Middle Trinity Groundwater Conservation District

Groundwater Management Plan

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Approved by Texas Water Development Board - July 1, 2004

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Approved by the Texas Water Development Board – February 8, 2019

Re-Adopted – June 2, 2022

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Groundwater Management Plan

I. District Mission

The mission of the Middle Trinity Groundwater Conservation District is to conserve, preserve and protect the quality and quantity of the groundwater resources for the citizens of Comanche, Erath, Bosque, and Coryell Counties. To accomplish its mission, the District will work to minimize the drawdown of the water table, prevent the waste of groundwater, prevent interference between wells, protect the existing and historic use of groundwater, prevent the degradation of the quality of groundwater, use public education to promote water conservation, give consideration to the service needs of municipal water utilities and the agricultural community, and carry out the powers and duties conferred under Chapter 36 of the Texas Water Code. The District believes that the economy, environment, and quality of life will all be positively impacted by the achievement of its mission.

II. Purpose of Management Plan

The 75th Texas Legislature in 1997 enacted Senate Bill 1 ("SB 1")[1] to establish a comprehensive statewide water planning process. In particular, SB 1 contained provisions that required groundwater conservation districts to prepare management plans to identify the water supply resources and water demands that will shape the decisions of each district. SB 1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries. In 2001, the Texas Legislature enacted Senate Bill 2 ("SB 2")[2] to build on the planning requirements of SB 1 and to further clarify the actions necessary for districts to manage and conserve the groundwater resources of the state of Texas.

The Texas Legislature enacted significant changes to the management of groundwater resources in Texas with the passage of House Bill 1763 ("HB 1763")[3] in 2005 and Senate Bill 660 ("SB 660") in 2011.[4] Both HB 1763 and SB 660 made significant revisions to the existing long-term planning process known as the Groundwater Management Area (GMA) process. Based on the language established in Chapter 36 by HB 1763 and SB 660, groundwater conservation districts ("GCDs") in each GMA were required to meet and determine the Desired Future Conditions ("DFCs") for the groundwater resources within their boundaries by September 1, 2010 and to propose for re-adoption the desired future conditions for the relevant aquifers every five years.

[1] Act of June 2, 1997, 75th Leg., R.S., ch. 1010, 1997 Tex. Gen. Laws 3610.

[2] Act of May 27, 2001, 77th Leg., R.S., ch. 966, 2001 Tex. Gen. Laws 1991.

[3] Act of May 30, 2005, 79th Leg., R.S. ch. 970, 2005 Tex. Gen. Laws 3247.

[4] Act of May 29, 2011, 82nd Leg., R.S. ch. 1233, 2011 Tex. Gen. Laws 3287.

In addition, HB 1763 required GCDs, like the District, to provide each GCDs' management plans with the other GCDs in the GMA for review by the other GCDs.

The Middle Trinity Groundwater Conservation District's management plan satisfies the requirements of SB 1, SB 2, HB 1763, SB 660, and the statutory requirements of Chapter 36 of the Texas Water Code, and the administrative requirements of the Texas Water Development Board's ("TWDB") rules.

III. District Information

A. Creation of District and Annexation of Bosque and Coryell Counties

The District was created in 2001 pursuant to the authorization provided by the 77th Texas Legislature in House Bill 3665.[5] The voters of both Comanche and Erath Counties confirmed the creation of the District on May 4, 2002. Bosque and Coryell Counties were later added to the District through the annexation process provided in Subchapter J, Chapter 36 of the Texas Water Code.[6] The District received a petition requesting the annexation of Bosque County on June 30, 2008, and the District Board of Directors (Board) voted to add Bosque County to the territory of the District on March 5, 2009. The voters of Bosque County approved annexation into the District on May 9, 2009. The District received a petition requesting the annexation of Coryell County on June 29, 2009, and the Board voted to add Coryell County to the territory of the District on August 6, 2009. The voters of Coryell County approved annexation into the District on November 3, 2009. In compliance with Section 36.1072(e) of the Texas Water Code and 31 TAC § 356.3, this management plan was re-adopted on April 2, 2009 within five years of the original adoption of the management plan and again reviewed and re-adopted on March 5, 2012, and then again on October 6, 2016 and March 9, 2017.[7] This management plan was updated within two years of the adoption of DFCs by GMA 8 pursuant to Section 36.3011(5) of the Texas Water Code.[8]

B. Location and Extent

The District is located in the North Central Texas counties of Comanche, Erath, Bosque, and Coryell Counties. The boundaries of the District are coterminous with the boundaries of Comanche, Erath, Bosque, and Coryell Counties. The District is bordered by Palo Pinto County on the north, Hood, Somervell, Johnson, Hill, and McLennan Counties on the east, Mills and Bell Counties on the south and Brown, Hamilton, Lampasas, and Eastland Counties on the west. The District covers an area of approximately 4079 square miles.[9]

[5] Act of May 25, 2001, 77th Leg. R.S., ch. 1362, 2001 Tex. Gen. Laws 3371.

[6] TEX. WATER CODE ANN. §§36.321-.331 (West 2008).

[7] TEX. WATER CODE §36.1072(e); 31 TEX. ADMIN. CODE § 356.3.

[8] TEX. WATER CODE §36.3011(5).

[9] Texas Almanac, 2008-2009, The Dallas Morning News.

C. Background

The Board currently consists of 12 (twelve) members. The existing Board is made up of 3 (three) directors from each of the counties in the District.

D. Authority / Regulatory Framework

In the process of creating and re-adopting its management plan, the District has complied with all procedures and met all requirements established by Chapter 36 of the Texas Water Code and Chapter 356 of the TWDB rules contained in Title 31 of the Texas Administrative Code.[10] The District exercises the authority and powers that it was granted by and through the special and general laws that govern it, including Chapter 8862 of the Texas Special District Local Laws Code and Chapter 36 of the Texas Water Code.

E. Groundwater Resources of the District

Comanche and Erath Counties are located primarily over the outcrop of the Trinity Aquifer while Bosque and Coryell Counties are located over both the outcrop and the subcrop of the Trinity Aquifer. A Texas Water Development Board diagram of the Trinity Aquifer can be found at Appendix A. The Texas Water Development Board describes the groundwater resources of the Trinity Aquifer as follows:

> "The Trinity aquifer consists of early Cretaceous age formations of the Trinity Group where they occur in a band extending through the central part of the state in all or parts of 55 counties, from the Red River in North Texas to the Hill Country of South-Central Texas. Trinity Group deposits also occur in the Panhandle and Edwards Plateau regions where they are included as part of the Edwards-Trinity (High Plains and Plateau) aquifers.
>
> Formations comprising the Trinity Group are (from youngest to oldest) the Paluxy, Glen Rose, and Twin Mountains-Travis Peak. Up dip, where the Glen Rose thins or is missing, the Paluxy and Twin Mountains coalesce to form the Antlers Formation. The Antlers consists of up to 900 feet of sand and gravel, with clay beds in the middle section. Water from the Antlers is mainly used for irrigation in the outcrop area of North and Central Texas.
>
> Forming the upper unit of the Trinity Group, the Paluxy Formation consists of up to 400 feet of predominantly fine-to-coarse-gained sand interbedded with clay and shale. The formation pinches out downdip and does not occur south of the Colorado River.
>
> Underlying the Paluxy, the Glen Rose Formation forms a gulfward-thickening wedge of marine carbonates consisting primarily of limestone. South of the Colorado River, the Glen Rose is the upper unit of the Trinity Group and is divisible into an upper and lower member. In the north, the downdip portion of the aquifer becomes highly mineralized and is a source of contamination to wells that are drilled into the underlying Twin Mountains.

[10] 31 TEX. ADMIN. CODE §§ 356.

The basal unit of the Trinity Group consists of the Twin Mountains and Travis Peak formations, which are laterally separated by a facies change. To the north, the Twin Mountains formation consists mainly of medium- to coarse-grained sands, silty clays, and conglomerates. The Twin Mountains is the most prolific of the Trinity aquifers in North-Central Texas; however, the quality of the water is generally not as good as that from the Paluxy or Antlers Formations. To the south, the Travis Peak Formation contains calcareous sands and silts, conglomerates, and limestones. The formation is subdivided into the following members in descending order: Hensell, Pearsall, Cow Creek, Hammett, Sligo, Hosston, and Sycamore.

Extensive development of the Trinity aquifer has occurred in the Fort Worth-Dallas region where water levels have historically dropped as much as 550 feet. Since the mid-1970s, many public supply wells have been abandoned in favor of a surface-water supply, and water levels have responded with slight rises. Water-level declines of as much as 100 feet are still occurring in Denton and Johnson counties. The Trinity aquifer is most extensively developed from the Hensell and Hosston members in the Waco area, where the water level has declined by as much as 400 feet."[11]

IV. Technical District Information Required by Texas Water Development Board Rules and Chapter 36 of the Texas Water Code

A. Estimate of Modeled Available Groundwater in District Based on Desired Future Conditions– 31 TAC § 356.52(a)(5)(A) / 36.1071(e)(3)(A)

Section 36.001 of the Texas Water Code defines modeled available groundwater ("MAG") as "the amount of water that the executive administrator determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108." HB 1763 adopted by the 79th Legislature in 2005 provided that the DFCs of the aquifer may only be determined through the joint planning process and must be adopted prior to the statutory deadline of September 1, 2010, and every five years thereafter.

The joint planning process set forth in Texas Water Code § 36.108 must be collectively conducted by all groundwater conservation districts within the same GMA. The District is a member of GMA 8. GMA 8 last adopted DFCs for the northern segment of the Trinity Aquifer that were approved by the TWDB on January 31, 2017. The DFCs adopted for the northern segment of the Trinity Aquifer within the District are described in Table 1 below, and are based on the TWDB GAM Run 10-063. The MAG estimates associated with these DFCs that apply to the District are described in Table 2 below.

The DFCs adopted by the District and GMA 8 represent the quantified, measurable conditions of the groundwater resources of the District in the future. Section 36.001(30) defines desired future condition as "a quantitative description, adopted in accordance with Section 36.108, of the desired

[11] Aquifers of Texas, Texas Water Development Board, Report 345, by Ashworth and Hopkins, November 1995.

condition of the groundwater resources in a management area at one or more specified future times." The District's DFCs are comprehensive tools that indicate how the District intends to monitor and manage its groundwater resources. Overall, the District's DFCs give the amount of water level declines that the District does not want to exceed over a 50-year planning period.

As additional technical and hydrogeological information is gathered by the District, the District will revise and update its management plan and the information contained therein to include the most up-to-date data available. Table 1 summarizes the DFCs adopted by the District and provided on the TWDB to estimate Modeled Available Groundwater (MAG) for the Trinity Aquifer in each of the four countries in the District.

TABLE 1:
DESIRED FUTURE CONDITIONS SUBMITTED TO TEXAS WATER DEVELOPMENT BOARD
MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT[12]

BOSQUE COUNTY

Aquifer (Trinity subdivisions)	Amount average draw down should not exceed after 50 years (feet)
Paluxy	6
Glen Rose	49
Travis Peak	167
Hensell	129
Hosston	201

[12] GAM Run 17-029 MAG, TWDB, Shi, January 19, 2018 **(Appendix K)**.

COMANCHE COUNTY

Aquifer (Trinity subdivisions)	Amount average draw down should not exceed after 50 years (feet)
Glen Rose	1
Travis Peak	2
Hensell	2
Hosston	11
Antlers	9

CORYELL COUNTY

Aquifer (Trinity subdivisions)	Amount average draw down should not exceed after 50 years (feet)
Paluxy	7
Glen Rose	14
Travis Peak	99
Hensell	66
Hosston	130

ERATH COUNTY

Aquifer (Trinity subdivisions)	Amount average draw down should not exceed after 50 years (feet)
Paluxy	1
Glen Rose	5
Twin Mountains	6
Travis Peak	19
Hensell	11
Hosston	31
Antlers	12

Based on the DFC estimates submitted to the Texas Water Development Board, the MAG estimates represent the amount of groundwater that is available from the aquifers located within the District's boundaries in terms of acre-feet per year.

TABLE 2: MODELED AVAILABLE GROUNDWATER ESTIMATES (IN ACRE-FEET PER YEAR) BY DECADE FOR EACH COUNTY IN THE MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT[13]

BOSQUE COUNTY

Aquifer (Trinity subdivisions)	2010	2020	2030	2040	2050	2060	2070
Paluxy	356	358	356	358	356	358	356
Glen Rose	728	731	728	731	728	731	728
Travis Peak	7,678	7,699	7,678	7,699	7,678	7,699	7,678
Hensell	3,835	3,845	3,835	3,845	3,835	3,845	3,835
Hosston	3,762	3,772	3,762	3,772	3,762	3,772	3,762
Total	**16,359**	**16,405**	**16,359**	**16,405**	**16,359**	**16,405**	**16.359**

COMANCHE COUNTY

Aquifer (Trinity subdivisions)	2010	2020	2030	2040	2050	2060	2070
Glen Rose	41	41	41	41	41	41	41
Travis Peak	6,160	6,177	6,160	6,177	6,160	6,177	6,160
Hensell	204	204	204	204	204	204	204
Hosston	5,864	5,881	5864	5881	5864	5881	5864
Antlers	5,839	5,855	5,839	5,855	5,839	5,855	5,839
Total	**18,108**	**18,158**	**18,108**	**18,158**	**18,108**	**18,158**	**18,108**

[13] GAM Run 17-029 MAG, TWDB, Shi, January 19, 2018 **(Appendix K)**.

CORYELL COUNTY

Aquifer (Trinity subdivisions)	2010	2020	2030	2040	2050	2060	2070
Paluxy	0	0	0	0	0	0	0
Glen Rose	120	120	120	120	120	120	120
Travis Peak	4,371	4,383	4,371	4,383	4,371	4,383	4,371
Hensell	2,196	2,202	2,196	2,202	2,196	2,202	2,196
Hosston	2,161	2,167	2,161	2,167	2,161	2,167	2,161
Total	**8,848**	**8,872**	**8,848**	**8,872**	**8,848**	**8,872**	**8,848**

ERATH COUNTY

Aquifer (Trinity subdivisions)	2010	2020	2030	2040	2050	2060	2070
Paluxy	61	61	61	61	61	61	61
Glen Rose	1,078	1,081	1,078	1,081	1,078	1,081	1,078
Twin Mountains	5,017	5,031	5,017	5,031	5,017	5,031	5,017
Travis Peak	11,815	11,849	11,815	11,849	11,815	11,849	11,815
Hensell	5,137	5,151	5,137	5,151	5,137	5,151	5,137
Hosston	6,383	6,400	6,383	6,400	6,383	6,400	6,383
Antlers	2,628	2,636	2,628	2,636	2,628	2,636	2,628
Total	**32,119**	**32,209**	**32,119**	**32,209**	**32,119**	**32,209**	**32,119**

MODELED AVAILABLE GROUNDWATER TOTALS FOR ALL FOUR COUNTIES (IN ACRE-FEET PER YEAR)

Aquifer (Trinity subdivisions)	2010	2020	2030	2040	2050	2060	2070
Paluxy	417	419	417	419	417	419	417
Glen Rose	1,967	1,973	1,967	1,973	1,967	1,973	1,967
Twin Mountains	5,017	5,031	5,017	5,031	5,017	5,031	5,017
Travis Peak	30,024	30,108	30,204	30,108	30,204	30,108	30,024
Hensell	11,372	11,402	11,372	11,402	11,372	11,402	11,372
Hosston	18,170	18,220	18,170	18,220	18,170	18,220	18,170
Antlers	8,467	8,491	8,467	8,491	8,467	8,491	8,467
Total	**75,434**	**75,644**	**75,434**	**75,644**	**75,434**	**75,644**	**75,434**

B. Amount of Groundwater Being Used within the District on an Annual Basis - 31 TAC §356.52(a)(5)(B) / TWC § 36.1071(e)(3)(B)

To estimate the annual amount of groundwater being used in the District, the District relies on TWDB's Estimated Historical Water Use Survey Data. Details on the total amount of groundwater use for years 2000 through 2019 based on TWDB Water Use Survey Data are attached as Appendix B.

See Appendix B

C. Annual Amount of Recharge From Precipitation to the Groundwater Resources within the District – 31 TAC § 356.52(a)(5)(C) / TWC 36.1071(e)(3)(C)

The estimated total amount of annual recharge from precipitation within the District 74,326 acre-feet from the Trinity Aquifer and 515 acre-feet from the Brazos River Alluvium Aquifer. The estimated amount of recharge was derived from information provided in the Texas Water Development Board GAM Run 21-006. As additional technical and hydrogeological information is gathered by the District, the District will revise and update its management plan and the information contained therein to include the most up-to-date data available. Texas Water Development Board GAM Run 21-006 is attached as Appendix J.

See Appendix J

D. Water Supply Needs - TWC § 36.1071(e)(4)

The District has reviewed and considered the 2022 State Water Plan data on water supply needs within the District. TWDB defines "water supply needs" as the projected water demands that are in excess of existing water supplies for a water user group or wholesale water provider. Water supply needs for the District exist for: municipal (Clifton, Copperas Cove, County-Other (All Counties), Elm Creek WSC, Flat WSC, Fort Gates WSC, Gatesville, Gordon, Highland Park WSC, Kempner WSC, Multi County WSC, Mustang Valley WSC, Irrigation (Bosque and Comanche), Manufacturing (Erath), and Mining (Bosque, Comanche, Coryell). The 2022 State Water plan projects a total water supply need across all user groups in the District of 20,764 acre-feet by 2020, rising to 27,245 acre-feet by 2070. More detailed data from the 2022 State Water Plan on projected water supply need within the District is attached as Appendix C.

See Appendix C

E. Projected Surface Water Supply within the District – 31 TAC § 356.52(a)(5)(F) / TWC § 36.1071(e)(3)(F)

The 2022 State Water Plan indicates a projected surface water supply for the District of approximately 47,436 acre-feet per year in 2020, decreasing to approximately 42,938 acre-feet per year in 2070. Data from the TWDB on the projected amount of surface water supply in the District is attached as Appendix D.

See Appendix D

F. Projected Water Demand within the District – 31 TAC § 356.52(a)(5)(G) / TWC § 36.1071(e)(3)(G)

The 2022 State Water Plan indicates a projected total water demand for the area within the District of 95,417 acre-feet per year for year 2070. Details on the total demand for water in the District based on the 2022 State Water Plan are attached as Appendix E.

See Appendix E

G. Annual Volume of Water that Discharges from the Aquifer to Springs and Surface Water Bodies – 31 TAC § 356.52(a)(5)(D) / TWC § 36.1071(e)(3)(D)

The estimated total annual volume of water that discharges to springs and any surface water body including lakes, streams, and rivers is 98,150 acre-feet per year from the Trinity Aquifer and 800 acre-feet per year from the Brazos River Alluvium Aquifer. These amounts were derived from GAM Run 21-006 provided to the District by TWDB staff.

See Appendix J

H. Estimate of the Annual Volume of Flow into the District, out of the District, and Between Aquifers in the District – 31 TAC § 356.5(a)(5)(E) / TWC § 36.1071(e)(3)(E)

- Per GAM Run 21-006, the estimate of the Annual Volume of Flow in the District is 29,718 acre-feet from the Trinity Aquifer and 224 acre-feet from the Brazos River Alluvium Aquifer.

- Per GAM Run 21-006, the estimate of the Annual Volume of Flow out of the District is 33,951 acre-feet from the Trinity Aquifer and 242 acre-feet from the Brazos River Alluvium Aquifer.

- Per GAM Run 21-006, the estimate of the Net Annual Volume of Flow is 30,546 acre-feet from the Washita Group of the Cretaceous System to the Trinity Aquifer and 82 acre-feet from older underlying units to the Brazos River Alluvium Aquifer.

NOTE: The amounts provided in Section H reflect the most recent information available from the Texas Water Development Board. As additional technical and hydrogeological information is gathered by the District, the District will revise and update its management plan and the information contained therein to include the most up-to-date data available.

See Appendix J

I. Projected Water Management Strategies – TWC § 36.1071(e)(4)

The District reviews and considered projected water management strategies and participates in TWDB Regional Water Planning efforts by seeking to maintain a voting member position on the Brazos (Region G) Planning Group. The District works with other Groundwater Conservation Districts in Region G to assess potential water management strategies and provide local insight regarding technical groundwater data and insights to support the Modeled Available Groundwater (MAG) estimates by TWDB.

In managing its groundwater supplies, the District considers the water management strategies contained in the 2022 State Water Plan. These strategies include development of groundwater and surface water supplies, purchase of surplus surface water supplies, and demand reduction through water conservation.

There are twelve strategies from Bosque County and two depend on groundwater in the amount of 1,317 acre-feet per year from the Trinity Aquifer by 2070. There are six strategies for Comanche County and two of those require Trinity Aquifer groundwater in the amount of 766 acre-feet per year. In Coryell County, there are twenty-four strategies but only one relies on groundwater in the amount of 1,270 acre-feet per year from the Trinity Aquifer in 2070. There are three strategies relying on Trinity Aquifer groundwater in Erath County that require 839 acre-feet per year in 2070 in total.

See Appendix F for a summary of the projected water management strategies from the TWDB 2022 State Water Plan.

V. Management of Groundwater Supplies –TWC § 36.1071(e)(4)

The Texas Legislature has established that groundwater conservation districts ("GCDs"), such as the Middle Trinity Groundwater Conservation District ("District"), are the state's preferred method of groundwater management. The Texas Legislature codified its policy decision in Section 36.0015 of the Texas Water Code, which establishes that GCDs will manage groundwater resources through rules developed and implemented in accordance with Chapter 36 of the Texas Water Code ("Chapter 36"). Chapter 36 gives directives to GCDs and the statutory authority to carry out such directives, so that GCDs are given the proper tools to protect and manage the groundwater resources within their boundaries.

The District has used and will continue to use in the future the regulatory tools it has been provided by Chapter 36 and the Texas Legislature to address the many challenges facing the District including the significant threats to the water quality of the groundwater resources of the District. The District places a major priority on prevention of the contamination of its groundwater resources through abandoned and deteriorated water wells. Wells that have been abandoned or not properly maintained provide direct conduits or pathways that allow contamination from the surface to quickly reach the groundwater resources of the District. To address the threats to the water quality of its groundwater resources, the District has taken steps to increase the number of abandoned or deteriorated water wells that are plugged and intends to take additional action to plug wells in the future. The District has created a well plugging grant program with District funds which provides funding on an as-available basis for residents of the District to plug the abandoned and deteriorated wells that are located on their property. In addition, the District requires, through the District's rules that all abandoned, deteriorated, or replaced wells be plugged in compliance with the Water Well Drillers and Pump Installers Rules of the Texas Department of Licensing and Regulation. The District has also places a priority on the capping of water wells which will be used a later date in order to eliminate waste, prevent pollution, and prevent further deterioration of the well casing.

It has also been the practice of the District to use the regulatory tools granted to GCDs by Chapter 36 to preserve and protect the existing and historic users of groundwater in the District. The legislature empowered the District to protect existing users of groundwater, which are those individuals or entities currently invested in and using groundwater or the groundwater resources within the District for a beneficial purpose, and preserve historic use by historic users, which are those individuals or entities who used groundwater beneficially in the past. The District strives to protect and preserve such use to the extent practicable under the goals and objectives of this management plan.

The District has created a permitting process for groundwater use that preserves and protects the existing and historic use of groundwater in the District. Pursuant to legislative authority, such as Section 36.113(e) of the Texas Water Code, the District protects existing use by imposing more restrictive permit conditions on new permit applications and increased use by historic users. In protecting existing users, the District has established limitations that apply to all subsequent new

permit applications and increased use by historic users, regardless of type or location of use, which bear a reasonable relationship to this management plan; and are reasonably necessary to protect existing use. In accordance with Section 36.116(b), Water Code, the District has also preserved historic use when developing and implementing rules which limit groundwater production to the maximum extent practicable consistent with this management plan. Under the District's permitting process, non-exempt groundwater users who have existing or historic use receive Grandfather Permits, while all new groundwater users and those existing and historic users who need an increased amount of groundwater production through new wells or modifications to existing wells obtain Operating Permits.

The Grandfather Permits issued by the District under the District's rules have an important role as part of the District's overall permitting process because those wells that operate under Grandfather Permits issued by the District are authorized to produce water in an amount that the well was capable of producing before May 11, 2004 for Comanche and Erath Counties, which was the date of the original adoption of the District rules, before November 19, 2009, for wells located in Bosque County, and before June 15, 2010 for wells located in Coryell County. The District's rules provide that the District can only reduce the amount of groundwater allocated to Grandfather Permits after groundwater allocated to Operating Permits has been reduced and further reduction is required to achieve the goals and objectives of the District management plan or to make water available for the issuance of new Operating Permits or to account for groundwater use from exempt wells.

The District issues Operating Permits for the water wells in the District that are considered to be non-exempt, including those non-exempt wells that have not received a Grandfather Permit. In accordance with § 36.116 of the Texas Water Code, the rules of the District regulate the production of groundwater under Operating Permits issued by the District through spacing and production limits.

The District also has the authority in its rules to establish management zones by resolution of the District Board if, using the best hydrogeologic and geographic data available, the Board determines that management zones are necessary for the administration of groundwater management and regulation in the District. Any management zones created by the District will serve as areas for which the District will determine water availability if necessary to avoid impairment of and consistency with the achievement of the applicable Desired Future Conditions established for the aquifers located in whole or in part within the boundaries of the District, authorize total production, establish proportional reduction of production amongst classes of permittees, and within which the District may allow the transfer of wells and/or the right to produce groundwater. If the District creates management zones, the District's rules provide that the management zones will be delineated along boundaries that, to the extent practicable, will promote fairness and efficiency in the management of groundwater resources, while considering hydrogeologic conditions, and the ability of the public to identify the boundaries based upon land surface features.

In managing its groundwater supplies, the District has taken into account the water management strategies contained in the 2022 State Water Plan which can be found in Appendix F. There are twelve strategies from Bosque County, six strategies for Comanche County, twenty four strategies for Coryell County, and five strategies for Erath County. These strategies include development of

groundwater and surface water supplies, purchase of surplus surface water supplies, and demand reduction through water conservation.

VI. Methodology to Track District Progress in Achieving Management Goals – 31 TAC § 356.52(a)(4)

An annual report ("Annual Report") is created by the General Manager and staff of the District and provided to the members of the Board of the District. The Annual Report covers the activities of the District including information on the District's performance in regards to achieving the District's management goals and objectives. The Annual Report is delivered to the Board within ninety (90) days following the completion of the District's fiscal year, and began with the fiscal year that started on January 1, 2005. A copy of the Annual Report is kept on file and available for public inspection at the District's offices upon adoption.

VII. Actions, Procedures, Performance, and Avoidance for District Implementation of Management Plan – 31 TAC § 356.52(a)(2); 31 TAC § 356.52(a)(3); 31 TAC § 356.52(a)(4) / § 36.1071(e)(1) and § 36.1071(e)(2)

The District has acted on the goals and directives established in this management plan. The District has also used the objectives and provisions of the management plan as a guideline in its policy-implementation and decision-making. In both its daily operations and long term planning efforts, the District continuously strives to comply with the initiatives and standards created by the management plan for the District.

After receiving public input, the District adopted rules in accordance with Chapter 36 of the Texas Water Code and all rules must be followed and enforced. The District may amend the District rules as necessary to comply with changes to Chapter 36 of the Texas Water Code and to insure the best management of the groundwater within the District. The continued development and enforcement of the rules of the District has been and will continue to be based on the best scientific and technical evidence available to the District. A copy of the District's rules can be found at http://middletrinitygcd.org/rules/.

The District has encouraged and will continue to encourage public cooperation and coordination in the implementation of the management plan for the District, as it is amended. All operations and activities of the District have been and will be performed in a manner that best encourages cooperation with the appropriate state, regional or local water entity. The meetings of the Board of the District are noticed and conducted at all times in accordance with the Texas Open Meetings Law. The District has also made available for public inspection all official documents, reports, records and minutes of the District pursuant with the Texas Public Information Act and will continue to do so in the future.

VIII. Management Goals

A. Providing the Most Efficient Use of Groundwater – 31 TAC § 356.52(a)(1)(A) / TWC § 36.1071(a)(1)

A. 1. **Objective –** Annually, the District will require all new water wells that are constructed within the boundaries of the District to be registered with the District pursuant to the District rules.

A. 1. **Performance Standard –** The number of water wells registered by the District for each year will be included in the Annual Report submitted to the Board of Directors of the District.

A. 2. **Objective –** The District will annually require all water wells subject to the District's permitting requirements to be permitted pursuant to the District rules.

A. 2. **Performance Standard** – The number of water wells permitted by the District for each year will be included in the Annual Report submitted to the Board of Directors of the District.

A. 3. **Objective –** The District will annually regulate the production of groundwater by maintaining a system of permitting which authorizes the use and production of groundwater within the boundaries of the District pursuant to the District rules.

A. 3. **Performance Standard –** The District will annually accept and process applications for the permitted use of groundwater in the District in accordance with the permitting system established by the District rules. The number and type of applications made for the permitted use of groundwater in the District, and the number and type of permits issued by the District, will be included in the Annual Report given to the Board of Directors.

A.4. **Objective –** The District will annually attempt to increase the public awareness regarding the purpose, objectives, and mission of the District.

A.4. **Performance Standard** – The District will provide at least two of the following on annual basis: informational presentations to public service organizations or community groups; informational radio spots; or manned kiosks at public expositions.

B. Controlling and Preventing Waste of Groundwater – 31 TAC § 356.52(a)(1)(B) / TWC § 36.1071(a)(2)

B. 1. **Objective –** At least once each year, the District will evaluate the District rules to identify whether any amendments are needed to reduce the amount of waste of groundwater within the boundaries of the District.

B. 1. **Performance Standard –** The District will include a discussion of the annual evaluation of the District rules and the determination of whether any amendments to the rules are needed to prevent the waste of groundwater in the Annual Report of the District provided to the Board of Directors.

B. 2. **Objective –** The District will annually provide information to the public on eliminating and reducing wasteful practices in the use of groundwater by publishing information on groundwater waste reduction on the District's website at least once a year.

B. 2. **Performance Standard –** A copy of the information on groundwater waste reduction will be provided on the District's website and the information on the published on the website will be included in the District's Annual Report to be provided to the District's Board of Directors.

B.3. **Objective** – The District will require the plugging of at least one (1) deteriorated or abandoned well identified by the District in accordance with the Texas Department of Licensing and Regulation, Water Well Drillers and Pump Installers Rules (16 Texas Administrative Code, Chapter 76).

B.3. **Performance Standard** – At least once each year, the District will produce a report that describes the activities of the District in plugging a deteriorated or abandoned water well identified by the District and the report will be included in the Annual Report given to the Board of Directors of the District. If the District is not able to identify a deteriorated or abandoned well within its boundaries in a particular year, the District will include a discussion in the Annual Report that no deteriorated or abandoned well was identified in the District for the applicable year.

B.4. **Objective** – The District will provide at least one request each year to the Texas Railroad Commission which asks whether any new salt water or waste disposal injection wells have been permitted by the Texas Railroad Commission to operate within the District within the most recent fiscal year.

B.4. **Performance Standard** – A copy of each request provided to the Texas Railroad Commission each year requesting information regarding the location of any new salt water or waste disposal wells permitted to operate within the District will be included in the Annual Report submitted to the Board of Directors of the District.

B.5. **Objective** – The District will transmit at least one request each year to the Texas Railroad Commission which asks that the Commission provide a copy of the results of integrity tests performed on salt water or waste disposal injection wells permitted by the Texas Railroad Commission to operate within the District.

B.5. **Performance Standard** – A copy of each letter sent to the Texas Railroad Commission each year requesting the results of the integrity testing performed on salt water or waste disposal injection wells permitted by the Texas Railroad Commission to operate within the District will be included in the Annual Report submitted to the Board of Directors of the District.

C. Addressing Conjunctive Surface Water Management Issues – 31 TAC § 356.52(a)(1)(D) / TWC § 36.1071(a)(4)

C. 1. **Objective –** Each year, the District will participate in the regional planning process by attending at least 25 percent of the Region G (Brazos G) – Regional Water Planning Group meetings to encourage the development of surface water supplies to meet the needs of water user groups in the District.

C. 1. **Performance Standard –** The attendance of a District representative at the Region G Regional Water Planning Group meeting(s) will be noted in the Annual Report presented to the District Board of Directors and will provide the total number of meetings conducted by the Region G Regional Water Planning Group for that year and will indicate how many of the meetings were attended by the District.

D. Addressing Natural Resource Issues – 31 TAC § 356.52(a)(1)(E) / TWC § 36.1071(a)(5)

D. 1. **Objective** – The District will monitor water quality on an annual basis within the District by obtaining water quality samples from at least one well in each of the counties in the District.

D. 1. **Performance Standard** – The District's Annual Report will include a summary of the number of water quality samples obtained and the results of the water quality tests for each well sampled.

E. Addressing Drought Conditions – 31 TAC § 356.5(a)(1)(F) / TWC § 36.1071(a)(6)

E. 1. **Objective –** The District will monitor drought conditions in the Trinity Aquifer each year through the process established in the District's Drought Contingency Plan adopted by the District Board of Directors. Additional drought information will be accessed from the TWDB Water Data for Texas https://www.waterdatafortexas.org/drought/.

E. 1. **Performance Standard –** The District's Annual Report will include a summary of the District's monitoring of drought conditions in the Trinity Aquifer and any implementation measures taken in accordance with the District's Drought Contingency Plan. The District will make an assessment

of the status of drought and will prepare a quarterly briefing to the Board of Directors that includes a discussion of whether the District has declared any drought stages set forth in its Drought Contingency Plan for the previous quarter.

E. 2. **Objective –** The District will download the updated Palmer Drought Severity Index (PDSI) maps and review soil moisture index readings for the area within the District's boundaries on a quarterly basis.

E. 2. **Performance Standard –** The District will review the PDSI maps and soil moisture index readings and will prepare a quarterly briefing to the Board of Directors that includes a discussion of the PDSI maps and soil moisture index readings. The downloaded PDSI maps and soil moisture index readings will be included with copies of the quarterly briefing in the District's Annual Report.

F. Conservation, Recharge Enhancement, Rainwater Harvesting, and Brush Control – 31 TAC § 356.5(a)(1)(G) / TWC § 36.1071(a)(7)

F. 1. **Objective** – The District will submit at least one article regarding water conservation for publication each year to at least one newspaper of general circulation in the District.

F. 1. **Performance Standard –** A copy of the article submitted by the District for publication to a newspaper of general circulation in the District regarding water conservation will be included in the Annual Report given to the Board of Directors.

F. 2. **Objective** – The District will present a pre-existing educational program for use in public or private schools in the District at least once each year to educate students on the importance of water conservation.

F. 2. **Performance Standard –** A description of the educational program presentation(s) by the District for use in the public and private schools in the District will be included in the Annual Report to the Board of Directors each year.

F. 3. **Objective** – On an annual basis, the District will distribute an informational flier on water conservation during at least two public events that occur within the District's boundaries..

F. 3. **Performance Standard –** The District's Annual Report will include a copy of the most recent informational flier on water conservation and will also include information on the public events where the flier was distributed.

F. 4. **Objective –** The District will provide information relating to recharge enhancement on the District web site at least once each year.

F. 4. **Performance Standard –** The District's Annual Report will include a copy of the information provided on the District web site related to recharge enhancement.

F. 5. **Objective –** The District will provide information on rainwater harvesting each year by offering new information about rainwater harvesting on the District web site at least once each year.

F. 5. **Performance Standard –** The District's Annual Report will provide a copy of the information on rainwater harvesting which has been posted on the District web site in the previous year.

F. 6. **Objective –** The District will evaluate the State Brush Control Plan as it is revised from time to time at least once each year to determine whether projects within the District will increase the groundwater resources of the District.

F. 6. **Performance Standard –** Upon review of a newly revised State Brush Control Plan, the District's Annual Report will include a copy of the most recent brush control information pertaining to the District.

G. Addressing the Desired Future Conditions – 31 TAC § 356.5(a)(1)(H) / TWC § 36.1071(a)(8)

G. 1. **Objective –** The District will annually measure the water levels in at least five monitoring wells in each of the counties within the District and will determine the five-year water level averages based on the measures taken. The District will compare the five-year water level averages to the corresponding five-year increment of its Desired Future Conditions in order to track its progress in achieving the Desired Future Conditions

G. 1. **Performance Standard –** The District's Annual Report will include the water level measurements taken each year for the purpose of monitoring water levels to assess the District's progress towards achieving its Desired Future Conditions. Once the District has obtained water level measurements for five consecutive years and is able to calculate water level averages over five-year periods thereafter, the District will include a discussion of its comparison of water level averages to the corresponding five-year increment of its Desired Future Conditions in order to track its progress in achieving its Desired Future Conditions.

G. 2. **Objective –** The District will review and calculate its permit and well registration totals in light of the Desired Future Conditions of the groundwater resources within the boundaries of the District to assess whether the District is on target to meet the Desired Future Conditions estimates submitted to the TWDB.

G. 2. **Performance Standard –** The District's Annual Report will include a discussion of the District's permit and well registration totals and will evaluate the District's progress in achieving the Desired Future Conditions of the groundwater resources within the boundaries of the District and whether the District is on track to maintain the Desired Future Conditions estimates over the 50 year planning period.

IX. Management Goals Not Applicable to District

A. Controlling and Preventing Subsidence – 31 TAC § 356.5(a)(1)(C) / TWC § 36.1071(a)(3) – The District has reviewed the TWDB Report on Identification of the Vulnerability of the Major and Minor Aquifers of Texas to Subsidence with Regard to Groundwater Pumping.[14] The subsidence risk vulnerability of the Trinity Aquifer within the District is indicated as low to medium risk. The District believes that the relatively small estimates of land surface subsidence to date and the projected estimates of subsidence in the Trinity Aquifer in the District are not significant. Therefore, the District believes this management goal is not applicable. The District will continue to review the most current research on subsidence risk vulnerability and may determine this management goal to be applicable in the future.

B. Addressing Precipitation Enhancement – 31 TAC §·356.5(a)(1)(G) / TWC § 36.1071(a)(7) – Precipitation enhancement is not a cost effective or appropriate program for the District at this time since there are no precipitation enhancement programs in nearby counties or groundwater conservation districts that the District could participate with and allocate expenses for precipitation enhancement projects. Therefore, this management goal is not applicable.

X. Action Required for Plan Approval – 31 TAC § 356.53

A. Certified Copy of District's Resolution Re-Adopting Management Plan – 31 TAC § 356.53(a)(3)

A certified copy of the District's resolution re-adopting the plan is located in Appendix G – District Resolution.

[14] *Identification of the Vulnerability of the Major and Minor Aquifers of Texas to Subsidence with Regard to Groundwater Pumping*, Texas Water Development Board Report, by Furnans, et. al., March 2017.

B. Evidence of Management Plan Adoption After Notice and Hearing – 31 TAC § 356.52(a)(3) / TWC § 36.1071(a)

Evidence, such as public notices, that the management plan was re-adopted following applicable public meetings and hearings is located in Appendix H - Notice of Meetings.

C. Coordination with Surface Water Management Entities – 31 TAC § 356.6(a)(4) / TWC § 36.1071(a)

Evidence, such as correspondence with regional water planning groups and/or other surface water authorities or management entities, which demonstrates that the District coordinated with surface water management entities in regards to re-adopting the District's management plan is located in Appendix I.

References

1. 2022 State Water Planning Database. Contact Wendy Barron (wendy.barron@twdb.texas.gov or 512-936-0886).

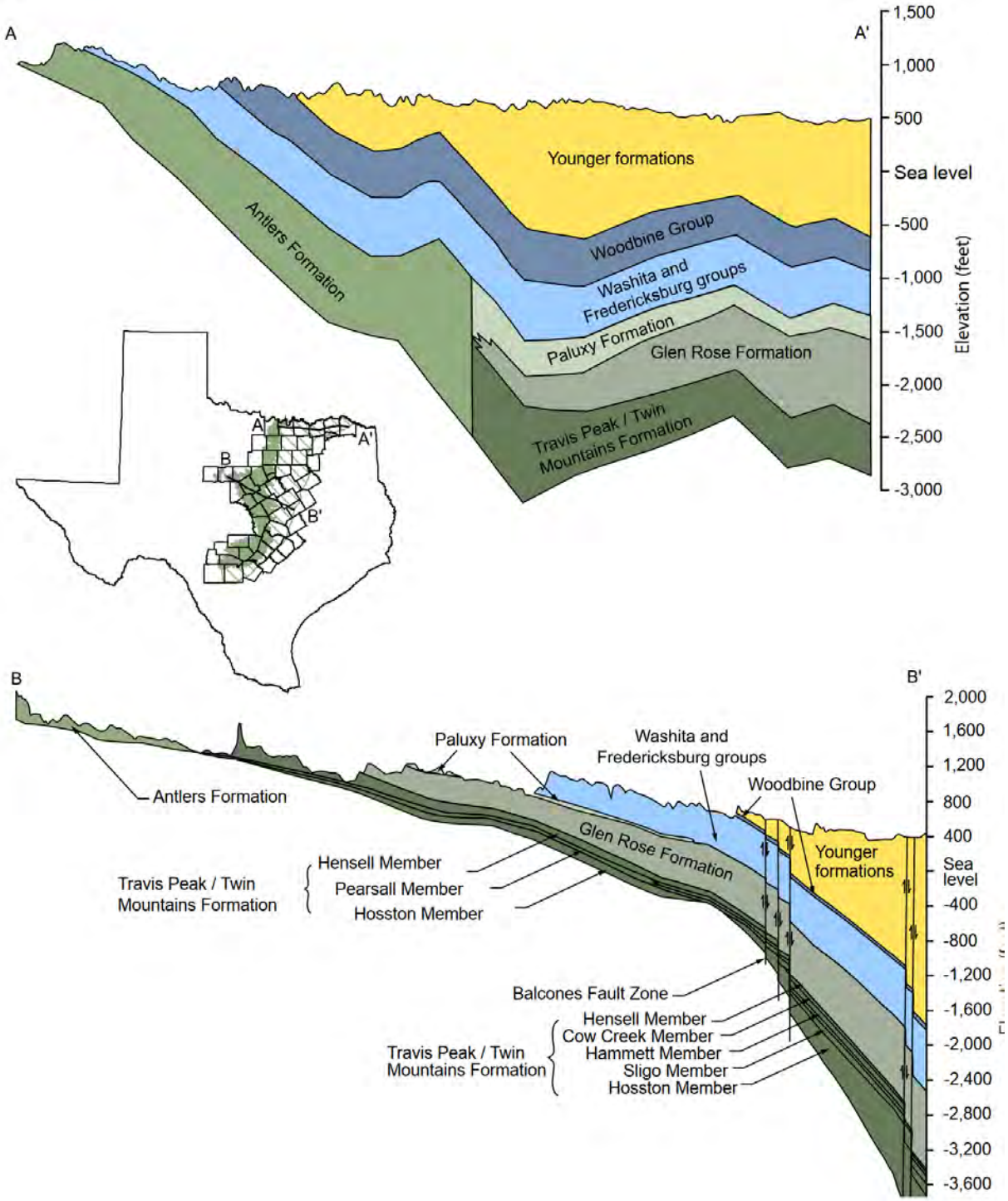
2. *Aquifers of Texas*, Texas Water Development Board, Report 380, by George, Mace, and Petrossian, July 2011.

3. Texas Almanac 2008-2009, The Dallas Morning News.

4. *Identification of the Vulnerability of the Major and Minor Aquifers of Texas to Subsidence with Regard to Groundwater Pumping*, Texas Water Development Board Report, by Furnans, et. al., March 2017.

APPENDIX A

Trinity Aquifer Map and Cross Section


A
A'
1,500
1,000
500
Sea level
-500
-1,000
-1,500
-2,000
-2,500
-3,000
Elevation (feet)
Younger formations
Antlers Formation
Woodbine Group
Washita and Fredericksburg groups
Paluxy Formation
Glen Rose Formation
Travis Peak / Twin Mountains Formation
A
A'
B
B'
B
B'
2,000
1,600
1,200
800
400
Sea level
-400
-800
-1,200
-1,600
-2,000
-2,400
-2,800
-3,200
-3,600
Antlers Formation
Paluxy Formation
Washita and Fredericksburg groups
Woodbine Group
Glen Rose Formation
Younger formations
Travis Peak / Twin Mountains Formation
Hensell Member
Pearsall Member
Hosston Member
Balcones Fault Zone
Travis Peak / Twin Mountains Formation
Hensell Member
Cow Creek Member
Hammett Member
Sligo Member
Hosston Member

APPENDIX B

Amount of Groundwater Being Used within the District on an Annual Basis

Estimated Historical Water Use
TWDB Historical Water Use Survey (WUS) Data

Groundwater and surface water historical use estimates are currently unavailable for calendar year 2020. TWDB staff anticipates the calculation and posting of these estimates at a later date.

BOSQUE COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	2,218	2	0	0	1,792	296	4,308
	SW	499	1	0	2,426	729	690	4,345
2018	GW	2,706	2	0	1	2,330	296	5,335
	SW	242	1	0	2,434	647	690	4,014
2017	GW	2,568	2	0	1	2,281	287	5,139
	SW	173	1	0	2,294	338	670	3,476
2016	GW	2,517	2	0	1	1,568	229	4,317
	SW	231	1	0	2,715	136	535	3,618
2015	GW	2,445	2	0	1	2,079	223	4,750
	SW	251	1	0	2,880	158	520	3,810
2014	GW	2,546	2	0	0	1,431	219	4,198
	SW	313	1	0	0	1,934	511	2,759
2013	GW	2,887	2	0	0	650	206	3,745
	SW	284	0	1	0	2,473	479	3,237
2012	GW	3,043	2	0	0	1,937	218	5,200
	SW	314	0	0	0	2,668	509	3,491
2011	GW	3,388	1	1	0	0	418	3,808
	SW	454	0	4	0	3,500	976	4,934
2010	GW	2,735	1	1,166	0	458	407	4,767
	SW	433	0	1,221	0	2,836	950	5,440
2009	GW	2,488	250	877	0	56	285	3,956
	SW	283	704	919	1,589	2,054	665	6,214
2008	GW	2,293	251	589	0	1,334	269	4,736
	SW	295	703	617	1,589	1,151	628	4,983
2007	GW	2,391	252	0	0	321	317	3,281
	SW	244	705	0	1,589	2,362	741	5,641
2006	GW	2,626	253	0	0	687	319	3,885
	SW	473	703	0	1,589	1,500	744	5,009
2005	GW	3,436	704	0	0	625	293	5,058
	SW	365	3	0	2,106	713	683	3,870
2004	GW	2,749	704	0	0	615	499	4,567
	SW	255	3	0	1,603	1,823	499	4,183

COMANCHE COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	100	2	16	0	18,511	846	19,475
	SW	1,270	10	0	0	11,173	2,539	14,992
2018	GW	115	2	0	0	22,783	824	23,724
	SW	1,441	8	0	0	6,617	2,473	10,539
2017	GW	185	2	0	0	18,251	809	19,247
	SW	1,522	8	0	0	9,375	2,429	13,334
2016	GW	182	2	0	0	20,759	675	21,618
	SW	1,617	11	0	0	2,714	2,026	6,368
2015	GW	311	3	0	0	18,084	658	19,056
	SW	1,408	10	0	0	3,102	1,974	6,494
2014	GW	438	3	0	0	23,785	786	25,012
	SW	707	14	0	0	5,524	2,358	8,603
2013	GW	516	7	0	0	23,598	748	24,869
	SW	736	7	0	0	7,845	2,245	10,833
2012	GW	638	5	0	0	25,815	827	27,285
	SW	731	7	0	0	12,788	2,481	16,007
2011	GW	699	7	0	0	25,617	852	27,175
	SW	820	11	0	0	10,413	2,555	13,799
2010	GW	686	4	475	0	10,278	841	12,284
	SW	748	8	120	0	14,923	2,520	18,319
2009	GW	603	6	238	0	19,620	979	21,446
	SW	759	13	60	0	8,798	2,937	12,567
2008	GW	535	8	1	0	17,077	962	18,583
	SW	827	7	0	0	11,068	2,888	14,790
2007	GW	516	3	0	0	18,013	855	19,387
	SW	769	23	0	0	4,373	2,566	7,731
2006	GW	609	3	0	0	18,931	1,053	20,596
	SW	894	23	0	0	12,010	3,159	16,086
2005	GW	566	4	0	0	16,853	1,020	18,443
	SW	849	22	0	0	11,984	3,058	15,913
2004	GW	534	3	0	0	16,455	700	17,692
	SW	665	18	0	0	8,168	3,006	11,857

CORYELL COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	567	0	0	0	389	157	1,113
	SW	11,933	3	0	0	14	887	12,837
2018	GW	555	0	0	0	365	157	1,077
	SW	11,819	4	0	0	2	887	12,712
2017	GW	629	0	0	0	364	151	1,144
	SW	11,823	2	0	0	0	855	12,680
2016	GW	467	0	0	0	204	178	849
	SW	11,959	2	0	0	14	1,011	12,986
2015	GW	392	0	0	0	193	175	760
	SW	12,215	2	0	0	168	991	13,376
2014	GW	430	0	0	0	215	170	815
	SW	11,574	2	0	0	0	965	12,541
2013	GW	1,208	0	0	0	254	169	1,631
	SW	11,595	2	0	0	5	957	12,559
2012	GW	1,788	0	0	0	516	146	2,450
	SW	12,152	4	0	0	0	829	12,985
2011	GW	1,717	0	0	0	89	184	1,990
	SW	12,501	4	0	0	56	1,044	13,605
2010	GW	2,056	0	195	0	144	180	2,575
	SW	12,244	3	202	0	271	1,023	13,743
2009	GW	1,765	0	150	0	238	134	2,287
	SW	13,338	0	155	0	8	759	14,260
2008	GW	1,373	0	105	0	240	183	1,901
	SW	13,518	0	108	0	33	1,034	14,693
2007	GW	1,285	0	0	0	46	232	1,563
	SW	12,196	0	0	0	100	1,312	13,608
2006	GW	1,431	0	0	0	154	291	1,876
	SW	12,024	0	0	0	28	1,651	13,703
2005	GW	1,364	0	0	0	171	264	1,799
	SW	11,735	0	0	0	50	1,494	13,279
2004	GW	1,272	0	0	0	188	683	2,143
	SW	12,114	0	0	0	0	683	12,797

ERATH COUNTY

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	3,671	65	0	0	7,351	1,783	12,870
	SW	429	0	4	0	153	4,159	4,745
2018	GW	3,871	67	0	0	7,218	1,742	12,898
	SW	460	0	0	0	332	4,066	4,858
2017	GW	3,854	63	0	0	7,050	1,688	12,655
	SW	400	0	0	0	82	3,938	4,420
2016	GW	4,079	60	0	0	6,334	1,270	11,743
	SW	392	0	0	0	56	2,964	3,412
2015	GW	3,981	48	0	0	6,077	1,220	11,326
	SW	487	1	0	0	61	2,846	3,395
2014	GW	4,236	54	0	0	7,245	1,507	13,042
	SW	637	0	0	0	156	3,516	4,309
2013	GW	4,305	57	0	0	6,396	1,583	12,341
	SW	665	0	0	0	396	3,695	4,756
2012	GW	4,468	74	1	0	6,881	1,791	13,215
	SW	693	0	4	0	582	4,180	5,459
2011	GW	4,952	69	0	0	7,288	1,885	14,194
	SW	629	1	0	0	750	4,397	5,777
2010	GW	4,188	60	1,007	0	4,867	1,842	11,964
	SW	447	1	1,205	0	571	4,298	6,522
2009	GW	3,998	38	579	0	4,608	2,021	11,244
	SW	439	8	693	0	406	4,717	6,263
2008	GW	3,967	69	151	0	6,177	1,981	12,345
	SW	444	9	180	0	859	4,623	6,115
2007	GW	3,583	69	0	0	4,829	1,650	10,131
	SW	427	5	0	0	276	3,849	4,557
2006	GW	4,218	40	0	0	6,923	2,267	13,448
	SW	413	30	0	0	766	5,290	6,499
2005	GW	4,048	31	0	0	6,988	2,134	13,201
	SW	417	27	0	0	559	4,978	5,981
2004	GW	3,811	31	0	0	6,395	3,604	13,841
	SW	434	19	0	0	969	3,604	5,026

APPENDIX C

Water Supply Needs

Projected Water Supply Needs
TWDB 2022 State Water Plan Data

Negative values (in red) reflect a projected water supply need, positive values a surplus.

BOSQUE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	CHILDRESS CREEK WSC	BRAZOS	169	147	139	133	128	124
G	CLIFTON	BRAZOS	214	120	59	13	-30	-70
G	COUNTY-OTHER, BOSQUE	BRAZOS	117	61	39	30	26	0
G	CROSS COUNTRY WSC	BRAZOS	55	57	57	57	55	53
G	HIGHLAND PARK WSC	BRAZOS	-58	-67	-72	-76	-79	-82
G	HILCO UNITED SERVICES	BRAZOS	50	41	34	25	15	5
G	IRRIGATION, BOSQUE	BRAZOS	-1,366	-1,366	-1,366	-1,366	-1,366	-1,366
G	LIVESTOCK, BOSQUE	BRAZOS	0	0	0	0	0	0
G	MANUFACTURING, BOSQUE	BRAZOS	237	235	235	235	235	235
G	MERIDIAN	BRAZOS	252	240	228	208	187	167
G	MINING, BOSQUE	BRAZOS	-806	-905	-726	-706	-667	-655
G	MUSTANG VALLEY WSC	BRAZOS	19	-14	-30	-39	-47	-52
G	SMITH BEND WSC	BRAZOS	116	110	108	107	105	130
G	STEAM ELECTRIC POWER, BOSQUE	BRAZOS	3,621	3,621	3,621	3,621	3,621	3,621
G	VALLEY MILLS	BRAZOS	56	36	27	20	15	11
	Sum of Projected Water Supply Needs (acre-feet)		**-2,230**	**-2,352**	**-2,194**	**-2,187**	**-2,189**	**-2,225**

COMANCHE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	COMANCHE	BRAZOS	166	168	173	165	153	140
G	COUNTY-OTHER, COMANCHE	BRAZOS	-448	-443	-435	-443	-462	-482
G	COUNTY-OTHER, COMANCHE	COLORADO	-6	-6	-5	-6	-6	-6
G	DE LEON	BRAZOS	88	91	94	92	87	81
G	IRRIGATION, COMANCHE	BRAZOS	-15,078	-15,147	-15,151	-15,220	-15,224	-15,292
G	LIVESTOCK, COMANCHE	BRAZOS	0	0	0	0	0	0
G	LIVESTOCK, COMANCHE	COLORADO	0	0	0	0	0	0
G	MANUFACTURING, COMANCHE	BRAZOS	6	4	4	4	4	4
G	MINING, COMANCHE	BRAZOS	-232	-314	-151	-65	24	83
	Sum of Projected Water Supply Needs (acre-feet)		**-15,764**	**-15,910**	**-15,742**	**-15,734**	**-15,692**	**-15,780**

CORYELL COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070

G	CENTRAL TEXAS COLLEGE DISTRICT	BRAZOS	0	0	0	0	0	0
G	COPPERAS COVE	BRAZOS	4,263	3,838	3,343	2,870	-120	-1,723
G	CORYELL CITY WATER SUPPLY DISTRICT	BRAZOS	288	284	282	280	279	277
G	COUNTY-OTHER, CORYELL	BRAZOS	324	52	-259	-525	-815	-1,107
G	ELM CREEK WSC	BRAZOS	14	8	2	-4	-10	-16
G	FLAT WSC	BRAZOS	2	-10	-23	-35	-48	-62
G	FORT GATES WSC	BRAZOS	-260	-303	-353	-399	-449	-500
G	FORT HOOD	BRAZOS	2,226	2,248	2,278	2,282	2,287	2,287
G	GATESVILLE	BRAZOS	-1,041	-1,692	-2,455	-3,154	-3,917	-4,688
G	IRRIGATION, CORYELL	BRAZOS	736	736	736	736	736	736
G	KEMPNER WSC	BRAZOS	-106	-168	-223	-281	-338	-394
G	LIVESTOCK, CORYELL	BRAZOS	0	0	0	0	0	0
G	MANUFACTURING, CORYELL	BRAZOS	0	0	0	0	0	0
G	MINING, CORYELL	BRAZOS	-1,315	-877	-296	-168	-203	-242
G	MOUNTAIN WSC	BRAZOS	170	143	110	80	47	13
G	MULTI COUNTY WSC	BRAZOS	-38	-55	-77	-99	-125	-153
G	MUSTANG VALLEY WSC	BRAZOS	0	0	0	0	0	0
G	OGLESBY	BRAZOS	158	153	148	142	136	129
G	THE GROVE WSC	BRAZOS	0	0	0	0	0	0
	Sum of Projected Water Supply Needs (acre-feet)		**-2,760**	**-3,105**	**-3,686**	**-4,665**	**-6,025**	**-8,885**

ERATH COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	COUNTY-OTHER, ERATH	BRAZOS	727	499	310	63	-148	-347
G	DUBLIN	BRAZOS	103	89	73	81	52	24
G	GORDON	BRAZOS	-7	-7	-7	-8	-8	-8
G	IRRIGATION, ERATH	BRAZOS	360	360	360	360	360	360
G	LIVESTOCK, ERATH	BRAZOS	0	0	0	0	0	0
G	MANUFACTURING, ERATH	BRAZOS	-3	-6	2	9	18	29
G	MINING, ERATH	BRAZOS	502	471	631	703	775	830
G	STEPHENVILLE	BRAZOS	2,954	2,740	2,553	2,353	2,139	1,933
	Sum of Projected Water Supply Needs (acre-feet)		**-10**	**-13**	**-7**	**-8**	**-156**	**-355**

APPENDIX D

Projected Surface Water Supply within the District

Projected Surface Water Supplies
TWDB 2022 State Water Plan Data

BOSQUE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
G	CLIFTON	BRAZOS	CLIFTON LAKE/RESERVOIR	288	238	195	162	130	97
G	HILCO UNITED SERVICES	BRAZOS	BRAZOS RIVER AUTHORITY AQUILLA LAKE/RESERVOIR SYSTEM	38	38	38	38	38	37
G	IRRIGATION, BOSQUE	BRAZOS	BRAZOS RUN-OF-RIVER	132	132	132	132	132	132
G	LIVESTOCK, BOSQUE	BRAZOS	BRAZOS LIVESTOCK LOCAL SUPPLY	979	979	979	979	979	979
G	MANUFACTURING, BOSQUE	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	5	5	5	5	5	5
G	MERIDIAN	BRAZOS	CLIFTON LAKE/RESERVOIR	112	112	105	88	70	53
G	STEAM ELECTRIC POWER, BOSQUE	BRAZOS	BRAZOS RIVER AUTHORITY MAIN STEM LAKE/RESERVOIR SYSTEM	6,500	6,500	6,500	6,500	6,500	6,500
	Sum of Projected Surface Water Supplies (acre-feet)			**8,054**	**8,004**	**7,954**	**7,904**	**7,854**	**7,803**

COMANCHE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
G	COMANCHE	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	686	686	686	686	686	686
G	COUNTY-OTHER, COMANCHE	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	9	9	9	9	9	9
G	DE LEON	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	307	307	307	307	307	307
G	IRRIGATION, COMANCHE	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	5,529	5,492	5,456	5,419	5,383	5,347
G	LIVESTOCK, COMANCHE	BRAZOS	BRAZOS LIVESTOCK LOCAL SUPPLY	3,142	3,142	3,142	3,142	3,142	3,142

G	LIVESTOCK, COMANCHE	COLORADO	BRAZOS LIVESTOCK LOCAL SUPPLY	101	101	101	101	101	101
G	MANUFACTURING, COMANCHE	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	20	20	20	20	20	20
	Sum of Projected Surface Water Supplies (acre-feet)			**9,794**	**9,757**	**9,721**	**9,684**	**9,648**	**9,612**

CORYELL COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
G	CENTRAL TEXAS COLLEGE DISTRICT	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	120	117	115	114	114	114
G	COPPERAS COVE	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	8,444	8,400	8,373	8,344	5,879	4,810
G	CORYELL CITY WATER SUPPLY DISTRICT	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	1,024	1,111	1,216	1,310	1,415	1,521
G	ELM CREEK WSC	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	56	54	54	52	52	51
G	FLAT WSC	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	102	102	102	102	102	102
G	FORT GATES WSC	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	120	120	120	120	120	120
G	FORT HOOD	BRAZOS	BRAZOS RUN-OF-RIVER	5,432	5,386	5,372	5,371	5,372	5,371
G	GATESVILLE	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	3,260	3,109	2,922	2,743	2,555	2,362
G	IRRIGATION, CORYELL	BRAZOS	BRAZOS RUN-OF-RIVER	530	530	530	530	530	530
G	KEMPNER WSC	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	512	513	516	518	520	522
G	LIVESTOCK, CORYELL	BRAZOS	BRAZOS LIVESTOCK LOCAL SUPPLY	1,133	1,133	1,133	1,133	1,133	1,133
G	MANUFACTURING, CORYELL	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER	4	4	4	4	4	4

			LAKE/RESERVOIR SYSTEM						
G	MOUNTAIN WSC	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	280	280	280	280	280	280
G	MULTI COUNTY WSC	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	198	202	206	209	212	214
G	THE GROVE WSC	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	26	27	30	34	38	42
	Sum of Projected Surface Water Supplies (acre-feet)			**21,241**	**21,088**	**20,973**	**20,864**	**18,326**	**17,176**

ERATH COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
G	COUNTY-OTHER, ERATH	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	72	72	72	72	72	72
G	COUNTY-OTHER, ERATH	BRAZOS	STRAWN LAKE/RESERVOIR	49	49	49	49	48	48
G	DUBLIN	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	521	519	518	517	516	514
G	IRRIGATION, ERATH	BRAZOS	BRAZOS RUN-OF-RIVER	98	98	98	98	98	98
G	LIVESTOCK, ERATH	BRAZOS	BRAZOS LIVESTOCK LOCAL SUPPLY	5,739	5,739	5,739	5,739	5,739	5,739
G	MANUFACTURING, ERATH	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	5	7	8	9	10	12
G	MANUFACTURING, ERATH	BRAZOS	STRAWN LAKE/RESERVOIR	1	1	1	1	2	2
G	STEPHENVILLE	BRAZOS	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM	1,862	1,862	1,862	1,862	1,862	1,862
	Sum of Projected Surface Water Supplies (acre-feet)			**8,347**	**8,347**	**8,347**	**8,347**	**8,347**	**8,347**

APPENDIX E

Projected Water Demand within the District

Projected Water Demands
TWDB 2022 State Water Plan Data

Please note that the demand numbers presented here include the plumbing code savings found in the Regional and State Water Plans.

BOSQUE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	CHILDRESS CREEK WSC	BRAZOS	343	365	373	379	384	388
G	CLIFTON	BRAZOS	704	748	766	779	790	797
G	COUNTY-OTHER, BOSQUE	BRAZOS	782	838	860	869	873	899
G	CROSS COUNTRY WSC	BRAZOS	127	135	138	141	143	144
G	HIGHLAND PARK WSC	BRAZOS	118	127	132	136	139	142
G	HILCO UNITED SERVICES	BRAZOS	198	207	213	222	232	244
G	IRRIGATION, BOSQUE	BRAZOS	3,577	3,577	3,577	3,577	3,577	3,577
G	LIVESTOCK, BOSQUE	BRAZOS	979	979	979	979	979	979
G	MANUFACTURING, BOSQUE	BRAZOS	9	11	11	11	11	11
G	MERIDIAN	BRAZOS	235	247	252	255	258	261
G	MINING, BOSQUE	BRAZOS	1,972	2,071	1,892	1,872	1,833	1,821
G	MUSTANG VALLEY WSC	BRAZOS	464	497	512	521	529	534
G	SMITH BEND WSC	BRAZOS	99	105	107	108	110	85
G	STEAM ELECTRIC POWER, BOSQUE	BRAZOS	2,880	2,880	2,880	2,880	2,880	2,880
G	VALLEY MILLS	BRAZOS	267	285	292	297	301	304
	Sum of Projected Water Demands (acre-feet)		**12,754**	**13,072**	**12,984**	**13,026**	**13,039**	**13,066**

COMANCHE COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	COMANCHE	BRAZOS	520	518	513	521	533	546
G	COUNTY-OTHER, COMANCHE	BRAZOS	799	794	785	794	813	833
G	COUNTY-OTHER, COMANCHE	COLORADO	10	10	10	10	10	10
G	DE LEON	BRAZOS	219	216	213	215	220	226
G	IRRIGATION, COMANCHE	BRAZOS	32,117	32,117	32,117	32,117	32,117	32,117
G	LIVESTOCK, COMANCHE	BRAZOS	3,142	3,142	3,142	3,142	3,142	3,142
G	LIVESTOCK, COMANCHE	COLORADO	101	101	101	101	101	101
G	MANUFACTURING, COMANCHE	BRAZOS	18	20	20	20	20	20
G	MINING, COMANCHE	BRAZOS	444	525	363	276	188	128
	Sum of Projected Water Demands (acre-feet)		**37,370**	**37,443**	**37,264**	**37,196**	**37,144**	**37,123**

CORYELL COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	CENTRAL TEXAS COLLEGE DISTRICT	BRAZOS	120	117	115	114	114	114
G	COPPERAS COVE	BRAZOS	4,181	4,562	5,030	5,474	5,999	6,533
G	CORYELL CITY WATER SUPPLY DISTRICT	BRAZOS	808	898	1,005	1,101	1,207	1,315
G	COUNTY-OTHER, CORYELL	BRAZOS	290	562	873	1,139	1,429	1,721
G	ELM CREEK WSC	BRAZOS	42	46	52	56	62	67
G	FLAT WSC	BRAZOS	100	112	125	137	150	164
G	FORT GATES WSC	BRAZOS	380	423	473	519	569	620
G	FORT HOOD	BRAZOS	3,206	3,138	3,094	3,089	3,085	3,084
G	GATESVILLE	BRAZOS	4,301	4,801	5,377	5,897	6,472	7,050
G	IRRIGATION, CORYELL	BRAZOS	310	310	310	310	310	310
G	KEMPNER WSC	BRAZOS	618	681	739	799	858	916
G	LIVESTOCK, CORYELL	BRAZOS	1,133	1,133	1,133	1,133	1,133	1,133
G	MANUFACTURING, CORYELL	BRAZOS	4	4	4	4	4	4
G	MINING, CORYELL	BRAZOS	1,510	1,072	491	363	398	437
G	MOUNTAIN WSC	BRAZOS	257	284	317	347	380	414
G	MULTI COUNTY WSC	BRAZOS	236	257	283	308	337	367
G	MUSTANG VALLEY WSC	BRAZOS	6	6	7	7	7	7
G	OGLESBY	BRAZOS	53	58	63	69	75	82
G	THE GROVE WSC	BRAZOS	26	27	30	34	38	42
	Sum of Projected Water Demands (acre-feet)		**17,581**	**18,491**	**19,521**	**20,900**	**22,627**	**24,380**

ERATH COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
G	COUNTY-OTHER, ERATH	BRAZOS	2,605	2,833	3,022	3,269	3,479	3,678
G	DUBLIN	BRAZOS	418	430	445	436	464	490
G	GORDON	BRAZOS	7	7	7	8	8	8
G	IRRIGATION, ERATH	BRAZOS	7,026	7,026	7,026	7,026	7,026	7,026
G	LIVESTOCK, ERATH	BRAZOS	5,739	5,739	5,739	5,739	5,739	5,739
G	MANUFACTURING, ERATH	BRAZOS	74	85	85	85	85	85
G	MINING, ERATH	BRAZOS	505	536	376	304	232	177
G	STEPHENVILLE	BRAZOS	2,659	2,867	3,047	3,241	3,448	3,645
	Sum of Projected Water Demands (acre-feet)		**19,033**	**19,523**	**19,747**	**20,108**	**20,481**	**20,848**

APPENDIX F

Projected Water Management Strategies

Projected Water Management Strategies
TWDB 2022 State Water Plan Data

BOSQUE COUNTY

WUG, Basin (RWPG) All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
CHILDRESS CREEK WSC, BRAZOS (G)							
BOSQUE COUNTY REGIONAL PROJECT	CLIFTON LAKE/RESERVOIR [RESERVOIR]	0	203	203	203	203	203
		0	**203**	**203**	**203**	**203**	**203**
CLIFTON, BRAZOS (G)							
BOSQUE COUNTY REGIONAL PROJECT	CLIFTON LAKE/RESERVOIR [RESERVOIR]	0	397	397	397	397	397
MUNICIPAL WATER CONSERVATION - CLIFTON	DEMAND REDUCTION [BOSQUE]	0	53	76	71	71	71
		0	**450**	**473**	**468**	**468**	**468**
COUNTY-OTHER, BOSQUE, BRAZOS (G)							
BOSQUE COUNTY REGIONAL PROJECT	CLIFTON LAKE/RESERVOIR [RESERVOIR]	0	64	64	64	64	64
		0	**64**	**64**	**64**	**64**	**64**
CROSS COUNTRY WSC, BRAZOS (G)							
MUNICIPAL WATER CONSERVATION - CROSS COUNTRY WSC	DEMAND REDUCTION [BOSQUE]	0	6	4	2	2	2
		0	**6**	**4**	**2**	**2**	**2**
HIGHLAND PARK WSC, BRAZOS (G)							
MUNICIPAL WATER CONSERVATION - HIGHLAND PARK WSC	DEMAND REDUCTION [BOSQUE]	0	11	22	33	43	53
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [BOSQUE]	58	58	58	58	58	58
		58	**69**	**80**	**91**	**101**	**111**
IRRIGATION, BOSQUE, BRAZOS (G)							
IRRIGATION WATER CONSERVATION	DEMAND REDUCTION [BOSQUE]	107	179	250	250	250	250
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [BOSQUE]	1,259	1,259	1,259	1,259	1,259	1,259
		1,366	**1,438**	**1,509**	**1,509**	**1,509**	**1,509**
MERIDIAN, BRAZOS (G)							
BOSQUE COUNTY REGIONAL PROJECT	CLIFTON LAKE/RESERVOIR [RESERVOIR]	0	224	224	224	224	224
		0	**224**	**224**	**224**	**224**	**224**
MINING, BOSQUE, BRAZOS (G)							

BRA SYSTEM OPERATION--SURPLUS	BRA SYSTEM OPERATIONS PERMIT SUPPLY [RESERVOIR]	387	387	387	387	387	387
INDUSTRIAL WATER CONSERVATION	DEMAND REDUCTION [BOSQUE]	59	104	132	131	128	127
		446	**491**	**519**	**518**	**515**	**514**
MUSTANG VALLEY WSC, BRAZOS (G)							
MUNICIPAL WATER CONSERVATION - MUSTANG VALLEY WSC	DEMAND REDUCTION [BOSQUE]	0	38	79	120	137	138
		0	**38**	**79**	**120**	**137**	**138**
VALLEY MILLS, BRAZOS (G)							
BOSQUE COUNTY REGIONAL PROJECT	CLIFTON LAKE/RESERVOIR [RESERVOIR]	0	177	177	176	175	174
MUNICIPAL WATER CONSERVATION - VALLEY MILLS	DEMAND REDUCTION [BOSQUE]	0	21	42	45	44	45
		0	**198**	**219**	**221**	**219**	**219**
Sum of Projected Water Management Strategies (acre-feet)		**1,870**	**3,181**	**3,374**	**3,420**	**3,442**	**3,452**

COMANCHE COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, COMANCHE, BRAZOS (G)							
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [ERATH]	482	482	482	482	482	482
		482	**482**	**482**	**482**	**482**	**482**
COUNTY-OTHER, COMANCHE, COLORADO (G)							
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [ERATH]	6	6	6	6	6	6
		6	**6**	**6**	**6**	**6**	**6**
IRRIGATION, COMANCHE, BRAZOS (G)							
IRRIGATION WATER CONSERVATION	DEMAND REDUCTION [COMANCHE]	964	1,606	2,248	2,248	2,248	2,248
LAKE GRANGER AUGMENTATION-PH 2 (GROUNDWATER)	CARRIZO-WILCOX AQUIFER [MILAM]	0	1,159	1,196	1,233	1,269	1,306
		964	**2,765**	**3,444**	**3,481**	**3,517**	**3,554**
MINING, COMANCHE, BRAZOS (G)							
INDUSTRIAL WATER CONSERVATION	DEMAND REDUCTION [COMANCHE]	13	26	26	19	13	9
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [ERATH]	288	288	288	288	288	288
		301	**314**	**314**	**307**	**301**	**297**
Sum of Projected Water Management Strategies (acre-feet)		**1,753**	**3,567**	**4,246**	**4,276**	**4,306**	**4,339**

CORYELL COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070

CENTRAL TEXAS COLLEGE DISTRICT, BRAZOS (G)

MUNICIPAL WATER CONSERVATION - CENTRAL TEXAS COLLEGE DISTRICT	DEMAND REDUCTION [CORYELL]	0	6	4	3	3	3
		0	**6**	**4**	**3**	**3**	**3**

COPPERAS COVE, BRAZOS (G)

LAKE GRANGER AUGMENTATION-PH 2 (GROUNDWATER)	CARRIZO-WILCOX AQUIFER [MILAM]	0	0	0	0	0	494
PURCHASE RAW WATER FROM FORT HOOD	BRAZOS RUN-OF-RIVER [BELL]	0	0	0	0	120	1,229
		0	**0**	**0**	**0**	**120**	**1,723**

CORYELL CITY WATER SUPPLY DISTRICT, BRAZOS (G)

LAKE GRANGER AUGMENTATION-PH 2 (GROUNDWATER)	CARRIZO-WILCOX AQUIFER [MILAM]	0	52	54	56	57	59
MUNICIPAL WATER CONSERVATION - CORYELL CITY WATER SUPPLY DISTRICT	DEMAND REDUCTION [CORYELL]	0	16	7	0	0	0
		0	**68**	**61**	**56**	**57**	**59**

COUNTY-OTHER, CORYELL, BRAZOS (G)

CORYELL COUNTY OCR	CORYELL COUNTY OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	1,308	1,308	1,308	1,308	1,308
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [CORYELL]	0	0	259	525	815	1,107
		0	**1,308**	**1,567**	**1,833**	**2,123**	**2,415**

ELM CREEK WSC, BRAZOS (G)

REALLOCATION OF SUPPLY FROM MOFFAT WSC	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM [RESERVOIR]	0	0	0	1	7	13
WILLIAMSON COUNTY GROUNDWATER – SOUTH OPTION	SPARTA AQUIFER [LEE]	0	0	0	3	3	3
		0	**0**	**0**	**4**	**10**	**16**

FLAT WSC, BRAZOS (G)

CORYELL COUNTY OCR	CORYELL COUNTY OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	1	3	3	12	22
MUNICIPAL WATER CONSERVATION - FLAT WSC	DEMAND REDUCTION [CORYELL]	0	9	20	32	36	40
		0	**10**	**23**	**35**	**48**	**62**

FORT GATES WSC, BRAZOS (G)

LAKE GRANGER AUGMENTATION-PH 2 (GROUNDWATER)	CARRIZO-WILCOX AQUIFER [MILAM]	0	270	280	306	348	390
MUNICIPAL WATER CONSERVATION - FORT GATES WSC	DEMAND REDUCTION [CORYELL]	0	33	73	93	101	110
		0	**303**	**353**	**399**	**449**	**500**

FORT HOOD, BRAZOS (G)

MUNICIPAL WATER CONSERVATION - FORT HOOD	DEMAND REDUCTION [CORYELL]	0	238	472	717	887	887
		0	**238**	**472**	**717**	**887**	**887**

GATESVILLE, BRAZOS (G)

CORYELL COUNTY OCR	CORYELL COUNTY OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	550	823	981	1,152	1,528
LAKE GRANGER AUGMENTATION-PH 2 (GROUNDWATER)	CARRIZO-WILCOX AQUIFER [MILAM]	0	1,028	1,060	1,093	1,125	1,158
MUNICIPAL WATER CONSERVATION - GATESVILLE	DEMAND REDUCTION [CORYELL]	0	384	852	1,386	1,988	2,392
		0	**1,962**	**2,735**	**3,460**	**4,265**	**5,078**
KEMPNER WSC, BRAZOS (G)							
KEMPNER WSC WTP EXPANSION	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM [RESERVOIR]	264	267	270	491	496	502
MUNICIPAL WATER CONSERVATION - KEMPNER WSC	DEMAND REDUCTION [CORYELL]	0	53	53	53	55	59
		264	**320**	**323**	**544**	**551**	**561**
MINING, CORYELL, BRAZOS (G)							
INDUSTRIAL WATER CONSERVATION	DEMAND REDUCTION [CORYELL]	45	54	34	25	28	31
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [CORYELL]	1,270	1,270	1,270	1,270	1,270	1,270
		1,315	**1,324**	**1,304**	**1,295**	**1,298**	**1,301**
MULTI COUNTY WSC, BRAZOS (G)							
CORYELL COUNTY OCR	CORYELL COUNTY OFF-CHANNEL LAKE/RESERVOIR [RESERVOIR]	0	1,051	843	721	574	243
HAMILTON REDUCTION TO MULTI WSC	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM [RESERVOIR]	81	82	0	0	0	0
PURCHASE SURPLUS WATER FROM THE CITY OF HAMILTON	BRAZOS RIVER AUTHORITY LITTLE RIVER LAKE/RESERVOIR SYSTEM [RESERVOIR]	37	55	77	98	125	152
		118	**1,188**	**920**	**819**	**699**	**395**
Sum of Projected Water Management Strategies (acre-feet)		**1,697**	**6,727**	**7,762**	**9,165**	**10,510**	**13,000**

ERATH COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, ERATH, BRAZOS (G)							
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [ERATH]	0	0	0	0	347	347
		0	**0**	**0**	**0**	**347**	**347**
GORDON, BRAZOS (G)							
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [ERATH]	7	7	7	8	8	8
		7	**7**	**7**	**8**	**8**	**8**
MANUFACTURING, ERATH, BRAZOS (G)							

INDUSTRIAL WATER CONSERVATION	DEMAND REDUCTION [ERATH]	2	4	6	6	6	6
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [BELL]	1	2	0	0	0	0
		3	**6**	**6**	**6**	**6**	**6**
STEPHENVILLE, BRAZOS (G)							
TRINITY AQUIFER DEVELOPMENT	TRINITY AQUIFER [ERATH]	484	414	484	484	484	484
		484	**414**	**484**	**484**	**484**	**484**
Sum of Projected Water Management Strategies (acre-feet)		**494**	**427**	**497**	**498**	**845**	**845**

APPENDIX G

District Resolution of Adoption of Management Plan

RESOLUTION OF THE BOARD OF DIRECTORS OF THE MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT ADOPTING DISTRICT GROUNDWATER MANAGEMENT PLAN

THE STATE OF TEXAS §
§
MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT §

WHEREAS, the Middle Trinity Groundwater Conservation District ("District") was created by the Texas Legislature, pursuant to the authority of Article XVI, § 59 of the Texas Constitution, through Act of May 25, 2001, 77th Leg., R.S., ch. 1362, 2001 Tex. Gen. Laws 3371, as amended ("the Act"), as a groundwater conservation district operating under Chapter 36, Texas Water Code, Section 59, Article XVI of the Texas Constitution, and the Act;

WHEREAS, the Board of Directors of the District ("Board") originally adopted its Management Plan in accordance with Sections 36.1071 and 36.1072 of the Texas Water Code and 31 Texas Administrative Code Chapter 356, on April 29, 2004, which was approved by the Texas Water Development Board ("TWDB") on July 1, 2004, and thereafter revised and readopted its Management Plan within five years as required by Section 36.1072(e) of the Texas Water Code on April 2, 2009, which was then approved by TWDB on June 5, 2009;

WHEREAS, as Bosque and Coryell counties were added to the District's territory in May and November of 2009 through the annexation process provided under Subchapter J, Chapter 36 of the Texas Water Code, the District found it necessary to add technical information for Bosque and Coryell Counties into the District's Management Plan, and thus the District added this technical information and other certain updates to the District's Management Plan by resolution on March 5, 2012, which was then approved by TWDB on May 14, 2012;

WHEREAS, pursuant to Section 36.1072 of the Texas Water Code and 31 Texas Administrative Code Section 356.51, the District is required to re-adopt its Management Plan, with or without revisions, at least once every five years and must thereafter re-submit the revised plan for TWDB approval pursuant to 31 Texas Administrative Code Sections 356.52 and 356.53;

WHEREAS, pursuant to Section 36.1072 of the Texas Water Code and 31 Texas Administrative Code Section 356.1, the Board revised and readopted its Management Plan on October 6, 2016 and March 9, 2017, which was then approved by TWDB on April 20, 2017, and again the Board revised and readopted its Management Plan on October 4, 2018, which was then approved by TWDB on February 8, 2019;

WHEREAS, the District has made timely revisions to its Management Plan for re-adoption by the Board prior to the expiration of the five-year period;

WHEREAS, as part of the process of readopting its Management Plan, the District requested and received technical assistance from TWDB and also worked with TWDB staff to obtain the staff's recommendations and comments on the revisions to its Management Plan;

WHEREAS, the Board and the District's staff, legal counsel, and geoscientist have reviewed and analyzed the District's revised Management Plan and the technical information received from TWDB related to the revised Management Plan;

WHEREAS, the District issued notice in the manner required by state law and held a public hearing on June 2nd, 2022, to receive public and written comments on the Management Plan at the District's office located at 930 N Wolfe Nursery Rd, Stephenville, Texas;

WHEREAS, the District will coordinate with the appropriate surface water management entities after the public hearing and readoption of its Management Plan to afford surface water management entities within the boundaries of the District the opportunity to review and provide comments to the District on its Management Plan;

WHEREAS, the Board finds that the revised Management Plan meets all of the requirements of Chapter 36, Texas Water Code, and 31 Texas Administrative Code Chapter 356;

WHEREAS, while the Board finds that the readoption of the District's Management Plan at its June 2nd, 2022, meeting will restart the five-year statutory time period by which the District must readopt its Management Plan, the District intends to revise its Management Plan in 2022 when TWDB releases the latest technical data and modeled available groundwater upon the adoption of the Desired Future Conditions by Groundwater Management Area 8; and

WHEREAS, the Board of Directors met in a public meeting on June 2nd, 2022, properly noticed in accordance with appropriate law, after holding a public hearing on the attached revised Management Plan, considered the re-adoption of the Management Plan, and considered approval of tis resolution.

NOW, THEREFORE, BE IT ORDERED BY THE BOARD OF DIRECTORS OF MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT THAT:

1. The above recitals are true and correct;

2. The Board of Directors hereby readopts its revised Management Plan as the Management Plan of the District, including any revisions made based on comments received from the public at the public hearing or Board meeting, or based on recommendations from the District Board, staff, legal counsel, geoscientist, or TWDB;

3. The Board of Directors, District staff, and the District's legal counsel and geoscientist are further authorized to take all steps necessary to implement this resolution and submit the revised Management Plan to the TWDB for its approval; and

4. The Board of Directors, the District staff, and the District's legal counsel and geoscientist are further authorized to take any and all action necessary to

coordinate with the TWDB as may be required in furtherance of TWDB's approval pursuant to the provisions of Section 36.1072 of the Texas Water Code.

AND IT IS SO ORDERED.

PASSED AND ADOPTED on this 2 day of June, 2022.

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT

By: _____
Board President

ATTEST:

Fred B. Darlin
Board Secretary

APPENDIX H

Notice of Meetings

Public Hearing on Proposed Re-Adoption of District Management Plan

February 10th, 2022

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
NOTICE OF PUBLIC HEARING ON
PROPOSED RE-ADOPTION OF DISTRICT MANAGEMENT PLAN

The **Middle Trinity Groundwater Conservation District** (MTGCD) will hold a public hearing on the proposed re-adoption of the MTGCD's Groundwater Management Plan on Thursday, February 10, 2022, at 1:00 p.m. at the district office located at 930 N. Wolfe Nursery Road, Stephenville, Texas 76401. All interested parties are invited to attend.

FILED
at 2:06 o'clock P M
JAN 13 2022
Jakasha Sims
County Clerk, Bosque County, Texas

PUBLIC HEARING AGENDA:

1. Call to Order.
2. Summary presentation of the proposed revisions to the MTGCD Management Plan as required by Chapter 36 of the Texas Water Code and Chapter 356 of the Texas Water Development Board's (TWDB) rules contained in Title 30 of the Texas Administrative Code.
3. Public Comment on the Groundwater Management Plan proposed for re-adoption.
4. Adjourn

At the conclusion of the hearing or any time or date thereafter, the proposed management plan may be adopted in the form presented or as amended based upon comments received from the public, the Texas Water Development Board, District staff, attorneys, geoscientists, or members of the Board of Directors without any additional notice.

Copies of the proposed MTGCD Management Plan will be available as of January 21, 2022 at the MTGCD office located at 930 N. Wolfe Nursery Road, Stephenville, Texas or on the MTGCD's website at www.middletrinitygcd.org.

The MTGCD is committed to compliance with the Americans with Disabilities Act (ADA). Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please call 254-965-6705 at least 24 hours in advance if accommodation is needed.

For more information about the public hearing or the MTGCD Contact: Patrick Wagner, General Manager at 254-965-6705

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
NOTICE OF PUBLIC HEARING ON
PROPOSED RE-ADOPTION OF DISTRICT MANAGEMENT PLAN

The **Middle Trinity Groundwater Conservation District** (MTGCD) will hold a public hearing on the proposed re-adoption of the MTGCD's Groundwater Management Plan on Thursday, February 10, 2022, at 1:00 p.m. at the district office located at 930 N. Wolfe Nursery Road, Stephenville, Texas 76401. All interested parties are invited to attend.

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For more information about the public hearing or the
MTGCD Contact: Patrick Wagner, General Manager at 254-965-6705

FILED
AT 12:30 O'CLOCK P M

JAN 13 2022

Clerk, County Court Comanche Co., Texas

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
NOTICE OF PUBLIC HEARING ON
PROPOSED RE-ADOPTION OF DISTRICT MANAGEMENT PLAN

The **Middle Trinity Groundwater Conservation District** (MTGCD) will hold a public hearing on the proposed re-adoption of the MTGCD's Groundwater Management Plan on Thursday, February 10, 2022, at 1:00 p.m. at the district office located at 930 N. Wolfe Nursery Road, Stephenville, Texas 76401. All interested parties are invited to attend.

FILED
AT 830 O'CLOCK A M
JAN 21 2022
Jennifer Denton
COUNTY CLERK, CORYELL CO., TEXAS

PUBLIC HEARING AGENDA:

1. Call to Order.
2. Summary presentation of the proposed revisions to the MTGCD Management Plan as required by Chapter 36 of the Texas Water Code and Chapter 356 of the Texas Water Development Board's (TWDB) rules contained in Title 30 of the Texas Administrative Code.
3. Public Comment on the Groundwater Management Plan proposed for re-adoption.
4. Adjourn

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MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
NOTICE OF PUBLIC HEARING ON
PROPOSED RE-ADOPTION OF DISTRICT MANAGEMENT PLAN

The **Middle Trinity Groundwater Conservation District** (MTGCD) will hold a public hearing on the proposed re-adoption of the MTGCD's Groundwater Management Plan on Thursday, February 3, 2022, at 1:00 p.m. at the District office located at 930 N. Wolfe Nursery Road, Stephenville, Texas 76401. All interested parties are invited to attend.

PUBLIC HEARING AGENDA:

1. Call to Order.

2. Summary presentation of the proposed revisions to the MTGCD Management Plan as required by Chapter 36 of the Texas Water Code and Chapter 356 of the Texas Water Development Board's (TWDB) rules contained in Title 30 of the Texas Administrative Code.

3. Public Comment on the Groundwater Management Plan proposed for re-adoption.

4. Adjourn

At the conclusion of the hearing or any time or date thereafter, the proposed management plan may be adopted in the form presented or as amended based upon comments received from the public, the Texas Water Development Board, District staff, attorneys, geoscientists, or members of the Board of Directors without any additional notice.

Copies of the proposed MTGCD Management Plan will be available as of January 14, 2022 at the MTGCD office located at 930 N. Wolfe Nursery Road, Stephenville, Texas or on the MTGCD's website at www.middletrinitygcd.org.

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For more information about the public hearing or the
MTGCD Contact: Patrick Wagner, General Manager at 254-965-6705

POSTED
9:45 A.M. _____ P.M.

JAN 21 2022

GWINDA JONES, COUNTY CLERK
ERATH COUNTY, TEXAS
By _____ Deputy

Notice of Public Hearing on Proposed Re-Adoption of District Management Plan (/blog/2022/1/13/notice-of-public-hearting-on-proposed-re-adoption-of-district-management-plan)

Patrick Wagner (/blog?author=61eaf6af4502506c2bb291d4) · January 13, 2022 (/blog/2022/1/13/notice-of-public-hearting-on-proposed-re-adoption-of-district-management-plan)

PUBLIC NOTICE (/S/MTGCD-PUBLIC-NOTICE-HEARING-ON-MAN-PLAN-RE-ADOPTION.PDF)

RE-ADOPTION OF MANAGEMENT PLAN

PROPOSED MANAGEMENT PLAN (/S/2022-MTGCD-RE-ADOPT-MANAGEMENT-PLAN-APPENDICES-INCLUDED.PDF)

❤ 0 Likes

Newer Post
Notice of Permit Hearing and Board Meeting (/blog/2022/1/31/notice-of-permit-hearing-and-board-meeting)

Older Post
Notice of Permit Hearing and Board Meeting (/blog/2021/12/23/notice-of-permit-hearing-and-board-meeting)

CONTACT US (/CONTACT-US)

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT, 930 NORTH WOLFE NURSERY ROAD, STEPHENVILLE, TX, 76401, UNITED STATES (254)965-6705

AFFIDAVIT OF PUBLICATION

THE STATE OF TEXAS:
COUNTY OF ERATH:

BEFORE ME, a notary public in and for the above named County, on this day personally appeared the person whose name is subscribed below, who having been duly sworn, says upon oath that he or she is a duly authorized office or employee of *The Dublin Citizen*, which is a newspaper of general circulation in the above named County, devoting no less that 25% of its total column lineage to the carrying of items of general interest, published, and having been published regularly and continuously for not less than 12 months prior to the making of any publication; and that a true and correct copy of the NOTICE TO THE PUBLIC a clipping of which is attached to the affidavit, was published in said Newspaper on JANUARY 20, 2022.

Paul Gaudette
Managing Editor

SUBSCRIBED AND SWORN TO BEFORE ME on the 20th day of JANUARY, 2022.

CINDY COMBS
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 06/04/25
NOTARY ID 1087387-9

Cindy Combs

Notary Public

sers and numerous boxes
s.

089228
iston Still
orses, ice chests, Cornhole
contents.

089229
oe Dews
rous tools.

The 10x10 unit contains a leather couch, Cornhole game, saw and other personal belongings.

Date of Sale:
Beginning February 4, 2022 at 9 a.m. CST and Ending February 7, 2022 at 9 a.m. CST
Unit #E30 - Austin Jackson

NEED HELP? Call Dublin Goodfellows
Michael Haley 817-894-2176

Public Notice

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT NOTICE OF PUBLIC HEARING ON PROPOSED RE-ADOPTION OF DISTRICT MANAGEMENT PLAN

The **Middle Trinity Groundwater Conservation District** (MTGCD) will hold a public hearing on the proposed re-adoption of the MTGCD's Groundwater Management Plan on Thursday, February 10, 2022, at 1:00 p.m. at the district office located at 930 N. Wolfe Nursery Road, Stephenville, Texas 76401. All interested parties are invited to attend.

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1. Call to Order.
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For more information about the public hearing or the MTGCD Contact: Patrick Wagner, General Manager at 254-965-6705

COMANCHE NEWS

Right turn lanes, improvements to be constructed US 67 at FM 3381

COMANCHE COUNTY – The Texas Department of Transportation s (TxDOT) contractor will begin working to install and construct safety improvements at the intersection of US 67 and FM 3381 in Comanche County on Monday January 17

Work will consist of the construction of right turn lanes and installation of flashing beacons and safety lighting at the intersection It is estimated that work will be complete in approximately 4 months, weather permitting

Various traffic shifts and lane closures will occur throughout the project

Comanche County Art Association welcomes Serna

From the Comanche County Art Association

Please join us Tuesday, January 25th at 6:00 p m at the Public Housing Authority Lindsey Building 404 East Cedar St across from Oakwood Cemetery for the Comanche County Art Association monthly meeting Our guest will be Jeremy Serna

Jeremy Serna was born and raised in South Texas and currently resides in Brownwood, Texas Serna owns Painting with Friends and is a self-taught artist At an early age, Jeremy began working with pastels and it metamorphosized from there "the next thing I knew I was airbrushing, using oils, acrylics and watercolors " He studied immensely to get where he is today. Literature such as "Drawing on the Right Side of the Brain" by Betty Edwards drove his desire to practice study, learn, and develop more defined artistic abilities

To further develop his skills, he attended several classes with Michael Holter. Serna continues to study and attend classes with well-known watercolor artist Alvaro Castagnet

Serna is represented in several cities in Texas including: Llano, Waco, Fredericksburg, and Canton as well as Eureka Springs, AR, Ventura, CA, and with several private collectors He won the Overall Artist award in 2020 at the Stars of Texas Paint Off Competition He spends many Saturday mornings teaching watercolor classes via zoom and invites people into his studio to learn and study as well

Jeremy's teaching is at a good pace, well organized and informative He encourages students to ask questions so they can grow and develop their skills as well

Please join us Tuesday, January 25th at 6 00 p m at the Public Housing Authority Lindsey Building, 404 East Cedar St across from Oakwood Cemetery

Refreshments will be served at 6:00 followed by a brief meeting and the art demonstration Admission is free to the public, but we welcome you to join our club

The dues are $20 for the year You don't have to be an artist to be a member --- just to appreciate and enjoy art and want to be a part of the arts here in Comanche!

TEXAS PRESS ASSOCIATION

STATE CAPITAL HIGHLIGHTS

Dozens of school districts close due to COVID-19 outbreaks

Several dozen school districts across the state were forced to close last week due to the omicron variant of COVID-19 sending home students, staff and teachers Most school districts planned to reopen on Tuesday following the MLK holiday

"Every superintendent wants to be able to have kids in the classroom and teachers in the classroom but you get to a certain critical place where you don't have enough staff available and you have to shut the campus down," Kevin Brown, executive director of the Texas Association of School Administrators, said in a Texas Tribune report We want to keep kids safe, and you have to have a certain number of adults in the building "

The Hutto school district, northeast of Austin, will remain closed at least through Wednesday with 200 staff members and 1,680 students reported absent, according to the Austin American-Statesman In North Texas, more than three dozen school districts closed last week

The number of new cases of COVID-19 cases in Texas during the past week reached a record high of 506,226, up 22% from the week before, according to the Coronavirus Resource Center at Johns Hopkins University The number of new deaths dropped slightly, with 623 reported statewide in the past week Hospitalizations are on the uptick, with 12,071 lab-confirmed COVID-19 hospitalizations reported by the Texas Department of State Health Services That is up 23% from the previous week

Empty shelves result of worker shortage

It feels a bit like March 2020 when one goes to the grocery store lately But this time it's not necessarily supply chain woes but a shortage of workers to restock, as the omicron variant of COVID-19 sweeps the state The Dallas Morning News reported shoppers should expect the shortages to continue until the fourth wave of the virus subsides "Either other employees work overtime, or the shift goes empty," said Gary Huddleston, grocery industry consultant to the Texas Retailers Association That means groceries are stuck on trailers, in stockrooms or at distribution centers, he added

One trend since the pandemic began is the marked increase in self-checkout aisles, which now account for nearly a third of all transactions, The Morning News reported

Voting deadline for primary is approaching

Folks who want to vote in the March 1 Texas primary have to be registered to vote by Jan 31 Texas Secretary of State John Scott encouraged all eligible Texans to register as they prepare to head to the polls for early voting next month

"We want all eligible Texans to participate in all of this year's upcoming elections, including the primary elections in which voters will choose the candidates to appear on the November 2022 general election ballot," Scott said "Don't wait until the last minute — start the registration process today!" Texans will pick nominees in the Republican and Democratic primaries for governor, lieutenant governor, attorney general, land commissioner, agriculture commissioner, and all 38 members of the U S House who represent Texas

Hottest December in Texas since Sul Ross was governor

Yup, it was hot last month as we hung Christmas lights and decorations

Texas experienced the warmest December on record since 1889 Throughout the state, temperatures ranged 5 to 9 degrees above average

"It's like the entire state moved south for the winter," said John Nielsen-Gammon, the state climatologist Amarillo got Dallas's normal temperatures, Dallas got Corpus Christi's normal temperatures, and Austin got Brownsville's normal temperatures

"Not only is it by far the warmest December since the beginning of comprehensive weather records, it will probably also turn out to be the warmest winter month, period," said Nielsen-Gammon

The hot weather increased drought conditions throughout the state More than two-thirds of the state is experiencing drought conditions, with 10% in extreme drought "In much of West Texas it hasn't rained for over two months," Nielsen-Gammon said "The high temperatures increase the rate of evaporation, drying out everything and leading to increased wildfire risk "

Wildlife vaccine airdrops to combat rabies

The state has resumed airdrops of oral rabies vaccines that have led to the elimination of the domestic dog-coyote and Texas fox rabies virus variants along the Texas border DSHS began using aircraft on Jan 12 to airdrop more than 1 17 million baits containing the rabies vaccine in 19 border counties The project will last two weeks

"The annual rabies vaccine/bait distribution along the border of Texas and Mexico is critical for the protection of humans, pets and livestock in Texas," said Dr. Susan Rollo with DSHS "The maintenance distribution levels help keep the U S free of the canine strain "

The vaccine baits are small plastic pellets dipped in fish oil and coated with fishmeal crumbles that attract coyotes gray foxes and other wild carnivores Rabies spreads through a bite of an infected animal Skunks and bats are now the most common source of rabies in Texas

Gary Borders is a veteran award-winning Texas journalist. He published a number of community newspapers in Texas during a 30-year span, including in Longview, Fort Stockton, Nacogdoches and Cedar Park. Email: gborders@texaspress.com.

Sudoku Solution

1	8	4	7	9	2	5	3	6
7	5	3	4	6	8	2	1	9
9	2	6	3	5	1	8	7	4
3	9	2	5	7	6	1	4	8
5	6	1	2	4	9	6	3	7
4	7	8	6	1	3	9	6	2
2	1	9	3	8	7	4	6	5
6	3	7	4	9	5	2	8	1
8	4	5	1	6	2	7	9	3

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
NOTICE OF PUBLIC HEARING ON
PROPOSED RE-ADOPTION OF DISTRICT MANAGEMENT PLAN

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For more information about the public hearing or the MTGCD Contact: Patrick Wagner, General Manager at 254-965-6705

HORSE: Riley Riordan of the Comanche County 4-H received Senior Showmanship

HORSE: Luke Warren of the Comanche FFA won Mini Mare.

HORSE: Wayne Warren of Comanche FFA won Mini Gelding.

CECA HERDSMAN: Kye Tomlinson from the Comanche County 4-H won the annual Comanche Electric Co-op Association Herdsman award.

Stephenville, Texas author publishes collection of writings

A Book Full of Poems and Short Stories to Inspire and Humor a Wide Audience

More Times than One. If it's easy, I don't want it, a new book by Bobby Gene Tate, has been released by Dorrance Publishing Co., Inc.

This collection of poetry and short stories covers topics from sports to animals to the struggles people experience in their everyday lives. Bobby Gene Tate recognizes that while life is sometimes tragic, most situations can be approached with humor. He believes that tolerance and compassion can make even the worst situations more bearable. He hopes readers find his work entertaining and that his poetry and short stories inspire them to keep trying.

About the Author

Bobby Gene Tate was born with a slight case of cerebral palsy in Palo Pinto county in 1949. Most of his relatives were teachers and farmers, and he worked as a teacher himself for thirty years. He believes that education is the best way for ordinary people to improve their situation. His hobbies include sports (particularly basketball), reading, and taking care of all types of animals. If he's not at home, he can normally be found at a basketball game or livestock auction.

More Times than One is a 370-page paperback with a retail price of $23.00 (eBook $18.00). The ISBN is 978-1-6386-7023-0. It was published by Dorrance Publishing Co., Inc. of Pittsburgh, Pennsylvania. For members of the press, to request a review copy, visit our virtual pressroom at https://dorrancepressroom.com/more-times-than-one/ or to buy the book visit our online bookstore at https://bookstore.dorrancepublishing.com/more-times-than-one/.

2022 offers Texans the unique opportunity to shape the "Texas Way"

By Margaret Spellings

What is the Texas way of life?

For generations, the phrase has evoked independence, confidence, and generosity. It speaks to an abundance of opportunities for every Texan to earn a living, raise a family, and leave an even stronger state to their children.

Texas' defining challenge is now to ensure that future generations have the same kinds of opportunities that past generations had. These opportunities defined the economic growth of recent decades known as the "Texas Miracle."

But after the past two tumultuous years — defined by crises like COVID-19 and Winter Storm Uri and a host of social and political issues — many are now looking for policies that will engage Texans to create a prosperous future.

Our state is the 9th largest economy of the world, powered by a growing, diverse population and business-friendly approach with a proven, prosperous track record. This gives us a unique opportunity to rally around an equally positive, hopeful vision of the future.

That must start now, in 2022, when every statewide office will be on the ballot. This is a crucial moment to communicate our priorities that we want to tackle next. Investing in our state's people should be at the top of the list.

Much of the Texas economy is built on the education and skills of our workforce. But today, on a wide range of measures, Texas has become one of the lowest performing states. More than half of Texas students can't read at grade level, and nearly three-fourths can't do math at grade level. This translates to one of the nation's worst adult literacy rates — an unsustainable headwind as Texas competes in a tech-heavy global economy.

Students in Mississippi, Florida, Georgia, Tennessee, California, Virginia, and North Carolina are reading at higher levels than Texas students. If they can do it, why can't we?

Our way of life and the promise of the Texas Miracle has led to jaw-dropping population growth. Texas welcomes an average of 850 new people every day. Our population is approaching 30 million, and will likely surpass 40 million by 2036, Texas' bicentennial. Our state should be a workforce powerhouse.

And Texas can be — if we better leverage the $100 billion taxpayers spend every year on workforce and education to address the growing gap between the skills employers need and those that Texans have.

By 2036, more than 70 percent of jobs are expected to require a postsecondary credential. But today, only 32 percent of Texas' high school graduates earn such credentials within six years of completing high school. Thanks to new legislation by Texas lawmakers, that should be changing. But we can't afford to let our guard down.

It's time for Texans to ask whether we're living up to the promise of the Texas way of life. It's time to ask whether that way of life is possible if Texans can't read or do basic math or can't get the education, jobs, or services that a good quality of life requires.

Make no mistake: Texas is a great place. But to keep it that way, we must do better.

That starts with an honest assessment of where we are. And it requires every Texan to take part in the conversation to plot the path forward. That's why Texas 2036 was founded – to provide the resources, drive, and urgency to tackle big, long-term challenges, and we encourage all Texans to join our efforts to do so today.

Apathy and indifference aren't Texas values. Real Texans will always be connected by decency, honesty, hard work, and the determination to leave things better for our kids.

Those are the values that must define the Texas way of life. This year, let's come together and show the world what Texas is made of.

Margaret Spellings, former U.S. Secretary of Education, is president and CEO of Texas 2036. This op ed first appeared in the Austin American-Statesman.

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
NOTICE OF PUBLIC HEARING ON
PROPOSED RE-ADOPTION OF DISTRICT MANAGEMENT PLAN

The Middle Trinity Groundwater Conservation District (MTGCD) will hold a public hearing on the proposed re-adoption of the MTGCD's Groundwater Management Plan on Thursday, February 10, 2022, at 1:00 p.m. at the district office located at 930 N. Wolfe Nursery Road, Stephenville, Texas 76401. All interested parties are invited to attend.

PUBLIC HEARING AGENDA

1. Call to Order
2. Summary presentation of the proposed revisions to the MTGCD Management Plan as required by Chapter 36 of the Texas Water Code and Chapter 356 of the Texas Water Development Board's (TWDB) rules contained in Title 30 of the Texas Administrative Code.
3. Public Comment on the Groundwater Management Plan proposed for re-adoption.
4. Adjourn

At the conclusion of the hearing or any time or date thereafter, the proposed management plan may be adopted in the form presented or as amended based upon comments received from the public, the Texas Water Development Board, District staff, attorneys, geoscientists, or members of the Board of Directors without any additional notice.

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PUBLIC NOTICE

Tillman Infrastructure LLC proposes to build a 355-foot guyed communications tower at the approx. vicinity of 18201 Hwy 36 West, Comanche County, Gustine, TX 76455. Lat:(31-50-51.294) Long: (-98-20-31.389). Public comments regarding potential effects from this site on historic properties may be submitted within 30 days from the date of this publication to: Trileaf Corp, Alec, a.nimkoff@trileaf.com, 2550 S IH 35 Suite 200, 78704 – 512-519-9388.

HELP WANTED

Comanche County District Clerk's Office is hiring for a full-time clerk. Must be able to pass background check and drug test. Please visit the 2nd floor of the Comanche County Courthouse at 101 W. Central, Comanche, TX 76442 to fill out an application or leave a resume.

THE STATE OF TEXAS
COUNTY OF CORYELL

Before me, the undersigned authority, on this day, personally appeared Jaci Velasquez, known to me, being by me duly sworn, on her oath deposes and says that she is the circulation manager of THE GATESVILLE MESSENGER & STAR FORUM, a newspaper in said county; and that a copy of the hereunto attached notice was printed in said newspaper on the following dates:

Jan. 19, 2022

Jaci Velasquez
Jaci Velasquez

Sworn to and subscribed before me, this 8 day of Feb., A.D., 2022

Janice L. Holden

Janice L. Holden
Gatesville, Coryell County, Texas

JANICE L. HOLDEN
Notary Public
STATE OF TEXAS
My Comm. Exp. July 21, 2022

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3 or higher.
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university in Texas in a 2022 U.S. News & World Report assessment of institutions highly regarded for their commitment to student success.

by leading in the Blessing. Following refreshments, President Smart thanked the hostesses, welcomed everyone, and read the Purpose. Velva Riddle read from the Prayer Calendar and the Response Magazine. Kathleen Blankemeyer presented the program called "The Land Shall Observe a Sabbath." In Leviticus, the Lord told the people to grow their crops on the land "Just Energy for All" in caring for God's Creation. Shirleen Chandler led in singing the hymn "For the Beauty of the Earth."

President Smart called the business meeting to order. She called on Carol Dildine to install the officers for 2022.

Officers for 2022 include: President Patsy Smart, Vice President Velva Riddle, Secretary Shirleen Chandler, Treanette Shepherd helping. Historian and Yearbook is Doris Nichols. Special Activities Committee Chair is Marilyn Decker. Telephone Committee Chair is Carol Dildine.

Ginger Dossman announced that five Gatesville women attended the Epiphany Brunch in Temple on January 8.

The meeting adjourned with the Benediction.

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199 Hwy. 6
O. Box 408
, TX 76634

8657 Barn
8657 Barn
4363 Fax

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
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PUBLISHER'S AFFIDAVIT

I solemnly swear that the attached notice was published once in ***The Clifton Record and the Meridian Tribune,*** a newspaper printed in Bosque County, Texas, and of general circulation in said county, as provided in the Texas Estate Code for the service of citation or notice by publication, and the date that the issue of said newspaper bore in which said notice was published on 1/19/22. A copy of the notice published, clipped from the newspaper, is attached hereto.

MTGCD Public Notice - Hearing on Man Plan

Publisher

SUBSCRIBED AND SWORN TO BEFORE ME BY

Katharine Brooks THIS 19 DAY OF January, 2022

REBECCA CLIFT
Notary Public
State of Texas
ID # 13321829-4
My Comm. Expires 07-19-2025

Notary Public / State of Texas
My Commission Expires:
07-19-2025

...s of your statement of qualifications
...dress: 403 W. Third or P.O. Box 231,
...Qs must be received by the City no
... be considered. The City reserves
...sers, as per the Texas Profession-
...n Grant and Contract Management
...mall Business Enterprises, Women
...a firms are encouraged to submit
... Action/Equal Opportunity Employ-
...por peticion.Dates advertised: Jan-

...aring
...174
... Whitney
...019
...ties, Texas

...strict is proposing to replace the existing
...way (SH) 174 in Bosque and Hill
...nducting an online virtual public hearing
...ednesday, Feb. 9, 2022 at 6 p.m. in
...ode.

... www.txdot.gov and enter the search
...rch box. Project staff will give a
...le both audio and visual components.
...bsite until the time and date listed above.
...in available for viewing at TxDOT's
...4 at Brazos River" in the upper right-
...ou do not have internet access, you may
...2739 or email michael.rhodes@txdot.gov
..., to ask questions and access project
...nents may be provided by mail or email

... testimony immediately following the
... Wednesday Feb. 9, 2022 through 11:59
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PUBLIC NOTICE

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Notice of Permit Hearing and Board Meeting (/blog/2022/1/31/notice-of-permit-hearing-and-board-meeting)

Debbie Montgomery (/blog?author=5a43c4425ce350e83e80b441) · January 31, 2022 (/blog/2022/1/31/notice-of-permit-hearing-and-board-meeting)

The February MTGCD Permit Hearing and Board Meeting will be held on Thursday, February 10, 2022 at 1:00 PM. View a copy of the agenda here (/s/February-2022-Agenda.pdf).

❤ 0 Likes

Newer Post
Notice of Permit Hearing and Board Meeting (/blog/2022/2/18/notice-of-permit-hearing-and-board-meeting)

Older Post
Notice of Public Hearting on Proposed Re-Adoption of District Management Plan (/blog/2022/1/13/notice-of-public-hearting-on-proposed-re-adoption-of-district-management-plan)

CONTACT US (/CONTACT-US)

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT, 930 NORTH WOLFE NURSERY ROAD, STEPHENVILLE, TX, 76401, UNITED STATES (254)965-6705

Debbie Montgomery

From: TexReg@sos.texas.gov
Sent: Monday, January 31, 2022 12:36 PM
To: mtgcd5@centurylink.net
Subject: S.O.S. Acknowledgment of Receipt

Acknowledgment of Receipt

Agency: Middle Trinity Groundwater Conservation District

Liaison: Debbie Montgomery

The Office of the Secretary of State has posted

notice of the following meeting:

Board: Board of Directors

Committee:

Date: 02/10/2022 01:00 PM "TRD# 2022000639"

Notice posted: 01/31/22 12:36 PM

Proofread your current open meeting notice at:

http://texreg.sos.state.tx.us/public/pub_om_lookup$.startup?Z_TRD=2022000639

Debbie Montgomery

Log Off

Open Meeting Submission

TRD:	2022000639
Date Posted:	01/31/2022
Status:	Accepted
Agency Id:	0365
Date of Submission:	01/31/2022
Agency Name:	Middle Trinity Groundwater Conservation District
Board:	Board of Directors
Date of Meeting:	02/10/2022
Time of Meeting:	01:00 PM **(##:## AM Local Time)**
Street Location:	930 Wolfe Nursery Rd
City:	Stephenville
State:	TX
Liaison Name:	Debbie Montgomery
Liaison Id:	2
Additional Information Obtained From:	254-965-6705
Agenda:	NOTICE OF PUBLIC HEARING and DISTRICT BOARD MEETING

The Middle Trinity Groundwater Conservation District Board of Directors will hold a PERMIT HEARING and BOARD MEETING on Thursday, February 10, 2022 at 1:00 p.m. at 930 Wolfe Nursery Rd, Stephenville, Texas. The Board Meeting will begin immediately upon adjournment of the Permit Hearing. All interested parties are invited to attend.

PERMIT HEARING AGENDA:

1. Call to Order

2. Roll Call

3. Operating Permit Applications to Be Heard:

Mary K McDougal
2850 FM 2486
Gustine, TX 76455
Well Site: GPM: 17 Acres: 2.485 Use: Domestic/
7117 FM 1189 Livestock Watering
Lipan, TX 76462 (not to exceed an annual average of 4.6 GPM)

Michael W and Tracey L Johnson
PO Box 567
Tolar, TX 76476
Well Site: GPM: 10 Acres: 3.24 Use: Domestic
FM 2870 (not to exceed an annual average of 6.0 GPM)
Tolar, TX 76476

Jared Herbst (JLH Hay Ranch LLC)
1565 CR 252
Stephenville, TX 76401
Well Site: GPM: 12 Acres: 3.32 Use: Domestic
1155 Meadow Bend Circle (not to exceed an annual average of 6.2 GPM)
The Meadows, Lot 1
Stephenville, TX 76401

Cody and Chelsea Howle
2915 CR 204
Stephenville, TX 76401
Well Site: GPM: 19 Acres: 3.606 Use: Domestic
CR 204 (not to exceed an annual average of 6.7 GPM)
Stephenville, TX 76401

Kaymee VanKranenburg
222 PR 1633
Stephenville, TX 76401
Well Site: GPM: 17 Acres: 4.11 Use: Domestic
2305 CR 367 (not to exceed an annual average of 7.6 GPM)
Dublin, TX 76446

Monica Baryo
PO Box 812
Blanco, TX 78606
Well Site: GPM: 7 Acres: 5.42 Use: Domestic
1141 Pitchfork Ranch Rd

High Creek Ranch Phase 2, Lot 85
Copperas Cove, TX 76522

Kellie Welch
1250 CR 273
Stephenville, TX 76401
Well Site: GPM: 17 Acres: 8.199 Use: Domestic/
1120 CR 273 Livestock Watering
Coastal Ridge Estates Lot 1 (not to exceed an annual average of 15.3 GPM)
Stephenville, TX 76401

Michael White and Megan Stafford
222 Horsemans Dr
Stephenville, TX 76401
Well Site: GPM: 10 Acres: 9.02 Use: Domestic/
222 Horsemans Dr Livestock Watering
Stephenville, TX 76401

Steve Patterson
2955 FM 1496
Dublin, TX 76446
Well Site: GPM: 50 Acres: 58.49 Use: Livestock
2955 FM 1496 Watering
Dublin, TX 76446

Gary Brunson
7021 Circula De Hacienda
Lake Havasu City, AZ 86403
Well Site: GPM: 27 Acres: 145.63 Use: Domestic/
11168 FM 219 Livestock Watering
Clifton, TX 76634

Subject to participation in Voluntary Metering Program:

Justin Farms Inc (Doug Prcin)
PO Box 711
Justin, TX 76247
Well Site: GPM: 230 Acres: 202.53 Use: Irrigation
3287 CR 284 (not to exceed annual average of 376.7 GPM for all wells on acreage)
Dublin, TX 76446

CDS STXDC 2021, LLC (Michael Krolczyk)
125 Camelot Drive
Fond du Lac, WI 54935
Well Site: GPM: 85 Acres: 41.676 Use: Commercial
1356 CR 176 (not to exceed annual average of 77.5 GPM for all wells on acreage)
Stephenville, TX 76401

Robert Stephens (7)

250 CR 416
Comanche, TX 76442
Well Site: GPM: 40 Acres: 182.07 Use: Irrigation
CR 404 / CR 406 (not to exceed annual average of 338.7 GPM for all wells on acreage)
Comanche, TX 76442

Re-submitted after Permit Expired:

Brad Allen (6)
PO Box 953
Stephenville, TX 76401
Well Site: GPM: 12 Acres: 5.45 Use: Domestic
Rodeo Way, Lot 13 (not to exceed an annual average of 10.1 GPM)
Mustang Meadows Subdivision
Stephenville, TX 76401
Well Site: GPM: 12 Acres: 3.03 Use: Domestic
Rodeo Way, Lot 16 (not to exceed an annual average of 5.6 GPM)
Mustang Meadows Subdivision
Stephenville, TX 76401
Well Site: GPM: 12 Acres: 3.03 Use: Domestic
Rodeo Way, Lot 19 (not to exceed an annual average of 5.6 GPM)
Mustang Meadows Subdivision
Stephenville, TX 76401
Well Site: GPM: 12 Acres: 3.01 Use: Domestic
Rodeo Way, Lot 20 (not to exceed an annual average of 5.6 GPM)
Mustang Meadows Subdivision
Stephenville, TX 76401
Well Site: GPM: 12 Acres: 2.99 Use: Domestic
Rodeo Way, Lot 21 (not to exceed an annual average of 5.6 GPM)
Mustang Meadows Subdivision
Stephenville, TX 76401
Well Site: GPM: 12 Acres: 2.98 Use: Domestic
Rodeo Way, Lot 22 (not to exceed an annual average of 5.5 GPM)
Mustang Meadows Subdivision
Stephenville, TX 76401

4. Discussion on Operating Permit Applications

5. Adjourn Permit Hearing

BOARD MEETING AGENDA:

The following agenda items will be discussed:

1. Call to Order

2. Invocation

3. Roll Call of Members

4. Pledge of Allegiance

5. Recognize Guests

6. Public Comments

7. Take Action on Operating Permit Applications

8. Discussion / Possible Action to Adopt the Proposed District Management Plan

9. Approve / Ratify Minutes

10. Approve / Ratify Payment of Bills

11. Income / Expense Comparison

12. Manager's Report - Patrick Wagner

13. Office Manager Report- Crystal Eberhart / Debbie Montgomery

14. Field Tech Report- Johnny Wells

15. Education/PR Report / Outdoor Learning Center Update - Stephanie Keith

16. Discussion / Possible Action on 4-H Water Ambassador Sponsorship

17. Discussion/Possible Action to pay the 2022 - 2023 4H Water Ambassador Program fee for Sadie Berry

18. Discussion / Possible Action on Clarification of Approved Budgeted Amount for The Ditch Project

19. Annual Report on Achievement of MTGCD Management Plan Objectives

20. Rules Committee Update

21. Executive Session pursuant to Sections 551.071 and/or 551.074 of Texas Government Code to discuss Personnel Matters

22. Discuss Agenda Items for March Board Meeting

23. Adjourn

CERTIFICATION

I, the undersigned authority, do hereby certify that on January 31, 2022 before 1:00 PM, I

posted and filed the above notice of meeting on the MTGCD website, Texas Secretary of State website, and on the door of the MTGCD office in Erath County in a place convenient and readily accessible to the general public at all times and that it will remain so posted continuously for at least 72 hours preceding the scheduled time of said board meeting, and 10 business days prior to aid time of permit hearing in accordance with the Texas Government Code, Chapter 551.

By: _____
MTGCD General Manager

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At any time during the meeting and in compliance with the Texas Open Meetings Act, Chapter 551, Government Code, Vernon's Texas Codes, Annotated, the Middle Trinity Groundwater Conservation District Board may meet in executive session on any of the above agenda items for consultation concerning attorney-client matters (§551.071); deliberation regarding real property (§551.072); deliberation regarding prospective gift (§551.073); personnel matters (§551.074); and deliberation regarding security devises (§551.076). Any subject discussed in executive session may be subject to action during an open meeting.

For more information about the public hearing on the Management Plan, permit hearing, Board meeting or the Middle Trinity Groundwater
Conservation District contact:
GENERAL MANAGER
254-965-6705

Public Hearing on Proposed Re-Adoption of District Management Plan

June 2nd, 2022

Public Notice

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
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POSTED
8:35 A.M. _____ P.M.
MAY 13 2022
GWINDA JONES, COUNTY CLERK
ERATH COUNTY, TEXAS
By _____ Deputy

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FILED
at 8:32 o'clock A M

MAY 10 2022

Jakeitha Sims
County Clerk, Bosque County, Texas

FILED
AT 2:30 O'CLOCK P M

MAY 09 2022

Jennifer Deaton
COUNTY CLERK, CORYELL CO., TEXAS

Public Notice

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT NOTICE OF PUBLIC HEARING ON PROPOSED RE-ADOPTION OF DISTRICT MANAGEMENT PLAN

The **Middle Trinity Groundwater Conservation District** (MTGCD) will hold a public hearing on the proposed re-adoption of the MTGCD's Groundwater Management Plan on Thursday, June 2, 2022, at 1:00 p.m. at the District office located at 930 N. Wolfe Nursery Road, Stephenville, Texas 76401. All interested parties are invited to attend.

PUBLIC HEARING AGENDA:

1. Call to Order.
2. Summary presentation of the proposed revisions to the MTGCD Management Plan as required by Chapter 36 of the Texas Water Code and Chapter 356 of the Texas Water Development Board's (TWDB) rules contained in Title 30 of the Texas Administrative Code.
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At the conclusion of the hearing or any time or date thereafter, the proposed management plan may be adopted in the form presented or as amended based upon comments received from the public, the Texas Water Development Board, District staff, attorneys, geoscientists, or members of the Board of Directors without any additional notice.

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FILED
AT 3:30 O'CLOCK P M

MAY 9 2022

Clerk County Court Comanche Co., Texas

Middle Trinity Groundwater Conservation District (/)

Notice of Public Hearing on Proposed Re-Adoption of District Management Plan (/blog/2022/5/10/notice-of-public-hearing-on-proposed-re-adoption-of-district-management-plan)

Patrick Wagner (/blog?author=61eaf6af4502506c2bb291d4) · May 10, 2022 (/blog/2022/5/10/notice-of-public-hearing-on-proposed-re-adoption-of-district-management-plan)

Public Notice (/s/PublicNotice_2022.pdf)

Re-Adoption of Management Plan:

Proposed Management Plan (/s/2022-MTGCD-Management-Plan-With-Appendix_April_29_2022.pdf)

❤ 0 Likes

Newer Post
Notice of Permit Hearing and Board Meeting (/blog/2022/5/23/notice-of-permit-hearing-and-board-meeting)

Older Post
Notice of Permit Hearing and Board Meeting (/blog/2022/4/25/notice-of-permit-hearing-and-board-meeting)

GATESVILLE MESSENGER

[redacted]

Statement

116 S. 6th -:- PO Box 799
Gatesville, TX 76528-0799
Phone (254) 865-5212
Fax (254) 865-2361
www.gatesvillemessenger.com

Date: 05/31/2022
Account #: 00003534
Sales Rep:

Middle Trinity GCD

930 N. Wolfe Nursery Rd.
Stephenville, TX 76401-

Advertiser: Middle Trinity GCD

Date	Document	Publication	Description	Amount	Balance
4/30/2022			Balance Forward	0.00	0.00
5/14/2022	Invoice #00133212	Gatesville Messeng	05/14/2022, Public Notices, 275 Words, MIDDLE TRINITY GROUNDWATER CON	110.00	110.00

Current:	110.00	**Over 60:**	0.00	**Interest Charges**	0.00
Over 30:	0.00	**Over 90:**	51.60	**Balance Due:**	110.00

THE STATE OF TEXAS
COUNTY OF CORYELL

Before me, the undersigned authority, on this day, personally appeared Jaci Velasquez, known to me, being by me duly sworn, on her oath deposes and says that she is the circulation manager of THE GATESVILLE MESSENGER & STAR FORUM, a newspaper in said county; and that a copy of the hereunto attached notice was printed in said newspaper on the following dates:

May 14, 2022

Jaci Velasquez
Jaci Velasquez

Sworn to and subscribed before me, this 3 day of June, A.D., 2022

Janice L. Holden

Janice L. Holden
Gatesville, Coryell County, Texas

JANICE L. HOLDEN
Notary Public
STATE OF TEXAS
My Comm. Exp. July 21, 2022

tioner
E.Z. ILIONSKY
1311 CHISHOLM TRAIL, SUITE 310
ROUND ROCK, TX 78681

Clerk of the Court:
Becky Moore, District Clerk
P.O. Box 4
Gatesville, Coryell County, Texas
By: Linda Franks, Deputy
00029325

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00029322

The Comanche Chief, Inc.
P.O. Box 927
Comanche, TX 76442 US
(325) 356-2636
editor@thecomanchechief.com
www.thecomanchechief.com

BILL TO
Middle Trinity Grnd Conservation Dist
930 N. Wolfe Nursery Rd
Stephenville, TX 76401

INVOICE 14181

DATE 05/31/2022 TERMS Net 30

DUE DATE 06/30/2022

ACTIVITY	QTY	RATE	AMOUNT
Notice Re-adoption of district management plan, 2x7.5	1	97.50	97.50

TOTAL DUE $97.50

Agriculture News

Comanche County Ag Report

By Monica Brey
County Extension Agent - Ag/NR

Caterpillar Season

Despite the very dry conditions, I have had a good many calls about caterpillars. Caterpillars are of course the larva of butterflies and moths. Actually, moth species outnumber butterfly species 11 to 1. There are approximately 4,700 species of moths and less than 500 species of butterflies in Texas; each of these was at one time a caterpillar. Some of these caterpillars are harmless, but many are quite harmful to our crops, landscapes, and yard grass.

A few of the more common destructive caterpillars in our area include the armyworm, in which there are many types. The fall armyworm is usually most destructive to pastures, hay meadows, and sweet corn. Cutworms are another destructive caterpillar that can really work over a vegetable garden. They will cut seedling vegetables off at or near the soil surface. Cutworms are typically 1 ½" long, and pale to dirty brown in color. The Squash Vine Borer can wipe out a row of squash in a day or two. They will also feed on pumpkins, muskmelons, and cucumbers. The tomato hornworm is an interesting looking caterpillar with its anal horn. Hornworms can eat lots of foliage on your tomatoes, but populations are usually small. The tomato pinworm is another caterpillar that is capable of causing considerable damage to your tomato crop. These caterpillars will bore into the tomato at any stage of ripeness.

There are also several caterpillars that will defoliate your trees. Every year we see areas of the county that are hit by the Oak Leaf Roller in the spring. These caterpillars feed on the early spring growth and may eat all the new foliage on oaks and other trees. Tent caterpillars can also defoliate your yard trees. They prefer fruit or nut trees, but will attack oaks and other tree species as well. They, form a tent in the branches of trees. The walnut caterpillar feeds on pecans, hickory, and walnut trees. While outbreaks are uncommon, when they do occur, they can defoliate trees almost overnight.

A couple of the stinging caterpillars I have noticed increased numbers in the last two years are the Buck Moth Caterpillar, Lo Moth Caterpillar, and the Asp. These 3 caterpillars have urticating hairs or spines that are connected to a poison gland. When something, such as an arm, brushes against the hairs, the hairs stick in the skin, injecting venom and sometimes causing a rash. Usually, applying ice will reduce any swelling and lessen pain. While these bad 3 have hairs there are some hairy caterpillar species that are harmless an example is the Giant Leopard Moth caterpillar of which is common in the county. Although most are harmless and I have warned folks in the past, if stung by the wrong caterpillar, the person experiencing the sting may begin to exhibit caterpillar like tendencies.

Texas Parks and Wildlife Weekly News Digest

05-06 | Federal Red Snapper Season Opens June 1 with new DESCEND Act regulations

AUSTIN- The private recreational angler red snapper season in federal water opens Wednesday, June 1, 2022. Red snapper fishing is open year around in state waters. Bag and size limits will remain unchanged. The regulations are 2 fish per person daily with a 16-inch minimum size limit in federal waters, and 4 fish per person daily with a 15-inch minimum in state waters. Red snapper caught in federal waters count as part of the state bag limit of 4 fish. No more than 2 red snapper in federal waters and 4 red snapper in state waters may be in your possession while fishing.

05-05 | Texas State-Fish Art Contest Reveals 2022 Winners

ATHENS - The Texas Freshwater Fisheries Center (TFFC) is pleased to announce the Texas division of Wildlife Forever's Fish Art Contest winners for 2022.

05-05 | "Lone Star Bass" Heading to Texas Lakes this Spring

ATHENS - Offspring from the Toyota ShareLunker Program are set to be delivered to waterbodies across the state. Between May and July, Texas Parks and Wildlife Department (TPWD) will stock Texas lakes with pure Florida strain largemouth bass exclusively from broodfish produced from Legacy Class (13+plus pound) entries into the ShareLunker program. Dubbed "Lone Star Bass" to denote their special significance to Texas, the unique fish are made possible by the valued partnership with anglers who loan their fish to the program.

05-04 | First Case of Highly Pathogenic Avian Influenza Detected in a Wild Bird in Texas

AUSTIN - The National Veterinary Services Laboratories (NVSL) confirmed this week the presence of highly pathogenic avian influenza (HPAI) in a great horned owl at a rehabilitation facility in Wichita County -- the first such confirmed case in a wild bird in Texas. The facility quickly notified the Texas Parks and Wildlife Department (TPWD) after the owl began to show clinical signs consistent with HPAI. This case of HPAI follows an early April detection of the disease in a commercial pheasant flock located in Erath County.

Comanche Livestock Exchange Market Report

Saturday, May 7, 2022
Total Buyers: 53
Total Sellers: 83
Total Cattle, Calves: 518
Last Week: 464

Sale Notes: Market steady and very active. Feeders steady. Packers steady to 3 lower. Due to no rain most bred cows and pairs are split and weighed.

Sale Compared to Last Week: Feeder steers and heifers: steady. Slaughter cows: steady to 3 lower. Slaughter bulls: steady.

Bulk Supply of Sale: Feeders. Feeder cattle accounted for 60%. Cows and bulls for 40%. In the feeder supply: Steers 60% and heifers 40%.

Bred Cows: Good: 790-1000, Plain: no test.

Cow & Calf Pairs: Good: no test. Plain: no test.

Cows: Utility: 78-84; Few High Dressing: 90; Cutters: 68-74; Canners: 48-56; Old Shell: 28-34; Stockers: 60-90.

Bulls: Bologna: 98-103; Few High Dressing: 105; Stockers: no test, Utility: 60-78.

Steers: Medium & Large #1: 300# & Under 158-170; 300-400# 160-180; 400-500# 166-179; 500 - 600# 159-178; 600 - 700# 150-165; 700# & Up 146-157.

Steers: Medium & Large #2: 300# & Under 133-150; 300 - 400# 130-151; 400 - 500# 130-150; 500 - 600# 129-140; 600 -700# 126-138; 700 # & Up 119-134.

Steers: Medium & Large #3: 300# & Under 109-127; 300 - 400# 78-121; 400-500# 90-116; 500- 600# 60-111; 600-700# 53-110; 700# & Up 61-90.

Heifers: Medium & Large #1: 300# & Under 140-152; 300 - 400# 158-169; 400-500# 159-170; 500-600# 136-145; 600-700# 129-139; 700# & Up 131-147.

Heifers: Medium & Large #2: 300# & Under 124-139; 300 - 400# 128-146; 400-500# 130-138; 500-600# 120-131; 600-700# 109-118; 700# & Up 121-129.

Heifers: Medium & Large #3: 300# & Under 115-121; 300 - 400# 90-107; 400-500# 47-117; 500-600# 99-121; 600-700# 100-109; 700# & Up 90-109.

Lake Proctor Fishing Report

Texas Parks & Wildlife

May 4, 2022

FAIR. Water stained; 66 degrees; 2.40 feet low. Black bass are fair on worms and spinnerbaits. Crappie are good on jigs around brush piles. Striper and white bass are good on slabs and rattletraps.

Zebra Mussel Alert: To prevent the spread of zebra mussels, the law requires draining of water from boats and onboard receptacles when leaving or approaching public fresh waters.

Middle Trinity Groundwater Conservation District
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AFFIDAVIT OF PUBLICATION

THE STATE OF TEXAS:
COUNTY OF ERATH:

BEFORE ME, a notary public in and for the above named County, on this day personally appeared the person whose name is subscribed below, who having been duly sworn, says upon oath that he or she is a duly authorized office or employee of *The Dublin Citizen*, which is a newspaper of general circulation in the above named County, devoting no less that 25% of its total column lineage to the carrying of items of general interest, published, and having been published regularly and continuously for not less than 12 months prior to the making of any publication; and that a true and correct copy of the NOTICE TO THE PUBLIC a clipping of which is attached to the affidavit, was published in said Newspaper on May 12**, 2022.**

Paul Gaudette
Managing Editor

SUBSCRIBED AND SWORN TO BEFORE ME on the 12th **day of** May**, 2022.**

CINDY COMBS
NOTARY PUBLIC
STATE OF TEXAS
MY COMM. EXP. 06/04/25
NOTARY ID 1087387-9

Notary Public

Tuesday, May 17, at 11 a.m., followed by our awards and Senior scholarship ceremony at 1:30 p.m.. If you have a Dublin graduate, or your student will be receiving an award, come out and celebrate with all our Dublin Lions.

As a reminder, the last day of school will be Wednesday, May 18, 2022, with a two-hour early dismissal. Dublin ISD will start on May 20, 2022, at 7 p.m. We look forward to celebrating our graduates at the Bob and Norma Cervetto Stadium. In case of inclement weather, the graduation ceremony will be held in the Roy and Lynn Neff Gymnasium.

As the year comes to a close, Dublin High School would like to say thank you to all parents, grandparents, family members, and

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PUBLIC HEARING
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DISTRICT BOARD MEETING

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FILED
at 3:51 o'clock P M

MAY 23 2022

County Clerk, Bosque County, Texas

PERMIT HEARING AGENDA:

1. Call to Order
2. Roll Call
3. Operating Permit Applications to Be Heard:

Stevan and Katherine Seley
1205 FM 219
Dublin, TX 76446
Well Site: GPM: 15 Acres: 5.0 Use: Domestic
Alicia Ct
Ranches at Deer Crossing, Lot 49
DeLeon, TX 76444

Chris Cochran
PO Box 4897
Lago Vista, TX 78645
Well Site: GPM: 12 Acres: 6 Use: Domestic
Meadow Ln
Mercers Preserve, Lot 128
Comanche, TX 76442

Sherri Hughes
336 Beckleywood Blvd
Dallas, TX 75224
Well Site: GPM: 12 Acres: 5.28 Use: Domestic
135 PR 2657
The Ranches at Woodland Ridge, Lot 3
Walnut Springs, TX 76690

POSTED
_____A.M. 3:14 P.M.

MAY 23 2022

GWINDA JONES, COUNTY CLERK
ERATH COUNTY, TEXAS
By_____ Deputy

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FILED
AT 2:30 O'CLOCK P M
MAY 23 2022
Clerk, County Court Comanche Co., Texas

AT 2:30 FILED O'CLOCK pM

MAY 23 2022

Jennifer Deaton
COUNTY CLERK, CORYELL CO., TEXAS

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Notice of Permit Hearing and Board Meeting (/blog/2022/5/23/notice-of-permit-hearing-and-board-meeting)

Debbie Montgomery (/blog?author=5a43c4425ce350e83e80b441) · May 23, 2022 (/blog/2022/5/23/notice-of-permit-hearing-and-board-meeting)

The June MTGCD Permit Hearing and Board Meeting will be held on Thursday, June 2, 2022 at 1:00 PM. View a copy of the agenda here (/s/June-2022-Agenda.pdf).

❤ 0 Likes

Newer Post
Notice of Permit Hearing and Board Meeting (/blog/2022/6/27/notice-of-permit-hearing-and-board-meeting)

Older Post
Notice of Public Hearing on Proposed Re-Adoption of District Management Plan (/blog/2022/5/10/notice-of-public-hearing-on-proposed-re-adoption-of-district-management-plan)

CONTACT US (/CONTACT-US)

MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT, 930 NORTH WOLFE NURSERY ROAD, STEPHENVILLE, TX, 76401, UNITED STATES (254)965-6705

Debbie Montgomery

From: TexReg@sos.texas.gov
Sent: Monday, May 23, 2022 9:20 AM
To: Debbie Montgomery
Subject: S.O.S. Acknowledgment of Receipt

Acknowledgment of Receipt

Agency: Middle Trinity Groundwater Conservation District

Liaison: Debbie Montgomery

The Office of the Secretary of State has posted

notice of the following meeting:

Board: Board of Directors

Committee:

Date: 06/02/2022 01:00 PM "TRD# 2022003114"

Notice posted: 05/23/22 09:20 AM

Proofread your current open meeting notice at:

http://texreg.sos.state.tx.us/public/pub_om_lookup$.startup?Z_TRD=2022003114

Debbie Montgomery

Log Off

Open Meeting Submission

TRD:	2022003114
Date Posted:	05/23/2022
Status:	Accepted
Agency Id:	0365
Date of Submission:	05/23/2022
Agency Name:	Middle Trinity Groundwater Conservation District
Board:	Board of Directors
Date of Meeting:	06/02/2022
Time of Meeting:	01:00 PM **(##:## AM Local Time)**
Street Location:	930 Wolfe Nursery Rd
City:	Stephenville
State:	TX
Liaison Name:	Debbie Montgomery
Liaison Id:	2
Additional Information Obtained From:	254-965-6705
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Well Site: GPM: 12 Acres: 6 Use: Domestic
Meadow Ln
Mercers Preserve, Lot 128
Comanche, TX 76442

Sherri Hughes
336 Beckleywood Blvd
Dallas, TX 75224
Well Site: GPM: 12 Acres: 5.28 Use: Domestic
135 PR 2657
The Ranches at Woodland Ridge, Lot 3
Walnut Springs, TX 76690
Rhyne Gailey
PO Box 1827
Stephenville, TX 76401
Well Site: GPM: 12 Acres: 5.28 Use: Domestic
4835 CR 164
Stephenville, TX 76401

Robin and Cynthia Ledesma
612 Scenic Bluff Dr
Georgetown, TX 78628
Well Site: GPM: 12 Acres: 5.01 Use: Domestic
800 Buffalo Creek Dr
Buffalo Creek Ranch, Lot 56
Evant, TX 76535

Barbara Knowles
27311 Hwy 6
Hico, TX 76457
Well Site: GPM: 12 Acres: 5.62 Use: Domestic

5925 CR 236
Hico, TX 76457

Brian Drum
5901 CR 7900
Slaton, TX 79364
Well Site: GPM: 14 Acres: 3.2 Use: Domestic
205 Meadow Bend Circle Livestock Watering
The Meadows, Lot 9
Stephenville, TX 76401

Cody Stevens
274 PR 959
Dublin, TX 76446
Well Site: GPM: 12 Acres: 6.01 Use: Domestic
4830 CR 401 Livestock Watering
Dublin, TX 76446

Gordon Shepardson
3047 N FM 116
Copperas Cove, TX 76522
Well Site: GPM: 7 Acres: 6.467 Use: Domestic /
3047 N FM 116 Livestock Watering
Copperas Cove, TX 76522

Wesley Biglin
17553 FM 847
Dublin, TX 76446
Well Site: GPM: 22 Acres: 18.48 Use: Domestic /
3885 CR 522 Livestock Watering
Stephenville, TX 76401

Jim and- Phyllis Stewart
PO Box 824
Stephenville, TX 76401
Well Site: GPM: 35 Acres: 205.28 Use: Domestic /
529 Comanche CR 335 Livestock Watering
Dublin, TX 76446

David Andersen
3515 S 4625 W
West Haven, UT 84401
Well Site: GPM: 60 Acres: 131 Use: Irrigation
3450 CR 434
Proctor, TX 76446

Frank Brand
PO Box 11
Energy, TX 76452
Well Site: GPM: 85 Acres: 1257.3 Use: Irrigation

FM 1702 / CR 270
Energy, TX 76452

Karla Medford (6 wells)
124 CR 408
Carbon, TX 76435
Well Site: GPM: 50 Acres: 299.5 Use: Irrigation /
CR 127 / CR 129 Livestock Watering
Rising Star, TX 76471

Leslie Morris (3 wells)
1007 CR 445
DeLeon, TX 76444
Well Site: GPM: 100 Acres: 163.4 Use: Irrigation
CR 445
DeLeon, TX 76444

Existing Well, Increase in GPM:

Kevin Northcutt
PO Box 1194
Stephenville, TX 76401
Well Site: GPM: 22 Acres: 32.5 Use: Domestic
4695 CR 153 (Increase in GPM from 17 to 22)
Bluff Dale, TX 76433

4. Discussion on Operating Permit Applications

5. Adjourn Permit Hearing

BOARD MEETING AGENDA:

The following agenda items will be discussed:

1. Call to Order

2. Roll Call of Members

3. Invocation

4. Pledge of Allegiance

5. Recognize Guests

6. Public Comments

7. Annual Audit Presentation - Jeremy Shell

8. Take Action on Management Plan

9. Take Action on Operating Permit Applications

10. Approve / Ratify Minutes

11. Approve / Ratify Payment of Bills

12. Income / Expense Comparison

13. Manager's Report - Patrick Wagner

14. Office Manager Report- Crystal Eberhart / Debbie Montgomery

15. Field Tech Report- Johnny Wells

16. Education/PR Report / The Ditch Water Discovery Center Update - Stephanie Keith

17. Monthly Drought Report

18. First Look at 2023 Budget

19. Discussion of Tax Rate

20. Rules Committee Update

21. Discussion / Possible Action on Interlocal Agreement

22. Executive Session pursuant to Sections 551.071 and/or 551.074 of Texas Government Code to discuss Personnel Matters and/or Legal Matters

23. Discuss Agenda Items for July Board Meeting

24. Adjourn

CERTIFICATION

I, the undersigned authority, do hereby certify that on May 23, 2022 before 1:00 PM, I posted and filed the above notice of meeting on the MTGCD website, Texas Secretary of State website, and on the door of the MTGCD office in Erath County in a place convenient and readily accessible to the general public at all times and that it will remain so posted continuously for at least 72 hours preceding the scheduled time of said board meeting, and 10 business days prior to aid time of permit hearing in accordance with the Texas Government Code, Chapter 551.

By: _____
MTGCD General Manager

The Middle Trinity Groundwater Conservation District is committed to compliance with the Americans with Disabilities Act (ADA). Reasonable accommodations and equal opportunity for effective communications will be provided upon request. Please contact the President of the District at 254-965-6705 at least 24 hours in advance if accommodation is needed.

At any time during the meeting and in compliance with the Texas Open Meetings Act, Chapter 551, Government Code, Vernon's Texas Codes, Annotated, the Middle Trinity Groundwater Conservation District Board may meet in executive session on any of the above agenda items for consultation concerning attorney-client matters (§551.071); deliberation regarding real property (§551.072); deliberation regarding prospective gift (§551.073); personnel matters (§551.074); and deliberation regarding security devises (§551.076). Any subject discussed in executive session may be subject to action during an open meeting.

For more information about the public hearing on the Management Plan, permit hearing, Board meeting or the Middle Trinity Groundwater
Conservation District contact:
GENERAL MANAGER
254-965-6705

New Submission

MINUTES OF THE
PERMIT HEARING AND MEETING OF
THE BOARD OF DIRECTORS OF THE
MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT
HELD: June 2, 2022

THE STATE OF TEXAS
COUNTY OF ERATH

On this 2nd day of June 2022 the Board of Directors of the Middle Trinity Groundwater Conservation District convened in a PERMIT HEARING at 930 N Wolfe Nursery Rd, Stephenville, Texas at 1:00 PM with the following members present:

Rodney Stephens - President
Fred Parker - Secretary
Shane Tucker - Director
Robert Payne - Director
Frank Volleman – Director
Joe Altebaumer - Director
Barbara Domel – Vice-President
Jerry Hinshaw - Director
W.B. Maples - Director
Gary Kafer - Director
Kenneth Bullington – Director

Board Member absent was Charles Ferguson. Also present were Patrick Wagner, Johnny Wells, Stephanie Keith, Crystal Eberhart, and Debbie Montgomery.

President Rodney Stephens called the hearing to order, declared a quorum present and that the hearing was duly convened and ready to transact business.

Notice of the hearing was given, stating the time, place and purpose, all as required by Chapter 551 of the Government Code.

1. Hearing called to order by Rodney Stephens.

2. Roll Call of members was given by Debbie Montgomery.

3. All operating permit applications were administratively complete. The permit application for Kevin Northcutt is for an existing registered well, with increase requested from 17 to 22 GPM.

4. Motion to adjourn permit hearing made by Fred Parker. Second by Robert Payne. All members present voted yes.

5. Rodney Stephens adjourned the permit hearing.

THE STATE OF TEXAS
COUNTY OF ERATH

On this 2nd day of June 2022, the Board of Directors of the Middle Trinity Groundwater Conservation District convened in a STATED SESSION at 930 N Wolfe Nursery Rd, Stephenville, Texas at 1:00 PM with the following members present:

Rodney Stephens - Vice-President
Fred Parker - Secretary
Shane Tucker - Director
Robert Payne - Director
Frank Volleman – Director
Joe Altebaumer - Director
Barbara Domel – Vice-President
Jerry Hinshaw - Director
W.B. Maples - Director
Gary Kafer - Director
Kenneth Bullington – Director

Board Member absent was Charles Ferguson. Also present were Patrick Wagner, Johnny Wells, Stephanie Keith, Crystal Eberhart, and Debbie Montgomery.

President Rodney Stephens called the meeting to order, declared a quorum present and that the meeting was duly convened and ready to transact business.

Notice of the hearing was given, stating the time, place and purpose, all as required by Chapter 551 of the Government Code.

1. Meeting called to order by Rodney Stephens.

2. Roll Call of Members was given by Debbie Montgomery.

3. Invocation was given by Joe Altebaumer.

4. Pledge of Allegiance was conducted

5. Guests present were Jeremy Shell of Boucher, Morgan, and Young, Paul Gaudette of the Dublin Citizen, and permit applicants Stevan and Katherine Seley.

6. There were no public comments.

7. Jeremy Shell of Boucher, Morgan, and Young presented a summary of the report on the annual financial audit of MTGCD for the year ended December 31, 2021.

8. Joe Altebaumer made a motion to accept the proposed MTGCD Management Plan as presented. Second by Shane Tucker. All members present voted yes. Management Plan accepted.

9. Kenneth Bullington made a motion to approve all operating permit applications on the permit hearing agenda. Second by Joe Altebaumer. All members present voted yes to approved the permit applications.

10. There was a review of the Minutes of the May 5th , 2022 monthly Board Meeting. Kenneth Bullington moved to approve the minutes of the meeting, second by Joe Altebaumer. All members present voted yes to approve the minutes.

11. Check Detail Report reviewed for dates 4/27/2022 through 5/26/2022, for check numbers 11610 through 11674 (11664, 11619 – 11631 voided), and including electronic checks 33122, 223105, 223106, 5152022, and 5152023. Motion was made by Kenneth Bullington, second by Gary Kafer, to approve and ratify the payment of the bills. All members present voted yes.

12. Income/Expense Comparison was reviewed.

13. Manager's Report was given by Patrick Wagner.

14. Office Manager Report was given by Debbie Montgomery. In addition to the permit applications, there were 40 exempt new well registrations during the past month.

15. Field Tech report was given by Johnny Wells. One well was plugged in May, in Comanche County. Thirteen water quality tests were completed, 4 in Erath County, 6 in Bosque County, and 3 in Comanche County. All wells tested good. Erath County wells were monitored in May and Comanche County wells will be monitored in June.

16. Education/PR Report/The Ditch Water Discovery Center Update given by Stephanie Keith.

17. Monthly Drought Report given by Patrick Wagner.

18. There was a first look at the 2023 Budget.

19. There was discussion of the Tax Rate for the upcoming year.

20. Rules Committee Update given by Patrick Wagner. Tentative meeting of the Rules Committee set for June 20th and then there will be discussion of the proposed changes at the July Board Meeting.

21. W.B. Maples moved to table the Discussion / Possible Action on Interlocal Agreement. Second by Fred Parker. All members present voted yes to table the discussion until a later time.

22. The Board retired into Executive Session at 1:34 PM.

23. The Board reconvened at 2:03 PM. President Rodney Stephens left at 1:56 PM and Vice-President Barbara Domel took over the presiding of the meeting. Frank Volleman moved to honor General Manager Patrick Wagner's contract with increase in salary. Second by Robert Payne. All members present voted yes. Gary Kafer made a motion to give each MTGCD employee a 3.5% cost-of-living increase in pay, with an additional merit raise for Debbie Montgomery. Second by Joe Altebaumer. All members present voted yes.

24. There was discussion on agenda items for the July Board Meeting.

25. Fred Parker moved to adjourn the meeting, second by W.B. Maples. Meeting adjourned by Barbara Domel.

MINUTES approved this 7th day of July 2022.

Joe Altebaumer/Erath Co.

Fred Parker/Erath Co.

Jerry Hinshaw/ Erath Co.

Shane Tucker /Comanche Co.

Frank Volleman/Comanche Co.

Rodney Stephens/Comanche Co.

Charles E. Ferguson/ Bosque Co.

Barbara Domel/Bosque Co.

Robert Payne/Bosque Co.

Gary Kafer/Coryell Co.

Kenneth Bullington/Coryell Co.

W.B. Maples/ Coryell Co.

APPENDIX I

Evidence of Coordination with Surface Water Management Entities

Audrey Cooper

From:	Audrey Cooper
Sent:	Wednesday, June 8, 2022 5:21 PM
To:	joe@coryellcitywater.com
Cc:	Ty Embrey
Subject:	Middle Trinity GCD Management Plan
Attachments:	Middle Trinity GCD Management Plan.pdf

Good afternoon:

Enclosed please find a copy of the amended Management Plan of the Middle Trinity Groundwater Conservation District (the "District"). The District's mission is to conserve, preserve, and protect the quality and quantity of groundwater resources for the citizens within its boundaries, which include Bosque, Comanche, Coryell, and Erath Counties.

The District has adopted amendments to its Management Plan as required by Chapter 36 of the Texas Water Code and Chapter 356 of the Texas Water Development Board's ("TWDB's") rules contained in Title 30 of the Texas Administrative Code. The District submits the enclosed amended Management Plan to you pursuant to Section 36.1071(a) of the Texas Water Code and the TWDB's rules. The District asks for your review and comment as part of the District's effort to coordinate and seek input on its comprehensive groundwater management goals. The District's Board of Directors (the "Board") held a public hearing and subsequently adopted the enclosed amended Management Plan at its Board meeting on June 2, 2022.

The District is committed to working with you to manage the groundwater resources within its boundaries. Please contact the District's General Manager Patrick Wagner at (254) 965-6705 if you have any questions.

Thank you.

Lloyd Gosselink ATTORNEYS AT LAW

AUDREY COOPER
Paralegal
512-322-5843 Direct
Lloyd Gosselink Rochelle & Townsend, P.C.
816 Congress Ave., Suite 1900, Austin, TX 78701
www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Wednesday, June 8, 2022 5:23 PM
To: office@ulrmwd.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good afternoon:

Enclosed please find a copy of the amended Management Plan of the Middle Trinity Groundwater Conservation District (the "District"). The District's mission is to conserve, preserve, and protect the quality and quantity of groundwater resources for the citizens within its boundaries, which include Bosque, Comanche, Coryell, and Erath Counties.

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www.lglawfirm.com | 512-322-5800

Barton Water Supply Corporation

Audrey Cooper

From: Audrey Cooper
Sent: Wednesday, June 8, 2022 5:25 PM
To: bartonws@sbcglobal.net
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good afternoon:

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www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Wednesday, June 8, 2022 5:26 PM
To: ccwsc@cctc.net
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good afternoon:

Enclosed please find a copy of the amended Management Plan of the Middle Trinity Groundwater Conservation District (the "District"). The District's mission is to conserve, preserve, and protect the quality and quantity of groundwater resources for the citizens within its boundaries, which include Bosque, Comanche, Coryell, and Erath Counties.

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Thank you

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816 Congress Ave., Suite 1900, Austin, TX 78701
www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Wednesday, June 8, 2022 5:27 PM
To: flatwsc@yahoo.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good afternoon:

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www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 8:42 AM
To: webmaster@fortgateswsc.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

Enclosed please find a copy of the amended Management Plan of the Middle Trinity Groundwater Conservation District (the "District"). The District's mission is to conserve, preserve, and protect the quality and quantity of groundwater resources for the citizens within its boundaries, which include Bosque, Comanche, Coryell, and Erath Counties.

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816 Congress Ave., Suite 1900, Austin, TX 78701
www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 8:43 AM
To: srpw01@gmail.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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816 Congress Ave., Suite 1900, Austin, TX 78701
www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 8:45 AM
To: Billing@HighlandParkWSC.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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816 Congress Ave., Suite 1900, Austin, TX 78701
www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 8:47 AM
To: info@kempnerwsc.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 8:49 AM
To: mmwsc2015@gmail.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 8:51 AM
To: officemanager@mountainwatersupplycorp.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:16 AM
To: customerservice@multicountywater.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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The District is committed to working with you to manage the groundwater resources within its boundaries. Please contact the District's General Manager Patrick Wagner at (254) 965-6705 if you have any questions.

Thank you

Lloyd Gosselink ATTORNEYS AT LAW

AUDREY COOPER
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512-322-5843 Direct
Lloyd Gosselink Rochelle & Townsend, P.C.
816 Congress Ave., Suite 1900, Austin, TX 78701
www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:17 AM
To: karen@mustangvalleywater.org
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

Enclosed please find a copy of the amended Management Plan of the Middle Trinity Groundwater Conservation District (the "District"). The District's mission is to conserve, preserve, and protect the quality and quantity of groundwater resources for the citizens within its boundaries, which include Bosque, Comanche, Coryell, and Erath Counties.

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:18 AM
To: TheGroveWSC@icloud.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:20 AM
To: cliftoncity@cliftontexas.us
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:21 AM
To: cityhall@ci.comanche.tx.us
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:25 AM
To: lwilson@copperascovetx.gov
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:26 AM
To: cranfillsgap@amaonline.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:28 AM
To: mkharbour@cityofdeleon.org
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:31 AM
To: coevant@centex.net
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 10:40 AM
To: wcole@gatesvilletx.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

Good morning:

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:50 AM
To: cityofgordon@yahoo.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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www.lglawfirm.com | 512-322-5800

Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:52 AM
To: bkilger@cityofgustine.com; dporras@cityofgustine.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:53 AM
To: cityofiredell@windstream.net
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:57 AM
To: marie.garland@meridiantexas.us
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 9:58 AM
To: cityofmorgan@valornet.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 10:00 AM
To: jthompson@oglesby-texas.com
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 10:01 AM
To: tjohnson@stephenvilletx.gov
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 10:02 AM
To: citysec@vmtx.us
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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Audrey Cooper

From: Audrey Cooper
Sent: Thursday, June 9, 2022 10:03 AM
To: cityofws@windstream.net
Cc: Ty Embrey
Subject: Middle Trinity GCD Management Plan
Attachments: Middle Trinity GCD Management Plan.pdf

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816 Congress Avenue, Suite 1900
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Facsimile: (512) 472-0532
www.lglawfirm.com

Mr. Embrey's Direct Line: (512) 322-5829
Email: tembrey@lglawfirm.com

June 9, 2022

Brazos River Authority
P.O. Box 7555
Waco, Texas 76714

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

To Whom it May Concern,

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The District is committed to working with you to manage the groundwater resources within its boundaries. Please contact the District's General Manager Patrick Wagner at (254) 965-6705 if you have any questions.

Sincerely,

Ty H. Embrey
Attorney for the District

Enclosure

cc: Mr. Patrick Wagner, General Manager
Middle Trinity Groundwater Conservation District

Lloyd Gosselink
ATTORNEYS AT LAW

816 Congress Avenue, Suite 1900
Austin, Texas 78701
Telephone: (512) 322-5800
Facsimile: (512) 472-0532
www.lglawfirm.com

Mr. Embrey's Direct Line: (512) 322-5829
Email: tembrey@lglawfirm.com

June 9, 2022

Lake Proctor Irrigation Authority
P.O. Box 203
Stephenville, Texas 76401

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

To Whom it May Concern,

Enclosed please find a copy of the amended Management Plan of the Middle Trinity Groundwater Conservation District (the "District"). The District's mission is to conserve, preserve, and protect the quality and quantity of groundwater resources for the citizens within its boundaries, which include Bosque, Comanche, Coryell, and Erath Counties.

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Mr. Embrey's Direct Line: (512) 322-5829
Email: tembrey@lglawfirm.com

June 9, 2022

Lakeside Water Supply District
128 County Road 1275
Morgan, Texas 76671

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

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www.lglawfirm.com

Mr. Embrey's Direct Line: (512) 322-5829
Email: tembrey@lglawfirm.com

June 9, 2022

Childress Creek WSC
255 County Road 3405
Clifton, Texas 76634

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

To Whom it May Concern,

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www.lglawfirm.com

Mr. Embrey's Direct Line: (512) 322-5829
Email: tembrey@lglawfirm.com

June 9, 2022

Elm Creek WSC
603 Avenue E
Moody, Texas 76557

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

To Whom it May Concern,

Enclosed please find a copy of the amended Management Plan of the Middle Trinity Groundwater Conservation District (the "District"). The District's mission is to conserve, preserve, and protect the quality and quantity of groundwater resources for the citizens within its boundaries, which include Bosque, Comanche, Coryell, and Erath Counties.

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Mr. Embrey's Direct Line: (512) 322-5829
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June 9, 2022

King Creek WSC
P.O. Box 60
Clifton, Texas 76634

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

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June 9, 2022

Leon Junction WSC
2545 E FM 931
Gatesville, Texas 76528

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

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June 9, 2022

Mosheim WSC
3067 FM 217
Valley Mills, Texas 76689

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

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June 9, 2022

Smith Bend WSC
P. O. Box 207
Valley Mills, Texas 76689

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

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June 9, 2022

Topsey WSC
4371 FM 1113
Copperas Cove, Texas 76522

RE: Middle Trinity Groundwater Conservation District's Amended Management Plan

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Mr. Embrey's Direct Line: (512) 322-5829
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June 9, 2022

City of Dublin
213 E. Blackjack Street
Dublin, Texas 76446

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Attorney for the District

Enclosure

cc: Mr. Patrick Wagner, General Manager
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Lakeside Water Supply District
128 County Road 1275
Morgan, Texas 76671

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Street and Apt. No., or PO Box No.

255 County Road 3405

City, State, ZIP+4®

Clifton, Texas 76634

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AUSTIN, TX 78701
JUN 09 2022
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Elm Creek WSC

Street and Apt. No., or PO Box No.

603 Avenue E

City, State, ZIP+4®

Moody, Texas 76557

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AUSTIN, TX 78701
JUN 09 2022
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Sent To

King Creek WSC

Street and Apt. No., or PO Box No.

P.O. Box 60

City, State, ZIP+4®

Clifton, Texas 76634

PS Form 3800, April 2015 PSN 7530-0 ...tions

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AUSTIN, TX 78701
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Leon Junction WSC
2545 E FM 931
Gatesville, Texas 76528

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AUSTIN, TX 78701
JUN 09 2022
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Mosheim WSC
3067 FM 217
Valley Mills, Texas 76689

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City, State, ZIP+4®

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City of Dublin
213 E Blackjack St
Dublin, TX 76446

Street and Apt. No., or PO Box No.

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AUSTIN, TX 78701
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Topsey WSC

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Copperas Cove, Texas 76522

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Street and Apt. No., or PO Box No.
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Brazos River Authority
P.O. Box 7555
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Lakeside Water Supply District
128 County Road 1275
Morgan, Texas 76671

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X Brenda Murdock ☐ Agent ☐ Addressee

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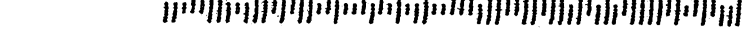

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1. Article Addressed to:

Childress Creek WSC
255 County Road 3405
Clifton, Texas 76634

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☐ Agent
☐ Addressee

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C. Date of Delive

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1. Article Addressed to:

Elm Creek WSC
603 Avenue E
Moody, Texas 76557

COMPLETE THIS SECTION ON DELIVERY

A. Signature
x Stephanie Saucedo ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Stephanie Saucedo

C. Date of Delivery 6/15/22

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1. Article Addressed to:

King Creek WSC
P.O. Box 60
Clifton, Texas 76634

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X [signature] ☑ Agent ☐ Addressee

B. Received by (Printed Name) Kenneth Eubanks

C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

JUN 21 2022

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1. Article Addressed to:

Leon Junction WSC
2545 E FM 931
Gatesville, Texas 76528

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A. Signature

X

☑ Agent
☐ Addressee

B. Received by *(Printed Name)*

C. Date of Delivery 6/1/21

D. Is delivery address different from item 1? ☐ Yes
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1. Article Addressed to:

Mosheim WSC
3067 FM 217
Valley Mills, Texas 76689

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Paula Sanders ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* PAULA SANDERS
C. Date of Delivery 6-11-22

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

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1. Article Addressed to:

City of Dublin
213 E Blackjack St
Dublin, TX 76446

COMPLETE THIS SECTION ON DELIVERY

A. Signature
x Kimberly Snider ☑ Agent ☐ Addressee

B. Received by (*Printed Name*) Kimberly Snider

C. Date of Delivery 6-13-22

D. Is delivery address different from item 1? ☐ Yes
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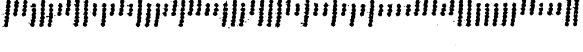

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1. Article Addressed to:

Smith Bend WSC
P. O. Box 207
Valley Mills, Texas 76689

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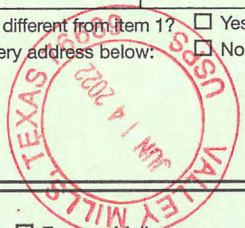

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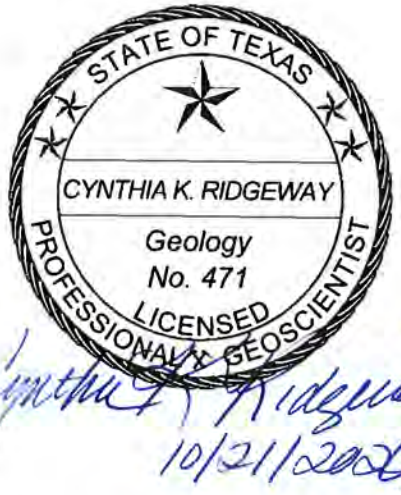
APPENDIX J

Groundwater Availability Model Run 21-006

GAM RUN 21-006: MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

Grayson Dowlearn
Texas Water Development Board
Groundwater Division
Groundwater Modeling Department
(512) 475-1552
October 21, 2021



Cynthia K. Ridgeway is the manager of the Groundwater Availability Modeling Department and is responsible for the oversight of work performed by Robert Grayson Dowlearn under her direct supervision. The seal appearing on this document was authorized by Cynthia K. Ridgeway, P.G. 471 on October 21, 2021.

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GAM RUN 21-006: MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT MANAGEMENT PLAN

Grayson Dowlearn
Texas Water Development Board
Groundwater Division
Groundwater Modeling Department
(512) 475-1552
October 21, 2021

EXECUTIVE SUMMARY:

Texas State Water Code, Section 36.1071, Subsection (h) (Texas Water Code, 2011), states that, in developing its groundwater management plan, a groundwater conservation district shall use groundwater availability modeling information provided by the Executive Administrator of the Texas Water Development Board (TWDB) in conjunction with any available site-specific information provided by the district for review and comment to the Executive Administrator.

The TWDB provides data and information to the Middle Trinity Groundwater Conservation District in two parts. Part 1 is the Estimated Historical Water Use/State Water Plan dataset report, which will be provided to you separately by the TWDB Groundwater Technical Assistance Department. Please direct questions about the water data report to Mr. Stephen Allen at 512-463-7317 or stephen.allen@twdb.texas.gov. Part 2 is the required groundwater availability modeling information and this information includes:

1. the annual amount of recharge from precipitation, if any, to the groundwater resources within the district;

2. for each aquifer within the district, the annual volume of water that discharges from the aquifer to springs and any surface-water bodies, including lakes, streams, and rivers; and

3. the annual volume of flow into and out of the district within each aquifer and between aquifers in the district.

The groundwater management plan for the Middle Trinity Groundwater Conservation District should be adopted by the district on or before January 20, 2022 and submitted to the executive administrator of the TWDB on or before February 19, 2022. The current management plan for the Middle Trinity Groundwater Conservation District expires on April 20, 2022.

We used two groundwater availability models to estimate the management plan information for the aquifers within the Middle Trinity Groundwater Conservation District. Information for the Trinity Aquifer is from version 2.01 of the groundwater availability model for the northern portion of the Trinity Aquifer and the Woodbine Aquifer (Kelley and others, 2014). Information for the Brazos River Alluvium Aquifer is from version 1.01 of the groundwater availability model for the Brazos River Alluvium Aquifer (Ewing and Jigmond, 2016).

This report replaces the results of GAM Run 17-026 (Shi and Wade, 2017), as the approach used for analyzing model results has been since refined to more accurately delineate flows between hydraulically connected units and because of updates to the spatial grid file used to define county, groundwater conservation district, and aquifer boundaries. Tables 1 and 2 summarize the groundwater availability model data required by statute. Figures 1, and 3 show the area of the models from which the values in the tables were extracted. Figures 2 and 4 provide generalized diagrams of the groundwater flow components provided in Tables 1 and 2. If, after review of the figures, the Middle Trinity Groundwater Conservation District determines that the district boundaries used in the assessment do not reflect current conditions, please notify the TWDB at your earliest convenience.

METHODS:

In accordance with the provisions of the Texas State Water Code, Section 36.1071, Subsection (h), the groundwater availability models mentioned above were used to estimate information for the Middle Trinity Groundwater Conservation District management plan. Water budgets were extracted for the historical model period for the Trinity Aquifer (1980-2012) using ZONEBUDGET Version 3.01 (Harbaugh, 2009). Water budgets were extracted for the historical model period for the Brazos River Alluvium Aquifer (1980-2012) using ZONEBUDGET USG Version 1.00 (Panday and others, 2013). The average annual water budget values for recharge, surface-water outflow, inflow to the district, outflow from the district, and the flow between aquifers within the district are summarized in this report.

PARAMETERS AND ASSUMPTIONS:

Trinity Aquifer

- We used version 2.01 of the groundwater availability model for the northern portion of the Trinity Aquifer and the Woodbine Aquifer. See Kelley and others (2014) for assumptions and limitations of the model.
- The groundwater availability model for the northern portion of the Trinity Aquifer and Woodbine Aquifer contains eight layers that generally represent the following: Layer 1 (the surficial outcrop area of the units in layers 2 through 8 and units younger than Woodbine Aquifer), Layer 2 (Woodbine Aquifer), Layer 3 (Washita and Fredericksburg Groups, and the Edwards (Balcones Fault Zone) Aquifer), and Layers 4 through 8 (Trinity Aquifer). Layers 2 through 7 also include pass-through cells. The Woodbine Aquifer does not occur within the Middle Trinity Groundwater Conservation District and therefore no groundwater budget values are included for it in this report.
- Perennial rivers and reservoirs were simulated using the MODFLOW River package. Ephemeral streams, flowing wells, springs, and evapotranspiration in riparian zones along perennial rivers were simulated using the MODFLOW Drain package.
- The model was run using MODFLOW-NWT (Niswonger and others, 2011).

Brazos River Alluvium Aquifer

- We used version 1.01 of the groundwater availability model for the Brazos River Alluvium Aquifer released on December 16, 2016. See Ewing and Jigmond (2016) for assumptions and limitations of the model.
- The groundwater availability model for the Brazos River Alluvium Aquifer contains three layers. Layers 1 and 2 represent the Brazos River Alluvium Aquifer and Layer 3 represents the surficial portions of the Carrizo-Wilcox, Queen City, Sparta, Yegua-Jackson, and Gulf Coast aquifers as well as various geologic units of the Cretaceous System, including the Edwards and Trinity.
- Perennial rivers and streams were simulated using the MODFLOW Streamflow-Routing package and ephemeral streams, were simulated using the MODFLOW River package. Springs were simulated using the MODFLOW Drain package.

- The model was run with MODFLOW-USG (unstructured grid; Panday and others, 2013).

RESULTS:

A groundwater budget summarizes the amount of water entering and leaving the aquifer according to the groundwater availability model. Selected groundwater budget components listed below were extracted from the groundwater availability model results for the Trinity and the Brazos River Alluvium aquifers located within the Middle Trinity Groundwater Conservation District and averaged over the historical calibration periods, as shown in Tables 1 and 2.

1. Precipitation recharge—the areally distributed recharge sourced from precipitation falling on the outcrop areas of the aquifers (where the aquifer is exposed at land surface) within the district.

2. Surface-water outflow—the total water discharging from the aquifer (outflow) to surface-water features such as streams, reservoirs, and springs.

3. Flow into and out of district—the lateral flow within the aquifer between the district and adjacent counties.

4. Flow between aquifers—the net vertical flow between the aquifer and adjacent aquifers or confining units. This flow is controlled by the relative water levels in each aquifer and aquifer properties of each aquifer or confining unit that define the amount of leakage that occurs.

The information needed for the district's management plan is summarized in Tables 1 and 2. It is important to note that sub-regional water budgets are not exact. This is due to the size of the model cells and the approach used to extract data from the model. To avoid double accounting, a model cell that straddles a political boundary, such as a district or county boundary, is assigned to one side of the boundary based on the location of the centroid of the model cell. For example, if a cell contains two counties, the cell is assigned to the county where the centroid of the cell is located.

TABLE 1: SUMMARIZED INFORMATION FOR THE TRINITY AQUIFER THAT IS NEEDED FOR THE MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Trinity Aquifer	74,326
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Trinity Aquifer	98,150
Estimated annual volume of flow into the district within each aquifer in the district	Trinity Aquifer	29,718
Estimated annual volume of flow out of the district within each aquifer in the district	Trinity Aquifer	33,951
Estimated net annual volume of flow between each aquifer in the district	To the Trinity Aquifer from the Washita Group of the Cretaceous System	30,546
	From Trinity to older underlying Paleozoic Rocks	1,520

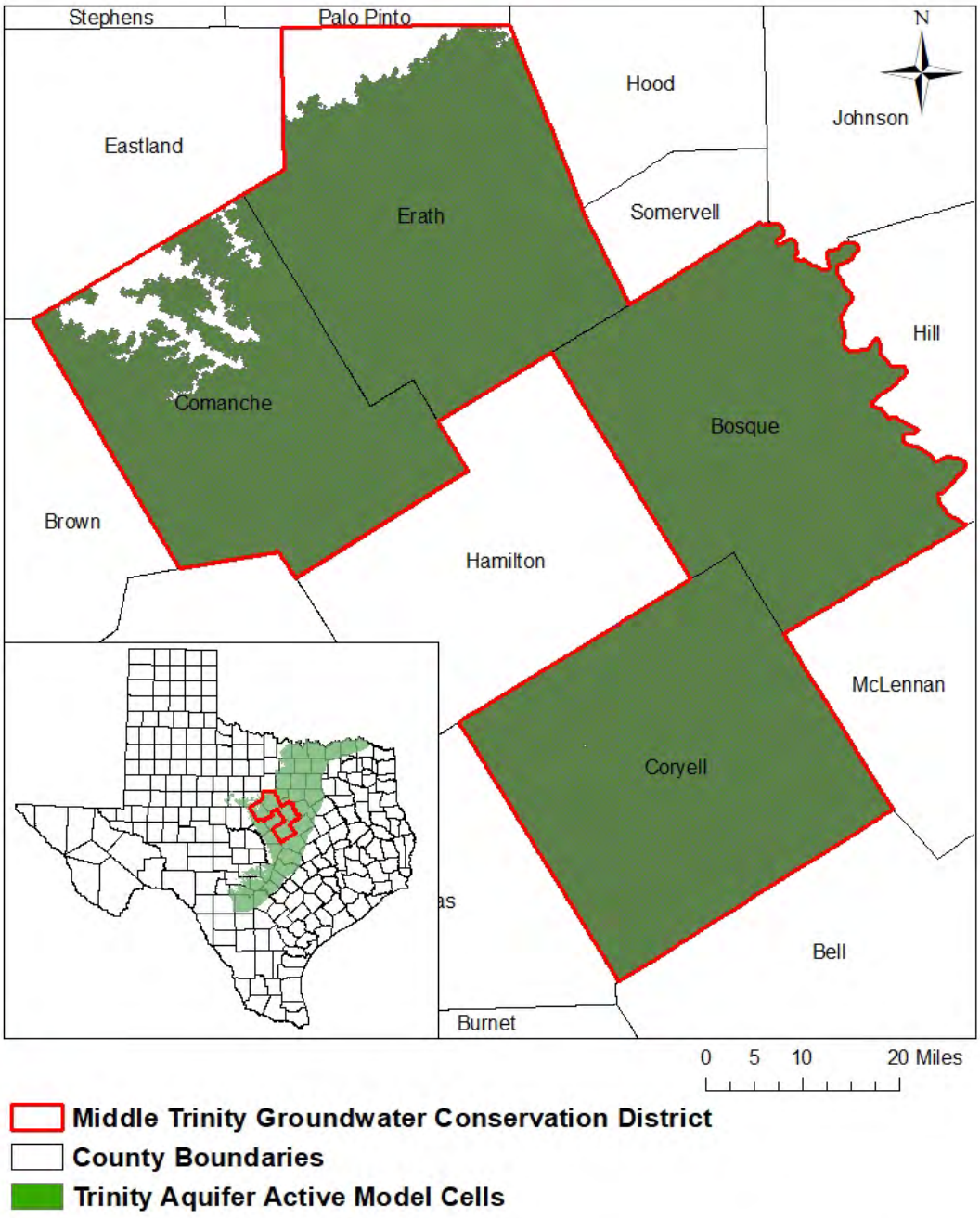
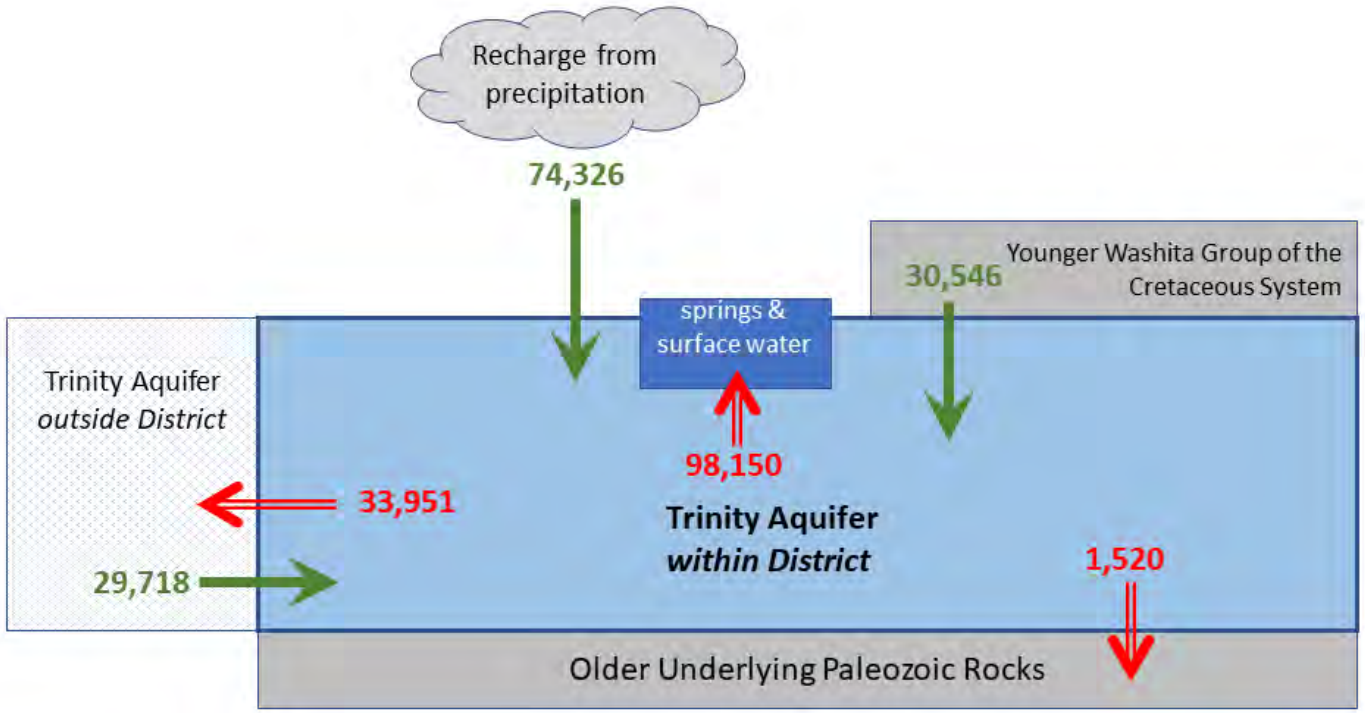


FIGURE 1: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AQUIFER AND THE WOODBINE AQUIFER FROM WHICH THE INFORMATION IN TABLE 1 WAS EXTRACTED (THE TRINITY AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).



Caveat: This diagram only includes the water budget items provided in Table 1. A complete water budget would include additional inflows and outflows. If the District requires values for additional water budget items, please contact TWDB.

FIGURE 2: GENERALIZED DIAGRAM OF THE SUMMARIZED BUDGET INFORMATION FROM TABLE 1, REPRESENTING DIRECTIONS OF FLOW FOR THE TRINITY AQUIFER WITHIN MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT. FLOW VALUES EXPRESSED IN ACRE-FEET PER YEAR (AFY).

TABLE 2: SUMMARIZED INFORMATION FOR THE BRAZOS RIVER ALLUVIUM AQUIFER THAT IS NEEDED FOR THE MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT'S GROUNDWATER MANAGEMENT PLAN. ALL VALUES ARE REPORTED IN ACRE-FEET PER YEAR AND ROUNDED TO THE NEAREST 1 ACRE-FOOT.

Management Plan requirement	Aquifer or confining unit	Results
Estimated annual amount of recharge from precipitation to the district	Brazos River Alluvium Aquifer	515
Estimated annual volume of water that discharges from the aquifer to springs and any surface water body including lakes, streams, and rivers	Brazos River Alluvium Aquifer	800
Estimated annual volume of flow into the district within each aquifer in the district	Brazos River Alluvium Aquifer	224
Estimated annual volume of flow out of the district within each aquifer in the district	Brazos River Alluvium Aquifer	242
Estimated net annual volume of flow between each aquifer in the district	To the Brazos River Alluvium Aquifer from older underlying confining units	82

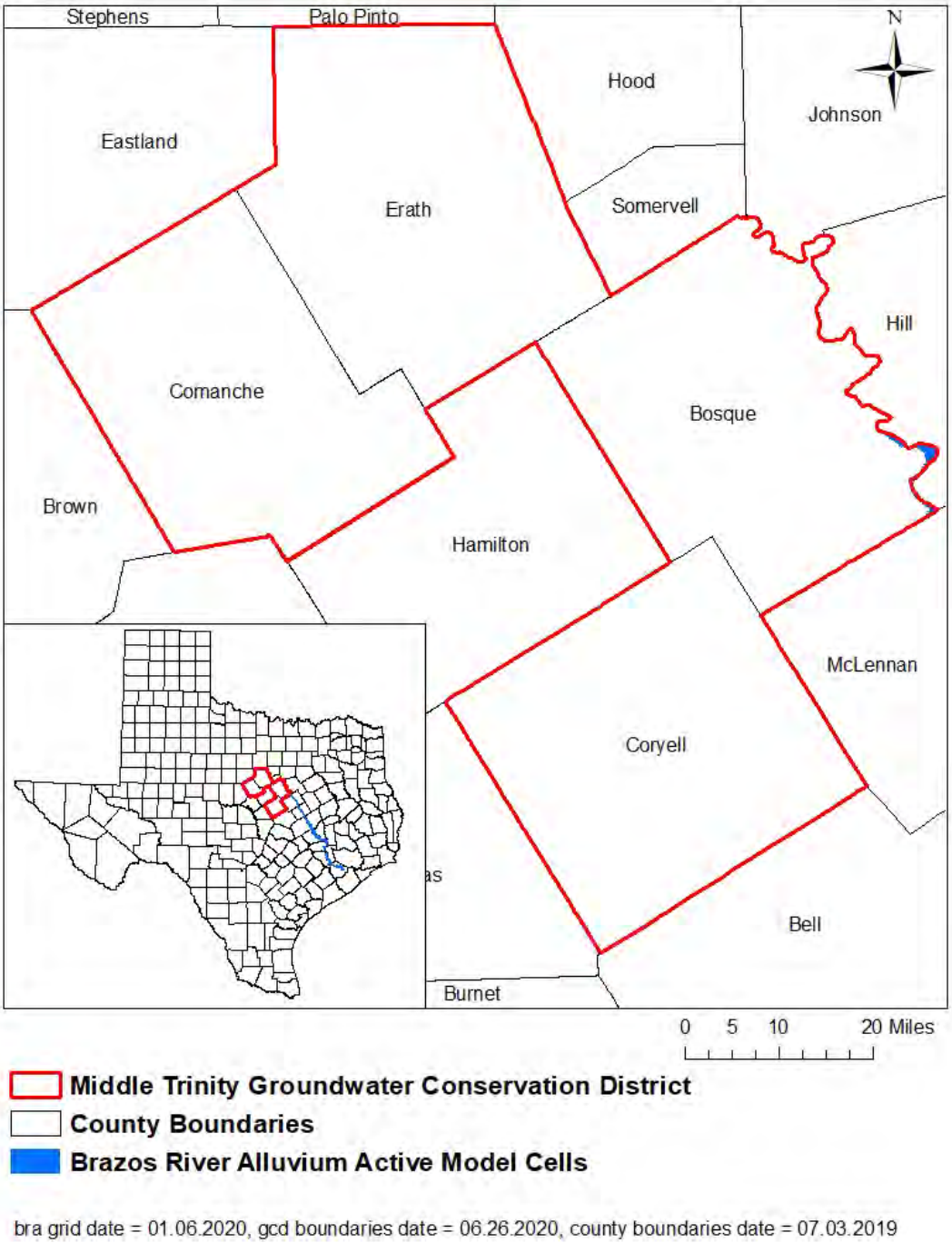
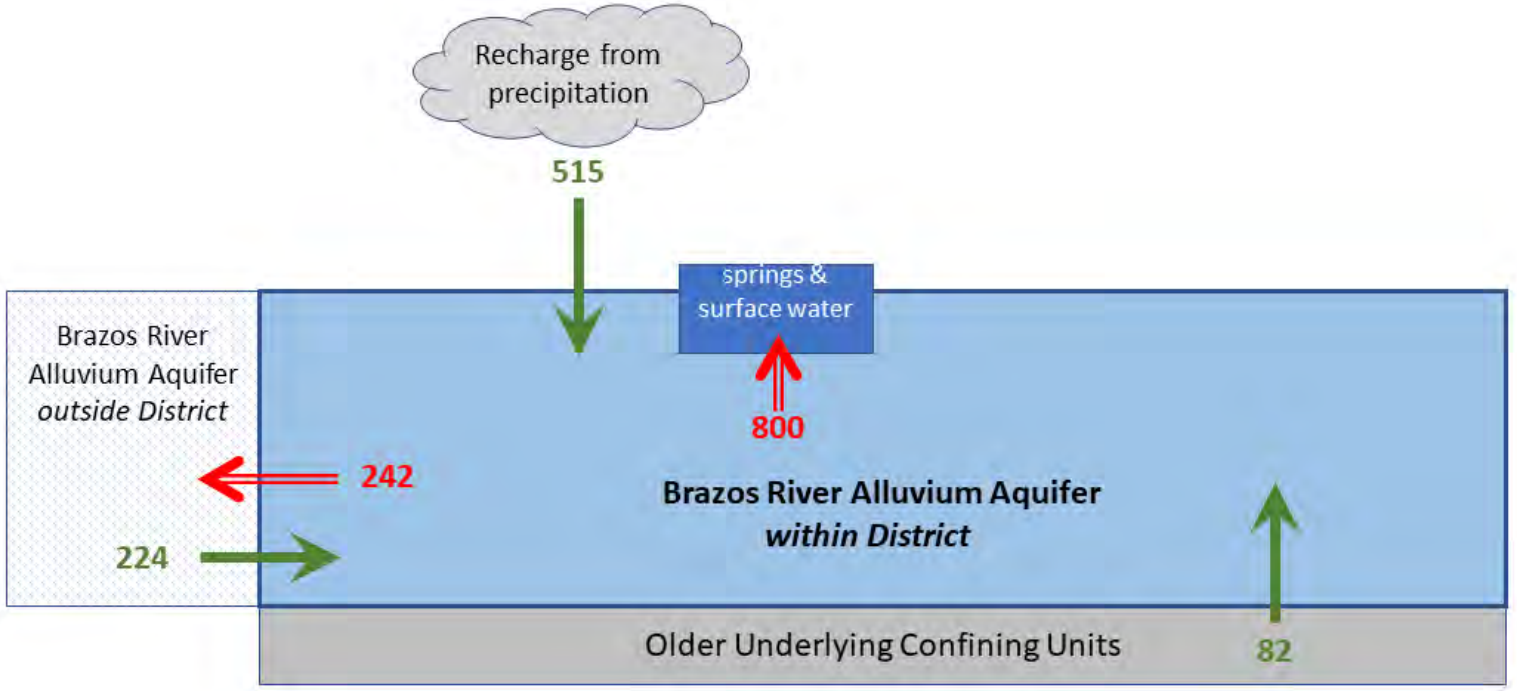


FIGURE 3: AREA OF THE GROUNDWATER AVAILABILITY MODEL FOR THE BRAZOS RIVER ALLUVIUM AQUIFER FROM WHICH THE INFORMATION IN TABLE 2 WAS EXTRACTED (THE BRAZOS RIVER ALLUVIUM AQUIFER EXTENT WITHIN THE DISTRICT BOUNDARY).



Caveat: This diagram only includes the water budget items provided in Table 2. A complete water budget would include additional inflows and outflows. If the District requires values for additional water budget items, please contact TWDB.

FIGURE 4: GENERALIZED DIAGRAM OF THE SUMMARIZED BUDGET INFORMATION FROM TABLE 2, REPRESENTING DIRECTIONS OF FLOW FOR THE BRAZOS RIVER ALLUVIUM AQUIFER WITHIN MIDDLE TRINITY GROUNDWATER CONSERVATION DISTRICT. FLOW VALUES EXPRESSED IN ACRE-FEET PER YEAR (AFY).

LIMITATIONS:

The groundwater models used in completing this analysis are the best available scientific tools that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

> *"Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results."*

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historical pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and interaction with streams are specific to particular historic time periods.

Because the application of the groundwater models was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations related to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and overall conditions of the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

REFERENCES:

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APPENDIX K

Groundwater Availability Model Run 17-029 MAG

GAM RUN 17-029 MAG: MODELED AVAILABLE GROUNDWATER FOR THE TRINITY, WOODBINE, EDWARDS (BALCONES FAULT ZONE), MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 8

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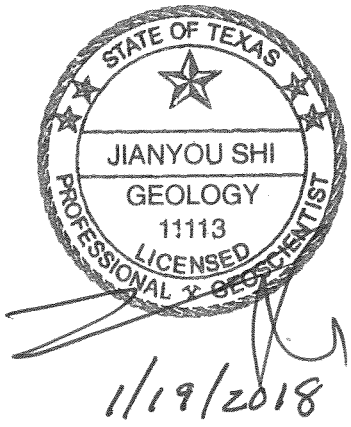
January 19, 2018



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GAM RUN 17-029 MAG: MODELED AVAILABLE GROUNDWATER FOR THE TRINITY, WOODBINE, EDWARDS (BALCONES FAULT ZONE), MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN GROUNDWATER MANAGEMENT AREA 8

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January 19, 2018

EXECUTIVE SUMMARY:

The Texas Water Development Board (TWDB) has calculated the modeled available groundwater estimates for the Trinity, Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Groundwater Management Area 8. The modeled available groundwater estimates are based on the desired future conditions for these aquifers adopted by groundwater conservation district representatives in Groundwater Management Area 8 on January 31, 2017. The district representatives declared the Nacatoch, Blossom, and Brazos River Alluvium aquifers to be non-relevant for purposes of joint planning. The TWDB determined that the explanatory report and other materials submitted by the district representatives were administratively complete on November 2, 2017.

The modeled available groundwater values for the following relevant aquifers in Groundwater Management Area 8 are summarized below:

- Trinity Aquifer (Paluxy) – The modeled available groundwater ranges from approximately 24,500 to 24,600 acre-feet per year between 2010 and 2070, and is

summarized by groundwater conservation districts and counties in Table 1, and by river basins, regional planning areas, and counties in Table 13.

- Trinity Aquifer (Glen Rose) – The modeled available groundwater is approximately 12,700 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in Table 2, and by river basins, regional planning areas, and counties in Table 14.
- Trinity Aquifer (Twin Mountains) – The modeled available groundwater ranges from approximately 40,800 to 40,900 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in Table 3, and by river basins, regional planning areas, and counties in Table 15.
- Trinity Aquifer (Travis Peak) – The modeled available groundwater ranges from approximately 93,800 to 94,000 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in in Table 4, and by river basins, regional planning areas, and counties in Table 16.
- Trinity Aquifer (Hensell) – The modeled available groundwater is approximately 27,300 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in Table 5, and by river basins, regional planning areas, and counties in Table 17.
- Trinity Aquifer (Hosston) – The modeled available groundwater ranges from approximately 64,900 to 65,100 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in Table 6, and by river basins, regional planning areas, and counties in Table 18.
- Trinity Aquifer (Antlers) – The modeled available groundwater ranges from approximately 74,500 to 74,700 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in Table 7, and by river basins, regional planning areas, and counties in Table 19.
- Woodbine Aquifer – The modeled available groundwater is approximately 30,600 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in Table 8, and by river basins, regional planning areas, and counties in Table 20.
- Edwards (Balcones Fault Zone) Aquifer – The modeled available groundwater is 15,168 acre-feet per year from 2010 to 2060, and is summarized by groundwater conservation districts and counties in Table 9, and by river basins, regional planning areas, and counties in Table 21.

- Marble Falls Aquifer – The modeled available groundwater is approximately 5,600 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in Table 10, and by river basins, regional planning areas, and counties in Table 22.
- Ellenburger-San Saba Aquifer – The modeled available groundwater is approximately 14,100 acre-feet per year between 2010 and 2070, and is summarized by groundwater conservation districts and counties in Table 11, and by river basins, regional planning areas, and counties in Table 23.
- Hickory Aquifer – The modeled available groundwater is approximately 3,600 acre-feet per year from 2010 to 2070, and is summarized by groundwater conservation districts and counties in Table 12, and by river basins, regional planning areas, and counties in Table 24.

The modeled available groundwater values for the Trinity Aquifer (Paluxy, Glen Rose, Twin Mountains, Travis Peak, Hensell, Hosston, and Antlers subunits), Woodbine Aquifer, and Edwards (Balcones Fault Zone) Aquifer are based on the official aquifer boundaries defined by the TWDB. The modeled available groundwater values for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers are based on the modeled extent, as clarified by Groundwater Management Area 8 on October 9, 2017.

The modeled available groundwater values estimated for counties may be slightly different from those estimated for groundwater conservation districts because of the process for rounding the values. The modeled available groundwater values for the longer leap years (2020, 2040, and 2060) are slightly higher than shorter non-leap years (2010, 2030, 2050, and 2070).

REQUESTOR:

Mr. Drew Satterwhite, General Manager of North Texas Groundwater Conservation District and Groundwater Management Area 8 Coordinator.

DESCRIPTION OF REQUEST:

In a letter dated February 17, 2017, Mr. Drew Satterwhite provided the TWDB with the desired future conditions of the Trinity (Paluxy), Trinity (Glen Rose), Trinity (Twin Mountains), Trinity (Travis Peak), Trinity (Hensell), Trinity (Hosston), Trinity (Antlers), Woodbine, Edwards (Balcones Fault Zone), Marble Falls, Ellenburger-San Saba, and Hickory aquifers. The desired future conditions were adopted as Resolution No. 2017-01 on January 31, 2017 by the groundwater conservation district representatives in

Groundwater Management Area 8. The following sections present the adopted desired future conditions for these aquifers:

Trinity and Woodbine Aquifers

The desired future conditions for the Trinity and Woodbine aquifers are expressed as water level decline or drawdown in feet over the planning period 2010 to 2070 relative to the baseline year 2009, based on a predictive simulation by Beach and others (2016).

The county-based desired future conditions for the Trinity Aquifer subunits, excluding counties in the Upper Trinity Groundwater Conservation District, are listed below (dashes indicate areas where the subunits do not exist and therefore no desired future condition was proposed):

County	Adopted Desired Future Condition (feet of drawdown below 2009 levels)							
	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	19	83	—	300	137	330	—
Bosque	—	6	49	—	167	129	201	—
Brown	—	—	2	—	1	1	1	2
Burnet	—	—	2	—	16	7	20	—
Callahan	—	—	—	—	—	—	—	1
Collin	459	705	339	526	—	—	—	570
Comanche	—	—	1	—	2	2	3	9
Cooke	2		—	—	—		—	176
Coryell	—	7	14	—	99	66	130	—
Dallas	123	324	263	463	348	332	351	—
Delta	—	264	181	—	186	—	—	—
Denton	22	552	349	716	—	—	—	395
Eastland	—	—	—	—	—	—	—	3
Ellis	61	107	194	333	301	263	310	—
Erath	—	1	5	6	19	11	31	12
Falls	—	144	215	—	462	271	465	—
Fannin	247	688	280	372	269	—	—	251
Grayson	160	922	337	417	—	—	—	348
Hamilton	—	2	4	—	24	13	35	—
Hill	20	38	133	—	298	186	337	—
Hunt	598	586	299	370	324	—	—	—

County	Adopted Desired Future Condition (feet of drawdown below 2009 levels)							
	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Johnson	2	-61	58	156	179	126	235	—
Kaufman	208	276	269	381	323	309	295	—
Lamar	38	93	97	—	114	—	—	122
Lampasas	—	—	1	—	6	1	11	—
Limestone	—	178	271	—	392	183	404	—
McLennan	6	35	133	—	471	220	542	—
Milam	—	—	212	—	345	229	345	—
Mills	—	1	1	—	7	2	13	—
Navarro	92	119	232	—	290	254	291	—
Red River	2	21	36	—	51	—	—	13
Rockwall	243	401	311	426	—	—	—	—
Somervell	—	1	4	31	51	26	83	—
Tarrant	7	101	148	315	—	—	—	148
Taylor	—	—	—	—	—	—	—	0
Travis	—	—	85	—	141	50	146	—
Williamson	—	—	77	—	173	74	177	—

The desired future conditions for the counties in the Upper Trinity Groundwater Conservation District are further divided into outcrop and downdip areas, and are listed below (dashes indicate areas where the subunits do not exist):

Upper Trinity GCD County (crop)	Adopted Desired Future Conditions (feet of drawdown below 2009 levels)			
	Antlers	Paluxy	Glen Rose	Twin Mountains
Hood (outcrop)	—	5	7	4
Hood (downdip)	—	—	28	46
Montague (outcrop)	18	—	—	—
Montague (downdip)	—	—	—	—
Parker (outcrop)	11	5	10	1
Parker (downdip)	—	1	28	46
Wise (outcrop)	34	—	—	—
Wise (downdip)	142	—	—	—

Edwards (Balcones Fault Zone) Aquifer

The desired future conditions adopted by Groundwater Management Area 8 for the Edwards (Balcones Fault Zone) Aquifer are intended to maintain minimum stream and spring flows under the drought of record in Bell, Travis, and Williamson counties over the planning period 2010 to 2070. The desired future conditions are listed below:

County	Adopted Desired Future Condition
Bell	Maintain at least 100 acre-feet per month of stream/spring flow in Salado Creek during a repeat of the drought of record
Travis	Maintain at least 42 acre-feet per month of aggregated stream/spring flow during a repeat of the drought of record
Williamson	Maintain at least 60 acre-feet per month of aggregated stream/spring flow during a repeat of the drought of record

Marble Falls, Ellenburger-San Saba, and Hickory Aquifers

The desired future conditions for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties are intended to maintain 90 percent of the aquifer saturated thickness over the planning period 2010 to 2070 relative to the baseline year 2009.

Supplemental Information from Groundwater Management Area 8

After review of the explanatory report and model files, the TWDB emailed a request for clarifications to Mr. Drew Satterwhite on August 7, 2017. On September 8, 2017, Mr. Satterwhite provided the TWDB with a technical memorandum from James Beach, Jeff Davis, and Brant Konetchy of LBG-Guyton Associates. On October 9, 2017, Mr. Satterwhite sent the TWDB two emails with additional information and clarifications. The information and clarifications are summarized below:

a. For the Trinity and Woodbine aquifers, an additional error tolerance defined as five feet of drawdown between the adopted desired future condition and the simulated drawdown is included with the original error tolerance of five percent. Thus, if the drawdown from the predictive simulation is within five feet or five percent from the desired future condition, then the predictive simulation is considered to meet the desired future condition.

   Groundwater Management Area 8 provided a new MODFLOW-NWT well package, simulated head file, and simulated budget file on October 9, 2017. The TWDB determined that the distribution of pumping in the new model files was consistent with the explanatory report.

The TWDB evaluates if the simulated drawdown from the predictive simulation meets the desired future condition by county. However, Groundwater Management Area 8 also provided desired future conditions based on groundwater conservation district and the whole groundwater management area.

b. For the Edwards (Balcones Fault Zone) Aquifer in Bell, Travis, and Williamson counties, the coordinator for Groundwater Management Area 8 clarified that TWDB uses GAM Run 08-010 MAG by Anaya (2008) from the last cycle of desired future conditions with all associated assumptions including a baseline year of 2000.

c. For the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties, Groundwater Management Area 8 adjusted the desired future condition from "maintain 90 percent of the saturated thickness" to "maintain *at least* 90 percent of the saturated thickness". Groundwater Management Area 8 also provided estimated pumping to use for the predictive simulation by TWDB.

d. The Trinity, Woodbine, and Edwards (Balcones Fault Zone) aquifers are based on the official aquifer boundary while the Marble Falls, Ellenburger-San Saba, and Hickory aquifers include the portions both inside and outside the official aquifer boundaries (modeled extent).

e. The sliver of the Edwards-Trinity (Plateau) Aquifer was declared to be non-relevant by Groundwater Management Area 8.

METHODS:

The desired future conditions for Groundwater Management Area 8 are based on multiple criteria. For the Trinity and Woodbine aquifers, the desired future conditions are defined as water-level declines or drawdowns over the course of the planning period 2010 through 2070 relative to the baseline year 2009. The desired future conditions for the Edwards (Balcones Fault Zone) Aquifer are based on stream and spring flows under the drought of record over the planning period 2010 to 2070. For the Marble Falls, Ellenburger-San Saba, and Hickory aquifers, the desired future conditions are to maintain aquifer saturated thickness between 2010 and 2070 relative to the baseline year 2009. The methods to calculate the desired future conditions are discussed below.

Trinity and Woodbine Aquifers

The desired future conditions for the Trinity and Woodbine aquifers in Groundwater Management Area 8 are based on a predictive simulation by Beach and others (2016), which used the groundwater availability model for the northern portion of the Trinity and Woodbine aquifers (Kelley and others, 2014). The predictive simulation contained 61 annual stress periods corresponding to 2010 through 2070, with an initial head equal to 2009 of the calibrated groundwater availability model. The desired future conditions are the drawdowns between 2009 and 2070.

Because the baseline year 2009 for the desired future conditions falls within the calibration period 1890 to 2012 of the groundwater availability model, the water levels for the baseline year have been calibrated to observed data and, thus, they were directly used as the initial water level (head) condition of the predictive simulation.

The drawdowns between 2009 and 2070 are calculated from composite heads. Appendix A presents additional details on methods used to calculate composite head and associated average drawdown values for the Trinity and Woodbine aquifers.

Edwards (Balcones Fault Zone) Aquifer

Per Groundwater Management Area 8 (clarification dated September 1, 2017), the results from GAM Run 08-010 MAG by Anaya (2008) are used for the current round of joint planning. The following summarizes the approach used:

- Ran the model for 141 years, starting with a 100-year initial stress period (pre-1980) followed by 21 years of historical monthly stress periods (1980 to 2000), then 10 years of predictive annual stress periods (2001 to 2010), and ending with 10 years of predictive monthly stress periods (2011 to 2020) to represent a simulated repeat of the 1950s' drought of record.

- Used pumpage and recharge distributions provided to TWDB by the Groundwater Management Area 8 consultant.

- Adjusted pumpage in Williamson County to meet the desired future conditions.

- Extracted projected discharge for drain cells representing Salado Creek in Bell County and drain cells representing aggregated springs and streams in Williamson and Travis counties, respectively, for each of the stress periods from 2011 through 2020 to verify that the desired future conditions were met.

- Determined which stress period reflected the worst case monthly scenario for Salado Springs during a repeat of the 1950s' drought of record.

- Generated modeled available groundwater for all three desired future conditions based on the lowest monthly springflow volume for Salado Springs during a simulated repeat of the 1950s' drought of record.

Marble Falls, Ellenburger-San Saba, and Hickory Aquifers

The TWDB constructed a predictive simulation to analyze the desired future conditions for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties within Groundwater Management Area 8. This simulation used the groundwater availability model for the minor aquifers in the Llano Uplift region by Shi and others (2016). The predictive simulation contains 61 annual stress periods corresponding to the planning period 2010 through 2070 with an initial head condition from 2009.

Because the baseline year 2009 for the desired future conditions falls within the model calibration period 1980 to 2010, and the water levels for the baseline year have been calibrated to observed data, the simulated head from 2009 of the calibrated groundwater availability model was directly used as the initial water level (head) condition of the predictive simulation.

Additional details on the predictive simulation and methods to estimate the drawdowns between 2009 and 2070 are described in Appendix B.

Modeled Available Groundwater

Once the predictive simulations met the desired future conditions, the modeled available groundwater values were extracted from the MODFLOW cell-by-cell budget files. Annual pumping rates were then divided by county, river basin, regional water planning area, and groundwater conservation district within Groundwater Management Area 8 (Figures 1 through 13 and Tables 1 through 24).

Modeled Available Groundwater and Permitting

As defined in Chapter 36 of the Texas Water Code, "modeled available groundwater" is the estimated average amount of water that may be produced annually to achieve a desired future condition. Groundwater conservation districts are required to consider modeled available groundwater, along with several other factors, when issuing permits in order to manage groundwater production to achieve the desired future condition(s). The other factors districts must consider include annual precipitation and production patterns, the

estimated amount of pumping exempt from permitting, existing permits, and a reasonable estimate of actual groundwater production under existing permits.

PARAMETERS AND ASSUMPTIONS:

The parameters and assumptions for the groundwater availability simulations are described below:

Trinity and Woodbine Aquifers

- Version 2.01 of the updated groundwater availability model for the northern Trinity and Woodbine aquifers by Kelley and others (2014) was used to construct the predictive model simulation for this analysis (Beach and others, 2016).
- The predictive model was run with MODFLOW-NWT (Niswonger and others, 2011).
- The model has eight layers that represent units younger than the Woodbine Aquifer and the shallow outcrop of all aquifers (Layer 1), the Woodbine Aquifer (Layer 2), the Fredericksburg and Washita units (Layer 3), and various combinations of the subunits that comprise the Trinity Aquifer (Layers 4 to 8).
- Multiple model layers could represent an aquifer where it outcrops. For example, the Woodbine Aquifer could span Layers 1 to 2 and the Trinity Aquifer (Hosston) could contain Layers 1 through 8. The aquifer designation in model layers was defined in the model grid files produced by TWDB.
- The predictive model simulation contains 61 transient annual stress periods with an initial head equal to 2009 of the calibrated groundwater availability model.
- The predictive simulation had the same hydrogeological properties and hydraulic boundary conditions as the calibrated groundwater availability model except groundwater recharge and pumping.
- The groundwater recharge for the predictive model simulation was the same as stress period 1 of the calibrated groundwater availability model (steady state period) except stress periods representing 2058 through 2060, which contained lower recharge representing severe drought conditions.
- In the predictive simulation, additional pumping was added to certain counties and some pumping in Layer 1 was moved to lower layer(s) to avoid the automatic pumping reduction enacted by the MODFLOW-NWT code (Beach and others, 2016).

- During the predictive simulation model run, some model cells went dry (Appendix C). Dry cells occur during a model run when the simulated water level in a cell falls below the bottom of the cell.
- Estimates of modeled drawdown and available groundwater from the model simulation were rounded to whole numbers.

Edwards (Balcones Fault Zone) Aquifer

- Version 1.01 of the groundwater availability model for the northern segment of the Edwards (Balcones Fault Zone) Aquifer (Jones, 2003) was used to construct the predictive model simulation for the analysis by Anaya (2008).
- The model has one layer that represents the Edwards (Balcones Fault Zone) Aquifer.
- The model was run with MODFLOW-96 (Harbaugh and McDonald, 1996).
- The predictive model simulation contains the calibrated groundwater availability model (253 monthly stress periods), stabilization (10 annual stress periods), and drought conditions (120 monthly stress periods).
- The boundary conditions for the stabilization and drought periods (except recharge and pumping) were the same in the predictive simulation as the last stress period (stress period 253) of the calibrated groundwater availability model.
- The groundwater recharge for the stabilization and drought periods and pumping information were from Groundwater Management Area 8 consultant.
- The groundwater pumping in Williamson County was adjusted as needed during the predictive model run simulation to match the desired future conditions.
- Estimates of modeled spring and stream flows from the model simulation were rounded to whole numbers.

Marble Falls, Ellenburger-San Saba, and Hickory Aquifers

- Version 1.01 of the groundwater availability model for the minor aquifers in Llano Uplift region by Shi and others (2016) was used to develop the predictive model simulation used for this analysis.
- The model has eight layers: Layer 1 (the Trinity Aquifer, Edwards-Trinity (Plateau) Aquifer, and younger alluvium deposits), Layer 2 (confining units), Layer 3 (the Marble Falls Aquifer and equivalent unit), Layer 4 (confining units), Layer 5 (Ellenburger-San Saba Aquifer and equivalent unit), Layer 6 (confining units), Layer 7 (the Hickory Aquifer and equivalent unit), and Layer 8 (Precambrian units).

- The model was run with MODFLOW-USG beta (development) version (Panday and others, 2013).
- The predictive model simulation contains 61 annual stress periods (2010 to 2070) with the initial head equal to 2009 of the calibrated groundwater availability model.
- The boundary conditions for the predictive model except recharge and pumping were the same in the predictive simulation of the last stress period of the calibrated groundwater availability model.
- The groundwater recharge for the predictive model simulation was set equal to the average of all stress periods (1982 to 2010) of the calibrated model except the first stress period.
- The groundwater pumping was initially set to the last stress period of the calibrated groundwater availability model. Additional pumping per county was then added to the model cells of the three aquifers based on the modeled extent to match the total pumping data for each aquifer provided by Groundwater Management area 8.
- During the predictive model run, some active model cells went dry (Appendix D). Dry cells occur during a model run when the simulated water level in a cell falls below the bottom of the cell.
- Estimates of modeled saturated aquifer thickness values were rounded to one decimal point.

RESULTS:

The modeled available groundwater for the Trinity Aquifer (Paluxy) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 24,499 acre-feet per year for the non-leap (shorter) years (2010, 2030, 2050, and 2070) to 24,565 acre-feet per year for the leap (longer) years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 1. Table 13 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Glen Rose) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 12,701 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 12,736 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 2. Table 14

summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Twin Mountains) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 40,827 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 40,939 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 3. Table 15 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Travis Peak) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 93,757 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 94,016 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 4. Table 16 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Hensell) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 27,257 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 27,331 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 5. Table 17 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Hosston) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 64,922 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 65,098 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 6. Table 18 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Trinity Aquifer (Antlers) that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 74,471 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 74,677 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is

summarized by groundwater conservation district and county in Table 7. Table 19 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Woodbine Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 30,554 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 30,636 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 8. Table 20 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Edwards (Balcones Fault Zone) Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 remains at 15,168 acre-feet per year from 2010 to 2060. The modeled available groundwater is summarized by groundwater conservation district and county in Table 9. Table 21 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Marble Falls Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 5,623 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 5,639 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 10. Table 22 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Ellenburger-San Saba Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 14,050 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 14,089 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is summarized by groundwater conservation district and county in Table 11. Table 23 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

The modeled available groundwater for the Hickory Aquifer that achieves the desired future condition adopted by Groundwater Management Area 8 ranges from 3,574 acre-feet per year for the non-leap years (2010, 2030, 2050, and 2070) to 3,585 acre-feet per year for the leap years (2020, 2040, and 2060). The modeled available groundwater is

summarized by groundwater conservation district and county in Table 12. Table 24 summarizes the modeled available groundwater by county, river basin, and regional water planning area for use in the regional water planning process.

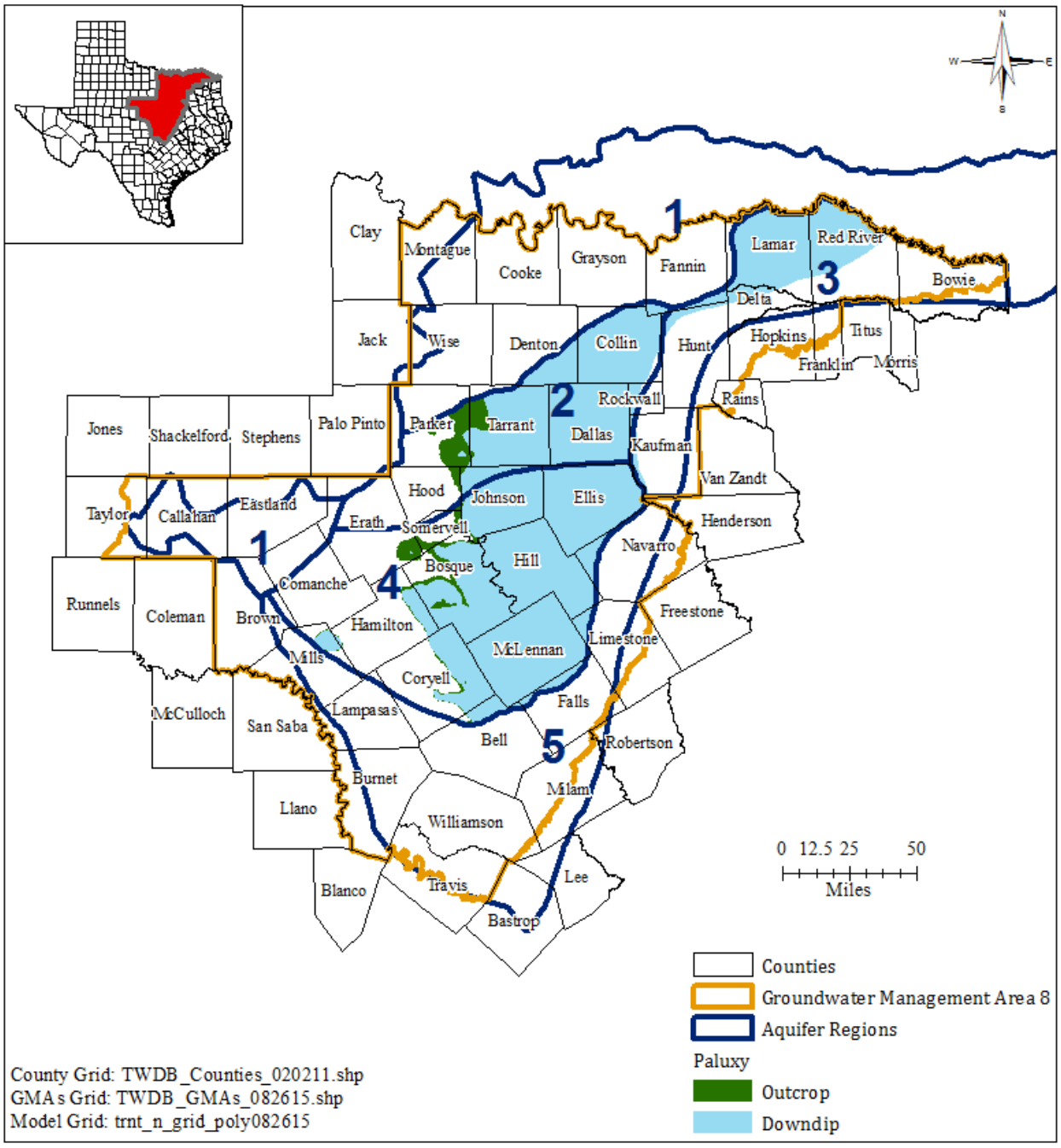

FIGURE 1. MAP SHOWING THE TRINITY AQUIFER (PALUXY) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.

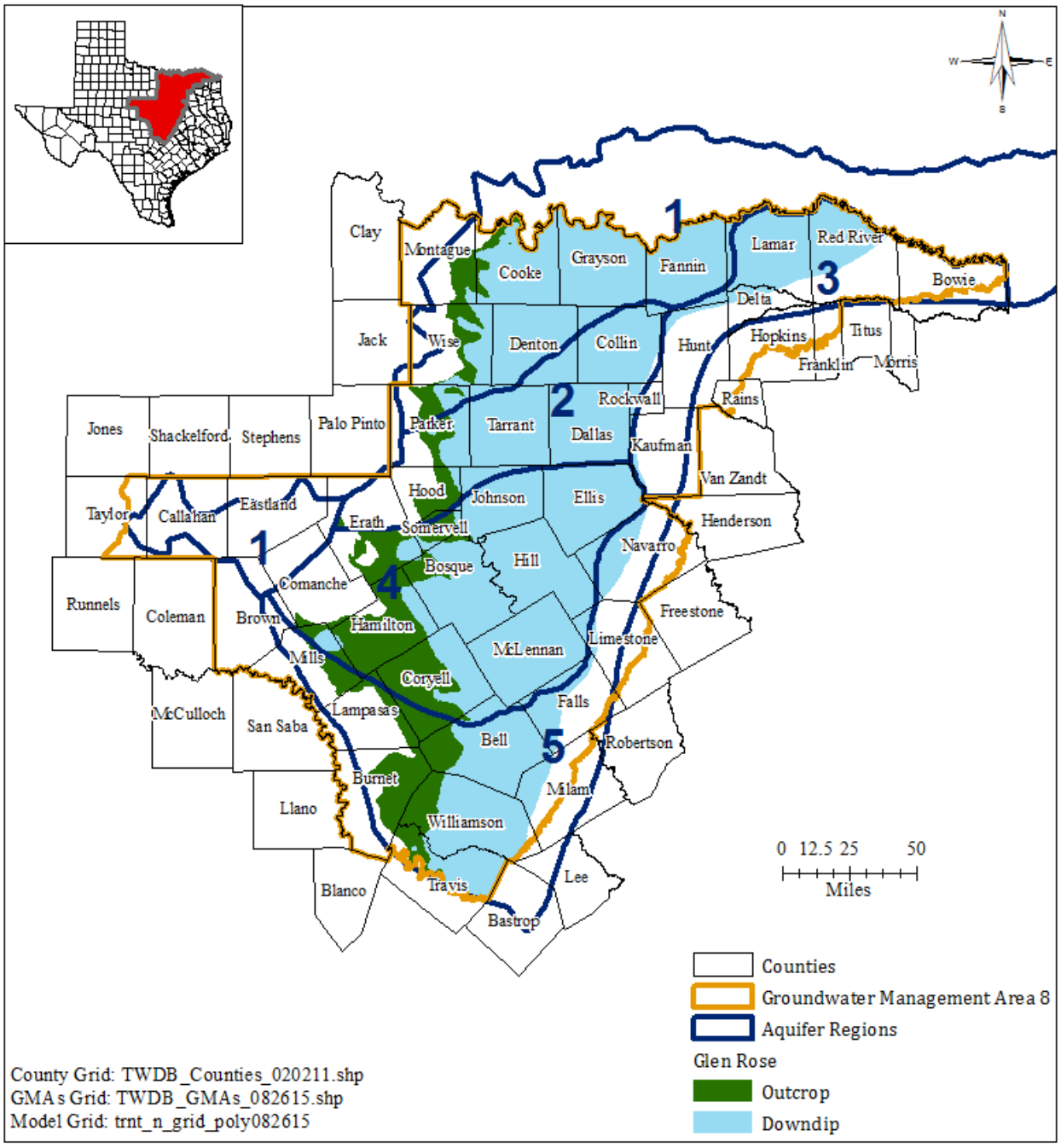

FIGURE 2. MAP SHOWING THE TRINITY AQUIFER (GLEN ROSE) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.

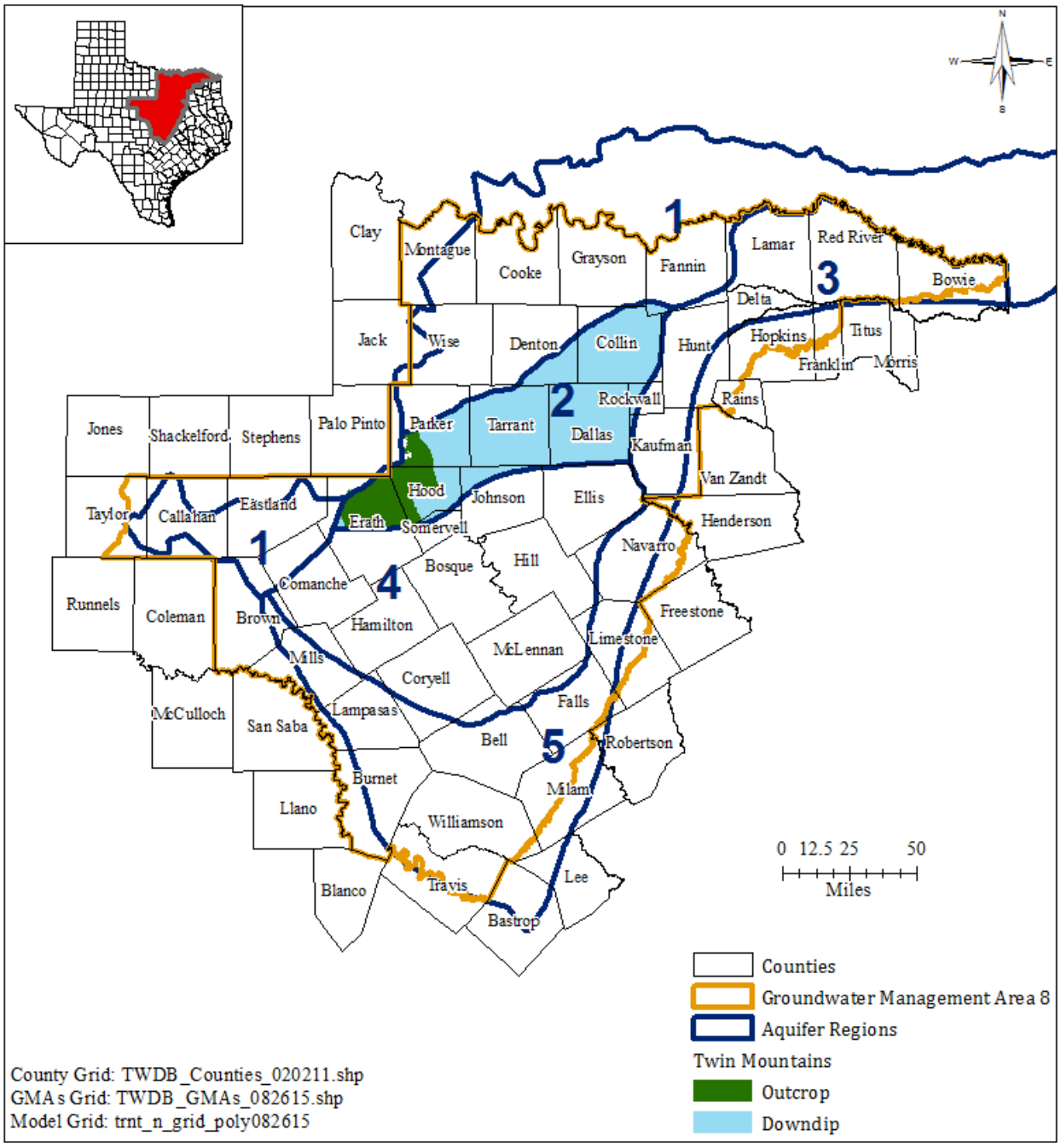

FIGURE 3. MAP SHOWING THE TRINITY AQUIFER (TWIN MOUNTAINS) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.

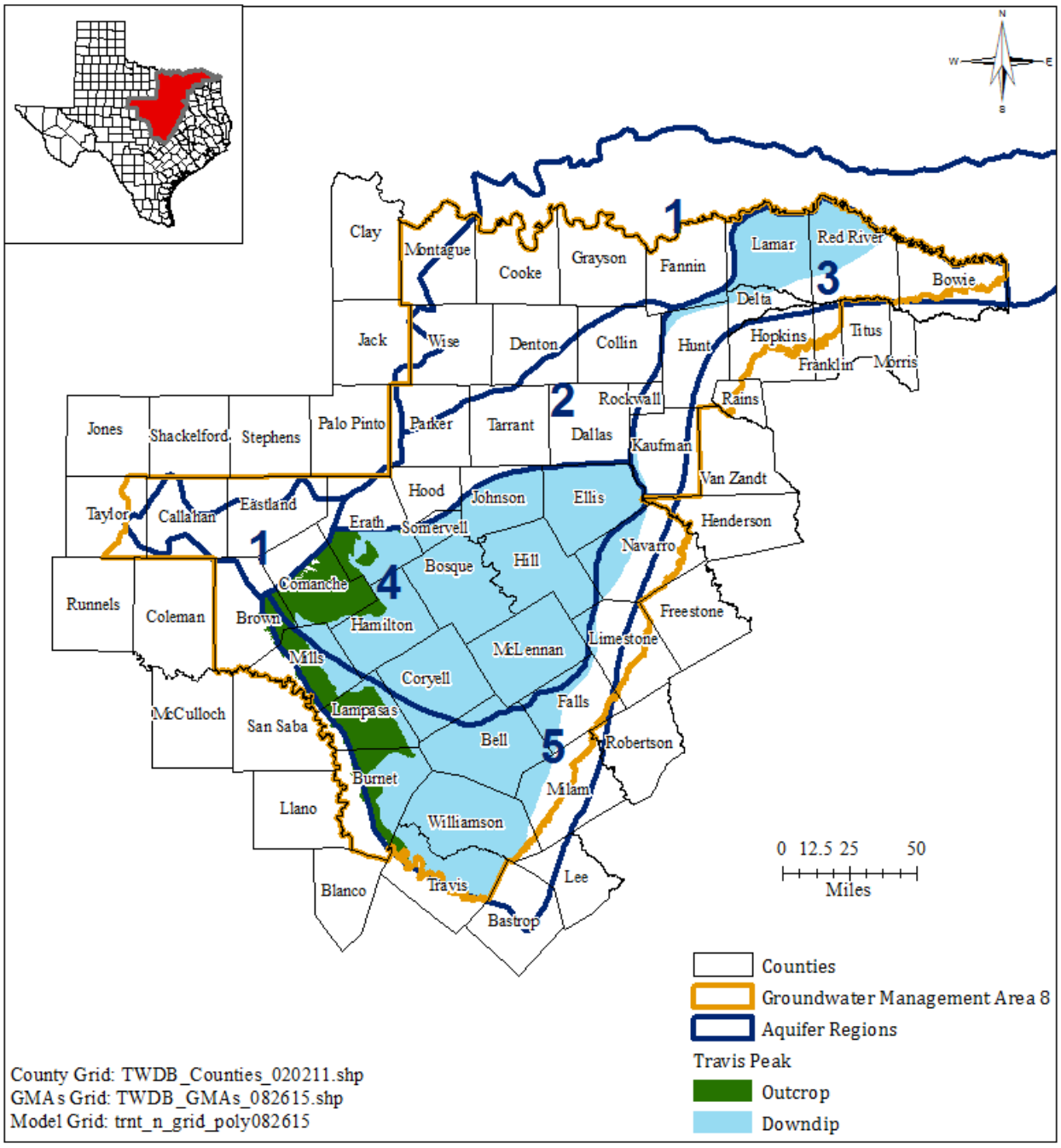

FIGURE 4. MAP SHOWING THE TRINITY AQUIFER (TRAVIS PEAK) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.

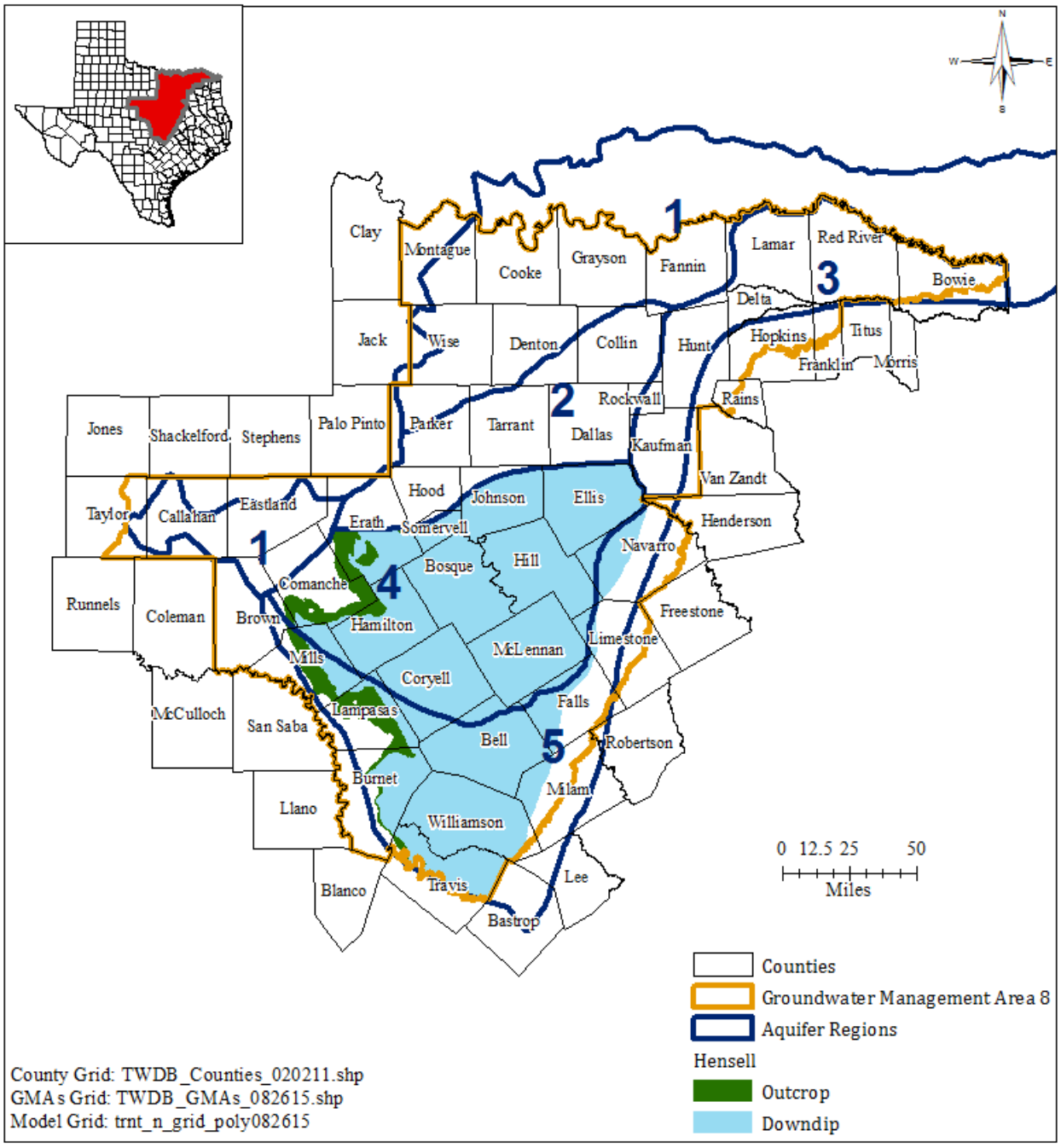

FIGURE 5. MAP SHOWING THE TRINITY AQUIFER (HENSELL) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.

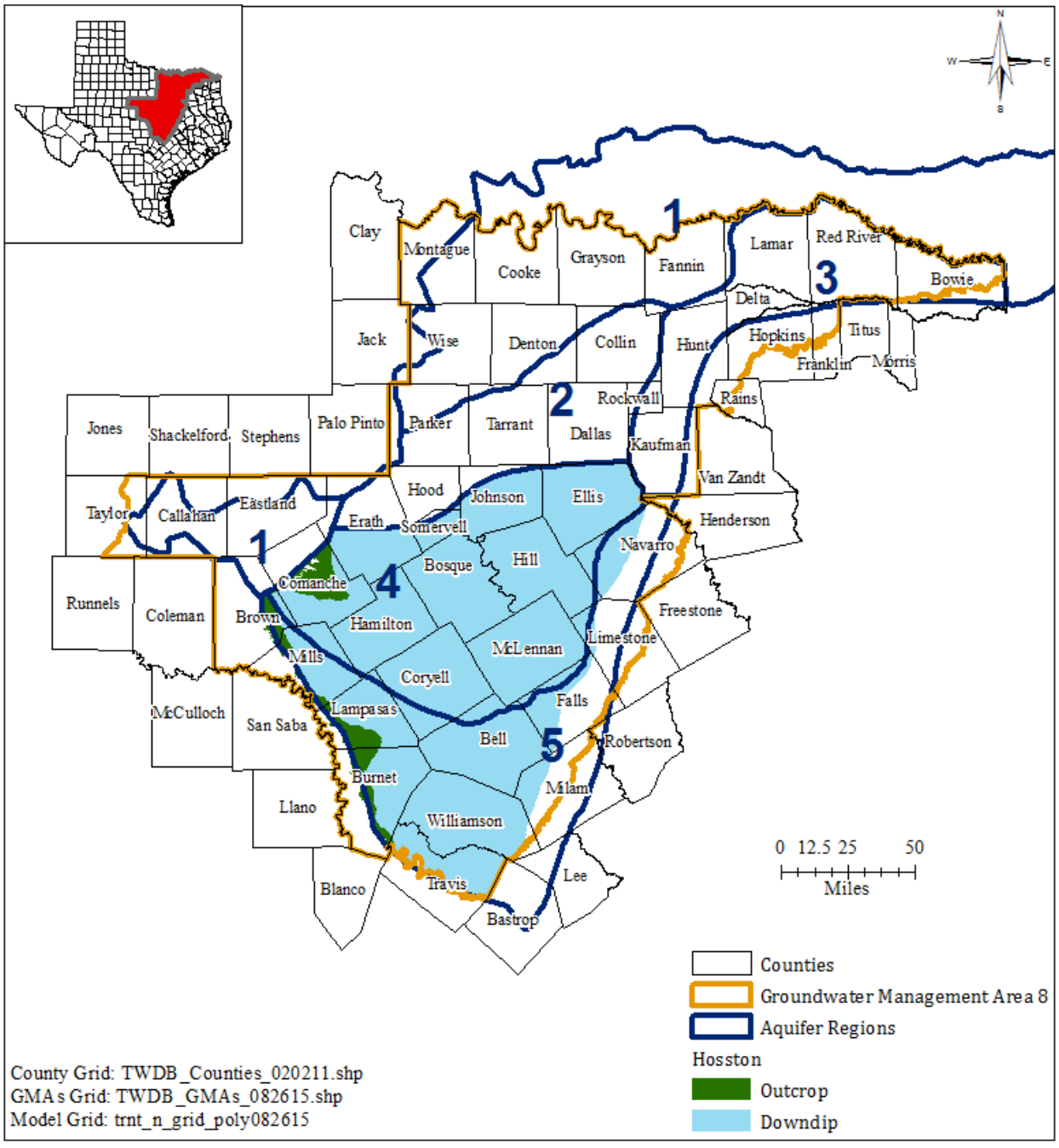

FIGURE 6. MAP SHOWING THE TRINITY AQUIFER (HOSSTON) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.

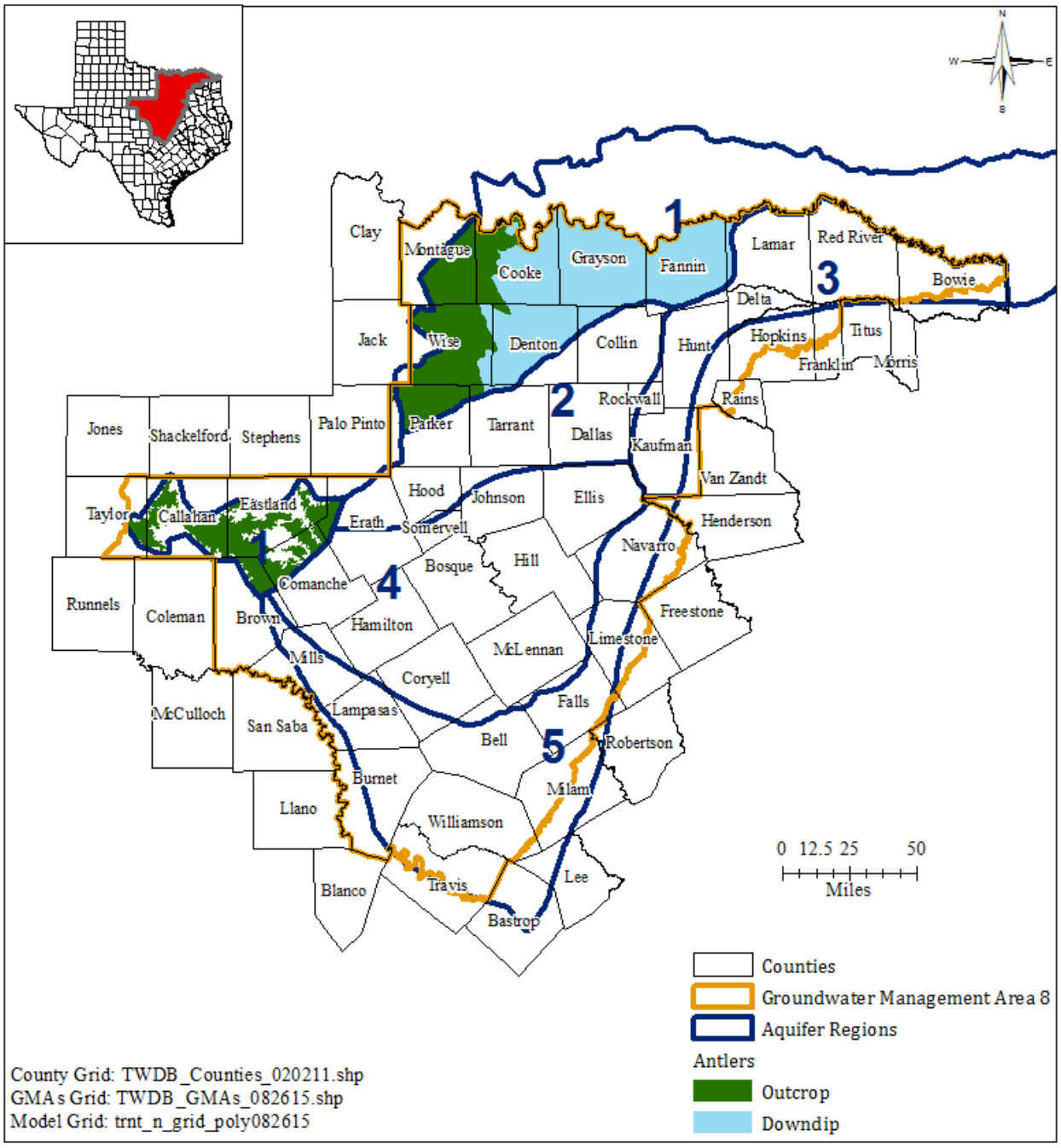

FIGURE 7. MAP SHOWING THE TRINITY AQUIFER (ANTLERS) WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.

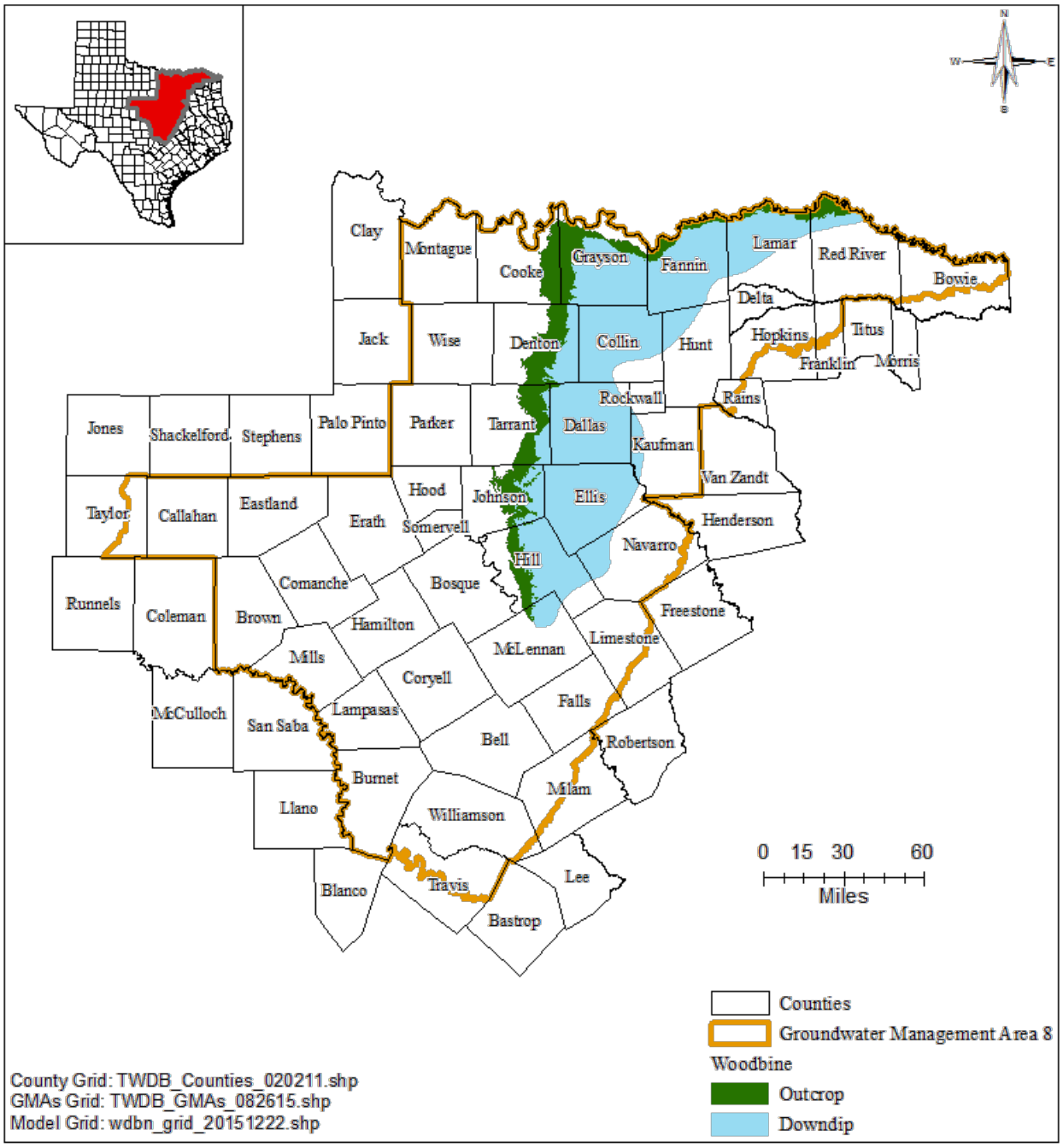

FIGURE 8. MAP SHOWING THE WOODBINE AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN PORTION OF THE TRINITY AND WOODBINE AQUIFERS.

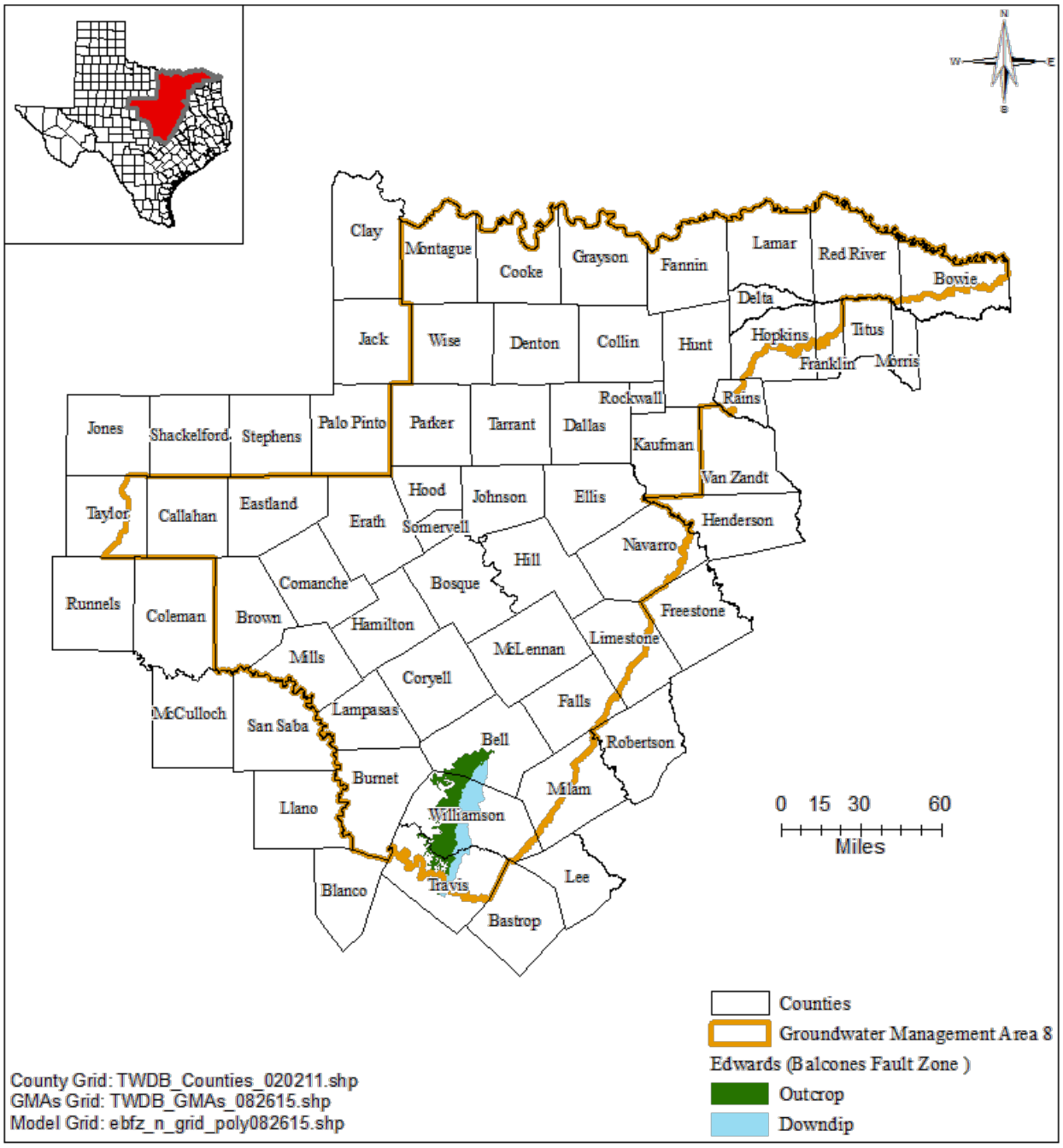

FIGURE 9. MAP SHOWING THE EDWARDS (BALCONES FAULT ZONE) AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE NORTHERN SEGMENT OF THE EDWARDS (BALCONES FAULT ZONE) AQUIFER.

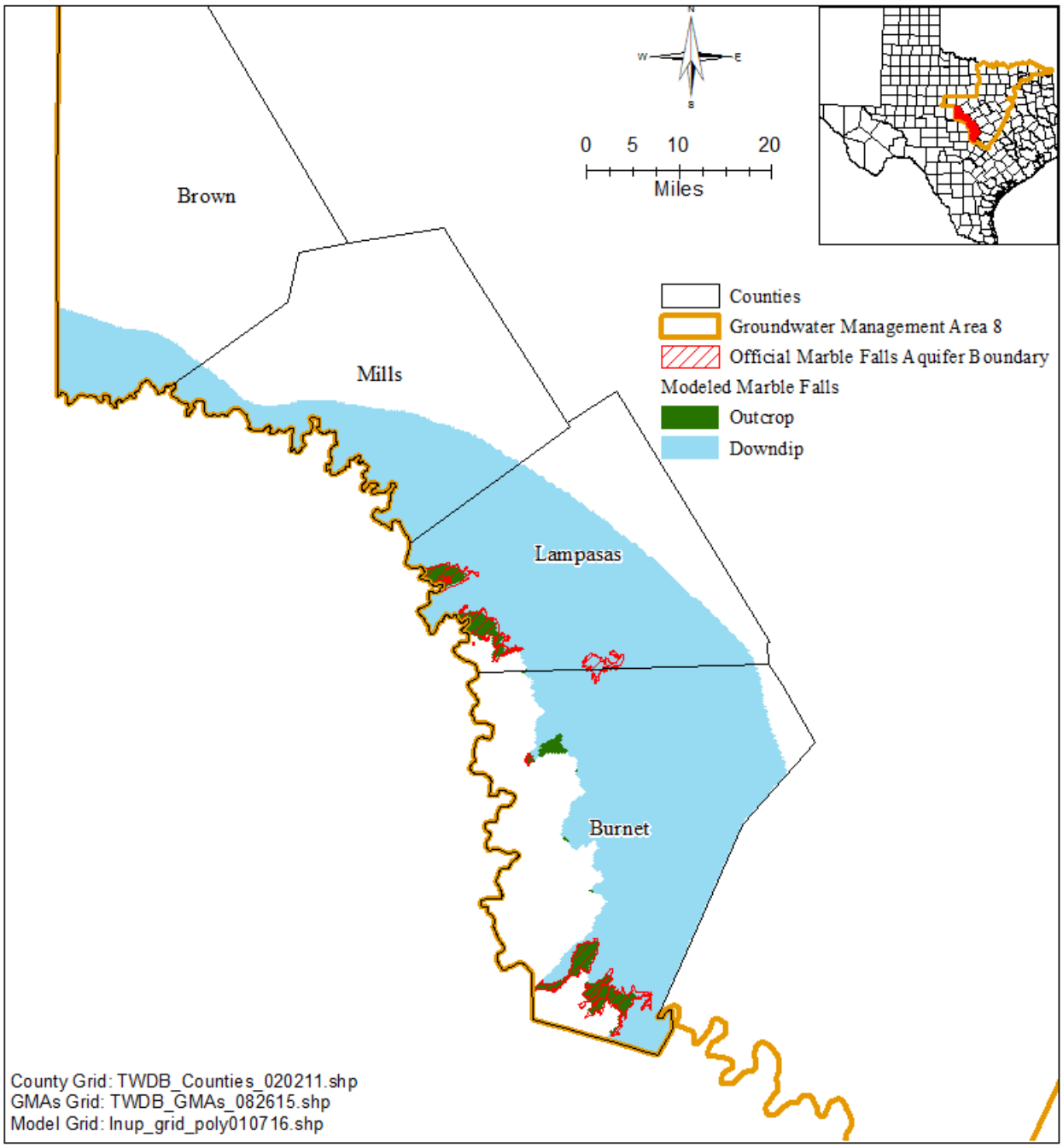

FIGURE 10. MAP SHOWING THE MARBLE FALLS AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE MINOR AQUIFERS IN LLANO UPLIFT REGION.

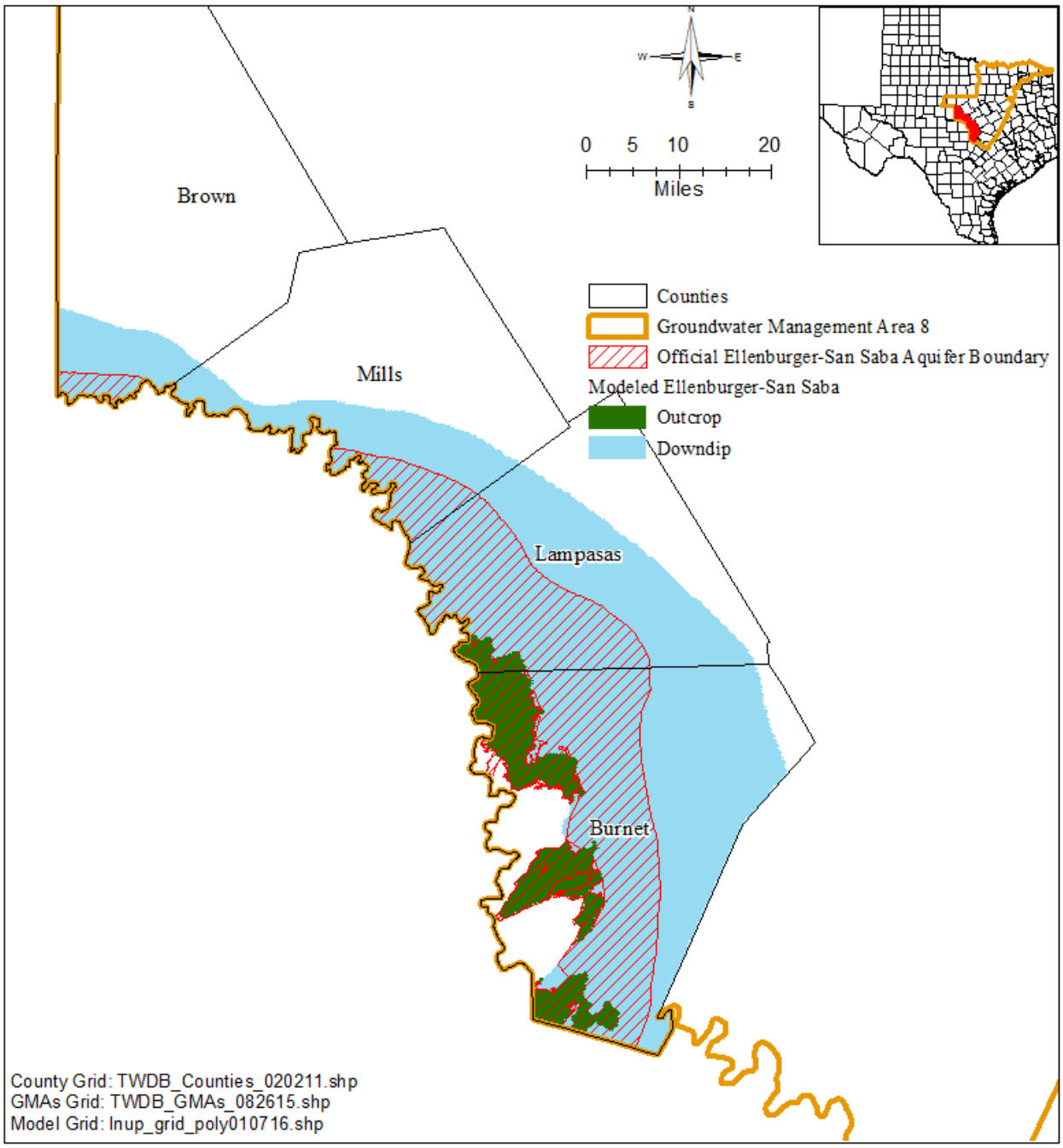

FIGURE 11. MAP SHOWING THE ELLENBURGER-SAN SABA AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE MINOR AQUIFERS IN LLANO UPLIFT REGION.

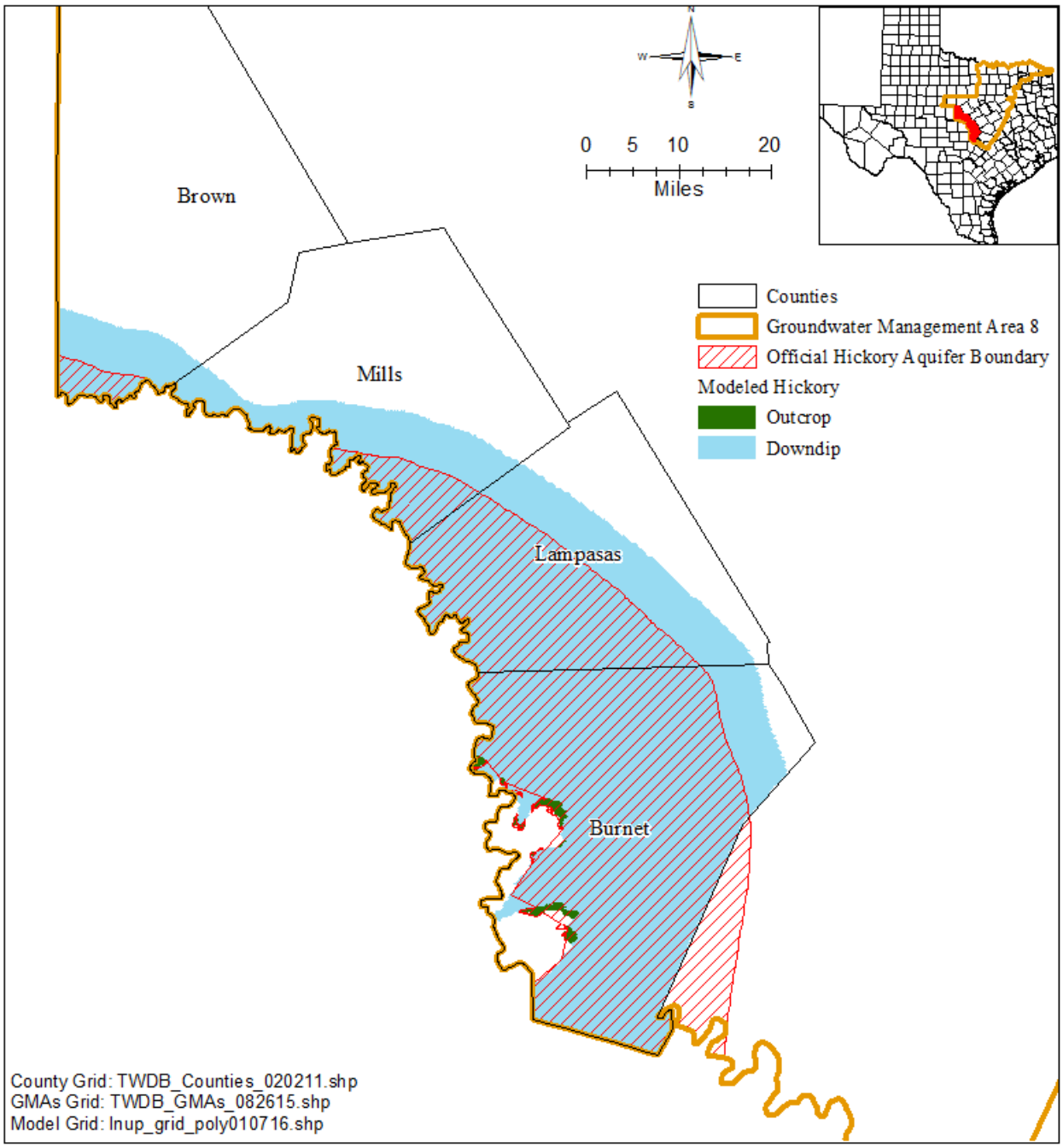

FIGURE 12. MAP SHOWING THE HICKORY AQUIFER WITHIN GROUNDWATER MANAGEMENT AREA 8 FROM THE GROUNDWATER AVAILABILITY MODEL FOR THE MINOR AQUIFERS IN LLANO UPLIFT REGION.

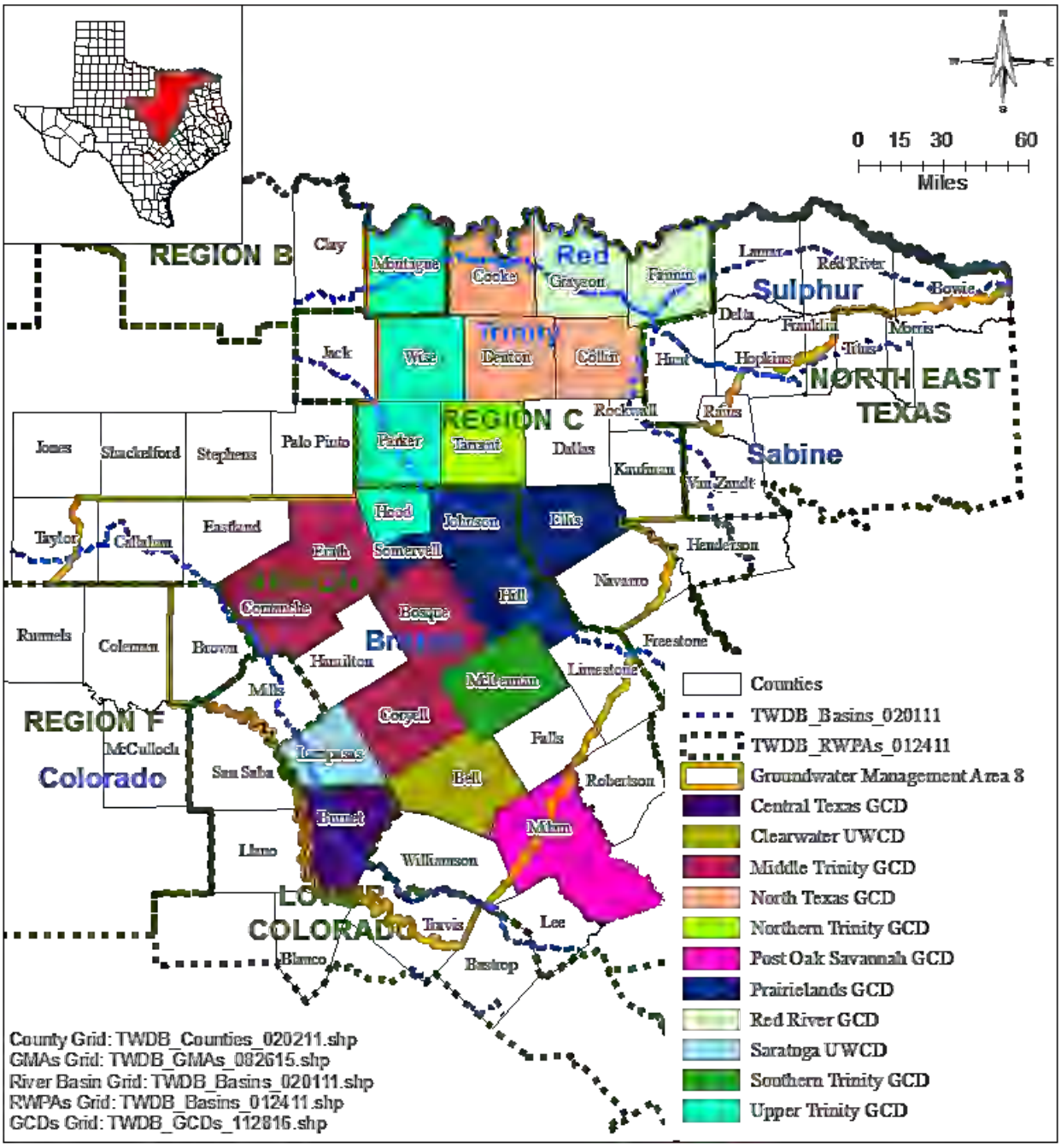

FIGURE 13. MAP SHOWING REGIONAL WATER PLANNING AREAS (RWPAS), GROUNDWATER CONSERVATION DISTRICTS (GCDS), AND RIVER BASINS ASSOCIATED WITH GROUNDWATER MANAGEMENT AREA 8.

TABLE 1. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (PALUXY) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Clearwater UWCD	Bell	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Middle Trinity GCD	Bosque	204	356	358	356	358	356	358	356
Middle Trinity GCD	Coryell	0	0	0	0	0	0	0	0
Middle Trinity GCD	Erath	38	61	61	61	61	61	61	61
Middle Trinity GCD Total		**242**	**417**	**419**	**417**	**419**	**417**	**419**	**417**
North Texas GCD	Collin	616	1,547	1,551	1,547	1,551	1,547	1,551	1,547
North Texas GCD	Denton	1,532	4,819	4,832	4,819	4,832	4,819	4,832	4,819
North Texas GCD Total		**2,148**	**6,366**	**6,383**	**6,366**	**6,383**	**6,366**	**6,383**	**6,366**
Northern Trinity GCD	Tarrant	**11,285**	**8,957**	**8,982**	**8,957**	**8,982**	**8,957**	**8,982**	**8,957**
Prairielands GCD	Ellis	510	442	443	442	443	442	443	442
Prairielands GCD	Hill	400	352	353	352	353	352	353	352
Prairielands GCD	Johnson	4,851	2,440	2,447	2,440	2,447	2,440	2,447	2,440
Prairielands GCD	Somervell	3	14	14	14	14	14	14	14
Prairielands GCD Total		**5,764**	**3,248**	**3,257**	**3,248**	**3,257**	**3,248**	**3,257**	**3,248**
Red River GCD	Fannin	389	2,087	2,092	2,087	2,092	2,087	2,092	2,087
Red River GCD	Grayson	0	0	0	0	0	0	0	0
Red River GCD Total		**389**	**2,087**	**2,092**	**2,087**	**2,092**	**2,087**	**2,092**	**2,087**
Southern Trinity GCD	McLennan	**319**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Upper Trinity GCD	Hood (outcrop)	106	159	159	159	159	159	159	159
Upper Trinity GCD	Parker (outcrop)	2,100	2,607	2,614	2,607	2,614	2,607	2,614	2,607
Upper Trinity GCD	Parker (downdip)	221	50	50	50	50	50	50	50
Upper Trinity GCD Total		**2,427**	**2,816**	**2,823**	**2,816**	**2,823**	**2,816**	**2,823**	**2,816**
No District	Dallas	231	358	359	358	359	358	359	358
No District	Delta	56	56	56	56	56	56	56	56
No District	Falls	0	0	0	0	0	0	0	0
No District	Hamilton	0	0	0	0	0	0	0	0
No District	Hunt	3	3	3	3	3	3	3	3
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Lamar	16	8	8	8	8	8	8	8

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	3	6	6	6	6	6	6	6
No District	Navarro	0	0	0	0	0	0	0	0
No District	Red River	190	177	177	177	177	177	177	177
No District	Rockwall	0	0	0	0	0	0	0	0
No District Total		**499**	**608**	**609**	**608**	**609**	**608**	**609**	**608**
Groundwater Management Area 8		**23,073**	**24,499**	**24,565**	**24,499**	**24,565**	**24,499**	**24,565**	**24,499**

UWCD: Underground Water Conservation District.

TABLE 2. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (GLEN ROSE) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Central Texas GCD	Burnet	**35**	**423**	**425**	**423**	**425**	**423**	**425**	**423**
Clearwater UWCD	Bell	**775**	**971**	**974**	**971**	**974**	**971**	**974**	**971**
Middle Trinity GCD	Bosque	576	728	731	728	731	728	731	728
Middle Trinity GCD	Comanche	3	41	41	41	41	41	41	41
Middle Trinity GCD	Coryell	0	120	120	120	120	120	120	120
Middle Trinity GCD	Erath	263	1,078	1,081	1,078	1,081	1,078	1,081	1,078
Middle Trinity GCD Total		**842**	**1,967**	**1,973**	**1,967**	**1,973**	**1,967**	**1,973**	**1,967**
North Texas GCD	Collin	84	83	83	83	83	83	83	83
North Texas GCD	Denton	121	338	339	338	339	338	339	338
North Texas GCD Total		**205**	**421**	**422**	**421**	**422**	**421**	**422**	**421**
Northern Trinity GCD	Tarrant	**1,070**	**793**	**795**	**793**	**795**	**793**	**795**	**793**
Post Oak Savannah GCD	Milam	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Prairielands GCD	Ellis	58	50	50	50	50	50	50	50
Prairielands GCD	Hill	116	115	115	115	115	115	115	115
Prairielands GCD	Johnson	1,780	1,632	1,636	1,632	1,636	1,632	1,636	1,632
Prairielands GCD	Somervell	81	146	146	146	146	146	146	146
Prairielands GCD Total		**2,035**	**1,943**	**1,947**	**1,943**	**1,947**	**1,943**	**1,947**	**1,943**
Red River GCD	Fannin	0	0	0	0	0	0	0	0
Red River GCD	Grayson	0	0	0	0	0	0	0	0
Red River GCD Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Saratoga UWCD	Lampasas	**65**	**68**	**68**	**68**	**68**	**68**	**68**	**68**
Southern Trinity GCD	McLennan	**845**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Upper Trinity GCD	Hood (outcrop)	483	653	655	653	655	653	655	653
Upper Trinity GCD	Hood (downdip)	81	103	103	103	103	103	103	103
Upper Trinity GCD	Parker (outcrop)	2,593	2,289	2,295	2,289	2,295	2,289	2,295	2,289
Upper Trinity GCD	Parker (downdip)	1,063	873	876	873	876	873	876	873
Upper Trinity GCD Total		**4,220**	**3,918**	**3,929**	**3,918**	**3,929**	**3,918**	**3,929**	**3,918**

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
No District	Brown	0	0	0	0	0	0	0	0
No District	Dallas	135	131	132	131	132	131	132	131
No District	Delta	0	0	0	0	0	0	0	0
No District	Falls	0	0	0	0	0	0	0	0
No District	Hamilton	168	218	218	218	218	218	218	218
No District	Hunt	0	0	0	0	0	0	0	0
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Lamar	0	0	0	0	0	0	0	0
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	12	189	189	189	189	189	189	189
No District	Navarro	0	0	0	0	0	0	0	0
No District	Red River	0	0	0	0	0	0	0	0
No District	Rockwall	0	0	0	0	0	0	0	0
No District	Travis	898	971	974	971	974	971	974	971
No District	Williamson	695	688	690	688	690	688	690	688
No District Total		**1,908**	**2,197**	**2,203**	**2,197**	**2,203**	**2,197**	**2,203**	**2,197**
Groundwater Management Area 8		**12,000**	**12,701**	**12,736**	**12,701**	**12,736**	**12,701**	**12,736**	**12,701**

UWCD: Underground Water Conservation District.

TABLE 3. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (TWIN MOUNTAINS) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Middle Trinity GCD	Erath	**3,443**	**5,017**	**5,031**	**5,017**	**5,031**	**5,017**	**5,031**	**5,017**
North Texas GCD	Collin	163	2,201	2,207	2,201	2,207	2,201	2,207	2,201
North Texas GCD	Denton	997	8,366	8,389	8,366	8,389	8,366	8,389	8,366
North Texas GCD Total		**1,160**	**10,567**	**10,596**	**10,567**	**10,596**	**10,567**	**10,596**	**10,567**
Northern Trinity GCD	Tarrant	**7,329**	**6,917**	**6,936**	**6,917**	**6,936**	**6,917**	**6,936**	**6,917**
Prairielands GCD	Ellis	0	0	0	0	0	0	0	0
Prairielands GCD	Johnson	539	384	385	384	385	384	385	384
Prairielands GCD	Somervell	150	174	174	174	174	174	174	174
Prairielands GCD Total		**689**	**558**	**559**	**558**	**559**	**558**	**559**	**558**
Red River GCD	Fannin	0	0	0	0	0	0	0	0
Red River GCD	Grayson	0	0	0	0	0	0	0	0
Red River GCD Total		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Upper Trinity GCD	Hood (outcrop)	3,379	3,662	3,672	3,662	3,672	3,662	3,672	3,662
Upper Trinity GCD	Hood (downdip)	7,143	7,759	7,780	7,759	7,780	7,759	7,780	7,759
Upper Trinity GCD	Parker (outcrop)	1,600	1,066	1,069	1,066	1,069	1,066	1,069	1,066
Upper Trinity GCD	Parker (downdip)	3,459	2,082	2,088	2,082	2,088	2,082	2,088	2,082
Upper Trinity GCD Total		**15,581**	**14,569**	**14,609**	**14,569**	**14,609**	**14,569**	**14,609**	**14,569**
No District	Dallas	2,282	3,199	3,208	3,199	3,208	3,199	3,208	3,199
No District	Hunt	0	0	0	0	0	0	0	0
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Rockwall	0	0	0	0	0	0	0	0
No District Total		**2,282**	**3,199**	**3,208**	**3,199**	**3,208**	**3,199**	**3,208**	**3,199**
Groundwater Management Area 8		**30,484**	**40,827**	**40,939**	**40,827**	**40,939**	**40,827**	**40,939**	**40,827**

TABLE 4. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (TRAVIS PEAK) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Central Texas GCD	Burnet	**1,906**	**3,464**	**3,474**	**3,464**	**3,474**	**3,464**	**3,474**	**3,464**
Clearwater UWCD	Bell	**1,957**	**8,270**	**8,293**	**8,270**	**8,293**	**8,270**	**8,293**	**8,270**
Middle Trinity GCD	Bosque	5,255	7,678	7,699	7,678	7,699	7,678	7,699	7,678
Middle Trinity GCD	Comanche	9,793	6,160	6,177	6,160	6,177	6,160	6,177	6,160
Middle Trinity GCD	Coryell	3,350	4,371	4,383	4,371	4,383	4,371	4,383	4,371
Middle Trinity GCD	Erath	8,263	11,815	11,849	11,815	11,849	11,815	11,849	11,815
Middle Trinity GCD Total		**26,661**	**30,024**	**30,108**	**30,024**	**30,108**	**30,024**	**30,108**	**30,024**
Post Oak Savannah GCD	Milam	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Prairielands GCD	Ellis	5,583	5,032	5,046	5,032	5,046	5,032	5,046	5,032
Prairielands GCD	Hill	3,700	3,550	3,559	3,550	3,559	3,550	3,559	3,550
Prairielands GCD	Johnson	5,602	4,941	4,955	4,941	4,955	4,941	4,955	4,941
Prairielands GCD	Somervell	2,560	2,847	2,854	2,847	2,854	2,847	2,854	2,847
Prairielands GCD Total		**17,445**	**16,370**	**16,414**	**16,370**	**16,414**	**16,370**	**16,414**	**16,370**
Red River GCD	Fannin	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Saratoga UWCD	Lampasas	**1,669**	**1,599**	**1,603**	**1,599**	**1,603**	**1,599**	**1,603**	**1,599**
Southern Trinity GCD	McLennan	**13,252**	**20,635**	**20,691**	**20,635**	**20,691**	**20,635**	**20,691**	**20,635**
Upper Trinity GCD	Hood (downdip)	**70**	**89**	**89**	**89**	**89**	**89**	**89**	**89**
No District	Brown	680	394	395	394	395	394	395	394
No District	Dallas	0	0	0	0	0	0	0	0
No District	Delta	0	0	0	0	0	0	0	0
No District	Falls	1,158	1,434	1,438	1,434	1,438	1,434	1,438	1,434
No District	Hamilton	1,685	2,207	2,213	2,207	2,213	2,207	2,213	2,207
No District	Hunt	0	0	0	0	0	0	0	0
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Lamar	0	0	0	0	0	0	0	0
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	1,011	2,275	2,282	2,275	2,282	2,275	2,282	2,275
No District	Navarro	0	0	0	0	0	0	0	0
No District	Red River	0	0	0	0	0	0	0	0
No District	Travis	3,442	4,113	4,125	4,113	4,125	4,113	4,125	4,113
No District	Williamson	3,026	2,883	2,891	2,883	2,891	2,883	2,891	2,883

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
No District Total		**11,002**	**13,306**	**13,344**	**13,306**	**13,344**	**13,306**	**13,344**	**13,306**
Groundwater Management Area 8		**73,962**	**93,757**	**94,016**	**93,757**	**94,016**	**93,757**	**94,016**	**93,757**

UWCD: Underground Water Conservation District.

TABLE 5. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (HENSELL) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Central Texas GCD	Burnet	**51**	**1,888**	**1,894**	**1,888**	**1,894**	**1,888**	**1,894**	**1,888**
Clearwater UWCD	Bell	**355**	**1,096**	**1,099**	**1,096**	**1,099**	**1,096**	**1,099**	**1,096**
Middle Trinity GCD	Bosque	2,909	3,835	3,845	3,835	3,845	3,835	3,845	3,835
Middle Trinity GCD	Comanche	188	204	204	204	204	204	204	204
Middle Trinity GCD	Coryell	1,679	2,196	2,202	2,196	2,202	2,196	2,202	2,196
Middle Trinity GCD	Erath	3,446	5,137	5,151	5,137	5,151	5,137	5,151	5,137
Middle Trinity GCD Total		**8,222**	**11,372**	**11,402**	**11,372**	**11,402**	**11,372**	**11,402**	**11,372**
Post Oak Savannah GCD	Milam	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Prairielands GCD	Ellis	0	0	0	0	0	0	0	0
Prairielands GCD	Hill	237	225	226	225	226	225	226	225
Prairielands GCD	Johnson	1,530	1,083	1,086	1,083	1,086	1,083	1,086	1,083
Prairielands GCD	Somervell	1,822	1,973	1,978	1,973	1,978	1,973	1,978	1,973
Prairielands GCD Total		**3,589**	**3,281**	**3,290**	**3,281**	**3,290**	**3,281**	**3,290**	**3,281**
Saratoga UWCD	Lampasas	**730**	**712**	**715**	**712**	**715**	**712**	**715**	**712**
Southern Trinity GCD	McLennan	**3,018**	**4,698**	**4,711**	**4,698**	**4,711**	**4,698**	**4,711**	**4,698**
Upper Trinity GCD	Hood (downdip)	**45**	**36**	**36**	**36**	**36**	**36**	**36**	**36**
No District	Brown	6	4	4	4	4	4	4	4
No District	Dallas	0	0	0	0	0	0	0	0
No District	Falls	0	0	0	0	0	0	0	0
No District	Hamilton	1,221	1,671	1,675	1,671	1,675	1,671	1,675	1,671
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	224	607	608	607	608	607	608	607
No District	Navarro	0	0	0	0	0	0	0	0
No District	Travis	919	1,141	1,144	1,141	1,144	1,141	1,144	1,141
No District	Williamson	772	751	753	751	753	751	753	751
No District Total		**3,142**	**4,174**	**4,184**	**4,174**	**4,184**	**4,174**	**4,184**	**4,174**
Groundwater Management Area 8		**19,152**	**27,257**	**27,331**	**27,257**	**27,331**	**27,257**	**27,331**	**27,257**

UWCD: Underground Water Conservation District.

TABLE 6. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (HOSSTON) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Central Texas GCD	Burnet	**1,799**	**1,379**	**1,382**	**1,379**	**1,382**	**1,379**	**1,382**	**1,379**
Clearwater UWCD	Bell	**1,375**	**7,174**	**7,193**	**7,174**	**7,193**	**7,174**	**7,193**	**7,174**
Middle Trinity GCD	Bosque	2,289	3,762	3,772	3,762	3,772	3,762	3,772	3,762
Middle Trinity GCD	Comanche	9,504	5,864	5,881	5,864	5,881	5,864	5,881	5,864
Middle Trinity GCD	Coryell	1,661	2,161	2,167	2,161	2,167	2,161	2,167	2,161
Middle Trinity GCD	Erath	4,637	6,383	6,400	6,383	6,400	6,383	6,400	6,383
Middle Trinity GCD Total		**18,091**	**18,170**	**18,220**	**18,170**	**18,220**	**18,170**	**18,220**	**18,170**
Post Oak Savannah GCD	Milam	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Prairielands GCD	Ellis	5,575	5,026	5,040	5,026	5,040	5,026	5,040	5,026
Prairielands GCD	Hill	3,413	3,272	3,281	3,272	3,281	3,272	3,281	3,272
Prairielands GCD	Johnson	4,061	3,853	3,863	3,853	3,863	3,853	3,863	3,853
Prairielands GCD	Somervell	736	843	845	843	845	843	845	843
Prairielands GCD Total		**13,785**	**12,994**	**13,029**	**12,994**	**13,029**	**12,994**	**13,029**	**12,994**
Saratoga UWCD	Lampasas	**907**	**857**	**859**	**857**	**859**	**857**	**859**	**857**
Southern Trinity GCD	McLennan	**10,212**	**15,937**	**15,980**	**15,937**	**15,980**	**15,937**	**15,980**	**15,937**
Upper Trinity GCD	Hood (downdip)	**25**	**53**	**53**	**53**	**53**	**53**	**53**	**53**
No District	Brown	624	356	358	356	358	356	358	356
No District	Dallas	0	0	0	0	0	0	0	0
No District	Falls	1,157	1,434	1,438	1,434	1,438	1,434	1,438	1,434
No District	Hamilton	325	385	386	385	386	385	386	385
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Limestone	0	0	0	0	0	0	0	0
No District	Mills	650	1,467	1,471	1,467	1,471	1,467	1,471	1,467
No District	Navarro	0	0	0	0	0	0	0	0
No District	Travis	2,357	2,783	2,791	2,783	2,791	2,783	2,791	2,783
No District	Williamson	2,050	1,933	1,938	1,933	1,938	1,933	1,938	1,933
No District Total		**7,163**	**8,358**	**8,382**	**8,358**	**8,382**	**8,358**	**8,382**	**8,358**
Groundwater Management Area 8		**53,357**	**64,922**	**65,098**	**64,922**	**65,098**	**64,922**	**65,098**	**64,922**

UWCD: Underground Water Conservation District.

TABLE 7. MODELED AVAILABLE GROUNDWATER FOR THE TRINITY AQUIFER (ANTLERS) IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Middle Trinity GCD	Comanche	9,320	5,839	5,855	5,839	5,855	5,839	5,855	5,839
Middle Trinity GCD	Erath	1,663	2,628	2,636	2,628	2,636	2,628	2,636	2,628
Middle Trinity GCD Total		**10,983**	**8,467**	**8,491**	**8,467**	**8,491**	**8,467**	**8,491**	**8,467**
North Texas GCD	Collin	629	1,961	1,966	1,961	1,966	1,961	1,966	1,961
North Texas GCD	Cooke	4,117	10,514	10,544	10,514	10,544	10,514	10,544	10,514
North Texas GCD	Denton	11,427	16,545	16,591	16,545	16,591	16,545	16,591	16,545
North Texas GCD Total		**16,173**	**29,020**	**29,101**	**29,020**	**29,101**	**29,020**	**29,101**	**29,020**
Northern Trinity GCD	Tarrant	**1,908**	**1,248**	**1,251**	**1,248**	**1,251**	**1,248**	**1,251**	**1,248**
Red River GCD	Fannin	0	0	0	0	0	0	0	0
Red River GCD	Grayson	6,872	10,708	10,738	10,708	10,738	10,708	10,738	10,708
Red River GCD Total		**6,872**	**10,708**	**10,738**	**10,708**	**10,738**	**10,708**	**10,738**	**10,708**
Upper Trinity GCD	Montague (outcrop)	1,421	3,875	3,886	3,875	3,886	3,875	3,886	3,875
Upper Trinity GCD	Parker (outcrop)	3,321	2,897	2,905	2,897	2,905	2,897	2,905	2,897
Upper Trinity GCD	Wise (outcrop)	9,080	7,677	7,698	7,677	7,698	7,677	7,698	7,677
Upper Trinity GCD	Wise (downdip)	3,699	2,057	2,062	2,057	2,062	2,057	2,062	2,057
Upper Trinity GCD Total		**17,521**	**16,506**	**16,551**	**16,506**	**16,551**	**16,506**	**16,551**	**16,506**
No District	Brown	1,743	1,052	1,055	1,052	1,055	1,052	1,055	1,052
No District	Callahan	1,804	1,725	1,730	1,725	1,730	1,725	1,730	1,725
No District	Eastland	5,613	5,732	5,747	5,732	5,747	5,732	5,747	5,732
No District	Lamar	0	0	0	0	0	0	0	0
No District	Red River	0	0	0	0	0	0	0	0
No District	Taylor	17	13	13	13	13	13	13	13
No District Total		**9,177**	**8,522**	**8,545**	**8,522**	**8,545**	**8,522**	**8,545**	**8,522**
Groundwater Management Area 8		**62,634**	**74,471**	**74,677**	**74,471**	**74,677**	**74,471**	**74,677**	**74,471**

TABLE 8. MODELED AVAILABLE GROUNDWATER FOR THE WOODBINE AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
North Texas GCD	Collin	2,427	4,251	4,263	4,251	4,263	4,251	4,263	4,251
North Texas GCD	Cooke	1,646	800	802	800	802	800	802	800
North Texas GCD	Denton	3,797	3,607	3,616	3,607	3,616	3,607	3,616	3,607
North Texas GCD Total		**7,870**	**8,658**	**8,681**	**8,658**	**8,681**	**8,658**	**8,681**	**8,658**
Northern Trinity GCD	Tarrant	**2,646**	**1,138**	**1,141**	**1,138**	**1,141**	**1,138**	**1,141**	**1,138**
Prairielands GCD	Ellis	2,471	2,073	2,078	2,073	2,078	2,073	2,078	2,073
Prairielands GCD	Hill	752	586	588	586	588	586	588	586
Prairielands GCD	Johnson	3,880	1,980	1,985	1,980	1,985	1,980	1,985	1,980
Prairielands GCD Total		**7,103**	**4,639**	**4,651**	**4,639**	**4,651**	**4,639**	**4,651**	**4,639**
Red River GCD	Fannin	5,495	4,920	4,934	4,920	4,934	4,920	4,934	4,920
Red River GCD	Grayson	5,056	7,521	7,541	7,521	7,541	7,521	7,541	7,521
Red River GCD Total		**10,551**	**12,441**	**12,475**	**12,441**	**12,475**	**12,441**	**12,475**	**12,441**
Southern Trinity GCD	McLennan	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
No District	Dallas	1,957	2,796	2,804	2,796	2,804	2,796	2,804	2,796
No District	Hunt	463	763	765	763	765	763	765	763
No District	Kaufman	0	0	0	0	0	0	0	0
No District	Lamar	61	49	49	49	49	49	49	49
No District	Navarro	65	68	68	68	68	68	68	68
No District	Red River	3	2	2	2	2	2	2	2
No District	Rockwall	0	0	0	0	0	0	0	0
No District Total		**2,549**	**3,678**	**3,688**	**3,678**	**3,688**	**3,678**	**3,688**	**3,678**
Groundwater Management Area 8		**30,719**	**30,554**	**30,636**	**30,554**	**30,636**	**30,554**	**30,636**	**30,554**

TABLE 9. MODELED AVAILABLE GROUNDWATER FOR THE EDWARDS (BALCONES FAULT ZONE) AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2000	2010	2020	2030	2040	2050	2060	2070
Clearwater UWCD	Bell	**949**	**6,469**	**6,469**	**6,469**	**6,469**	**6,469**	**6,469**	**6,469**
No District	Travis	1,201	5,237	5,237	5,237	5,237	5,237	5,237	5,237
No District	Williamson	13,813	3,462	3,462	3,462	3,462	3,462	3,462	3,462
Groundwater Management Area 8		**15,981**	**15,168**	**15,168**	**15,168**	**15,168**	**15,168**	**15,168**	**15,168**

UWCD: Underground Water Conservation District.

TABLE 10. MODELED AVAILABLE GROUNDWATER FOR THE MARBLE FALLS AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Central Texas GCD	Burnet	**2,220**	**2,736**	**2,744**	**2,736**	**2,744**	**2,736**	**2,744**	**2,736**
Saratoga UWCD	Lampasas	**363**	**2,837**	**2,845**	**2,837**	**2,845**	**2,837**	**2,845**	**2,837**
No District	Brown	0	25	25	25	25	25	25	25
No District	Mills	20	25	25	25	25	25	25	25
No District Total		**20**	**50**	**50**	**50**	**50**	**50**	**50**	**50**
Groundwater Management Area 8		**2,603**	**5,623**	**5,639**	**5,623**	**5,639**	**5,623**	**5,639**	**5,623**

UWCD: Underground Water Conservation District.

TABLE 11. MODELED AVAILABLE GROUNDWATER FOR THE ELLENBURGER-SAN SABA AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Central Texas GCD	Burnet	**5,256**	**10,827**	**10,857**	**10,827**	**10,857**	**10,827**	**10,857**	**10,827**
Saratoga UWCD	Lampasas	**351**	**2,593**	**2,601**	**2,593**	**2,601**	**2,593**	**2,601**	**2,593**
No District	Brown	1	131	131	131	131	131	131	131
No District	Mills	0	499	500	499	500	499	500	499
No District Total		**1**	**630**	**631**	**630**	**631**	**630**	**631**	**630**
Groundwater Management Area 8		**5,608**	**14,050**	**14,089**	**14,050**	**14,089**	**14,050**	**14,089**	**14,050**

UWCD: Underground Water Conservation District.

TABLE 12. MODELED AVAILABLE GROUNDWATER FOR THE HICKORY AQUIFER IN GROUNDWATER MANAGEMENT AREA 8 SUMMARIZED BY GROUNDWATER CONSERVATION DISTRICT (GCD) AND COUNTY FOR EACH DECADE BETWEEN 2010 AND 2070 WITH BASELINE YEAR 2009. VALUES ARE IN ACRE-FEET PER YEAR.

GCD	County	2009	2010	2020	2030	2040	2050	2060	2070
Central Texas GCD	Burnet	**1,088**	**3,413**	**3,423**	**3,413**	**3,423**	**3,413**	**3,423**	**3,413**
Saratoga UWCD	Lampasas	**0**	**113**	**114**	**113**	**114**	**113**	**114**	**113**
No District	Brown	0	12	12	12	12	12	12	12
No District	Mills	0	36	36	36	36	36	36	36
No District Total		**0**	**48**	**48**	**48**	**48**	**48**	**48**	**48**
Groundwater Management Area 8		**1,088**	**3,574**	**3,585**	**3,574**	**3,585**	**3,574**	**3,585**	**3,574**

UWCD: Underground Water Conservation District.

TABLE 13. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (PALUXY) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Counties Not in Upper Trinity GCD								
Bell	Region G	Brazos	0	0	0	0	0	0
Bosque	Region G	Brazos	358	356	358	356	358	356
Collin	Region C	Sabine	0	0	0	0	0	0
Collin	Region C	Trinity	1,551	1,547	1,551	1,547	1,551	1,547
Coryell	Region G	Brazos	0	0	0	0	0	0
Dallas	Region C	Trinity	359	358	359	358	359	358
Delta	Northeast Texas	Sulphur	56	56	56	56	56	56
Denton	Region C	Trinity	4,832	4,819	4,832	4,819	4,832	4,819
Ellis	Region C	Trinity	443	442	443	442	443	442
Erath	Region G	Brazos	61	61	61	61	61	61
Falls	Region G	Brazos	0	0	0	0	0	0
Fannin	Region C	Sulphur	2,092	2,087	2,092	2,087	2,092	2,087
Fannin	Region C	Trinity	0	0	0	0	0	0
Grayson	Region C	Trinity	0	0	0	0	0	0
Hamilton	Region G	Brazos	0	0	0	0	0	0
Hill	Region G	Brazos	348	347	348	347	348	347
Hill	Region G	Trinity	5	5	5	5	5	5
Hunt	Northeast Texas	Sabine	0	0	0	0	0	0
Hunt	Northeast Texas	Sulphur	3	3	3	3	3	3
Hunt	Northeast Texas	Trinity	0	0	0	0	0	0
Johnson	Region G	Brazos	880	878	880	878	880	878
Johnson	Region G	Trinity	1,567	1,562	1,567	1,562	1,567	1,562
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	8	8	8	8	8	8
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0
McLennan	Region G	Brazos	0	0	0	0	0	0
Mills	Lower Colorado	Brazos	6	6	6	6	6	6
Mills	Lower Colorado	Colorado	0	0	0	0	0	0
Navarro	Region C	Trinity	0	0	0	0	0	0
Red River	Northeast Texas	Red	52	52	52	52	52	52
Red River	Northeast Texas	Sulphur	125	125	125	125	125	125

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Rockwall	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	14	14	14	14	14	14
Tarrant	Region C	Trinity	8,982	8,957	8,982	8,957	8,982	8,957
Subtotal			**21,742**	**21,683**	**21,742**	**21,683**	**21,742**	**21,683**
Counties in Upper Trinity GCD								
Hood (outcrop)	Region G	Brazos	159	158	159	158	159	158
Hood (outcrop)	Region G	Trinity	0	0	0	0	0	0
Parker (outcrop)	Region C	Brazos	34	34	34	34	34	34
Parker (outcrop)	Region C	Trinity	2,580	2,573	2,580	2,573	2,580	2,573
Parker (downdip)	Region C	Trinity	50	50	50	50	50	50
Subtotal			**2,823**	**2,815**	**2,823**	**2,815**	**2,823**	**2,815**
Groundwater Management Area 8			**24,565**	**24,498**	**24,565**	**24,498**	**24,565**	**24,498**

TABLE 14. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (GLEN ROSE) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Counties Not in Upper Trinity GCD								
Bell	Region G	Brazos	974	971	974	971	974	971
Bosque	Region G	Brazos	731	728	731	728	731	728
Brown	Region F	Colorado	0	0	0	0	0	0
Burnet	Lower Colorado	Brazos	188	188	188	188	188	188
Burnet	Lower Colorado	Colorado	236	235	236	235	236	235
Collin	Region C	Sabine	0	0	0	0	0	0
Collin	Region C	Trinity	83	83	83	83	83	83
Comanche	Region G	Brazos	22	22	22	22	22	22
Comanche	Region G	Colorado	18	18	18	18	18	18
Coryell	Region G	Brazos	120	120	120	120	120	120
Dallas	Region C	Trinity	132	131	132	131	132	131
Delta	Northeast Texas	Sulphur	0	0	0	0	0	0
Denton	Region C	Trinity	339	338	339	338	339	338
Ellis	Region C	Trinity	50	50	50	50	50	50
Erath	Region G	Brazos	1,081	1,078	1,081	1,078	1,081	1,078
Falls	Region G	Brazos	0	0	0	0	0	0
Fannin	Region C	Sulphur	0	0	0	0	0	0
Fannin	Region C	Trinity	0	0	0	0	0	0
Grayson	Region C	Trinity	0	0	0	0	0	0
Hamilton	Region G	Brazos	218	218	218	218	218	218
Hill	Region G	Brazos	115	114	115	114	115	114
Hill	Region G	Trinity	1	1	1	1	1	1
Hunt	Northeast Texas	Sabine	0	0	0	0	0	0
Hunt	Northeast Texas	Sulphur	0	0	0	0	0	0
Hunt	Northeast Texas	Trinity	0	0	0	0	0	0
Johnson	Region G	Brazos	953	950	953	950	953	950
Johnson	Region G	Trinity	683	681	683	681	683	681
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	0	0	0	0	0	0
Lampasas	Region G	Brazos	68	68	68	68	68	68
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
McLennan	Region G	Brazos	0	0	0	0	0	0
Milam	Region G	Brazos	0	0	0	0	0	0
Mills	Lower Colorado	Brazos	96	96	96	96	96	96
Mills	Lower Colorado	Colorado	93	93	93	93	93	93
Navarro	Region C	Trinity	0	0	0	0	0	0
Red River	Northeast Texas	Red	0	0	0	0	0	0
Red River	Northeast Texas	Sulphur	0	0	0	0	0	0
Rockwall	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	146	146	146	146	146	146
Tarrant	Region C	Trinity	795	793	795	793	795	793
Travis	Lower Colorado	Brazos	0	0	0	0	0	0
Travis	Lower Colorado	Colorado	974	971	974	971	974	971
Williamson	Region G	Brazos	623	621	623	621	623	621
Williamson	Region G	Colorado	0	0	0	0	0	0
Williamson	Lower Colorado	Brazos	0	0	0	0	0	0
Williamson	Lower Colorado	Colorado	67	67	67	67	67	67
Subtotal			**8,806**	**8,781**	**8,806**	**8,781**	**8,806**	**8,781**
Counties in Upper Trinity GCD								
Hood (outcrop)	Region G	Brazos	655	653	655	653	655	653
Hood (downdip)	Region G	Brazos	83	83	83	83	83	83
Hood (downdip)	Region G	Trinity	20	20	20	20	20	20
Parker (outcrop)	Region C	Brazos	87	87	87	87	87	87
Parker (downdip)	Region C	Brazos	7	7	7	7	7	7
Parker (outcrop)	Region C	Trinity	2,208	2,202	2,208	2,202	2,208	2,202
Parker (downdip)	Region C	Trinity	869	866	869	866	869	866
Subtotal			**3,929**	**3,918**	**3,929**	**3,918**	**3,929**	**3,918**
Groundwater Management Area 8			**12,735**	**12,699**	**12,735**	**12,699**	**12,735**	**12,699**

TABLE 15. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (TWIN MOUNTAINS) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Counties Not in Upper Trinity GCD								
Collin	Region C	Sabine	0	0	0	0	0	0
Collin	Region C	Trinity	2,207	2,201	2,207	2,201	2,207	2,201
Dallas	Region C	Trinity	3,208	3,199	3,208	3,199	3,208	3,199
Denton	Region C	Trinity	8,389	8,366	8,389	8,366	8,389	8,366
Ellis	Region C	Trinity	0	0	0	0	0	0
Erath	Region G	Brazos	5,031	5,017	5,031	5,017	5,031	5,017
Fannin	Region C	Sulphur	0	0	0	0	0	0
Fannin	Region C	Trinity	0	0	0	0	0	0
Grayson	Region C	Trinity	0	0	0	0	0	0
Hunt	Northeast Texas	Sabine	0	0	0	0	0	0
Hunt	Northeast Texas	Trinity	0	0	0	0	0	0
Johnson	Region G	Brazos	133	133	133	133	133	133
Johnson	Region G	Trinity	252	251	252	251	252	251
Kaufman	Region C	Trinity	0	0	0	0	0	0
Rockwall	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	174	174	174	174	174	174
Tarrant	Region C	Trinity	6,936	6,917	6,936	6,917	6,936	6,917
Subtotal			**26,330**	**26,258**	**26,330**	**26,258**	**26,330**	**26,258**
Counties in Upper Trinity GCD								
Hood (outcrop)	Region G	Brazos	3,672	3,662	3,672	3,662	3,672	3,662
Hood (downdip)	Region G	Brazos	7,761	7,740	7,761	7,740	7,761	7,740
Hood (downdip)	Region G	Trinity	19	19	19	19	19	19
Parker (outcrop)	Region C	Brazos	1,069	1,066	1,069	1,066	1,069	1,066
Parker (downdip)	Region C	Brazos	778	776	778	776	778	776
Parker (downdip)	Region C	Trinity	1,310	1,306	1,310	1,306	1,310	1,306
Subtotal			**14,609**	**14,569**	**14,609**	**14,569**	**14,609**	**14,569**
Groundwater Management Area 8			**40,939**	**40,827**	**40,939**	**40,827**	**40,939**	**40,827**

TABLE 16. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (TRAVIS PEAK) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Counties Not in Upper Trinity GCD								
Bell	Region G	Brazos	8,293	8,270	8,293	8,270	8,293	8,270
Bosque	Region G	Brazos	7,699	7,678	7,699	7,678	7,699	7,678
Brown	Region F	Brazos	3	3	3	3	3	3
Brown	Region F	Colorado	392	391	392	391	392	391
Burnet	Lower Colorado	Brazos	2,950	2,943	2,950	2,943	2,950	2,943
Burnet	Lower Colorado	Colorado	523	521	523	521	523	521
Comanche	Region G	Brazos	6,128	6,111	6,128	6,111	6,128	6,111
Comanche	Region G	Colorado	49	49	49	49	49	49
Coryell	Region G	Brazos	4,383	4,371	4,383	4,371	4,383	4,371
Dallas	Region C	Trinity	0	0	0	0	0	0
Delta	Northeast Texas	Sulphur	0	0	0	0	0	0
Ellis	Region C	Trinity	5,046	5,032	5,046	5,032	5,046	5,032
Erath	Region G	Brazos	11,849	11,815	11,849	11,815	11,849	11,815
Falls	Region G	Brazos	1,438	1,434	1,438	1,434	1,438	1,434
Fannin	Region C	Sulphur	0	0	0	0	0	0
Fannin	Region C	Trinity	0	0	0	0	0	0
Hamilton	Region G	Brazos	2,213	2,207	2,213	2,207	2,213	2,207
Hill	Region G	Brazos	3,304	3,295	3,304	3,295	3,304	3,295
Hill	Region G	Trinity	256	255	256	255	256	255
Hunt	Northeast Texas	Sabine	0	0	0	0	0	0
Hunt	Northeast Texas	Sulphur	0	0	0	0	0	0
Hunt	Northeast Texas	Trinity	0	0	0	0	0	0
Johnson	Region G	Brazos	1,932	1,927	1,932	1,927	1,932	1,927
Johnson	Region G	Trinity	3,022	3,014	3,022	3,014	3,022	3,014
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	0	0	0	0	0	0
Lampasas	Region G	Brazos	1,528	1,523	1,528	1,523	1,528	1,523
Lampasas	Region G	Colorado	76	75	76	75	76	75
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0
McLennan	Region G	Brazos	20,691	20,635	20,691	20,635	20,691	20,635
Milam	Region G	Brazos	0	0	0	0	0	0

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Mills	Lower Colorado	Brazos	706	703	706	703	706	703
Mills	Lower Colorado	Colorado	1,576	1,572	1,576	1,572	1,576	1,572
Navarro	Region C	Trinity	0	0	0	0	0	0
Red River	Northeast Texas	Red	0	0	0	0	0	0
Red River	Northeast Texas	Sulphur	0	0	0	0	0	0
Somervell	Region G	Brazos	2,854	2,847	2,854	2,847	2,854	2,847
Travis	Lower Colorado	Brazos	1	1	1	1	1	1
Travis	Lower Colorado	Colorado	4,124	4,112	4,124	4,112	4,124	4,112
Williamson	Region G	Brazos	2,885	2,877	2,885	2,877	2,885	2,877
Williamson	Region G	Colorado	5	5	5	5	5	5
Williamson	Lower Colorado	Brazos	0	0	0	0	0	0
Williamson	Lower Colorado	Colorado	0	0	0	0	0	0
Subtotal			**93,926**	**93,666**	**93,926**	**93,666**	**93,926**	**93,666**
Counties in Upper Trinity GCD								
Hood (downdip)	Region G	Brazos	89	89	89	89	89	89
Subtotal			**89**	**89**	**89**	**89**	**89**	**89**
Groundwater Management Area 8			**94,015**	**93,755**	**94,015**	**93,755**	**94,015**	**93,755**

TABLE 17. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (HENSELL) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Counties Not in Upper Trinity GCD								
Bell	Region G	Brazos	1,099	1,096	1,099	1,096	1,099	1,096
Bosque	Region G	Brazos	3,845	3,835	3,845	3,835	3,845	3,835
Brown	Region F	Colorado	4	4	4	4	4	4
Burnet	Lower Colorado	Brazos	1,761	1,757	1,761	1,757	1,761	1,757
Burnet	Lower Colorado	Colorado	133	132	133	132	133	132
Comanche	Region G	Brazos	181	180	181	180	181	180
Comanche	Region G	Colorado	24	24	24	24	24	24
Coryell	Region G	Brazos	2,202	2,196	2,202	2,196	2,202	2,196
Dallas	Region C	Trinity	0	0	0	0	0	0
Ellis	Region C	Trinity	0	0	0	0	0	0
Erath	Region G	Brazos	5,151	5,137	5,151	5,137	5,151	5,137
Falls	Region G	Brazos	0	0	0	0	0	0
Hamilton	Region G	Brazos	1,675	1,671	1,675	1,671	1,675	1,671
Hill	Region G	Brazos	225	224	225	224	225	224
Hill	Region G	Trinity	1	1	1	1	1	1
Johnson	Region G	Brazos	618	616	618	616	618	616
Johnson	Region G	Trinity	468	467	468	467	468	467
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lampasas	Region G	Brazos	713	711	713	711	713	711
Lampasas	Region G	Colorado	1	1	1	1	1	1
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0
McLennan	Region G	Brazos	4,711	4,698	4,711	4,698	4,711	4,698
Milam	Region G	Brazos	0	0	0	0	0	0
Mills	Lower Colorado	Brazos	172	172	172	172	172	172
Mills	Lower Colorado	Colorado	436	435	436	435	436	435
Navarro	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	1,978	1,973	1,978	1,973	1,978	1,973
Travis	Lower Colorado	Brazos	1	1	1	1	1	1
Travis	Lower Colorado	Colorado	1,144	1,141	1,144	1,141	1,144	1,141
Williamson	Region G	Brazos	753	751	753	751	753	751
Williamson	Region G	Colorado	0	0	0	0	0	0
Williamson	Lower Colorado	Brazos	0	0	0	0	0	0

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Williamson	Lower Colorado	Colorado	0	0	0	0	0	0
Subtotal			**27,296**	**27,223**	**27,296**	**27,223**	**27,296**	**27,223**
Counties in Upper Trinity GCD								
Hood (downdip)	Region G	Brazos	36	36	36	36	36	36
Subtotal			**36**	**36**	**36**	**36**	**36**	**36**
Groundwater Management Area 8			**27,332**	**27,259**	**27,332**	**27,259**	**27,332**	**27,259**

TABLE 18. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (HOSSTON) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Counties Not in Upper Trinity GCD								
Bell	Region G	Brazos	7,193	7,174	7,193	7,174	7,193	7,174
Bosque	Region G	Brazos	3,772	3,762	3,772	3,762	3,772	3,762
Brown	Region F	Brazos	3	3	3	3	3	3
Brown	Region F	Colorado	355	353	355	353	355	353
Burnet	Lower Colorado	Brazos	1,027	1,025	1,027	1,025	1,027	1,025
Burnet	Lower Colorado	Colorado	355	354	355	354	355	354
Comanche	Region G	Brazos	5,875	5,858	5,875	5,858	5,875	5,858
Comanche	Region G	Colorado	6	6	6	6	6	6
Coryell	Region G	Brazos	2,167	2,161	2,167	2,161	2,167	2,161
Dallas	Region C	Trinity	0	0	0	0	0	0
Ellis	Region C	Trinity	5,040	5,026	5,040	5,026	5,040	5,026
Erath	Region G	Brazos	6,400	6,383	6,400	6,383	6,400	6,383
Falls	Region G	Brazos	1,438	1,434	1,438	1,434	1,438	1,434
Hamilton	Region G	Brazos	386	385	386	385	386	385
Hill	Region G	Brazos	3,026	3,018	3,026	3,018	3,026	3,018
Hill	Region G	Trinity	255	254	255	254	255	254
Johnson	Region G	Brazos	1,311	1,307	1,311	1,307	1,311	1,307
Johnson	Region G	Trinity	2,553	2,546	2,553	2,546	2,553	2,546
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lampasas	Region G	Brazos	786	783	786	783	786	783
Lampasas	Region G	Colorado	72	72	72	72	72	72
Limestone	Region G	Brazos	0	0	0	0	0	0
Limestone	Region G	Trinity	0	0	0	0	0	0
McLennan	Region G	Brazos	15,980	15,937	15,980	15,937	15,980	15,937
Milam	Region G	Brazos	0	0	0	0	0	0
Mills	Lower Colorado	Brazos	376	375	376	375	376	375
Mills	Lower Colorado	Colorado	1,096	1,093	1,096	1,093	1,096	1,093
Navarro	Region C	Trinity	0	0	0	0	0	0
Somervell	Region G	Brazos	845	843	845	843	845	843
Travis	Lower Colorado	Brazos	0	0	0	0	0	0
Travis	Lower Colorado	Colorado	2,791	2,783	2,791	2,783	2,791	2,783
Williamson	Region G	Brazos	1,933	1,928	1,933	1,928	1,933	1,928
Williamson	Region G	Colorado	5	5	5	5	5	5

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Williamson	Lower Colorado	Brazos	0	0	0	0	0	0
Williamson	Lower Colorado	Colorado	0	0	0	0	0	0
Subtotal			**65,046**	**64,868**	**65,046**	**64,868**	**65,046**	**64,868**
Counties in Upper Trinity GCD								
Hood (downdip)	Region G	Brazos	53	53	53	53	53	53
Subtotal			**53**	**53**	**53**	**53**	**53**	**53**
Groundwater Management Area 8			**65,099**	**64,921**	**65,099**	**64,921**	**65,099**	**64,921**

TABLE 19. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE TRINITY AQUIFER (ANTLERS) IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Counties Not in Upper Trinity GCD								
Brown	Region F	Brazos	48	48	48	48	48	48
Brown	Region F	Colorado	1,007	1,004	1,007	1,004	1,007	1,004
Callahan	Region G	Brazos	444	443	444	443	444	443
Callahan	Region G	Colorado	1,285	1,282	1,285	1,282	1,285	1,282
Collin	Region C	Trinity	1,966	1,961	1,966	1,961	1,966	1,961
Comanche	Region G	Brazos	5,855	5,839	5,855	5,839	5,855	5,839
Cooke	Region C	Red	2,191	2,184	2,191	2,184	2,191	2,184
Cooke	Region C	Trinity	8,353	8,330	8,353	8,330	8,353	8,330
Denton	Region C	Trinity	16,591	16,545	16,591	16,545	16,591	16,545
Eastland	Region G	Brazos	5,194	5,180	5,194	5,180	5,194	5,180
Eastland	Region G	Colorado	553	552	553	552	553	552
Erath	Region G	Brazos	2,636	2,628	2,636	2,628	2,636	2,628
Fannin	Region C	Red	0	0	0	0	0	0
Fannin	Region C	Sulphur	0	0	0	0	0	0
Fannin	Region C	Trinity	0	0	0	0	0	0
Grayson	Region C	Red	6,678	6,660	6,678	6,660	6,678	6,660
Grayson	Region C	Trinity	4,059	4,048	4,059	4,048	4,059	4,048
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	0	0	0	0	0	0
Red River	Northeast Texas	Red	0	0	0	0	0	0
Tarrant	Region C	Trinity	1,251	1,248	1,251	1,248	1,251	1,248
Taylor	Region G	Brazos	5	5	5	5	5	5
Taylor	Region G	Colorado	9	9	9	9	9	9
Subtotal			**58,125**	**57,966**	**58,125**	**57,966**	**58,125**	**57,966**
Counties in Upper Trinity GCD								
Montague (outcrop)	Region B	Red	154	154	154	154	154	154
Montague (outcrop)	Region B	Trinity	3,732	3,721	3,732	3,721	3,732	3,721
Parker (outcrop)	Region C	Brazos	257	256	257	256	257	256
Parker (outcrop)	Region C	Trinity	2,648	2,640	2,648	2,640	2,648	2,640
Wise (outcrop)	Region C	Trinity	7,698	7,677	7,698	7,677	7,698	7,677

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Wise (downdip)	Region C	Trinity	2,062	2,057	2,062	2,057	2,062	2,057
Subtotal			**16,551**	**16,505**	**16,551**	**16,505**	**16,551**	**16,505**
Groundwater Management Area 8			**74,676**	**74,471**	**74,676**	**74,471**	**74,676**	**74,471**

TABLE 20. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE WOODBINE AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Collin	Region C	Sabine	0	0	0	0	0	0
Collin	Region C	Trinity	4,263	4,251	4,263	4,251	4,263	4,251
Cooke	Region C	Red	262	261	262	261	262	261
Cooke	Region C	Trinity	540	538	540	538	540	538
Dallas	Region C	Trinity	2,804	2,796	2,804	2,796	2,804	2,796
Denton	Region C	Trinity	3,616	3,607	3,616	3,607	3,616	3,607
Ellis	Region C	Trinity	2,078	2,073	2,078	2,073	2,078	2,073
Fannin	Region C	Red	3,553	3,544	3,553	3,544	3,553	3,544
Fannin	Region C	Sulphur	551	550	551	550	551	550
Fannin	Region C	Trinity	829	827	829	827	829	827
Grayson	Region C	Red	5,615	5,599	5,615	5,599	5,615	5,599
Grayson	Region C	Trinity	1,926	1,922	1,926	1,922	1,926	1,922
Hill	Region G	Brazos	285	284	285	284	285	284
Hill	Region G	Trinity	303	302	303	302	303	302
Hunt	Northeast Texas	Sabine	269	268	269	268	269	268
Hunt	Northeast Texas	Sulphur	165	165	165	165	165	165
Hunt	Northeast Texas	Trinity	330	329	330	329	330	329
Johnson	Region G	Brazos	24	24	24	24	24	24
Johnson	Region G	Trinity	1,961	1,956	1,961	1,956	1,961	1,956
Kaufman	Region C	Trinity	0	0	0	0	0	0
Lamar	Northeast Texas	Red	0	0	0	0	0	0
Lamar	Northeast Texas	Sulphur	49	49	49	49	49	49
McLennan	Region G	Brazos	0	0	0	0	0	0
Navarro	Region C	Trinity	68	68	68	68	68	68
Red River	Northeast Texas	Red	2	2	2	2	2	2
Rockwall	Region C	Trinity	0	0	0	0	0	0
Tarrant	Region C	Trinity	1,141	1,138	1,141	1,138	1,141	1,138
Groundwater Management Area 8			**30,634**	**30,553**	**30,634**	**30,553**	**30,634**	**30,553**

TABLE 21. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE EDWARDS (BALCONES FAULT ZONE) AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN. MODELED AVAILABLE GROUNDWATER VALUES ARE FROM GAM RUN 08-010MAG BY ANAYA (2008).

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Bell	Region G	Brazos	6,469	6,469	6,469	6,469	6,469	6,469
Travis	Lower Colorado	Brazos	275	275	275	275	275	275
Travis	Lower Colorado	Colorado	4,962	4,962	4,962	4,962	4,962	4,962
Williamson	Region G	Brazos	3,351	3,351	3,351	3,351	3,351	3,351
Williamson	Region G	Colorado	101	101	101	101	101	101
Williamson	Lower Colorado	Brazos	6	6	6	6	6	6
Williamson	Lower Colorado	Colorado	4	4	4	4	4	4
Groundwater Management Area 8			**15,168**	**15,168**	**15,168**	**15,168**	**15,168**	**15,168**

TABLE 22. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE MARBLE FALLS AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Brown	Region F	Colorado	25	25	25	25	25	25
Burnet	Lower Colorado	Brazos	1,387	1,383	1,387	1,383	1,387	1,383
Burnet	Lower Colorado	Colorado	1,357	1,353	1,357	1,353	1,357	1,353
Lampasas	Region G	Brazos	1,958	1,952	1,958	1,952	1,958	1,952
Lampasas	Region G	Colorado	887	885	887	885	887	885
Mills	Lower Colorado	Brazos	1	1	1	1	1	1
Mills	Lower Colorado	Colorado	24	24	24	24	24	24
Groundwater Management Area 8			**5,639**	**5,623**	**5,639**	**5,623**	**5,639**	**5,623**

TABLE 23. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE ELLENBURGER-SAN SABA AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Brown	Region F	Colorado	131	131	131	131	131	131
Burnet	Lower Colorado	Brazos	3,833	3,822	3,833	3,822	3,833	3,822
Burnet	Lower Colorado	Colorado	7,024	7,005	7,024	7,005	7,024	7,005
Lampasas	Region G	Brazos	1,685	1,680	1,685	1,680	1,685	1,680
Lampasas	Region G	Colorado	916	913	916	913	916	913
Mills	Lower Colorado	Brazos	93	93	93	93	93	93
Mills	Lower Colorado	Colorado	407	406	407	406	407	406
Groundwater Management Area 8			**14,089**	**14,050**	**14,089**	**14,050**	**14,089**	**14,050**

TABLE 24. MODELED AVAILABLE GROUNDWATER BY DECADE FOR THE HICKORY AQUIFER IN GROUNDWATER MANAGEMENT AREA 8. RESULTS ARE IN ACRE-FEET PER YEAR AND ARE SUMMARIZED BY COUNTY, REGIONAL WATER PLANNING AREA (RWPA), AND RIVER BASIN.

County	RWPA	River Basin	2020	2030	2040	2050	2060	2070
Brown	Region F	Colorado	12	12	12	12	12	12
Burnet	Lower Colorado	Brazos	1,240	1,236	1,240	1,236	1,240	1,236
Burnet	Lower Colorado	Colorado	2,183	2,177	2,183	2,177	2,183	2,177
Lampasas	Region G	Brazos	80	79	80	79	80	79
Lampasas	Region G	Colorado	34	34	34	34	34	34
Mills	Lower Colorado	Brazos	7	7	7	7	7	7
Mills	Lower Colorado	Colorado	29	29	29	29	29	29
Groundwater Management Area 8			**3,585**	**3,574**	**3,585**	**3,574**	**3,585**	**3,574**

LIMITATIONS:

The groundwater model used in completing this analysis is the best available scientific tool that can be used to meet the stated objectives. To the extent that this analysis will be used for planning purposes and/or regulatory purposes related to pumping in the past and into the future, it is important to recognize the assumptions and limitations associated with the use of the results. In reviewing the use of models in environmental regulatory decision making, the National Research Council (2007) noted:

> *"Models will always be constrained by computational limitations, assumptions, and knowledge gaps. They can best be viewed as tools to help inform decisions rather than as machines to generate truth or make decisions. Scientific advances will never make it possible to build a perfect model that accounts for every aspect of reality or to prove that a given model is correct in all respects for a particular regulatory application. These characteristics make evaluation of a regulatory model more complex than solely a comparison of measurement data with model results."*

A key aspect of using the groundwater model to evaluate historic groundwater flow conditions includes the assumptions about the location in the aquifer where historic pumping was placed. Understanding the amount and location of historic pumping is as important as evaluating the volume of groundwater flow into and out of the district, between aquifers within the district (as applicable), interactions with surface water (as applicable), recharge to the aquifer system (as applicable), and other metrics that describe the impacts of that pumping. In addition, assumptions regarding precipitation, recharge, and streamflow are specific to a particular historic time period.

Because the application of the groundwater model was designed to address regional scale questions, the results are most effective on a regional scale. The TWDB makes no warranties or representations relating to the actual conditions of any aquifer at a particular location or at a particular time.

It is important for groundwater conservation districts to monitor groundwater pumping and groundwater levels in the aquifer. Because of the limitations of the groundwater model and the assumptions in this analysis, it is important that the groundwater conservation districts work with the TWDB to refine this analysis in the future given the reality of how the aquifer responds to the actual amount and location of pumping now and in the future. Historic precipitation patterns also need to be placed in context as future climatic conditions, such as dry and wet year precipitation patterns, may differ and affect groundwater flow conditions.

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Appendix A

Comparison between Desired Future Conditions and Simulated Drawdowns for the Trinity and Woodbine Aquifers

Drawdown values for the Trinity and Woodbine aquifers between 2009 and 2070 were based on the simulated head values at individual model cells extracted from predictive simulation head file submitted by Groundwater Management Area 8.

The Paluxy, Glen Rose, Twin Mountains, Travis Peak, Hensell, Hosston, and Antlers are subunits of the Trinity Aquifer. These subunits and Woodbine Aquifer exist in both outcrop and downdip areas (Figures 1 through 8). Kelley and others (2014) further divided these aquifers into five (5) regions, each with unique aquifer combinations and properties (table below and Figures 1 through 8).

<table>
<tr><th>Model Layer</th><th>Region 1</th><th>Region 2</th><th>Region 3</th><th>Region 4</th><th>Region 5</th></tr>
<tr><td>2</td><td colspan="3">Woodbine</td><td>Woodbine (no sand)</td><td></td></tr>
<tr><td>3</td><td colspan="5">Washita/Fredericksburg</td></tr>
<tr><td>4</td><td rowspan="5">Antlers</td><td colspan="3">Paluxy</td><td>Paluxy (no sand)</td></tr>
<tr><td>5</td><td colspan="4">Glen Rose</td></tr>
<tr><td>6</td><td rowspan="3">Twin Mountains</td><td rowspan="3">Travis Peak</td><td>Hensell</td><td rowspan="3">Travis Peak</td><td>Hensell</td></tr>
<tr><td>7</td><td>Pearsall/Sligo</td><td>Pearsall/Sligo</td></tr>
<tr><td>8</td><td>Hosston</td><td>Hosston</td></tr>
</table>

Vertically, the Trinity and Woodbine aquifers could contain multiple model layers and some of the model cells are pass-through cells with a thickness of one foot. To account for variable model cells from multiple model layers for the same aquifer, Beach and others (2016) adopted a method presented by Van Kelley of INTERA, Inc., which calculated a single composite head from multiple model cells with each adjusted by transmissivity. This composite head took both the head and hydraulic transmissivity at each cell into calculation, as shown in the following equation:

$$Hc = \frac{\sum_{i=UL}^{LL} T_i H_i}{\sum_{i=UL}^{LL} T_i}$$

Where:

Hc = Composite Head (feet above mean sea level)

T_i = Transmissivity of model layer i (square feet per day)

H_i = Head of model layer i (feet above mean sea level)

LL = Lowest model layer representing the regional aquifer

UL = Uppermost model layer representing the regional aquifer.

The average head for the same aquifer in a county (*Hc_County*) was then calculated using the following equation:

$$Hc\_County = \frac{\sum_{i=1}^{n} Hc_i}{n}$$

Where:

Hc_County = Average composite head for a county (feet above mean sea level)

Hc_i = Composite Head at a lateral location as defined in last step (feet above mean sea level)

n = Total lateral (row, column) locations of an aquifer in a county.

Drawdown of the aquifer in a county (*DD_County*) was calculated using the following equation:

$$DD\_County = Hc\_County_{2009} - Hc\_County_{2070}$$

Where:

Hc_County_{2009} = Average head of an aquifer in a county in 2009 as defined above (feet above mean sea level)

Hc_County_{2070} = Average head of an aquifer in a county in 2070 as defined above (feet above mean sea level).

Model cells with head values below the cell bottom in 2009 were excluded from the calculation. Also, head was set at the cell bottom if it fell below the cell bottom at 2070.

In comparison with a simple average calculation based on total model cell count, use of composite head gives less weight to cells with lower transmissivity values (such as pass-through cells, cells with low saturation in outcrop area, or cells with lower hydraulic conductivity) in head and drawdown calculation.

Per Groundwater Management Area 8, a desired future condition was met if the simulated drawdown from the desired future condition was within five percent or five feet. Using the head output file submitted by Groundwater Management Area 8 and the method described above, the TWDB calculated the drawdowns (Tables A1 and A2) and performed the comparison against the corresponding desired future conditions by county (Tables A3, A4, A5, and A6). The review by the TWDB indicates that the predictive simulation meets the desired future conditions (Tables A7 and A8).

TABLE A1. SIMULATED DRAWDOWN VALUES OF THE TRINITY AND WOODBINE AQUIFERS FOR COUNTIES NOT IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. DRAWDOWNS ARE IN FEET.

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	19	83	—	294	137	330	—
Bosque	—	6	49	—	167	129	201	—
Brown	—	—	2	—	1	1	1	2
Burnet	—	—	2	—	16	7	20	—
Callahan	—	—	—	—	—	—	—	1
Collin	459	705	339	526	—	—	—	570
Comanche	—	—	1	—	2	2	3	9
Cooke	2	—	—	—	—	—	—	179
Coryell	—	7	14	—	100	66	130	—
Dallas	123	324	263	463	350	332	351	—
Delta	—	264	181	—	186	—	—	—
Denton	19	552	349	716	—	—	—	398
Eastland	—	—	—	—	—	—	—	3
Ellis	61	107	194	333	305	263	310	—
Erath	—	1	5	6	19	11	31	11
Falls	—	144	215	—	460	271	465	—
Fannin	247	688	280	372	269	—	—	251
Grayson	157	922	337	417	—	—	—	348
Hamilton	—	2	4	—	24	13	35	—
Hill	16	38	133	—	299	186	337	—
Hunt	598	586	299	370	324	—	—	—
Johnson	3	-61	58	156	184	126	235	—
Kaufman	208	276	269	381	323	309	295	—
Lamar	38	93	97	—	114	—	—	122
Lampasas	—	—	1	—	6	1	11	—
Limestone	—	178	271	—	393	183	404	—
McLennan	6	35	133	—	468	220	542	—
Milam	—	—	212	—	344	229	345	—
Mills	—	1	1	—	7	2	13	—
Navarro	92	119	232	—	291	254	291	—
Red River	2	21	36	—	51	—	—	13
Rockwall	243	401	311	426	—	—	—	—
Somervell	—	1	4	31	52	26	83	—
Tarrant	6	101	148	315	—	—	—	149

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Taylor	—	—	—	—	—	—	—	0
Travis	—	—	85	—	142	51	148	—
Williamson	—	—	76	—	172	73	176	—

—: Not available.

TABLE A2. SIMULATED DRAWDOWN VALUES OF THE TRINITY AQUIFER FOR COUNTIES IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. DRAWDOWNS ARE IN FEET.

County	Paluxy	Glen Rose	Twin Mountains	Antlers
Hood (outcrop)	5	7	4	—
Hood (downdip)	—	27	46	—
Montague (outcrop)	—	—	—	18
Montague (downdip)	—	—	—	—
Parker (outcrop)	5	10	1	11
Parker (downdip)	1	28	46	—
Wise (outcrop)	—	—	—	35
Wise (downdip)	—	—	—	142

—: Not available.

TABLE A3. RELATIVE DIFFERENCE BETWEEN SIMULATED DRAWDOWNS AND DESIRED FUTURE CONDITIONS OF THE TRINITY AND WOODBINE AQUIFERS FOR COUNTIES NOT IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. VALUES GREATER THAN THE ERROR TOLERANCE OF FIVE PERCENT ARE HIGHLIGHTED.

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	0%	0%	—	-2%	0%	0%	—
Bosque	—	0%	0%	—	0%	0%	0%	—
Brown	—	—	0%	—	0%	0%	0%	0%
Burnet	—	—	0%	—	0%	0%	0%	—
Callahan	—	—	—	—	—	—	—	0%
Collin	0%	0%	0%	0%	—	—	—	0%
Comanche	—	—	0%	—	0%	0%	0%	0%
Cooke	0%	—	—	—	—	—	—	2%
Coryell	—	0%	0%	—	1%	0%	0%	—
Dallas	0%	0%	0%	0%	1%	0%	0%	—
Delta	—	0%	0%	—	0%	—	—	—
Denton	-16%	0%	0%	0%	—	—	—	1%
Eastland	—	—	—	—	—	—	—	0%
Ellis	0%	0%	0%	0%	1%	0%	0%	—
Erath	—	0%	0%	0%	0%	0%	0%	-9%
Falls	—	0%	0%	—	0%	0%	0%	—
Fannin	0%	0%	0%	0%	0%	—	—	0%
Grayson	-2%	0%	0%	0%	—	—	—	0%
Hamilton	—	0%	0%	—	0%	0%	0%	—
Hill	-25%	0%	0%	—	0%	0%	0%	—
Hunt	0%	0%	0%	0%	0%	—	—	—
Johnson	33%	0%	0%	0%	3%	0%	0%	—
Kaufman	0%	0%	0%	0%	0%	0%	0%	—
Lamar	0%	0%	0%	—	0%	—	—	0%
Lampasas	—	—	0%	—	0%	0%	0%	—
Limestone	—	0%	0%	—	0%	0%	0%	—
McLen—n	0%	0%	0%	—	-1%	0%	0%	—
Milam	—	—	0%	—	0%	0%	0%	—
Mills	—	0%	0%	—	0%	0%	0%	—
—varro	0%	0%	0%	—	0%	0%	0%	—
Red River	0%	0%	0%	—	0%	—	—	0%
Rockwall	0%	0%	0%	0%	—	—	—	—

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Somervell	—	0%	0%	0%	2%	0%	0%	—
Tarrant	-17%	0%	0%	0%	—	—	—	1%
Taylor	—	—	—	—	—	—	—	0%
Travis	—	—	0%	—	1%	2%	1%	—
Williamson	—	—	-1%	—	-1%	-1%	-1%	—

—: Not available.

TABLE A4. RELATIVE DIFFERENCE BETWEEN SIMULATED DRAWDOWNS AND DESIRED FUTURE CONDITIONS OF THE TRINITY AQUIFER FOR COUNTIES IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. VALUES GREATER THAN THE ERROR TOLERANCE OF FIVE PERCENT ARE HIGHLIGHTED.

County	Paluxy	Glen Rose	Twin Mountains	Antlers
Hood (outcrop)	0%	0%	0%	—
Hood (downdip)	—	-4%	0%	—
Montague (outcrop)	—	—	—	0%
Montague (downdip)	—	—	—	—
Parker (outcrop)	0%	0%	0%	0%
Parker (downdip)	0%	0%	0%	—
Wise (outcrop)	—	—	—	3%
Wise (downdip)	—	—	—	0%

—: Not available.

TABLE A5. DIFFERENCE BETWEEN SIMULATED DRAWDOWNS AND DESIRED FUTURE CONDITIONS OF THE TRINITY AND WOODBINE AQUIFERS FOR COUNTIES NOT IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. VALUES GREATER THAN THE ERROR TOLERANCE OF FIVE FEET ARE HIGHLIGHTED.

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	0	0	—	-6	0	0	—
Bosque	—	0	0	—	0	0	0	—
Brown	—	—	0	—	0	0	0	0
Burnet	—	—	0	—	0	0	0	—
Callahan	—	—	—	—	—	—	—	0
Collin	0	0	0	0	—	—	—	0
Comanche	—	—	0	—	0	0	0	0
Cooke	0	—	—	—	—	—	—	3
Coryell	—	0	0	—	1	0	0	—
Dallas	0	0	0	0	2	0	0	—
Delta	—	0	0	—	0	—	—	—
Denton	-3	0	0	0	—	—	—	3
Eastland	—	—	—	—	—	—	—	0
Ellis	0	0	0	0	4	0	0	—
Erath	—	0	0	0	0	0	0	-1
Falls	—	0	0	—	-2	0	0	—
Fannin	0	0	0	0	0	—	—	0
Grayson	-3	0	0	0	—	—	—	0
Hamilton	—	0	0	—	0	0	0	—
Hill	-4	0	0	—	1	0	0	—
Hunt	0	0	0	0	0	—	—	—
Johnson	1	0	0	0	5	0	0	—
Kaufman	0	0	0	0	0	0	0	—
Lamar	0	0	0	—	0	—	—	0
Lampasas	—	—	0	—	0	0	0	—
Limestone	—	0	0	—	1	0	0	—
McLennan	0	0	0	—	-3	0	0	—
Milam	—	—	0	—	-1	0	0	—
Mills	—	0	0	—	0	0	0	—
Navarro	0	0	0	—	1	0	0	—
Red River	0	0	0	—	0	—	—	0
Rockwall	0	0	0	0	—	—	—	—

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Somervell	—	0	0	0	1	0	0	—
Tarrant	-1	0	0	0	—	—	—	1
Taylor	—	—	—	—	—	—	—	0
Travis	—	—	0	—	1	1	2	—
Williamson	—	—	-1	—	-1	-1	-1	—

—: Not available.

TABLE A6. DIFFERENCE BETWEEN SIMULATED DRAWDOWNS AND DESIRED FUTURE CONDITIONS OF THE TRINITY AQUIFER FOR COUNTIES IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. NO VALUES ARE GREATER THAN THE ERROR TOLERANCE OF FIVE FEET.

County	Paluxy	Glen Rose	Twin Mountains	Antlers
Hood (outcrop)	0	0	0	—
Hood (downdip)	—	-1	0	—
Montague (outcrop)	—	—	—	0
Montague (downdip)	—	—	—	—
Parker (outcrop)	0	0	0	0
Parker (downdip)	0	0	0	—
Wise (outcrop)	—	—	—	1
Wise (downdip)	—	—	—	0

—: Not available.

TABLE A7. COMPARISON OF SIMULATED DRAWDOWNS WITH THE DESIRED FUTURE CONDITIONS OF THE TRINITY AND WOODBINE AQUIFERS FOR COUNTIES NOT IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. NO VALUES ARE GREATER THAN BOTH ERROR TOLERRANCES OF FIVE PERCENT AND FIVE FEET AT THE SAME TIME. THUS, PREDICTIVE SIMULATION MEETS ALL DESIRED FUTURE CONDITIONS.

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Bell	—	MEET	MEET	—	MEET	MEET	MEET	—
Bosque	—	MEET	MEET	—	MEET	MEET	MEET	—
Brown	—	—	MEET	—	MEET	MEET	MEET	MEET
Burnet	—	—	MEET	—	MEET	MEET	MEET	—
Callahan	—	—	—	—	—	—	—	MEET
Collin	MEET	MEET	MEET	MEET	—	—	—	MEET
Comanche	—	—	MEET	—	MEET	MEET	MEET	MEET
Cooke	MEET	—	—	—	—	—	—	MEET
Coryell	—	MEET	MEET	—	MEET	MEET	MEET	—
Dallas	MEET	MEET	MEET	MEET	MEET	MEET	MEET	—
Delta	—	MEET	MEET	—	MEET	—	—	—
Denton	MEET	MEET	MEET	MEET	—	—	—	MEET
Eastland	—	—	—	—	—	—	—	MEET
Ellis	MEET	MEET	MEET	MEET	MEET	MEET	MEET	—
Erath	—	MEET	MEET	MEET	MEET	MEET	MEET	MEET
Falls	—	MEET	MEET	—	MEET	MEET	MEET	—
Fannin	MEET	MEET	MEET	MEET	MEET	—	—	MEET
Grayson	MEET	MEET	MEET	MEET	—	—	—	MEET
Hamilton	—	MEET	MEET	—	MEET	MEET	MEET	—
Hill	MEET	MEET	MEET	—	MEET	MEET	MEET	—
Hunt	MEET	MEET	MEET	MEET	MEET	—	—	—
Johnson	MEET	MEET	MEET	MEET	MEET	MEET	MEET	—
Kaufman	MEET	MEET	MEET	MEET	MEET	MEET	MEET	—
Lamar	MEET	MEET	MEET	—	MEET	—	—	MEET
Lampasas	—	—	MEET	—	MEET	MEET	MEET	—
Limestone	—	MEET	MEET	—	MEET	MEET	MEET	—
McLennan	MEET	MEET	MEET	—	MEET	MEET	MEET	—
Milam	—	—	MEET	—	MEET	MEET	MEET	—
Mills	—	MEET	MEET	—	MEET	MEET	MEET	—
Navarro	MEET	MEET	MEET	—	MEET	MEET	MEET	—

County	Woodbine	Paluxy	Glen Rose	Twin Mountains	Travis Peak	Hensell	Hosston	Antlers
Red River	MEET	MEET	MEET	—	MEET	—	—	MEET
Rockwall	MEET	MEET	MEET	MEET	—	—	—	—
Somervell	—	MEET	MEET	MEET	MEET	MEET	MEET	—
Tarrant	MEET	MEET	MEET	MEET	—	—	—	MEET
Taylor	—	—	—	—	—	—	—	MEET
Travis	—	—	MEET	—	MEET	MEET	MEET	—
Williamson	—	—	MEET	—	MEET	MEET	MEET	—

—: Not available.

TABLE A8. COMPARISON OF SIMULATED DRAWDOWNS WITH THE DESIRED FUTURE CONDITIONS OF THE TRINITY AQUIFER FOR COUNTIES IN THE UPPER TRINITY GROUNDWATER CONSERVATION DISTRICT. NO VALUES ARE GREATER THAN BOTH ERROR TOLERRANCES OF FIVE PERCENT AND FIVE FEET AT THE SAME TIME. THUS, PREDICTIVE SIMULATION MEETS ALL DESIRED FUTURE CONDITIONS.

County	Paluxy	Glen Rose	Twin Mountains	Antlers
Hood (outcrop)	MEET	MEET	MEET	—
Hood (downdip)	—	MEET	MEET	—
Montague (outcrop)	—	—	—	MEET
Montague (downdip)	—	—	—	—
Parker (outcrop)	MEET	MEET	MEET	MEET
Parker (downdip)	MEET	MEET	MEET	—
Wise (outcrop)	—	—	—	MEET
Wise (downdip)	—	—	—	MEET

—: Not available.

Appendix B

Comparison between Desired Future Conditions and Simulated Saturated Thickness for the Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Brown, Burnet, Lampasas, and Mills Counties

The predictive simulation used to evaluate the desired future conditions and the modeled available groundwater values for the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties within Groundwater Management Area 8 involves rewriting all relevant MODFLOW-USG packages to reflect the predictive simulation. The initial pumping for the predictive simulation was based on the last stress period of the groundwater availability model. In its clarification, Groundwater Management Area 8 also provided estimated pumping to use for the predictive simulation by TWDB (Table B1).

These pumping values from Groundwater Management Area 8 are more than the pumpage from the last stress period of the groundwater availability model. This surplus pumping for each aquifer was redistributed uniformly in each county according to its modeled extent.

The head file from the model output was used to calculate the remaining saturated thickness (*ST*) within the modeled extent for each aquifer between 2009 and 2070 using the following equation:

$$ST = \frac{\sum_{i=1}^{n}\left(h2070_i - e_i\right)}{\sum_{i=1}^{n}\left(h2009_i - e_i\right)}$$

Where:

n = Total model cells in a county

$h2009_i$ = Head of 2009 at model cell i (feet)

$h2070_i$ = Head of 2070 at model cell i (feet)

e_i = Bottom elevation of model cell i (feet).

Model cells with head values below the cell bottom in 2009 were excluded from the calculation. Also, head was set at the cell bottom if it fell below the cell bottom at 2070.

The comparison between the simulated remaining saturated thickness and the desired future conditions is presented in Table B2. Table B2 indicates that the predictive simulation meets the desired future conditions of the Marble Falls, Ellenburger-San Saba, and Hickory aquifers in Brown, Burnet, Lampasas, and Mills counties.

TABLE B1. GROUNDWATER PUMPING RATES FOR THE MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN BROWN, BURNET, LAMPASAS, AND MILLS COUNTIES PROVIDED BY GROUNDWATER MNAAGMENT AREA 8.

County	Aquifer	2010 to 2070 (acre-feet per year)
Burnet	Marble Falls	2,736
Lampasas	Marble Falls	2,837
Brown	Marble Falls	25
Mills	Marble Falls	25
Burnet	Ellenburger-San Saba	10,827
Lampasas	Ellenburger-San Saba	2,593
Brown	Ellenburger-San Saba	131
Mills	Ellenburger-San Saba	499
Burnet	Hickory	3,413
Lampasas	Hickory	113
Brown	Hickory	12
Mills	Hickory	36

TABLE B2. COMPARISON BETWEEN SIMULATED REMAINING AQUIFER SATURATED THICKESS AND DESIRED FUTURE CONDITIONS OF MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN BROWN, BURNET, LAMPASAS, AND MILLS COUNTIES.

County	Aquifer	Remaining Aquifer Saturated Thickness Defined by Desired Future Condition	Simulated Remaining Aquifer Saturated Thickness	Is Desired Future Condition Met?
Brown	Marble Falls	at least 90%	99.8%	Yes
Brown	Ellenburger-San Saba	at least 90%	99.9%	Yes
Brown	Hickory	at least 90%	99.9%	Yes
Burnet	Marble Falls	at least 90%	98.8%	Yes
Burnet	Ellenburger-San Saba	at least 90%	99.3%	Yes
Burnet	Hickory	at least 90%	99.5%	Yes
Lampasas	Marble Falls	at least 90%	98.2%	Yes
Lampasas	Ellenburger-San Saba	at least 90%	99.0%	Yes
Lampasas	Hickory	at least 90%	99.5%	Yes
Mills	Marble Falls	at least 90%	99.5%	Yes
Mills	Ellenburger-San Saba	at least 90%	99.7%	Yes
Mills	Hickory	at least 90%	99.8%	Yes

Appendix C

Summary of Dry Model Cell Count for the Trinity and Woodbine Aquifers

TABLE C1. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (PALUXY) FROM THE REVISED PREDICTIVE SIMULATION.

Year	Collin	Dallas	Denton	Johnson	Tarrant
Total Active Official Aquifer Model Cells	12,062	14,532	3,520	11,627	15,389
2009 (baseline)	0	0	0	17	3
2010	0	0	9	0	3
2011	1	0	49	0	3
2012	4	0	83	0	17
2013	8	0	140	0	47
2014	35	0	196	0	91
2015	49	0	264	0	146
2016	64	0	306	0	209
2017	72	0	349	0	291
2018	83	0	385	0	373
2019	93	0	428	0	460
2020	99	0	482	0	555
2021	109	0	550	0	620
2022	115	0	622	0	684
2023	125	0	695	0	746
2024	129	0	780	0	802
2025	138	0	879	0	862
2026	147	0	957	0	919
2027	151	0	1,018	0	964
2028	159	0	1,087	0	995
2029	166	0	1,171	0	1,038
2030	173	0	1,262	0	1,072
2031	176	0	1,326	0	1,101
2032	180	0	1,379	0	1,137
2033	187	0	1,420	0	1,156
2034	193	0	1,461	0	1,194
2035	201	0	1,492	0	1,224
2036	204	0	1,520	0	1,240
2037	209	0	1,554	0	1,274
2038	212	0	1,584	0	1,292
2039	215	0	1,607	0	1,317
2040	217	0	1,627	0	1,347
2041	224	0	1,659	0	1,362
2042	228	0	1,682	0	1,377

Year	Collin	Dallas	Denton	Johnson	Tarrant
2043	235	0	1,710	0	1,409
2044	239	0	1,735	0	1,425
2045	242	0	1,755	0	1,438
2046	247	0	1,777	0	1,455
2047	250	0	1,790	0	1,477
2048	251	0	1,807	0	1,497
2049	253	0	1,823	0	1,517
2050	254	0	1,834	0	1,530
2051	258	2	1,847	0	1,539
2052	264	2	1,860	0	1,562
2053	266	2	1,874	0	1,585
2054	270	3	1,883	0	1,594
2055	272	3	1,893	0	1,606
2056	275	3	1,902	0	1,621
2057	276	3	1,923	0	1,634
2058	280	4	1,929	0	1,650
2059	282	4	1,934	0	1,666
2060	286	4	1,943	0	1,679
2061	288	4	1,947	0	1,693
2062	288	4	1,961	0	1,701
2063	290	5	1,973	0	1,712
2064	291	5	1,977	0	1,726
2065	292	5	1,988	0	1,739
2066	295	5	1,996	0	1,752
2067	297	6	2,002	0	1,760
2068	300	7	2,009	0	1,769
2069	304	7	2,017	0	1,778
2070	305	7	2,024	0	1,784

TABLE C2. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (GLEN ROSE) FROM THE REVISED PREDICTIVE SIMULATION.

Year	Bell	Burnet	Coryell	Erath	Hamilton	Hood	Johnson	Mills	Parker	Travis
Total Active Official Aquifer Model Cells	23,737	22,534	41,647	20,905	36,944	14,461	12,342	10,615	11,389	14,552
2009 (baseline)	0	0	11	0	0	0	15	0	8	25
2010	0	0	11	0	0	0	15	0	9	29
2011	0	0	11	0	0	0	15	0	12	29
2012	0	0	11	0	0	0	15	0	15	29
2013	0	0	11	1	0	0	15	1	19	29
2014	0	1	11	1	0	1	15	1	22	31
2015	0	1	11	1	0	1	15	1	23	32
2016	0	1	12	1	0	1	15	1	30	33
2017	0	1	12	2	0	2	15	1	37	34
2018	0	1	12	3	0	2	15	1	38	34
2019	0	1	14	3	0	2	16	1	44	34
2020	0	1	14	3	0	2	16	1	46	34
2021	0	1	14	3	0	3	16	1	48	35
2022	0	1	14	3	0	3	16	1	49	38
2023	0	1	14	3	0	3	17	1	54	41
2024	0	1	15	3	0	3	17	1	58	45
2025	0	1	15	3	0	3	17	1	65	47
2026	0	1	15	3	0	5	19	1	72	48
2027	0	1	15	4	0	5	21	1	78	50
2028	0	1	15	4	0	5	21	1	82	51
2029	0	1	15	4	0	6	22	1	84	51
2030	0	1	15	4	0	6	22	1	90	54
2031	0	1	15	8	0	6	22	1	99	54
2032	0	1	15	8	0	8	23	1	103	55
2033	0	1	15	8	0	8	23	1	105	56
2034	0	1	15	9	0	9	23	1	108	56
2035	0	1	15	9	0	10	23	1	109	57
2036	0	1	15	9	0	12	23	1	110	58
2037	0	1	15	9	0	13	23	1	110	58
2038	0	1	15	9	0	14	23	1	113	59

Year	Bell	Burnet	Coryell	Erath	Hamilton	Hood	Johnson	Mills	Parker	Travis
2039	0	2	15	9	0	14	23	1	113	59
2040	0	2	15	9	0	14	23	1	116	60
2041	0	2	15	9	0	16	23	1	119	60
2042	0	2	15	10	1	16	23	1	122	61
2043	0	2	15	10	2	16	23	1	124	61
2044	0	2	15	10	2	18	24	1	125	62
2045	0	2	15	10	2	18	25	1	131	63
2046	0	2	15	10	2	18	25	1	131	63
2047	0	2	16	10	3	18	25	1	134	64
2048	0	2	16	10	4	18	26	1	137	64
2049	0	2	16	11	4	20	26	1	139	65
2050	0	2	16	11	4	22	26	1	143	65
2051	0	2	16	12	5	22	29	1	144	66
2052	1	2	16	12	5	22	31	1	147	66
2053	3	2	16	12	7	24	32	1	149	67
2054	4	2	17	12	7	27	32	1	151	67
2055	4	2	17	12	7	27	34	1	152	67
2056	4	2	17	12	7	30	34	1	152	68
2057	6	2	17	13	7	31	34	1	156	69
2058	7	2	17	13	7	31	34	1	159	69
2059	7	2	17	13	7	31	34	1	164	69
2060	7	2	17	13	8	34	34	1	166	69
2061	7	2	17	13	8	34	34	1	165	69
2062	7	2	17	13	9	35	34	1	168	69
2063	7	2	17	14	9	36	34	1	168	69
2064	7	2	17	16	9	36	34	1	172	69
2065	8	2	17	16	9	36	34	2	176	69
2066	8	2	17	16	10	36	34	2	180	69
2067	8	3	17	19	10	36	34	2	184	69
2068	8	3	17	19	11	38	34	2	188	69
2069	8	3	17	20	11	38	34	2	191	69
2070	8	4	17	20	11	41	34	2	194	69

TABLE C3. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (TWIN MOUNTAINS) FROM THE REVISED PREDICTIVE SIMULATION.

Year	Denton	Erath	Hood	Johnson	Parker	Tarrant
Total Active Official Aquifer Model Cells	10,560	46,642	37,444	6,816	30,830	40,713
2009 (baseline)	0	20	0	0	0	0
2010	0	27	0	0	0	0
2011	0	33	0	0	0	0
2012	0	40	0	0	0	0
2013	0	44	0	0	0	0
2014	0	48	0	0	0	0
2015	0	53	0	0	0	0
2016	0	56	0	0	0	0
2017	0	61	0	0	0	0
2018	0	65	0	0	0	0
2019	0	68	1	0	0	0
2020	0	71	1	0	0	0
2021	0	76	1	0	1	0
2022	0	80	1	0	4	0
2023	0	81	1	0	8	2
2024	0	85	4	0	13	6
2025	0	88	7	0	16	10
2026	0	91	15	0	17	16
2027	0	94	18	0	18	25
2028	0	97	23	0	18	32
2029	0	101	28	0	23	36
2030	0	107	33	0	24	41
2031	1	108	41	0	25	48
2032	1	111	46	0	25	53
2033	1	119	56	0	26	56
2034	1	122	64	0	27	66
2035	1	123	68	0	27	74
2036	2	126	75	0	29	93
2037	2	131	82	0	29	127
2038	2	134	95	0	30	170
2039	2	136	100	0	31	231
2040	2	137	114	0	32	289
2041	2	143	129	0	32	354

Year	Denton	Erath	Hood	Johnson	Parker	Tarrant
2042	2	146	137	0	32	426
2043	2	150	150	0	32	500
2044	2	154	165	0	32	587
2045	3	157	178	0	34	648
2046	4	161	194	0	35	711
2047	4	167	212	0	36	767
2048	4	171	228	0	38	832
2049	5	174	242	0	38	889
2050	7	176	251	0	38	930
2051	8	178	262	0	38	996
2052	8	181	272	2	38	1,057
2053	9	184	282	7	38	1,114
2054	9	186	297	13	39	1,169
2055	9	189	313	19	40	1,234
2056	10	194	320	26	40	1,303
2057	11	196	330	33	41	1,366
2058	14	207	336	41	42	1,435
2059	14	211	341	49	42	1,508
2060	15	221	351	57	42	1,595
2061	16	221	363	67	43	1,681
2062	17	223	368	75	43	1,783
2063	18	224	375	83	43	1,899
2064	20	228	385	94	45	1,988
2065	22	229	393	105	46	2,104
2066	23	231	401	115	47	2,188
2067	24	233	408	130	47	2,285
2068	27	236	416	139	47	2,364
2069	31	240	424	155	47	2,468
2070	35	242	429	168	47	2,553

TABLE C4. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (TRAVIS PEAK) FROM THE REVISED PREDICTIVE SIMULATION.

Year	Burnet	Comanche	Erath	Johnson	Lampasas	McLennan	Travis
Total Active Official Aquifer Model Cells	46,474	78,137	39,220	28,386	63,905	50,973	30,318
2009 (baseline)	217	0	0	0	1	0	57
2010	176	0	1	0	1	0	59
2011	186	0	1	0	1	0	60
2012	218	0	1	0	1	0	63
2013	249	0	1	0	1	0	65
2014	271	0	1	0	1	0	68
2015	291	0	1	0	1	0	68
2016	314	0	3	0	1	0	70
2017	331	0	4	0	1	0	70
2018	345	0	5	0	1	0	71
2019	363	0	6	0	1	0	72
2020	378	0	11	0	1	0	72
2021	394	0	17	0	1	0	74
2022	400	0	29	0	1	0	74
2023	414	0	59	0	1	0	76
2024	424	0	93	0	1	0	77
2025	438	1	114	0	1	0	77
2026	450	9	130	0	1	0	79
2027	463	14	160	0	1	0	80
2028	474	14	183	0	1	0	80
2029	483	18	205	0	1	0	82
2030	494	30	238	0	1	0	82
2031	505	34	266	0	1	0	83
2032	512	35	299	0	1	0	83
2033	520	41	328	0	1	0	84
2034	527	54	343	0	1	0	85
2035	533	67	351	0	1	0	85
2036	543	72	370	0	1	0	87
2037	545	77	398	0	1	0	88
2038	554	85	414	0	1	0	88
2039	564	94	421	0	1	0	90
2040	571	103	435	0	1	1	90
2041	579	111	453	0	1	1	91
2042	588	116	481	0	1	1	92

Year	Burnet	Comanche	Erath	Johnson	Lampasas	McLennan	Travis
2043	599	116	497	0	1	1	93
2044	604	121	507	0	1	1	93
2045	609	128	520	0	1	1	94
2046	618	138	538	0	1	1	95
2047	623	146	557	0	1	2	97
2048	629	152	590	0	1	2	97
2049	634	160	606	0	1	2	98
2050	640	166	620	0	1	2	99
2051	644	172	638	1	1	2	100
2052	648	180	651	1	1	2	100
2053	654	186	665	1	1	2	101
2054	658	190	678	1	1	2	102
2055	670	194	690	1	1	2	103
2056	675	196	699	1	1	2	103
2057	678	199	711	1	1	2	104
2058	692	206	723	1	1	2	105
2059	702	216	746	1	1	2	106
2060	717	222	774	1	1	2	106
2061	714	225	776	1	1	2	106
2062	719	227	790	1	1	2	107
2063	723	231	799	1	1	3	107
2064	728	235	813	2	1	3	109
2065	730	238	822	3	1	3	109
2066	730	245	832	3	1	3	109
2067	734	252	841	3	1	3	110
2068	741	258	850	3	1	3	110
2069	745	264	861	6	1	3	111
2070	748	269	871	7	1	3	112

TABLE C5. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (HENSELL) FROM THE REVISED PREDICTIVE SIMULATION.

Year	Erath	Lampasas
Total Active Official Aquifer Model Cells	21,880	25,364
2009 (baseline)	0	1
2010	0	1
2011	0	1
2012	0	1
2013	0	1
2014	0	1
2015	0	1
2016	0	1
2017	0	1
2018	0	1
2019	0	1
2020	0	1
2021	0	1
2022	0	1
2023	0	1
2024	0	1
2025	0	1
2026	0	1
2027	0	1
2028	0	1
2029	0	1
2030	0	1
2031	0	1
2032	0	1
2033	0	1
2034	0	1
2035	0	1
2036	0	1
2037	0	1
2038	0	1
2039	0	1
2040	1	1
2041	1	1
2042	3	1
2043	3	1

Year	Erath	Lampasas
2044	3	1
2045	6	1
2046	7	1
2047	7	1
2048	12	1
2049	14	1
2050	14	1
2051	18	1
2052	20	1
2053	22	1
2054	24	1
2055	25	1
2056	25	1
2057	30	1
2058	31	1
2059	35	1
2060	37	1
2061	37	1
2062	40	1
2063	42	1
2064	42	1
2065	44	1
2066	46	1
2067	46	1
2068	48	1
2069	50	1
2070	52	1

TABLE C6. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (HOSSTON) FROM THE REVISED PREDICTIVE SIMULATION.

Year	Burnet	Comanche	Erath	Johnson	McLennan	Travis
Total Active Official Aquifer Model Cells	24,354	41,062	8,464	9,462	16,991	9,480
2009 (baseline)	217	0	0	0	0	57
2010	176	0	1	0	0	59
2011	186	0	1	0	0	60
2012	218	0	1	0	0	63
2013	247	0	1	0	0	65
2014	269	0	1	0	0	68
2015	288	0	1	0	0	68
2016	310	0	1	0	0	70
2017	325	0	1	0	0	70
2018	338	0	1	0	0	71
2019	353	0	1	0	0	72
2020	368	0	1	0	0	72
2021	382	0	2	0	0	74
2022	387	0	9	0	0	74
2023	400	0	25	0	0	76
2024	409	0	51	0	0	77
2025	423	1	66	0	0	77
2026	433	9	75	0	0	79
2027	444	14	93	0	0	80
2028	455	14	99	0	0	80
2029	463	18	105	0	0	82
2030	473	30	111	0	0	82
2031	484	34	118	0	0	83
2032	491	35	127	0	0	83
2033	498	41	132	0	0	84
2034	505	54	138	0	0	85
2035	511	67	143	0	0	85
2036	520	72	151	0	0	87
2037	522	77	158	0	0	88
2038	531	85	162	0	0	88
2039	541	94	162	0	0	90
2040	547	103	166	0	1	90
2041	555	111	174	0	1	91
2042	563	116	183	0	1	92
2043	570	116	187	0	1	93

Year	Burnet	Comanche	Erath	Johnson	McLennan	Travis
2044	575	121	192	0	1	93
2045	579	128	198	0	1	94
2046	588	138	206	0	1	95
2047	591	146	211	0	2	97
2048	597	152	219	0	2	97
2049	602	160	222	0	2	98
2050	607	166	227	0	2	99
2051	609	172	229	1	2	100
2052	613	180	232	1	2	100
2053	619	186	239	1	2	101
2054	623	190	246	1	2	102
2055	633	194	253	1	2	103
2056	637	196	259	1	2	103
2057	640	199	263	1	2	104
2058	651	206	269	1	2	105
2059	659	216	283	1	2	106
2060	673	222	294	1	2	106
2061	671	225	295	1	2	106
2062	675	227	297	1	2	107
2063	679	231	299	1	3	107
2064	684	235	305	2	3	109
2065	686	238	307	3	3	109
2066	686	245	310	3	3	109
2067	689	252	315	3	3	110
2068	696	258	317	3	3	110
2069	700	264	320	6	3	111
2070	703	269	323	7	3	112

TABLE C7. SUMMARY OF DRY MODEL CELLS FOR THE TRINITY AQUIFER (ANTLERS) FROM THE REVISED PREDICTIVE SIMULATION.

Year	Collin	Comanche	Cooke	Denton	Eastland	Erath	Grayson	Montague	Parker	Tarrant	Wise
Total Active Official Aquifer Model Cells	7,055	23,711	77,143	59,107	44,009	9,287	77,954	56,141	42,539	5,009	92,333
2009 (baseline)	0	123	0	0	74	0	0	0	0	0	0
2010	1	80	0	0	91	6	0	0	0	0	1
2011	3	85	0	5	94	13	0	0	0	0	5
2012	7	92	0	29	99	29	0	0	0	0	6
2013	11	99	0	95	108	34	0	0	0	1	6
2014	16	103	1	201	110	36	0	0	0	6	6
2015	22	111	2	341	111	36	0	0	0	15	8
2016	30	120	3	500	113	36	0	0	0	28	67
2017	37	130	4	616	115	36	2	0	0	40	221
2018	44	141	7	721	117	39	6	0	1	58	372
2019	47	156	10	806	120	44	10	0	1	78	484
2020	53	167	17	901	125	48	22	0	2	94	574
2021	57	176	27	1,017	127	51	29	0	2	111	654
2022	62	186	37	1,199	130	52	36	0	2	124	741
2023	67	202	49	1,375	130	60	48	0	6	140	810
2024	71	230	64	1,543	133	74	57	0	9	151	879
2025	77	270	76	1,692	137	81	72	0	19	158	947
2026	79	294	95	1,803	139	90	90	0	54	162	995
2027	83	327	111	1,903	149	102	101	0	84	167	1,053
2028	86	373	123	1,983	156	110	106	0	112	171	1,109
2029	90	422	140	2,056	162	128	117	0	141	179	1,180
2030	94	448	152	2,121	179	171	122	0	166	183	1,236

Year	Collin	Comanche	Cooke	Denton	Eastland	Erath	Grayson	Montague	Parker	Tarrant	Wise
2031	96	478	164	2,180	204	185	134	0	184	190	1,294
2032	100	517	175	2,244	221	197	140	0	206	195	1,368
2033	103	554	185	2,299	233	208	148	0	218	202	1,479
2034	105	617	199	2,364	236	222	152	0	234	208	1,551
2035	110	669	216	2,436	242	225	161	0	244	215	1,628
2036	111	710	222	2,517	249	232	168	0	254	222	1,713
2037	113	771	234	2,623	259	246	175	0	262	229	1,809
2038	116	836	245	2,708	282	262	184	0	270	236	1,879
2039	121	865	256	2,788	304	283	191	0	278	244	1,952
2040	122	913	264	2,879	321	303	195	0	285	256	2,029
2041	123	957	276	2,951	331	313	201	0	292	291	2,085
2042	126	998	292	3,038	344	326	205	0	295	349	2,130
2043	128	1,032	300	3,119	363	334	210	0	303	383	2,174
2044	130	1,074	307	3,189	380	351	215	0	305	414	2,214
2045	131	1,129	314	3,251	397	359	221	0	309	446	2,253
2046	131	1,171	323	3,336	412	372	230	0	312	472	2,291
2047	136	1,221	333	3,405	442	390	233	0	318	501	2,349
2048	137	1,266	340	3,465	453	415	239	0	319	533	2,382
2049	139	1,320	353	3,524	474	440	240	0	325	558	2,413
2050	141	1,351	361	3,589	502	455	244	0	326	583	2,442
2051	141	1,389	367	3,633	525	468	247	0	327	608	2,458
2052	143	1,435	376	3,688	548	482	254	0	331	632	2,480
2053	146	1,469	379	3,745	590	493	257	0	332	652	2,496
2054	147	1,510	384	3,788	619	506	258	0	334	671	2,518
2055	148	1,548	392	3,849	645	526	264	0	335	697	2,533
2056	149	1,585	399	3,897	668	548	267	0	337	719	2,545

Year	Collin	Comanche	Cooke	Denton	Eastland	Erath	Grayson	Montague	Parker	Tarrant	Wise
2057	150	1,626	402	3,948	681	564	270	0	340	754	2,558
2058	150	1,703	407	3,981	715	578	274	0	340	788	2,574
2059	152	1,750	411	4,028	733	606	280	1	346	817	2,586
2060	154	1,813	416	4,067	751	627	283	1	346	845	2,594
2061	155	1,846	424	4,115	756	637	283	1	350	872	2,607
2062	156	1,909	428	4,152	777	646	287	1	350	898	2,616
2063	158	1,944	434	4,193	793	673	288	1	350	930	2,629
2064	158	1,968	441	4,232	807	711	292	1	350	953	2,635
2065	158	2,001	448	4,260	821	744	294	1	350	966	2,642
2066	158	2,065	450	4,295	842	770	298	1	352	984	2,653
2067	160	2,117	454	4,335	854	792	301	1	354	1,005	2,665
2068	162	2,154	455	4,360	863	802	303	1	355	1,016	2,676
2069	162	2,198	459	4,395	876	825	303	1	359	1,017	2,684
2070	164	2,268	462	4,438	881	846	307	1	360	1,019	2,691

TABLE C8. SUMMARY OF DRY MODEL CELLS FOR THE WOODBINE AQUIFER FROM THE REVISED PREDICTIVE SIMULATION.

Year	Collin	Cooke	Denton	Fannin	Grayson	Johnson	Tarrant
Total Active Model Cells in Official Aquifer Boundary	11,762	5,700	11,991	15,443	17,911	8,407	8,901
2009 (baseline)	0	0	3	3	2	14	2
2010	0	4	3	3	3	16	2
2011	0	4	3	4	3	16	2
2012	0	4	3	4	5	16	2
2013	0	4	3	4	5	19	2
2014	0	4	3	5	6	23	2
2015	0	4	3	6	7	23	2
2016	0	5	3	6	8	23	2
2017	0	5	3	8	9	24	2
2018	0	5	3	9	10	26	2
2019	0	5	3	10	11	26	2
2020	0	5	3	11	11	26	2
2021	0	5	3	12	13	27	2
2022	0	5	3	12	14	28	2
2023	0	5	3	12	14	28	2
2024	0	5	4	13	14	29	2
2025	0	5	5	14	15	29	2
2026	0	5	5	15	15	30	2
2027	0	5	5	15	15	31	2
2028	0	6	5	15	15	33	2
2029	0	6	5	15	15	34	2
2030	0	6	5	15	15	36	2
2031	0	6	5	16	15	37	2
2032	0	6	5	17	16	37	2
2033	0	6	5	18	17	38	2
2034	0	6	5	20	18	40	2
2035	0	6	5	21	19	40	2
2036	0	6	5	22	19	41	2
2037	0	6	5	24	19	41	2
2038	0	6	5	25	23	42	2
2039	0	6	5	26	25	42	2
2040	0	6	5	27	25	42	2
2041	0	6	5	27	25	42	2

Year	Collin	Cooke	Denton	Fannin	Grayson	Johnson	Tarrant
2042	0	6	5	27	27	42	2
2043	0	6	5	27	27	42	2
2044	0	6	5	28	30	42	2
2045	0	6	5	29	31	43	2
2046	0	6	6	30	31	43	2
2047	0	6	6	30	31	43	2
2048	0	6	7	32	34	43	2
2049	0	6	8	35	34	43	2
2050	0	7	8	35	35	43	2
2051	0	8	8	35	35	43	2
2052	0	8	8	37	35	43	2
2053	0	8	8	38	35	44	2
2054	0	8	8	38	37	45	2
2055	0	9	8	38	38	45	2
2056	0	10	8	38	38	46	2
2057	0	10	9	39	38	46	2
2058	0	10	9	42	39	50	3
2059	0	10	9	44	40	52	3
2060	0	13	9	47	41	54	3
2061	0	14	9	47	41	53	3
2062	0	14	9	47	41	53	3
2063	0	17	9	47	42	55	3
2064	0	20	9	47	42	55	3
2065	0	21	9	47	42	56	3
2066	1	23	9	47	42	57	3
2067	1	23	9	48	45	58	3
2068	2	24	9	49	45	59	3
2069	2	24	9	50	45	59	3
2070	2	24	9	50	45	60	3

Appendix D

Summary of Dry Model Cell Count for the Marble Falls, Ellenburger-San Saba, and Hickory Aquifers in Brown, Burnet, Lampasas, and Mills Counties

TABLE D1. SUMMARY OF DRY MODEL CELLS FOR THE MARBLE FALLS, ELLENBURGER-SAN SABA, AND HICKORY AQUIFERS IN BROWN, BURNET, LAMPASAS, AND MILLS COUNTIES FROM THE PREDICTIVE SIMULATION.

Year	Burnet	Lampasas	Burnet	Burnet
	Marble Falls		Ellenburger-San Saba	Hickory
Total Active Cells in modeled extent	10,810	7,614	13,618	14,334
2009 (baseline)	2298	611	709	111
2010	2353	631	724	112
2011	2363	638	735	112
2012	2376	641	744	113
2013	2386	642	758	113
2014	2391	646	769	113
2015	2395	650	776	113
2016	2397	653	781	115
2017	2405	654	787	117
2018	2406	657	795	117
2019	2409	659	801	118
2020	2413	661	804	118
2021	2419	661	809	118
2022	2419	661	810	118
2023	2421	661	811	118
2024	2422	662	813	119
2025	2423	662	817	120
2026	2425	664	821	120
2027	2426	665	821	120
2028	2428	666	823	120
2029	2433	667	824	122
2030	2433	669	824	123
2031	2435	670	825	123
2032	2436	671	828	123
2033	2438	671	830	123
2034	2440	672	832	124
2035	2441	673	832	124
2036	2441	675	833	124
2037	2442	676	833	124
2038	2442	677	834	125
2039	2443	678	837	126
2040	2443	678	837	126

Year	Burnet	Lampasas	Burnet	Burnet
	Marble Falls		Ellenburger-San Saba	Hickory
2041	2443	680	839	126
2042	2443	680	840	126
2043	2443	680	842	127
2044	2444	680	842	127
2045	2445	680	842	128
2046	2446	680	843	128
2047	2446	680	843	128
2048	2446	680	843	128
2049	2446	680	844	128
2050	2446	680	845	128
2051	2446	681	846	128
2052	2446	681	846	128
2053	2446	681	846	130
2054	2446	681	846	130
2055	2447	681	846	130
2056	2447	681	847	130
2057	2447	681	848	130
2058	2447	682	848	130
2059	2448	682	849	130
2060	2448	682	849	130
2061	2448	682	849	130
2062	2448	682	849	130
2063	2448	682	849	130
2064	2449	682	849	130
2065	2449	683	849	130
2066	2449	683	849	130
2067	2449	683	850	130
2068	2449	683	850	130
2069	2450	683	850	130
2070	2450	683	850	130