aquifer	51,818	56,324	60,815	65,571	70,734	70,734
® Cross Timbers Aquifer	-	-	-	-	-	-
® Edwards-BFZ Aquifer	21,417	21,417	21,417	21,417	21,417	21,417
® Edwards-Trinity-Plateau Aquifer	-	-	-	-	-	-
■ Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers	4,979	4,979	4,979	4,979	4,979	4,979
® Ellenburger-San Saba Aquifer	27,178	27,181	27,178	27,181	27,178	27,181
■ Gulf Coast Aquifer System	222,149	222,438	222,766	223,142	223,415	223,345
Hickory Aquifer	14,817	14,818	14,817	14,818	14,817	14,818
Marble Falls Aquifer	7,127	7,139	7,127	7,139	7,127	7,127
⊕ Other Aquifer	14,790	14,790	14,790	14,790	14,790	14,790
® Queen City Aquifer	3,234	3,310	3,393	3,484	3,584	3,584
■ Sparta Aquifer	3,216	3,312	3,440	3,616	3,825	3,825
® Trinity Aquifer	30,894	30,882	30,867	30,837	30,837	30,837
■ Yegua-Jackson Aquifer ■ Yegua-Jackson Aquifer	9,984	9,984	9,983	9,983	9,983	9,983
Grand Total	411,603	416,574	421,572	426,957	432,686	432,620

Some MAGs Have Changed from the Previous Cycle (first look, comparison provided by TWDB)



Planning Region	K	
Row Labels	labilityDifference2030	railabilityDifference2070
Carrizo-Wilcox Aquifer	22,119	36,157
Edwards-BFZ Aquifer	7,293	7,293
Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers	-	-
Ellenburger-San Saba Aquifer	8	8
Gulf Coast Aquifer System	2,374	6,986
Hickory Aquifer	2	2
Marble Falls Aquifer	2	2
Queen City Aquifer	(15)	390
Sparta Aquifer	(513)	127
Trinity Aquifer	1,791	1,792
Yegua-Jackson Aquifer	722	722
Grand Total	33,783	53,479

Agenda Item 6: Hydrologic Variance Request

Discuss TWDB response to Surface Water Hydrologic Variance Request, if available



