Agenda Item 6e. Update on Water Availability

This agenda item is to review and discuss existing water supplies in Region F, including surface water and groundwater.

Surface Water

Under regional planning rules and guidelines, surface water supplies must be evaluated using WAM Run 3 (strict priority order). In Region F, under WAM Run 3, most surface water supplies have no availability. Only O.H. Ivie and Lake Brownwood have firm yields in the Colorado River Basin. Subordination of the lower basin senior water rights to the upper basin (Region F) rights in the Colorado River Basin is a major water management strategy in the Region F Plan. Subordination will be reevaluated as part of this plan as part of the Task 5B authorization.

Groundwater

Groundwater supplies in Region F are comprised of Modeled Available Groundwater (MAG) and “non-MAG or “non-relevant” availability. MAGs are determined by the TWDB based on desired future conditions (DFCs) adopted in the joint groundwater planning process by Groundwater Management Areas (GMAs). Non-MAG availability is estimated by TWDB and can be adjusted at the request of the Regional Water Planning Group (RWPG). The consultant team will discuss a comparison between groundwater supply availability for the 2026 Region F Plan and the previous 2021 Plan for the four major and nine minor aquifers in Region F, plus several “other” aquifers. Additionally, the consultant team will discuss recommended changes to “non-MAG” availability in Region F to be considered by the RWPG.

Attachments:

1. Region F Non-MAG Availability Technical Memorandum

AGS
Advanced Groundwater Solutions, LLC
www.advancedgw.com

Technical Memorandum

TO: Lissa Gregg, Freese and Nichols, Inc.

FROM: Andrew Donnelly, P.G. and James Beach, P.G.

SUBJECT: Region F Non-MAG Availability

DATE: October 11, 2023

Introduction

This memo summarizes non-relevant aquifers within Region F and the 2027 non-MAG availabilities currently in the DB27 database and recommended changes to these non-MAG availabilities. The methodology used to derive the changes to the non-MAG availabilities are described below.

History

In the last round of planning, Region F provided recommendations for changes to non-MAG availabilities that were approved by Region F and eventually TWDB (Laughlin and Beach, 2018). Although approved by TWDB and used in the 2022 State Water Plan, some of the availability estimates were not incorporated into the Joint Groundwater Planning Process and incorporated into MAG runs by the Groundwater Management Areas. Therefore, some estimates have reverted back to estimates that were estimated prior to the 2022 State Water Plan.

Evaluation of Non-MAG Availability

Non-MAG availabilities include the availability in aquifers designated as non-relevant and the availability in "other" aquifers. Portion of aquifers declared non-relevant for this planning cycle are as follows:

GMA 2

- Edwards-Trinity (Plateau) Aquifer in Andrews, Howard, and Martin counties
- Pecos Valley Aquifer in Andrews County

GMA 3

- Ogallala and Igneous aquifers in the entire GMA

GMA 7

- Cross Timbers, Igneous, Lipan, Marble Falls, and Seymour aquifers in the entire GMA

- Edwards-Trinity (Plateau) Aquifer in Concho, Mason, McCulloch, and Tom Green counties
- Ogallala Aquifer in Ector and Midland counties
- Dockum Aquifer in Coke, Crockett, Ector, Glasscock, Irion, Midland, Mitchell, Scurry, Sterling, Tom Green, and Upton counites
- Ellenburger-San Saba Aquifer in Coleman, Concho, and Mason counties
- Hickory Aquifer in Coleman County

GMA 8

- No aquifers within Region F

The major and minor aquifers or portion of these aquifers that have been declared non-relevant are shown in Figures 1 and 2, respectively.

In addition to the non-relevant aquifers, several "other" aquifers, which are not defined by the TWDB as major or minor aquifers, have non-MAG availability. These "other" aquifers include Cambrian and Permian deposits, the Quartermaster Formation, and the Edwards Aquifer/Antlers Sand, as well as several "other" aquifers that don not have geologic or hydrogeologic description. These aquifers are water-bearing units that may be important locally and therefore have non-MAG availability defined for regional water planning purposes.

The current non-MAG availabilities developed by TWDB for this planning cycle are shown in Table 1. Also shown in Table 1 are the availabilities from the previous (2022) planning cycle and the change from the previous planning cycle availabilities. Note that because the planning period for the previous planning cycle did not extend past 2070, only the availabilities for 2030 through 2070 are included for the previous planning cycle and the differences in Table 1. In order to assess the updated non-MAG availabilities and make recommended changes to these availabilities, the following was reviewed.

1. The historic pumping was reviewed for all counties with non-MAG availability in order to ensure that the 2027 availability and the amount of groundwater currently being produced from the aquifer were reasonable. Counties with availabilities lower than the historic groundwater pumping were evaluated in greater detail. Historic pumping trends were evaluated to determine if recommended availabilities were justified. In a few cases, increased non-MAG availability was recommended based on consistent, or in some cases increasing, historic pumping volumes from an aquifer.
2. The differences between the recommended 2027 availabilities and the 2022 availabilities were assessed. In most cases, the new availability was the same as the previous availability. Where an aquifer's availability changed, the historic pumping was evaluated in greater detail to determine if the recommended availability was justified. Particular

attention was paid to counties where the recommended non-MAG availability was lower than the previous availability.

3. The technical memorandum from the previous planning cycle that described the groundwater availability for the region was reviewed. This memorandum contained rationale for previous recommended non-MAG availabilities.

The current total non-MAG availability for Region F is 125,064 ac-ft/yr in 2030, decreasing to 118,569 ac-ft/yr in 2080. Of this total, 27,926 ac-ft/yr is availability from "other" aquifers, with the remainder being for non-relevant aquifers. In the 2022 State Water Plan, total non-MAG availability was 147,613 ac-ft/yr in 2030, decreasing to 141,111 ac-ft/yr in 2070. The decrease of approximately 22,000 ac-ft/yr of non-MAG availability can primarily be attributed to the reduced availability in the Ogallala Aquifer in Midland and Ector counties, which is partially offset by a significant increase in non-MAG availability in the Dockum Aquifer in Scurry County.

Based on our review of the work done in the previous round of planning, and a review of new pumping estimates and demands in the region, we are recommending several changes in non-MAG availability estimates in this round of planning. Table 2 summarizes the current Region F non-MAG availabilities and the recommended availabilities, along with the reason for the recommended values.

Most of the proposed revisions are for current availabilities that have been reduced from those used in the previous planning cycle. These include availabilities in the Dockum Aquifer in Coke, Glasscock, Irion, Midland, Tom Green, and Upton counties, the Pecos Valley Aquifer in Andrews County, the Hickory Aquifer in Coleman County, and the Capitan Reef Aquifer in Reeves County. Most of these availabilities were reduced to zero for the current planning cycle. The proposed revision is to change the availability in each of these counties to the amount used in the previous planning cycle. The rationale for the previous planning cycle availabilities was detailed in the memo dated October 22, 2018, which is included as an attachment to this memo. The recommended availabilities are generally small (less than 1,000 ac-ft/yr) and are mostly based on small amounts of historic pumping which show that a limited amount of groundwater is available in each of these counties for the designated aquifer.

In addition to these, several proposed revisions to the current availabilities are being made based on recent historic pumping. These include:

- Lipan Aquifer in Concho County- The current availability is 1,893 ac-ft/yr, which is the same as in the previous planning cycle. However, the historic pumping from the Lipan Aquifer in Concho County has been greater than this amount almost every year since 1984. The average pumping from the Lipan Aquifer in Concho County since 1984 is 2,972 ac-ft/yr, and in several years it has been between 4,000 and 6,000 ac-ft/yr. We

suggest an availability of 4,000 ac-ft/yr for the Lipan Aquifer in Concho County based on this historic pumping.

- Edwards-Trinty (Plateau) Aquifer in Howard County- The current availability is 672 ac-ft/yr, which is the same as in the previous planning cycle. However, the historic pumping from the Edwards-Trinity (Plateau) Aquifer in Howard County has averaged over 2,100 ac-ft/yr since 2000. We suggest an availability of 2,100 ac-ft/yr for the Edwards-Trinity (Plateau) Aquifer in Howard County based on this historic pumping.
- Edwards-Trinty (Plateau) Aquifer in McCulloch County- The current availability is 148 ac-ft/yr, which is the same as in the previous planning cycle. However, the historic pumping from the Edwards-Trinity (Plateau) Aquifer in McCulloch County has been greater than this amount since about 2000 and has averaged over 2,100 ac-ft/yr over this period. We suggest an availability of 2,100 ac-ft/yr for the Edwards-Trinity (Plateau) Aquifer in Howard County based on this historic pumping.
- Dockum Aquifer in Mitchell County- The current availability is 13,987 ac-ft/yr in 2030, decreasing to 10,540 ac-ft/yr in 2080. This is less than the availability of 14,018 ac-ft/yr from the previous planning cycle. Historic pumping from the Dockum Aquifer in Mitchell County has been increasing since the late 1990s and has averaged more than 15,000 ac-ft/yr since 2012. We suggest restoring the previous availability of 14,018 ac-ft/yr for the Dockum Aquifer in Mitchell County.
- Dockum Aquifer in Sterling County- The current availability is 27 ac-ft/yr, which is the higher than the availability in the previous planning cycle of 10 ac-ft/yr. However, in 2018 to 2020 there is reported municipal pumping from the Dockum Aquifer in Sterling County of more than 200 ac-ft/yr. We suggest an availability of 300 ac-ft/yr for the Dockum Aquifer in Sterling County.
- Rustler Aquifer in Winkler County- There is no non-MAG availability for the Rustler Aquifer in Winkler county. There was 500 ac-ft/yr of availability assigned to this aquifer in Winkler County in the previous planning cycle, which was based on the previous Rustler MAG calculations in adjacent counties. Although the salinity of the Rustler is relatively high in Winkler County, there are two known wells (one of which has since been plugged/destroyed) and therefore we recommend restoring the previous availability of 500 ac-ft/yr.

Assessment and Comments on Significant Changes to Non-MAG and MAG Availability

In addition to the recommended changes above, several significant changes to MAG and non-MAG groundwater availability were evaluated due to the magnitude of the difference between the recommended and previous availabilities. These are discussed below.

- Ogallala Aquifer in Midland County- the MAG availability in the Ogallala Aquifer in Midland County decreased from approximately 31,000 to 38,000 ac-ft/yr in the previous planning cycle to approximately 12,000 to 15,000 ac-ft/yr in the current planning cycle.

This is a significant decrease in availability, but it does reflect the historic trend in groundwater production. Pumping from the Ogallala peaked in the mid-1990s at nearly 34,000 ac-ft/yr but has been declining ever since that time. Recent pumping from the Ogallala in Midland County has been less than 7,000 ac-ft/yr, and the recommended availability is significantly higher than this amount.

- Ogallala Aquifer in Midland County- the MAG availability in the Ogallala Aquifer in Ector County decreased from approximately 7,000 to 8,000 ac-ft/yr in the previous planning cycle to approximately 200 to 250 ac-ft/yr in the current planning cycle. This is a significant decrease in availability, and like Midland County, pumping in Ector County has been declining. Pumping from the Ogallala in Ector County peaked in the mid-1990s at nearly 12,000 ac-ft/yr, but has been declining ever since that time. Pumping from the Ogallala in Ector County has been less than 1,000 ac-ft/yr for almost every year since 2003 and averaging only 464 ac-ft/yr during this period. The recommended availability is lower than recent groundwater pumping in Ector County.

- Dockum Aquifer in Martin County- the MAG availability in the Dockum Aquifer in Martin County increased from 8 ac-ft/yr in the previous planning cycle to 11,449 ac-ft/yr in the current planning cycle. The reason for this increase is unknown as there is very little extent of the official footprint of the Dockum Aquifer in Martin County and no historic pumping.

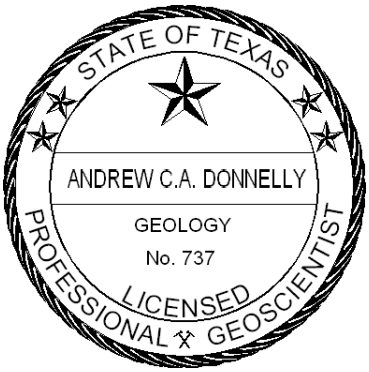
- Dockum Aquifer in Howard County- the MAG availability in the Dockum Aquifer in Howard County increased from 1,589 ac-ft/yr in the previous planning cycle to 6,770 ac-ft/yr in the current planning cycle. The historic pumping from the Dockum Aquifer in Howard County has been less than 800 ac-ft/yr, but the Dockum is present under the eastern quarter of the county, and most of this area is the outcrop portion of the aquifer.

- Dockum Aquifer in Scurry County- the recommended non-MAG availability for the Dockum Aquifer in Scurry County increased from 1,209 ac-ft/yr in the previous planning cycle to approximately 11,500 ac-ft/yr in the current cycle. This is a significant increase, but it does reflect historic pumping from the Dockum Aquifer in Scurry County. Historic pumping from the Dockum Aquifer in Scurry County has exceeded the previous availability of 1,209 ac-ft/yr every year since 1980. During this period, the historic pumping averaged nearly 6,000 ac-ft/yr and peaked at over 10,000 ac-ft/yr. Pumping has not been declining over this period and in fact has been increasing since about 2000. The recommended availability of approximately 11,500 ac-ft/yr appears to be appropriate based on the amount of groundwater that has been consistently produced from the Dockum Aquifer in Scurry County over the past 40 years.

References

Laughlin, K., and J. Beach, 2018. *Region F Groundwater Availability Volumes*. Memo to FNI and TWDB dated October 22, 2018.

Geoscientist's Seal:



The seal appearing on this document was authorized by Andrew C.A. Donnelly, P.G. 737 on 10/11/2023.
Advanced Groundwater Solutions, LLC TBPG Firm Registration No. 50639

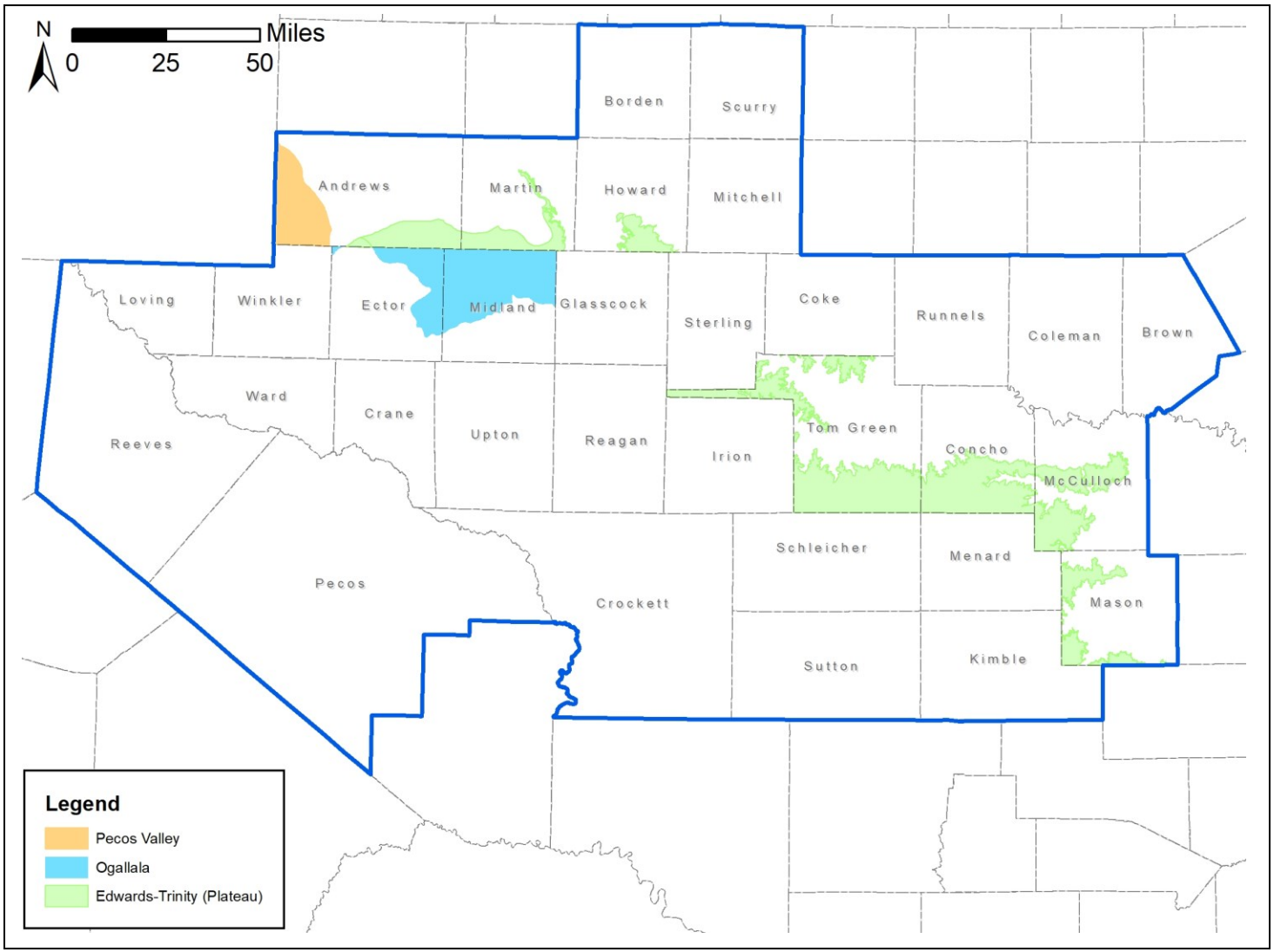


Figure 1. Non-relevant portion of major aquifers in Region F

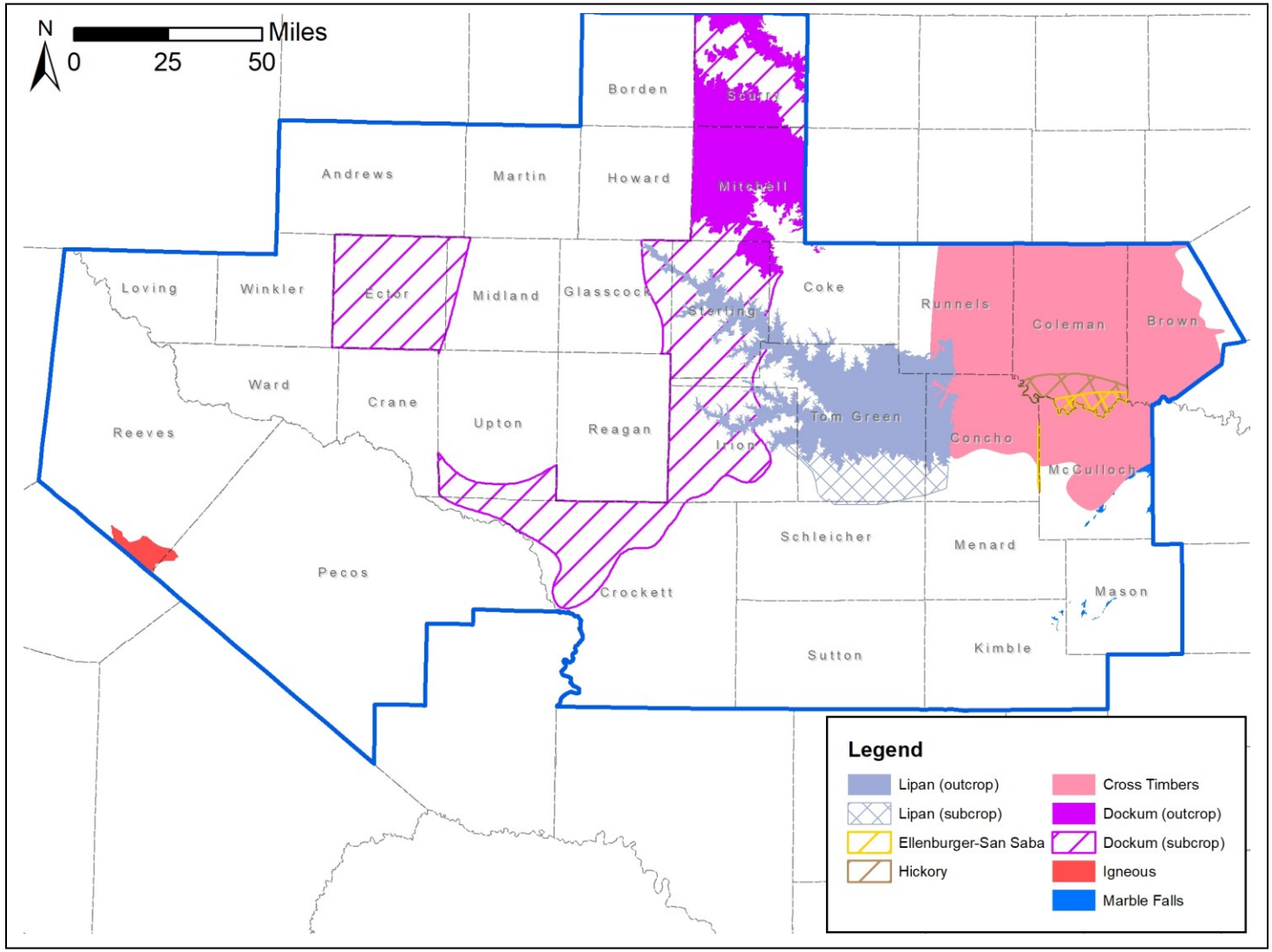


Figure 2. Non-relevant portions of minor aquifers

Table 1. Non-MAG Availabilities (as per TWDB)

County	Aquifer	Basin	2027 Non-MAG Availability (ac-ft/yr)						2022 Non-MAG Availability (ac-ft/yr)					Difference in Non-MAG Availability (ac-ft/yr)				
			2030	2040	2050	2060	2070	2080	2030	2040	2050	2060	2070	2030	2040	2050	2060	2070
Andrews	Edwards-Trinity-Plateau Aquifer	Colorado	1,198	1,198	1,198	1,198	1,198	1,198	1,198	1,198	1,198	1,198	1,198	0	0	0	0	0
	Pecos Valley Aquifer	Rio Grande	0	0	0	0	0	0	150	150	150	150	150	-150	-150	-150	-150	-150
Borden	Other Aquifer	Colorado	2,598	2,598	2,598	2,598	2,598	2,598	2,598	2,598	2,598	2,598	2,598	0	0	0	0	0
Brown	Cross Timbers Aquifer	Brazos	0	0	0	0	0	0	NA	NA	NA	NA	NA	0	0	0	0	0
		Colorado	993	993	993	993	993	993	993	993	993	993	993	0	0	0	0	0
Coke	Dockum Aquifer	Colorado	0	0	0	0	0	0	100	100	100	100	100	-100	-100	-100	-100	-100
	Lipan Aquifer	Colorado	160	160	160	160	160	160	160	160	160	160	160	0	0	0	0	0
	Other Aquifer	Colorado	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	0	0	0	0	0
Coleman	Cross Timbers Aquifer	Colorado	108	108	108	108	108	108	108	108	108	108	108	0	0	0	0	0
	Ellenburger-San Saba Aquifer	Colorado	0	0	0	0	0	0	NA	NA	NA	NA	NA	0	0	0	0	0
	Hickory Aquifer	Colorado	0	0	0	0	0	0	500	500	500	500	500	-500	-500	-500	-500	-500
	Other Aquifer (Edwards Aquifer and Antlers Sand)	Colorado	109	109	109	109	109	109	109	109	109	109	109	0	0	0	0	0
Concho	Cross Timbers Aquifer	Colorado	0	0	0	0	0	0	NA	NA	NA	NA	NA	0	0	0	0	0
	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers	Colorado	459	459	459	459	459	459	459	459	459	459	459	0	0	0	0	0
	Lipan Aquifer	Colorado	1,893	1,893	1,893	1,893	1,893	1,893	1,893	1,893	1,893	1,893	1,893	0	0	0	0	0
	Other Aquifer (Cambrian Deposits)	Colorado	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964	5,964	0	0	0	0	0
Crane	Rustler Aquifer (Outside official TWDB aquifer boundary)	Rio Grande	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0	0	0	0	0
Crockett	Dockum Aquifer	Colorado	4	4	4	4	4	4	2	2	2	2	2	2	2	2	2	2
		Rio Grande	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0
Ector	Dockum Aquifer	Colorado	28	28	28	28	28	28	13	13	13	13	13	15	15	15	15	15
		Rio Grande	721	721	721	721	721	721	515	515	515	515	515	206	206	206	206	206
	Ogallala Aquifer	Colorado	206	213	218	222	226	226	7,730	7,171	7,135	6,727	6,727	-7,524	-6,958	-6,917	-6,505	-6,501
		Rio Grande	0	0	0	0	0	0	NA	NA	NA	NA	NA	0	0	0	0	0
Glasscock	Dockum Aquifer	Colorado	0	0	0	0	0	0	900	900	900	900	900	-900	-900	-900	-900	-900
	Lipan Aquifer	Colorado	10	10	10	10	10	10	10	10	10	10	10	0	0	0	0	0
Howard	Edwards-Trinity-Plateau Aquifer	Colorado	672	672	672	672	672	672	672	672	672	672	672	0	0	0	0	0
Irion	Dockum Aquifer	Colorado	0	0	0	0	0	0	150	150	150	150	150	-150	-150	-150	-150	-150
	Lipan Aquifer	Colorado	13	13	13	13	13	13	13	13	13	13	13	0	0	0	0	0
Kimble	Marble Falls Aquifer	Colorado	100	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0
Martin	Edwards-Trinity-Plateau Aquifer	Colorado	242	242	242	242	242	242	242	242	242	242	242	0	0	0	0	0
Mason	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers	Colorado	18	18	18	18	18	18	18	18	18	18	18	0	0	0	0	0
	Marble Falls Aquifer	Colorado	100	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0

Table 1. Non-MAG Availabilities (as per TWDB)

County	Aquifer	Basin	2027 Non-MAG Availability (ac-ft/yr)						2022 Non-MAG Availability (ac-ft/yr)					Difference in Non-MAG Availability (ac-ft/yr)				
			2030	2040	2050	2060	2070	2080	2030	2040	2050	2060	2070	2030	2040	2050	2060	2070
	Other Aquifer	Colorado	873	873	873	873	873	873	873	873	873	873	873	0	0	0	0	0
McCulloch	Cross Timbers Aquifer	Colorado	103	103	103	103	103	103	103	103	103	103	103	0	0	0	0	0
	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers	Colorado	148	148	148	148	148	148	148	148	148	148	148	0	0	0	0	0
	Marble Falls Aquifer	Colorado	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0
	Other Aquifer	Colorado	103	103	103	103	103	103	103	103	103	103	103	0	0	0	0	0
Midland	Dockum Aquifer	Colorado	0	0	0	0	0	0	400	400	400	400	400	-400	-400	-400	-400	-400
	Ogallala Aquifer	Colorado	15,442	14,369	13,732	13,258	12,745	12,745	36,824	34,623	32,693	31,325	31,325	-21,382	-20,254	-18,961	-18,067	-18,580
Mitchell	Dockum Aquifer	Colorado	13,987	12,569	11,521	10,944	10,540	10,540	14,018	14,018	14,018	14,018	14,018	-31	-1,449	-2,497	-3,074	-3,478
	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers	Colorado	0	0	0	0	0	0	NA	NA	NA	NA	NA	0	0	0	0	0
	Other Aquifer (Permian Deposits)	Colorado	789	789	789	789	789	789	789	789	789	789	789	0	0	0	0	0
Pecos	Igneous Aquifer	Rio Grande	80	80	80	80	80	80	80	80	80	80	80	0	0	0	0	0
	Other Aquifer	Rio Grande	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	0	0	0	0	0
Reeves	Capitan Reef Complex Aquifer	Rio Grande	0	0	0	0	0	0	1,007	1,007	1,007	1,007	1,007	-1,007	-1,007	-1,007	-1,007	-1,007
	Igneous Aquifer	Rio Grande	300	300	300	300	300	300	300	300	300	300	300	0	0	0	0	0
Runnels	Cross Timbers Aquifer	Colorado	0	0	0	0	0	0	NA	NA	NA	NA	NA	0	0	0	0	0
	Lipan Aquifer	Colorado	45	45	45	45	45	45	45	45	45	45	45	0	0	0	0	0
	Other Aquifer	Colorado	5,001	5,001	5,001	5,001	5,001	5,001	5,001	5,001	5,001	5,001	5,001	0	0	0	0	0
Schleicher	Lipan Aquifer	Colorado	0	0	0	0	0	0	NA	NA	NA	NA	NA	0	0	0	0	0
Scurry	Dockum Aquifer	Brazos	151	151	151	151	151	151	306	306	306	306	306	-155	-155	-155	-155	-155
		Colorado	11,546	11,546	11,335	11,248	11,175	11,175	903	903	903	903	903	10,643	10,643	10,432	10,345	10,272
	Other Aquifer	Colorado	315	315	315	315	315	315	315	315	315	315	315	0	0	0	0	0
	Other Aquifer (Quartermaster Formation)	Brazos	74	74	74	74	74	74	74	74	74	74	74	0	0	0	0	0
	Seymour Aquifer	Brazos	10	10	10	10	10	10	10	10	10	10	10	0	0	0	0	0
Sterling	Dockum Aquifer	Colorado	27	27	27	27	27	27	10	10	10	10	10	17	17	17	17	17
	Lipan Aquifer	Colorado	850	850	850	850	850	850	850	850	850	850	850	0	0	0	0	0
Tom Green	Dockum Aquifer	Colorado	0	0	0	0	0	0	200	200	200	200	200	-200	-200	-200	-200	-200
	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers	Colorado	2,797	2,797	2,797	2,797	2,797	2,797	2,797	2,797	2,797	2,797	2,797	0	0	0	0	0
	Lipan Aquifer	Colorado	43,568	43,568	43,568	43,568	43,568	43,568	43,568	43,568	43,568	43,568	43,568	0	0	0	0	0
Upton	Dockum Aquifer	Rio Grande	67	67	67	67	67	67	1,000	1,000	1,000	1,000	1,000	-933	-933	-933	-933	-933
Winkler	Ogallala Aquifer	Rio Grande	40	40	40	40	40	40	40	40	40	40	40	0	0	0	0	0
	Rustler Aquifer	Rio Grande	NA	NA	NA	NA	NA	NA	500	500	500	500	500	-500	-500	-500	-500	-500
TOTAL			**125,064**	**122,580**	**120,689**	**119,555**	**118,569**	**118,569**	**147,613**	**144,853**	**142,887**	**141,111**	**141,111**	**-22,549**	**-22,273**	**-22,198**	**-21,556**	**-22,542**

Table 2. Recommended changes to Non-MAG Availabilities

County	Aquifer	Basin	Current Non-MAG Availability (ac-ft/yr)						Proposed Non-MAG Availability (ac-ft/yr)						Methodology
			2030	2040	2050	2060	2070	2080	2030	2040	2050	2060	2070	2080	
Andrews	Pecos Valley Aquifer	Rio Grande	0	0	0	0	0	0	150	150	150	150	150	150	Previous Region F/TWDB approved, based on historic pumping
Coke	Dockum Aquifer	Colorado	0	0	0	0	0	0	100	100	100	100	100	100	Previous Region F/TWDB approved, based on estimated rig supply use
Coleman	Hickory Aquifer	Colorado	0	0	0	0	0	0	500	500	500	500	500	500	Previous Region F/TWDB approved, based on estimated equivalent to Concho County
Concho	Lipan Aquifer	Colorado	1,893	1,893	1,893	1,893	1,893	1,893	4,000	4,000	4,000	4,000	4,000	4,000	Historic pumping
Glasscock	Dockum Aquifer	Colorado	0	0	0	0	0	0	900	900	900	900	900	900	Previous Region F/TWDB approved
Howard	Edwards-Trinity-Plateau Aquifer	Colorado	672	672	672	672	672	672	2,100	2,100	2,100	2,100	2,100	2,100	Recent pumping
Irion	Dockum Aquifer	Colorado	0	0	0	0	0	0	150	150	150	150	150	150	Previous Region F/TWDB approved
McCulloch	Edwards-Trinity-Plateau, Pecos Valley, and Trinity Aquifers	Colorado	148	148	148	148	148	148	600	600	600	600	600	600	Recent pumping
Midland	Dockum Aquifer	Colorado	0	0	0	0	0	0	400	400	400	400	400	400	Previous Region F/TWDB approved
Mitchell	Dockum Aquifer	Colorado	13,987	12,569	11,521	10,944	10,540	10,540	14,018	14,018	14,018	14,018	14,018	14,018	Previous Region F/TWDB approved, historic pumping, 2016 MAG
Reeves	Capitan Reef Complex Aquifer	Rio Grande	0	0	0	0	0	0	1,007	1,007	1,007	1,007	1,007	1,007	Previous Region F/TWDB approved
Sterling	Dockum Aquifer	Colorado	27	27	27	27	27	27	300	300	300	300	300	300	Recent pumping
Tom Green	Dockum Aquifer	Colorado	0	0	0	0	0	0	200	200	200	200	200	200	Previous Region F/TWDB approved, based on estimated rig supply use
Upton	Dockum Aquifer	Rio Grande	67	67	67	67	67	67	1,000	1,000	1,000	1,000	1,000	1,000	Previous Region F/TWDB approved, based on well reports for fracking use