

Blanco – Pedernales Groundwater Conservation District

GROUNDWATER MANAGEMENT PLAN

Originally Adopted
November 19, 2002

8th Revision, Adopted
October 17, 2024

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GROUNDWATER MANAGEMENT PLAN

REVISION RECORD

<u>Date Adopted</u>	<u>Effective Date</u>	<u>Affected Sections or General Comments</u>
11/19/02	11/19/02	Original Adoption
02/18/03	02/18/03	Rev. 1: Revisions resulting from TWDB Approval Review
04/15/03	04/15/03	Rev. 2: Revise Table 1, Table 3, & associated text to address TWDB comments
06/05/08	06/05/08	Rev. 3: 5 year statutory review, general revisions, and new Chapter 36 requirements
09/18/08	09/18/08	Rev. 4: Revisions resulting from TWDB Approval Review comments
11/20/08	11/20/08	Rev. 5: Revisions resulting from TWDB Approval Review comments
11/21/13	11/21/13	Rev. 6: 5 year statutory review, and revisions due to new Chapter 36 requirements
10/25/18	10/25/18	Rev. 7: 5 year statutory review, and revisions due to new Chapter 36 requirements and new GMA 9 DFCs and MAGS
10/17/24	10/17/24	Rev. 8: 5-year statutory review, revisions due to new Chapter 36 requirements, a new TWDB Trinity Aquifer GAM run (GAM 23-017, and associated GMA 9 DFCs and MAGS

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Recognition of Achievement

Presented to the

Blanco-Pedernales Groundwater Conservation District

in recognition of completing the

District Groundwater Management Plan

approved on November 19, 2024. A review of the management plan has documented that the plan is administratively complete and in compliance with Texas Water Code §36.1071 and 31 TAC 356.



Bryan McMath
Executive Administrator



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(presented in a separate companion document file)

Appendix A	Geological and Hydrogeological Information on Blanco County
Appendix B	District Resolution # 032524-01
Appendix C	Notice of Hearings and Meetings
Appendix D	Coordination with Surface Water Management Entities
Appendix E	Groundwater Management Area 9 Adoption of Desired Future Conditions and Declaration of Non-Relevant Aquifers
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Appendix G	TWDB Estimated Historical Water Use & 2022 State Water Plan Datasets
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I. DISTRICT MISSION

The Blanco-Pedernales Groundwater Conservation District (BPGCD or District) was created under Chapter 36 of the Texas Water Code for the purpose of conserving, preserving, recharging, protecting and preventing waste of groundwater from the aquifers within Blanco County. The District will conduct administrative and technical activities and programs to achieve these purposes. The District will use the authority granted by Chapter 36 and other state laws to collect and archive water well and aquifer data, regulate water well drilling and production, promote the capping or plugging of abandoned wells, provide information and educational material to local property owners, interact with other governmental or organizational entities, and incorporate other groundwater-related activities that may help meet the purposes of the District.

II. PURPOSE OF THE MANAGEMENT PLAN

The purpose of the Management Plan is to provide a planning tool for the District as it moves forward with its efforts to manage, conserve, and protect the groundwater resources of Blanco County. The Management Plan contains the hydrogeological and technical information provided by the TWDB regarding the groundwater resources of Blanco County. This Management Plan serves as a guideline that will ensure greater understanding of local aquifer conditions, development of groundwater management concepts and strategies, and subsequent implementation of appropriate groundwater management strategies, policies, and Rules to address groundwater conditions, characteristics, and issues within the District. This Management Plan will enable the District to comply with the requirements of state law, including Texas Water Code Chapter 36, administrative Rules of the TWDB, and to guide the District's participation in cooperative regional water resources planning. If at any point the Board of Directors determines that this Management Plan or the District Rules cannot achieve the approved Desired Future Condition, the Board will consider whatever amendments are necessary to ensure achievement of the Desired Future Conditions.

III. DISTRICT INFORMATION

A. Creation

The BPGCD was created in accordance with the Chapter 36 petition process. On January 23, 2001, Blanco County voters approved the creation of the District, its maximum tax rate, and elected five Directors to govern the District. The District's authority and duties are derived primarily from Chapter 36 of the Texas Water Code.

B. Directors

The Board of Directors consists of five members who are elected by the voters of Blanco County. The District utilizes the same four precinct boundaries which are used by the Blanco County Commissioners Court for County Commissioner elections. One Director is elected at-large from Blanco County as a whole. Elections are held during the May General Election in odd-numbered years. Directors are elected to a four-year term and a director may serve consecutive terms.

C. Authority

The District has the authority and duties given to Groundwater Conservation Districts under Texas Water Code Chapter 36 (excluding power of eminent domain) and under 31 Texas Administrative Code Chapter 356. The District is part of Groundwater Management Area 9 and the Lower Colorado Regional Water Planning Group (Region K).

D. Location and Extent

The boundaries of the District are the same as Blanco County, whose area is approximately 715 square miles (457,825 acres). The County Seat is Johnson City, population approximately 2,000. The City of Blanco also has a population of approximately 2,000 and the rest of the population, approximately 8,500, resides in small rural communities or subdivisions, or on farms and ranches. Blanco County is bounded on the north by Llano and Burnet Counties, on the east by Travis and Hays Counties, on the south by Comal and Kendall Counties, and on the west by Gillespie County.

E. Groundwater Resources of Blanco County

1. Topography and Drainage

Blanco County has two primary watersheds: the Pedernales River, which is a tributary to the Colorado River, and the Blanco River, which is a tributary to the Guadalupe River. Surface drainage within the District is generally from west to east.

The District contains two major geologic features. The Llano Uplift extends into the northwestern portion of the District. This feature is characterized by complex faulting and is comprised of scattered granite exposures and a variety of subsequently deposited sedimentary Paleozoic rocks. The other major feature is the Edwards Plateau, an elevated structure primarily comprised of Cretaceous age limestone, dolomite and marl. The Edwards Plateau extends west into many West Texas counties. Blanco County lies near the southeastern edge of the Plateau.

Elevations within the District range from a low of approximately 730 feet above sea level where the Pedernales River leaves Blanco County to over 1,900 feet northwest of the city of Blanco, on the divide between the Pedernales and Blanco River basins.

For a graphic display of this information, please refer to Appendix A - Geological and Hydrogeological Information on Blanco County.

2. Groundwater Resources and Usage in Blanco County

Within the BPGCD there are seven named aquifers which provide groundwater to county residents. These aquifers are:

- Edwards-Trinity (Plateau)
- Upper Trinity
- Middle Trinity
- Lower Trinity
- Ellenburger-San Saba
- Hickory
- Marble Falls

Well depths vary from shallow, hand-dug wells 20-30 feet deep to drilled wells 30-1800 feet deep. Depths are highly variable even within the same aquifer and depend entirely on site-specific topography and geology. Water quality and water quantity also vary greatly throughout the District. Water quality within a specific aquifer can often be defined or characterized in a general sense, but can still be affected by local geology and hydrology.

The District has not identified any wells producing significant groundwater quantities from the Edwards-Trinity (Plateau); the Upper Glen Rose (Upper Trinity), or the Marble Falls aquifers and has no current operating permits or pending applications for operating permits from those aquifers. Therefore, in order to provide for current and future demands from the few existing and anticipated domestic and livestock exempt wells that produce from these aquifers, and in order to help ensure continued flow from the seeps and springs that discharge from those aquifers and which subsequently provide base flow to local creeks and rivers, the current Rules of the District provide for the denial of any applications for drilling or permitting of any new non-exempt wells that propose to produce water from any of these aquifers.

a. Edwards-Trinity (Plateau) Aquifer

The Edwards-Trinity (Plateau) aquifer within Blanco County is scattered across the west central part of the county and is located at higher elevations along ridges. It is comprised of relatively thin layers (generally no more than 50-60 feet thick) of limestone that is an extension of the Edwards Plateau into Blanco County from the west. Yields from the aquifer are exceptionally low (<5 gpm) and the water, which is intermittently present, is used occasionally for rural domestic and livestock demands. The Edwards-Trinity aquifer in Blanco County exists in an unconfined condition. Recharge is solely from local precipitation occurring over the outcrop. Edwards-Trinity aquifer water is rarely pumped from wells, but more often will generally discharge from small seeps and springs at the base of the Edwards outcrop and provides base flow to small streams within the county. No non-exempt wells producing from the Edwards-Trinity (Plateau) have been identified by the District.

Trinity Aquifer

The Trinity aquifer in Blanco County is comprised primarily of the Upper and Lower Glen Rose Limestone, Hensell Sand, the Cow Creek Limestone, and the Sycamore Sand/Hosston Sand. It extends across the majority of Blanco County, except in the northwestern corner of the county where Paleozoic rock predominates. The Trinity aquifer receives some recharge from local precipitation on its outcrop and through the overlying units where it is in the subsurface. More localized and potentially higher rates of recharge for the Hensell Sand probably occur in Hensell Sand outcrops in western Blanco County and eastern Gillespie County. Yields vary greatly and are highly dependent on local subsurface physical characteristics. The Trinity Aquifer is normally divided into three sections: Upper, Middle, and Lower Trinity.

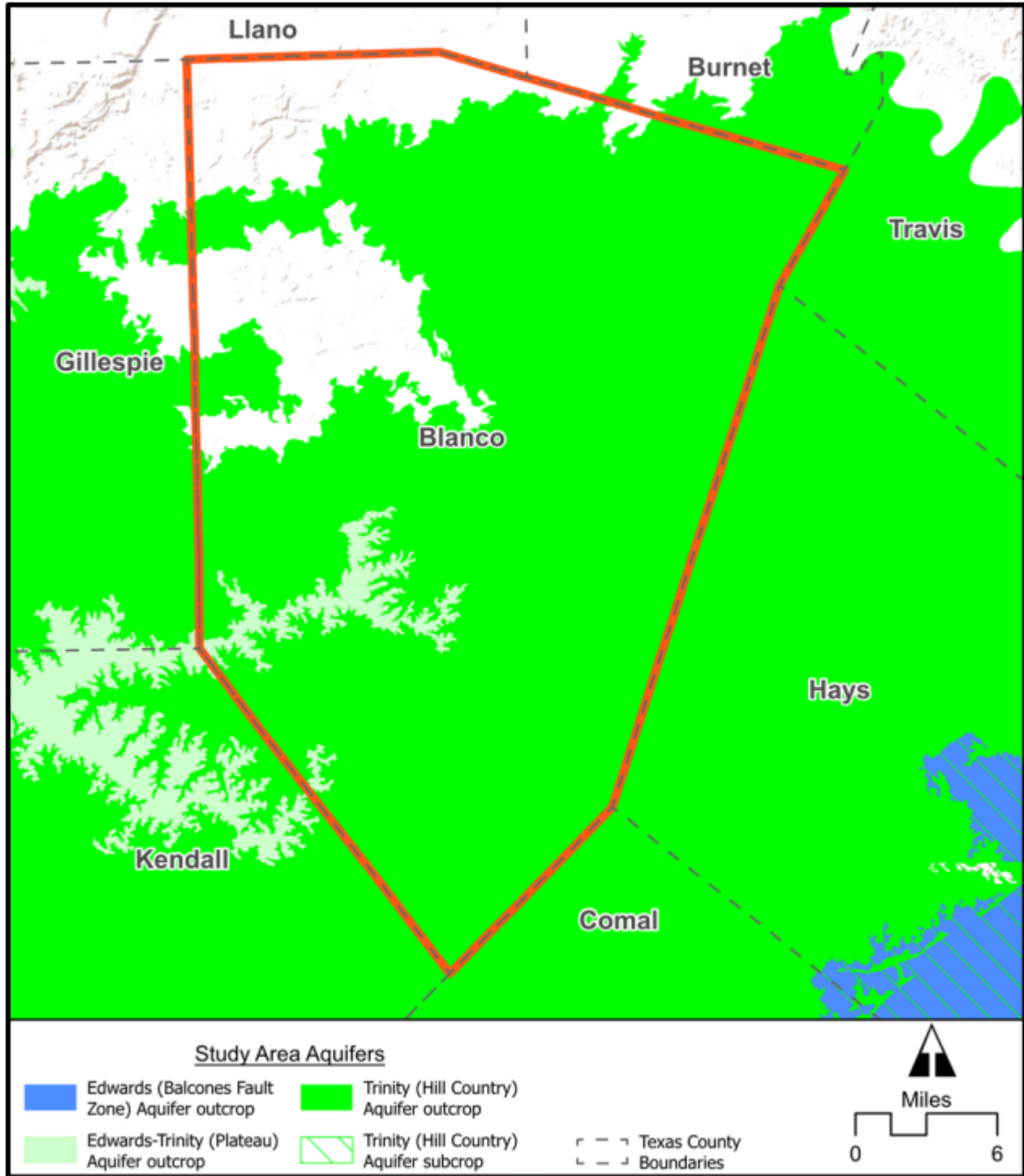


Figure 46. Blanco County showing the extent of the Edwards-Trinity (Plateau) Aquifer and Trinity (Hill Country) Aquifer.

b. Upper Trinity Aquifer

The Upper Trinity Aquifer consists of the Upper Glen Rose limestone and is located generally over the lower two-thirds of Blanco County. It is an unconfined aquifer comprised of alternating layers of limestone and calcareous clays. This forms an easily recognizable "stair-step" topography due to the differential weathering of the two layers. The Upper Glen Rose is also characterized by thin layers of gypsum/anhydrite beds which appear to be the source of the sulfate often found in many wells in central Blanco County. Some wells have concentrations of sulfate so high that reverse osmosis or other treatment options must be incorporated prior to domestic use. It is not a significant source of groundwater production in Blanco County. Groundwater yields from the Upper Glen Rose are usually small and at times intermittent. For local groundwater management purposes only, the District chooses to consider the Upper Glen Rose (Upper Trinity) as a separate aquifer and not integrate it with the rest of the Trinity aquifer.

c. Middle Trinity Aquifer

The Middle Trinity Aquifer is a mostly unconfined aquifer covering over two-thirds of Blanco County. It consists of the Lower Glen Rose Limestone, the Hensell Sandstone, and the Cow Creek Limestone. Groundwater may be produced from all three formations, but the Hensell and Cow Creek portions are generally the most productive and reliable. Yields from the Middle Trinity are generally low, usually between 10-50 gpm, but can occasionally be significantly higher, with yields of more than 500 gpm being reported from a few wells. Water quality varies, with many wells in central Blanco County having abnormally high levels of sulfate and other constituents, while wells in other areas often have very good quality. Production from Middle Trinity wells is primarily used for municipal, rural domestic, and livestock demands. Some demand for groundwater is attributed to irrigation of flower nurseries, vegetables, hay crops, peaches, pecans, grapes, and grains.

d. Lower Trinity Aquifer

Below the Cow Creek Limestone, lies the Hammett Shale, which acts as a confining unit between the Middle Trinity and the Lower Trinity. The Lower Trinity, in Blanco County, consists of the Sligo Formation, a sandy dolomitic limestone (absent for the most part, but perhaps thinly present in the southeastern edge of Blanco County) and the Sycamore (Hosston) Formation, a silty sandstone for the most part, but sometimes consisting of a gravel conglomerate. This last formation is known as the Sycamore where it is unconfined or outcrops, and as the Hosston when subsurface and confined. Groundwater production is generally limited to a few small-volume domestic and livestock wells. Water quality is generally good.

e. Ellenburger Aquifer

The Ellenburger Aquifer is a massive, thickly-bedded, complexly fractured and faulted mix of limestone and dolomite present in the north central portions of the county in both confined and unconfined settings. It lies generally west of Cypress Mill and north of US 290. From the outcrop areas, the aquifer dips predominately southeastward into the subsurface at angles up to 10 degrees in some areas. It is either absent or deeply subsurface in a broad area extending from the central portion of the county toward the southern and eastern parts of Blanco County. Well yields vary greatly depending on local geological conditions. Ellenburger wells usually have pumping rates between 3-45 gpm. In some

areas though, significant localized development of subsurface solutional features has occurred in the Ellenburger resulting in groundwater production capabilities greater than 200 gpm. Water quality in the Ellenburger is almost always very good, with the only concern being the low to moderate hardness...a common issue with all Blanco County aquifers. The Ellenburger aquifer is utilized extensively by the City of Johnson City and many domestic and livestock users in northern and northwestern Blanco County. Recharge to the Ellenburger is mainly through outcrops and porous areas in the beds of rivers and tributaries, with some cross-formational flow contributions from overlying members of other aquifers.

f. Hickory Aquifer

The Hickory aquifer is comprised of sandstone and is found both confined and unconfined in northwestern Blanco County. Exposures are highly irregular in shape, due to both faulting and the overlap of Cretaceous age rocks. This aquifer dips predominantly southeastward from the outcrop areas at angles of about 10 degrees in some areas. Well depths are highly dependent on local geology, with well depths varying between 100 feet to over 1500 feet. The Hickory yields low to moderate quantities of water and water quality is almost always very good. Well drillers have reported some wells capability of producing up to 100 gpm or more. Recharge to the Hickory occurs from local precipitation on its outcrop and through fractures and faults in overlying units and/or cross-formational flow where the Hickory is in the subsurface.

g. Marble Falls Aquifer

The Marble Falls aquifer is an unconfined limestone aquifer located in the general vicinity of Pedernales Falls State Park and Cypress Mill. It is reported to be highly fractured with extensive development of subsurface solutional features. This rather isolated and minor aquifer yields low to moderate quantities of water. Some wells in Blanco County have produced water with high nitrate concentrations. Due to its small surface extent, groundwater usage is limited to local domestic and livestock needs. No non-exempt wells producing from the Marble Falls have been identified by the District as of August 2013.

IV. CRITERIA FOR PLAN APPROVAL

A. Planning Horizon

This Management Plan becomes effective upon adoption by the Blanco-Pedernales Groundwater Conservation District Board of Directors (District Board) and subsequent approval by the Texas Water Development Board (TWDB). This plan incorporates a planning period of ten years. The planning period will begin on the date of approval by the TWDB. After five years, in accordance with Section 36.1072(e), the plan will be reviewed for consistency with the applicable Regional Water Plans and the State Water Plan and shall be readopted with or without amendments. The plan may be revised at any time in order to maintain such consistency or as necessary to address any new or revised data, Groundwater Availability Models, Groundwater Management Area 9 designated Desired Future Conditions and Modeled Available Groundwater quantities, or District management strategies. This Management Plan will remain in effect until the plan is replaced by a revised plan which has been approved by the TWDB.

B. Board Resolution

A certified copy of the Blanco-Pedernales Groundwater Conservation District Board of Directors Resolution #20241017-01 adopting this Management Plan is located in Appendix B - District Resolution.

C. Plan Adoption

Public Notices and Posted Agendas which demonstrate this Management Plan was adopted after the required public hearings and meetings were conducted by the District are located in Appendix C - Notice of Hearings and Meetings.

D. Coordination with Surface Water Management Entities

Correspondence with surface water management entities which demonstrates the District provided the pertinent entities with a copy of this Management Plan will be provided in Appendix D - Correspondence with Surface Water Management Entities.

V. Estimates of Technical Information Required by TWC Section 36.1071 and 31 TAC 356.52

A. Modeled Available Groundwater in the District based on the Desired Future Conditions established under TWC 36.108 --- 31 TAC 356.52(a)(5)(A) and TWC 36.1071(e)(3)(A)

Modeled Available Groundwater (MAG) is defined in TWC Section 36.001 as "the amount of water that the Executive Administrator [of the TWDB] determines may be produced on an average annual basis to achieve a desired future condition established under Section 36.108." The Desired Future Condition (DFC) of an aquifer may only be determined through joint planning with other Groundwater Conservation Districts (GCDs) in the same Groundwater Management Area (GMA) in accordance with TWC 36.108. The District is part of GMA 9. The current adopted DFCs approved by GMA 9 on November 15, 2021 are found in Appendix E.

The Modeled Available Groundwater numbers (in acre-feet per year) for Blanco County are found in the tables below, and by using the hyperlink on page 18 to view the GAM Run 21-014 MAG report.

Table 1. Modeled Available Groundwater for Blanco County

GMA 9 declared the Trinity Aquifer to be the only Relevant Aquifer in Blanco County for Regional Planning purposes.

Trinity Aquifer (GAM Run 21-014 MAG)

https://www.twdb.texas.gov/groundwater/docs/GAMruns/GR21-014_MAG.pdf

Groundwater Management Area (GMA) 9
Modeled Available Groundwater for Relevant Aquifers by Groundwater Conservation District (GCD)
2021 Joint Planning

Blanco-Pedernales GCD									
GCD	Aquifer	County	Modeled Available Groundwater (acre-feet per year)						
			2020	2030	2040	2050	2060	2070	2080
Blanco-Pedernales GCD	Trinity	Blanco	2,573	2,573	2,573	2,573	2,573	n/a	n/a

The following Aquifers were declared "Non-Relevant" with respect to GMA 9 Regional Planning purposes in Blanco County. The water availability quantities shown are taken from previous Aquifer Assessments and are used for informational purposes and the groundwater management needs of the BPGCD and Blanco County rather than on the GMA 9 regional level. The three Aquifer Assessment documents are available on the TWDB website.

Ellenburger-San Saba Aquifer (GTA Aquifer Assessment 10-01 MAG) in acre-feet/year

County	RWPG	River Basin	2010	2020	2030	2040	2050	2060
Blanco	K	Colorado	2,661	2,661	2,661	2,661	2,661	2,661

Hickory Aquifer (GTA Aquifer Assessment 10-02 MAG) in acre-feet/year

County	RWPG	River Basin	2010	2020	2030	2040	2050	2060
Blanco	K	Colorado	1,163	1,163	1,163	1,163	1,163	1,163

Marble Falls Aquifer (GTA Aquifer Assessment 10-14 MAG) in acre-feet/year

County	RWPG	River Basin	2010	2020	2030	2040	2050	2060
Blanco	K	Colorado	261	261	261	261	261	261

B. Amount of Groundwater being used within the District on an annual basis --- 31TAC 356.52(a)(5)(B) / TWC Section 36.1071(e)(3)(B)

To estimate the annual amount of groundwater being used within Blanco County, the District has looked to the TWDB Annual Water Use Survey Data. The data set includes data from 2004-2019. The annual groundwater use varied from 1,329-3,538 acre-feet of groundwater per year.

**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.

BLANCO COUNTY 100%-(multiplier) All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	883	0	4	0	2,338	273	3,498
	SW	388	0	0	0	0	117	505
2018	GW	858	0	0	0	2,342	272	3,472
	SW	376	0	0	0	0	116	492
2017	GW	883	0	0	0	2,152	263	3,298
	SW	376	0	0	0	0	113	489
2016	GW	905	0	0	0	1,398	217	2,520
	SW	356	0	0	0	0	94	450
2015	GW	886	0	0	0	1,339	216	2,441
	SW	354	0	0	0	0	92	446
2014	GW	1,003	0	0	0	1,908	202	3,113
	SW	376	0	0	0	24	87	487
2013	GW	1,041	0	0	0	1,825	195	3,061
	SW	342	0	0	0	0	83	425
2012	GW	1,166	0	0	0	2,150	222	3,538
	SW	332	0	0	0	0	95	427
2011	GW	1,274	0	0	0	357	270	1,901
	SW	350	0	0	0	0	116	466
2010	GW	1,105	0	0	0	369	270	1,744
	SW	285	0	0	0	0	116	401
2009	GW	1,037	0	0	0	405	545	1,987
	SW	281	0	0	0	0	234	515
2008	GW	948	0	1	0	68	469	1,486
	SW	327	0	0	0	0	201	528
2007	GW	819	0	1	0	190	363	1,373
	SW	265	1	0	0	0	155	421
2006	GW	1,018	0	1	0	35	293	1,347
	SW	269	1	0	0	250	125	645
2005	GW	979	0	1	0	44	305	1,329
	SW	256	1	0	0	250	131	638
2004	GW	898	0	1	0	59	198	1,156
	SW	255	1	0	0	254	188	698

C. Annual Amount of Recharge from Precipitation to the Groundwater Resources with the District --- 31TAC 356.52(a)(5)(C) / TWC Section 36.1071(e)(3)(C)

The estimate of the annual amount of recharge from precipitation to the aquifers within the District is based on GAM Run 23-017, which is included in Appendix H.

Table 2. Recharge from Precipitation

Aquifer	Recharge From Precipitation	Groundwater Availability Model Run
Edwards-Trinity (Plateau)	571	GAM Run 23-017
Trinity	37,189	GAM Run 23-017
Ellenburger-San Saba	16,482	GAM Run 23-017
Hickory	2,089	GAM Run 23-017
Marble Falls	199	GAM Run 23-017

D. For each Aquifer, the annual volume of water that discharges from the Aquifer to Springs and any Surface Water Bodies, including Lakes, Streams, and Rivers --- 31TAC 356.52(a)(5)(D) / TWC Section 36.1071(e)(3)(D)

The estimate of the annual volume of water discharged to surface water systems by the groundwater resources of the District are based on TWDB GAM Run 23-017. The GAM run and analysis from the TWDB is included in Appendix H.

Table 3. Discharge to Surface Water Bodies

Aquifer	Discharge to Surface Water Bodies	Groundwater Availability Model Run
Edwards-Trinity (Plateau)	0	GAM Run 23-017
Trinity	26,966	GAM Run 23-017
Ellenburger-San Saba	24,178	GAM Run 23-017
Hickory	15,721	GAM Run 23-017
Marble Falls	7,745	GAM Run 23-017

E. Annual Volume of Flow into and out of the District within each Aquifer and between Aquifers in the District, if a Groundwater Model is Available --- 31TAC

356.52(a)(5)(E) / TWC Section 36.1071(e)(3)(E)

- (1) Estimated annual volume of flow into the District.**
- (2) Estimated annual volume of flow out of the District.**
- (3) Estimated annual volume of flow between each aquifer in the District.**

The estimates of these amounts of water flowing within each aquifer in the District are included in Appendix H and summarized as follows:

Table 4. Flow into, out of, and between Aquifers

Aquifer	Acre-Feet in:	Acre-Feet out	Acre-Feet between Aquifers	Groundwater Availability Model Run
Edwards-Trinity (Plateau)	0	206	188	GAM Run 23-017
Trinity	6,768	15,616	See A	GAM Run 23-017
Ellenburger-San Saba	6,907	12,406	See B	GAM Run 23-017
Hickory	7,607	7,260	See C	GAM Run 23-017
Marble Falls	0	0	See D	GAM Run 23-017

A

From Trinity Aquifer to Edwards-Trinity (Plateau) Aquifer	188*
From Trinity Aquifer to Ellenburger-San Saba Aquifer	990**
To Trinity Aquifer from Hickory Aquifer	61**

B

To Ellenburger-San Saba Aquifer from Trinity Aquifer	990
To Ellenburger-San Saba Aquifer from Quaternary alluvium	75
From Ellenburger-San Saba Aquifer to Permian/Pennsylvanian Confining Unit	374
From Ellenburger-San Saba Aquifer to Marble Falls Aquifer	480
To Ellenburger-San Saba Aquifer from Marble Falls equivalent units	242
From Ellenburger-San Saba Aquifer to Mississippian Confining unit	2,930
From Ellenburger-San Saba Aquifer to Ellenburger-San Saba equivalent units	609
From Ellenburger-San Saba Aquifer to Cambrian Confining unit	598
To Ellenburger-San Saba Aquifer from Hickory Aquifer	4,159
To Ellenburger-San Saba Aquifer from Precambrian confining unit	516

C

From Hickory Aquifer to Trinity Aquifer	61
From Hickory Aquifer to Quaternary alluvium	19
From Hickory Aquifer to Marble Falls equivalent units	24
From Hickory Aquifer to Mississippian Confining unit	39
From Hickory Aquifer to Ellenburger-San Saba Aquifer	4,159
From Hickory Aquifer to Ellenburger-San Saba Equivalent	975
To Hickory Aquifer from Cambrian Confining unit	4,117
To Hickory Aquifer from Hickory equivalent unit	2,530
From Hickory Aquifer to Precambrian confining unit	484

D

To Marble Falls Aquifer from Marble Falls equivalent unit	945
From Marble Falls Aquifer to Permian and Pennsylvanian Confining unit	148
To Marble Falls Aquifer from Mississippian Confining unit	5,878
To Marble Falls Aquifer from Ellenburger-San Saba Aquifer	480
To Marble Falls Aquifer from Cambrian Confining Unit	2

F. Projected Surface Water Supply in the District, according to most recently adopted State Water Plan --- 31TAC 356.52(a)(5)(F) / TWC Section 36.1071(e)(3)(F)

The most recently adopted State Water Plan is the 2022 State Water Plan. This Plan incorporated the 2021 Region K Water Plan, which provided projected surface water supplies in the District and Blanco County. The Projected Surface Water Supply Survey Data from the TWDB are included in Appendix G and are summarized and included below in Table 5.

Within the District, all surface water impoundments consist of relatively small ponds and a few small dams on the Pedernales River, Blanco River, and their tributaries. The City of Blanco uses surface water sources as the primary source of city municipal water. This includes water from the Blanco River and water from Canyon Lake purchased from Canyon Lake Water Service Company. Johnson City maintains some surface water rights on the Pedernales River. However, Johnson City is currently relying on groundwater from a series of Ellenburger aquifer wells and is not withdrawing from the Pedernales River at this time. Local usage of surface water (usually for livestock watering or limited irrigation from small ponds or small scale diversions from surface streams) is termed “local supply” in the State and Region K Plans.

Table 5 Projected Surface Water Supplies

Projected Surface Water Supplies
TWDB 2022 State Water Plan Data

BLANCO COUNTY			<i>100% (multiplier)</i>			All values are in acre-feet			
RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
K	Blanco	Guadalupe	Blanco Lake/Reservoir	463	463	463	463	463	463
K	Blanco	Guadalupe	Canyon Lake/Reservoir	600	600	600	600	600	600
K	Canyon Lake Water Service	Guadalupe	Canyon Lake/Reservoir	118	119	118	118	118	119
K	Livestock, Blanco	Colorado	Colorado Livestock Local Supply	101	101	101	101	101	101
K	Livestock, Blanco	Guadalupe	Guadalupe Livestock Local Supply	101	101	101	101	101	101
Sum of Projected Surface Water Supplies (acre-feet)				1,383	1,384	1,383	1,383	1,383	1,384

G. Projected Total Demand for Water in the District, according to most recently adopted State Water Plan --- 31TAC 356.52(a)(5)(G) / TWC Section 36.1071(e)(3)(G)

The most recently adopted State Water Plan is the 2022 State Water Plan. This Plan incorporated the 2021 Region K Water Plan, which provided projected Total Demand for Water in the District and Blanco County. This data appears in Appendix G and is summarized and included below in Table 6.

Table 6 Projected Total Demand for Water within 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.

BLANCO COUNTY			<i>100% (multiplier)</i>						All values are in acre-feet
RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070	
K	Blanco	Guadalupe	316	365	393	407	418	425	
K	Canyon Lake Water Service	Guadalupe	83	115	147	180	213	245	
K	County-Other, Blanco	Colorado	576	653	688	698	701	696	
K	County-Other, Blanco	Guadalupe	432	490	517	524	526	523	
K	Irrigation, Blanco	Colorado	934	934	934	934	934	934	
K	Irrigation, Blanco	Guadalupe	393	393	393	393	393	393	
K	Johnson City	Colorado	353	411	443	460	473	480	
K	Livestock, Blanco	Colorado	255	255	255	255	255	255	
K	Livestock, Blanco	Guadalupe	76	76	76	76	76	76	
K	Mining, Blanco	Colorado	5	5	5	5	5	5	
Sum of Projected Water Demands (acre-feet):			3,423	3,697	3,851	3,932	3,994	4,032	

VI. Consider the Water Supply Needs and Water Management Strategies included in the Adopted State Water Plan - TWC Section 36.1071(E)(4)

The most recently adopted State Water Plan is the 2022 State Water Plan. This Plan incorporated the 2021 Region K Water Plan, which provided the estimated water supply needs in the District and Blanco County. This data appears in Appendix G and is summarized and included below in Table 7. The table provides a listing of individual WUGs with identified water supply needs (negative numbers in the table indicate a water supply shortage). The District has noted that from 2020 to 2070, the total needs in Blanco County are projected to reach a total shortage of about 82 acre-feet/year.

Table 7 Projected 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.

BLANCO COUNTY All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
K	Blanco	Guadalupe	747	698	670	656	645	638
K	Canyon Lake Water Service	Guadalupe	142	119	89	58	28	-2
K	County-Other, Blanco	Colorado	263	186	151	141	138	143
K	County-Other, Blanco	Guadalupe	242	184	157	150	148	151
K	Irrigation, Blanco	Colorado	45	45	45	45	45	45
K	Irrigation, Blanco	Guadalupe	26	26	26	26	26	26
K	Johnson City	Colorado	47	-11	-43	-60	-73	-80
K	Livestock, Blanco	Colorado	262	262	262	262	262	262
K	Livestock, Blanco	Guadalupe	73	73	73	73	73	73
K	Mining, Blanco	Colorado	0	0	0	0	0	0
Sum of Projected Water Supply Needs (acre-feet):			0	-11	-43	-60	-73	-82

The former District General Manager, Ron Fieseler, was a voting member of Region K and participated in the development of the 2021 Region K Water Plan. He regularly briefed the District Directors on the Region K planning process, including water supply needs (Table 7) and water management strategies (Table 8). The District Directors and staff noted that additional Ellenburger-San Saba and Middle Trinity groundwater remained available and could be allocated to meet each WUG's individual shortage.

Beginning in mid-2023, District Directors and staff met with Johnson City officials to discuss projected water needs. It was determined that development of a new well field in the Ellenburger-San Saba aquifer near Johnson City and/or increasing the current production from existing Ellenburger-San Saba wells would resolve the projected water needs of 80 acre/feet for Johnson City through 2070.

With regard to the projected water needs of an additional 2 acre/feet in 2070 by the Canyon Lake Water Service, the District Directors and staff have determined that this small need can be met with additional municipal water conservation demand reduction efforts and/or allocation of additional groundwater from the Middle Trinity aquifer without exceeding the current GMA-9 Trinity aquifer MAG in Blanco County.

Table 8 Water Management Strategies

**Projected Water Management Strategies
TWDB 2022 State Water Plan Data**

BLANCO COUNTY

WUG Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name (Origin)	2020	2030	2040	2050	2060	2070
Blanco, Guadalupe (K)							
Direct Reuse - Blanco	Direct Reuse [Blanco]	0	146	146	146	146	146
Drought Management	DEMAND REDUCTION [Blanco]	63	55	60	63	65	66
Municipal Conservation - Blanco	DEMAND REDUCTION [Blanco]	0	27	23	21	21	21
		63	228	229	230	232	233
Canyon Lake Water Service, Guadalupe (K)							
Drought Management	DEMAND REDUCTION [Blanco]	11	14	16	20	23	27
GBRA - MBWSP - Surface Water w/ASR	Carrizo-Wilcox Aquifer ASR [Gonzales]	0	0	0	0	0	3
Municipal Water Conservation	DEMAND REDUCTION [Blanco]	0	0	0	1	6	9
		11	14	16	21	29	39
County-Other, Blanco, Colorado (K)							
Brush Management	Trinity Aquifer [Blanco]	0	708	708	708	708	708
Drought Management	DEMAND REDUCTION [Blanco]	70	65	59	56	54	54
		70	773	767	764	762	762
County-Other, Blanco, Guadalupe (K)							
Drought Management	DEMAND REDUCTION [Blanco]	53	49	44	42	41	40
		53	49	44	42	41	40
Johnson City, Colorado (K)							
Drought Management	DEMAND REDUCTION [Blanco]	64	77	84	87	90	91
Expansion of Current Groundwater Supplies - Ellenburger-San Saba Aquifer	Ellenburger-San Saba Aquifer [Blanco]	0	100	100	100	100	100
Municipal Conservation - Johnson City	DEMAND REDUCTION [Blanco]	31	28	25	23	23	23
		95	205	209	210	213	214
Sum of Projected Water Management Strategies (acre-feet)		292	1,269	1,265	1,267	1,277	1,288

VII. Details on the District Management of Groundwater

A. District Authority and Management Rules and Policies

The Texas Legislature has determined that GCDs, such as the Blanco-Pedernales Groundwater Conservation District, are the state's preferred method of groundwater management. The Texas Legislature codified its groundwater management policy decision in Section 36.0015 of the Texas Water Code, which provides that GCDs will manage groundwater resources through rules developed and implemented in accordance with Chapter 36 of the Texas Water Code. Chapter 36 establishes directives for GCDs and the statutory authority to carry out such directives to enable GCDs to have the proper tools to protect and preserve the groundwater resources with their boundaries. The District will give strong consideration to the economic and cultural activities which occur within the District and which rely upon the continued use of groundwater.

The District uses the regulatory tools it has been given by Chapter 36 to properly address the groundwater issues within Blanco-Pedernales, such as groundwater quality and groundwater supply. The District believes the prevention of contamination of its groundwater resources through abandoned and deteriorated water wells is important. 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 requires, through its 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 will also place a priority on the capping of water wells that the well owner plans to use at a later date in order to eliminate waste, prevent pollution, and stop future deterioration of the well casing.

The District has established a monitoring well network to monitor the changing storage conditions of the groundwater supplies within the District. The District will make a regular assessment of water supply and groundwater storage conditions and has reported and will continue to report those conditions to the District Board of Directors and to the public. The District has also worked and will continue to work with any local governmental entities or agencies of the State of Texas on any well monitoring efforts or well investigations which are conducted.

The District is using the regulatory tools granted to GCDs by Chapter 36 to preserve and protect the existing and historic users of groundwater within the District. The Texas 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. In accordance with Section 36.116 of the Texas Water Code, the District is also protecting historic use through District Rules on spacing of wells and production limits on groundwater to the extent practicable consistent with this Management Plan.

In order to better manage the groundwater resources of Blanco County during times of high demand or within areas of high demand, the District may establish Critical Groundwater Depletion Areas and adopt different Rules for those areas. The District may also adopt different Rules for each subdivision of an aquifer or geologic strata located in whole or in part within the boundaries of the District or each geographic area overlying a subdivision of an aquifer located in whole or in part within the boundaries of the District. The District has adopted Rules to regulate groundwater

withdrawals by means of spacing and/or production limits. The relevant factors to be considered in making a determination to grant or deny a permit or limit groundwater withdrawals shall include those set forth in the Chapter 36 of the Texas Water Code, and the rules of the District.

B. Summary of Blanco County Water Resources 2020-2070

In general, groundwater is available throughout Blanco County. Water quantity and quality vary greatly and are highly dependent on local hydrogeological conditions. As growth occurs, there will probably be areas of Blanco County where increase in groundwater demand will be such that some aquifers, or portions thereof, with low production capability will be found in a stressed condition and may not be able to meet higher demand.

Much of the growth now occurring in Blanco County is currently focused in the southern end of the county. This area is served primarily by private water wells producing from the Middle Trinity Aquifer. This aquifer is well known for locally variable well yields...10-50 gpm seems to be the average, but some high volume wells are capable of producing 100-500 gpm.

The Middle Trinity Aquifer is also known for some water quality concerns involving hardness and odors. It is conceivable that with continued growth, this particular aquifer could be overextended during the next 50 years to the point where quantity and quality problems may increase.

The Ellenburger Aquifer, producing primarily in the northern third of Blanco County, should be able to meet future demands placed on it through the year 2070. However, the District believes that the areas adjacent to Johnson City may experience seasonal shortfalls from the Ellenburger due to the increasing development of small acreage lots in the Johnson City area. Many of these developments will be solely dependent upon the Ellenburger since the underlying Paleozoic rocks are very deep and have unpredictable groundwater availability. Consequently, the Ellenburger adjacent to Johnson City and nearby developments will need to be carefully monitored in order to determine how long it will be able to meet future demands of local users.

The Edwards-Trinity (Plateau), Hickory, and Marble Falls aquifers are located in areas that are not expected to undergo extensive development and are not likely to experience water quantity or quality problems during the 50 year planning horizon.

VIII. Actions, Procedures, Performance And Avoidance For Plan Implementation - 31 TAC 356.52(A)(4); TWC Section 36.1071(E)(2)

The District will use the Management Plan to guide the District in its efforts to preserve and protect the groundwater resources of Blanco County. The District will ensure that all of its rules development, regulatory activities, planning effects and daily operations are consistent with the Management Plan.

The rules for the District will be developed in coordination with the management goals and technical information provided in the Management Plan. The rules will be consistent with the provisions of the Management Plan and Chapter 36 of the Texas Water Code. The enforcement of the rules will be driven by the hydrogeological and technical information available to the District, including the information provided in the Management Plan.

The District Rules can be found at the following website:

<http://www.blancogw.org>

The District is committed to work and plan with other GCDs in Groundwater Management Area 9. The District will use the Management Plan as part of its cooperative efforts with the neighboring GCDs. The District will manage the supply of groundwater within the District based on Desired Future Conditions and Modeled Available Groundwater quantities resulting from the Groundwater Management Area 9 cooperative planning process, exempt and non-exempt wells and groundwater demands, and the District's best available data.

The District will review and re-adopt this plan, with or without revisions, at least once every five years in accordance with Chapter 36.1072(e).

Any amendment to this plan will be in accordance with Chapter 36.1073.

The District will seek cooperation and coordination in the development and implementation of this plan with the appropriate state, regional or local water management or planning entities.

The District will encourage cooperative and voluntary Rule compliance, but if Rule enforcement becomes necessary, the enforcement will be legal, fair, and impartial.

IX. Methodology For Tracking Progress In Achieving Management Goals - 31 TAC 356.52(A)(6)

The District will use the following methodology to track its progress toward achieving its management goals:

The District General Manager will present an annual report to the Board of Directors on District performance and progress in achieving management goals and objectives at a regular District Board meeting of the following calendar year beginning in Fiscal Year 2003.

X. District Goals, Management Objectives, and Performance Standards - 31 TAC 356.52

A. Providing The Most Efficient Use Of Groundwater.

A.1 Management Objective

Implement and maintain a program of issuing well operating permits for non-exempt wells within Blanco County.

Performance Standards

Monthly, quarterly, or annual reports submitted to the District Board on: (1) the number of applications for well operating permits received by the District, and (2) the status of the submitted applications.

A.2 Management Objective

The District will evaluate the effectiveness of current well spacing requirements in District Rules to help reduce or prevent interference between nearby wells. Spacing requirements will be coordinated to the greatest extent possible with Blanco County subdivision regulations and the Water Well Drillers Rules (16 Texas Administrative Code Chapter 76).

Performance Standards

Annual report submitted to the District Board regarding suitability of current District well spacing rules and their compatibility with Blanco County subdivision regulations and the Water Well Drillers Rules.

B. Controlling and Preventing Waste of Groundwater.

B.1 Management Objective

Each year the District will provide information to groundwater users on the importance of controlling and preventing waste of groundwater.

Performance Standards

Each year provide information to groundwater users on controlling and preventing waste of groundwater on at least one occasion by one of the following methods:

- article to local newspapers
- distribution of conservation literature handouts
- public presentation by District Staff or Directors
- information on District website
- District exhibit/display booth at a public event
- District staff will provide a monthly, quarterly, or annual report to the Board of Directors each time one of these methods are utilized to inform groundwater users on the importance of controlling and preventing waste of groundwater.

C. Controlling and Preventing Subsidence – 31 TAC§356.52 (a)(1)(C)

Generally speaking, the rigid geologic framework of the region precludes significant subsidence from occurring. Therefore, this goal has previously been considered as not applicable to the operations of this District. However, the TWDB funded a study and development of a tool to assess the potential threat of subsidence: “*Identification of the Vulnerability of the Major and Minor Aquifers of Texas to Subsidence with Regard to Groundwater Pumping – TWDB Contract Number 1648302062 (Furnans and others 2017)*”. District staff have reviewed this report, utilized the tool, and have concluded that the updated information in *Furnans and others (2017)* indicates the Trinity aquifer has a low to medium risk for future subsidence due to pumping as seen in *Furnans and others (2017) Figure 4.49*. The Ellenburger-San Saba Aquifer have a low to medium-low risk of future subsidence due to pumping as seen in *Furnans and others (2017) Figure 4.91*. The Marble Falls Aquifer has a low risk for future subsidence due to pumping as seen in *Furnans and others (2017) Figure 4.114*. The Hickory Aquifer has a low risk for future subsidence due to pumping as seen in *Furnans and others (2017) Figure 4.96*. Based on this review, it has been determined that this management goal is not applicable to the District. However, the District will continue to monitor and review any new studies or information, related to this issue, that becomes available.

https://www.twdb.texas.gov/groundwater/docs/Subsidence_Vulnerability_Report.pdf?d=16827.299999952316

D. Addressing Conjunctive Surface Water Management Issues.

D.1 Management Objective

Assist Blanco County Commissioners Court in the evaluation of water availability reports submitted in accordance with County subdivision requirements and the Interlocal Agreement between the County and the District.

Performance Standard

Provide a brief report to the Blanco County Commissioners Court on any water availability reports reviewed in accordance with the Interlocal Agreement.

D.2 Management Objective

Participate in the Regional Water Planning process by sending a representative to attend at least one meeting of the Lower Colorado Regional Water Planning Group (Region K).

Performance Standard

The dates and locations of meetings attended will be reported to the Board of Directors either monthly or annually.

E. Addressing Natural Resource Issues Which Impact The Use And Availability Of Groundwater, Or Which Are Impacted By The Use Of Groundwater.

E.1 Management Objective

Springs and seeps flowing from outcrop areas of the Edwards-Trinity (Plateau) and the Upper Glen Rose (Upper Trinity) aquifers provide water to local habitat and often provide base flow to nearby creeks and rivers. Both aquifers are known for low productivity and intermittent availability. The District intends to help extend the period of spring and seep flow during times of drought or limited rainfall by

evaluating the effectiveness of current Rules to discourage utilization of those aquifers and prevent leakage from those aquifers into other aquifers.

Performance Standard

Annual report submitted to the District Board will include a summary regarding suitability of current District Rules prohibiting the drilling of new non-exempt wells in those aquifers; and, for those wells that penetrate those aquifers to produce groundwater from lower aquifers, the suitability of current Rules requiring the sealing off of those aquifers during the cementing/grouting process.

F. Addressing Drought Conditions.

F.1 Management Objective

At least quarterly, District Staff will review applicable data to determine status of drought conditions and, if necessary, report to District Board on need to implement the District Drought Rules.

Performance Standards

A monthly or quarterly report submitted to District Board on drought conditions in the District.

F.2 Management Objective

Provide to the public through the District website and, upon request, drought-orientated literature handouts.

Performance Standards

Each year provide drought-orientated literature handouts on at least one occasion. Provide drought-orientated literature, articles, or web links to drought related sites.

BPGCD Drought Rules and information available at:

<http://www.blancogw.org>

Texas Water Development Board Drought Information available at:

<https://www.waterdatafortexas.org/drought/>

F.3 Management Objective

To evaluate groundwater availability each year the District will monitor water levels on selected wells representative of the two primary aquifers within the District in accordance with the water level monitoring schedule shown below

Water Level Monitoring Schedule

<u>Aquifer</u>	<u># of Wells</u>	<u>Minimum Frequencies</u>
Trinity	3	4 times per year
Ellenburger	2	3 times per year

Performance Standard

Number of water level records measured annually.

G. Addressing Groundwater Conservation, Recharge Enhancement, Rainwater Harvesting, Precipitation Enhancement, or Brush Control where Appropriate and Cost Effective. – 31 TAC 356.52 (a)(1)(G) (Implementing TWC §36.1071 (a)(7))

G.1 Groundwater Conservation

Management Objective

Each year the District will identify the importance of water conservation and various water conservation methods available for implementation by groundwater users.

Performance Standards

Each year provide groundwater conservation information on at least one occasion by one of the following methods:

- article to local newspapers
- distribution of conservation literature handouts
- public presentation by District Staff or Directors
- information on District website
- District exhibit/display booth at a public event
- District staff will provide a monthly, quarterly, or annual report to the Board of Directors each time one of these methods are utilized to inform groundwater users on the importance of groundwater conservation.
-

G.2 Recharge Enhancement

Management Objective

Investigate potential opportunities for recharge enhancement projects, either natural or artificial.

Performance Standard

Annual report submitted to the District Board on investigation of the number of potential recharge enhancement opportunities, if any.

G.3 Rainwater Harvesting

Management Objective

The District will promote rainwater harvesting and provide advice, information, and literature regarding the benefits of rainwater harvesting.

Performance Standards

Each year provide rainwater harvesting information on at least one occasion by one of the following methods:

- article to local newspapers
- distribution of conservation literature handouts
- public presentation by District Staff or Directors
- information on District website

- District exhibit/display booth at a public event
- District staff will provide a monthly, quarterly, or annual report to the Board of Directors each time one of these methods are utilized to inform groundwater users on the importance of considering the benefits of rainwater harvesting.

G.4 Precipitation Enhancement - 31 TAC 356.52 (a)(1)(G)

Precipitation enhancement is not an appropriate or cost-effective program for the District at this time because there is not an existing precipitation enhancement program operating in nearby counties in which the District could participate and share costs. The cost of operating a single-county precipitation enhancement program is prohibitive and would require the District to increase taxes in Blanco County. Therefore, this category of management goal is not applicable to the District.

G.5 Brush Control

This strategy is being implemented in Blanco County by the Pedernales Soil and Water Conservation District with involvement from State and Federal agencies. Due to these existing brush control programs by other agencies, this goal is considered not applicable to the operations of this District at this time since it would be an unnecessary duplication of effort.

H. Addressing in a Quantitative Manner the Desired Future Conditions of the Groundwater Resources. – 31 TAC 356.52 (a)(1)(H) (Implementing TWC §36.1071(a)(8))

H.1 Management Objective

For any aquifer within the District that has an approved DFC, assess whether the current District programs and actions toward meeting the DFC are sufficient or require further attention.

Performance Standards

For any aquifer with an approved DFC, measure water levels in at least one District-designated monitor wells one or more times annually and compare with the average drawdown and the allowable drawdown resulting from the DFC process.

- This comparison will be included in the General Manager's annual report to the District Board.
- It will be presented annually by the District to the GMA 9 Committee for their review as required under Texas Water Code Section 36.108(c).

Blanco-Pedernales Groundwater Conservation District

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Blanco – Pedernales Groundwater Conservation District

GROUNDWATER MANAGEMENT PLAN

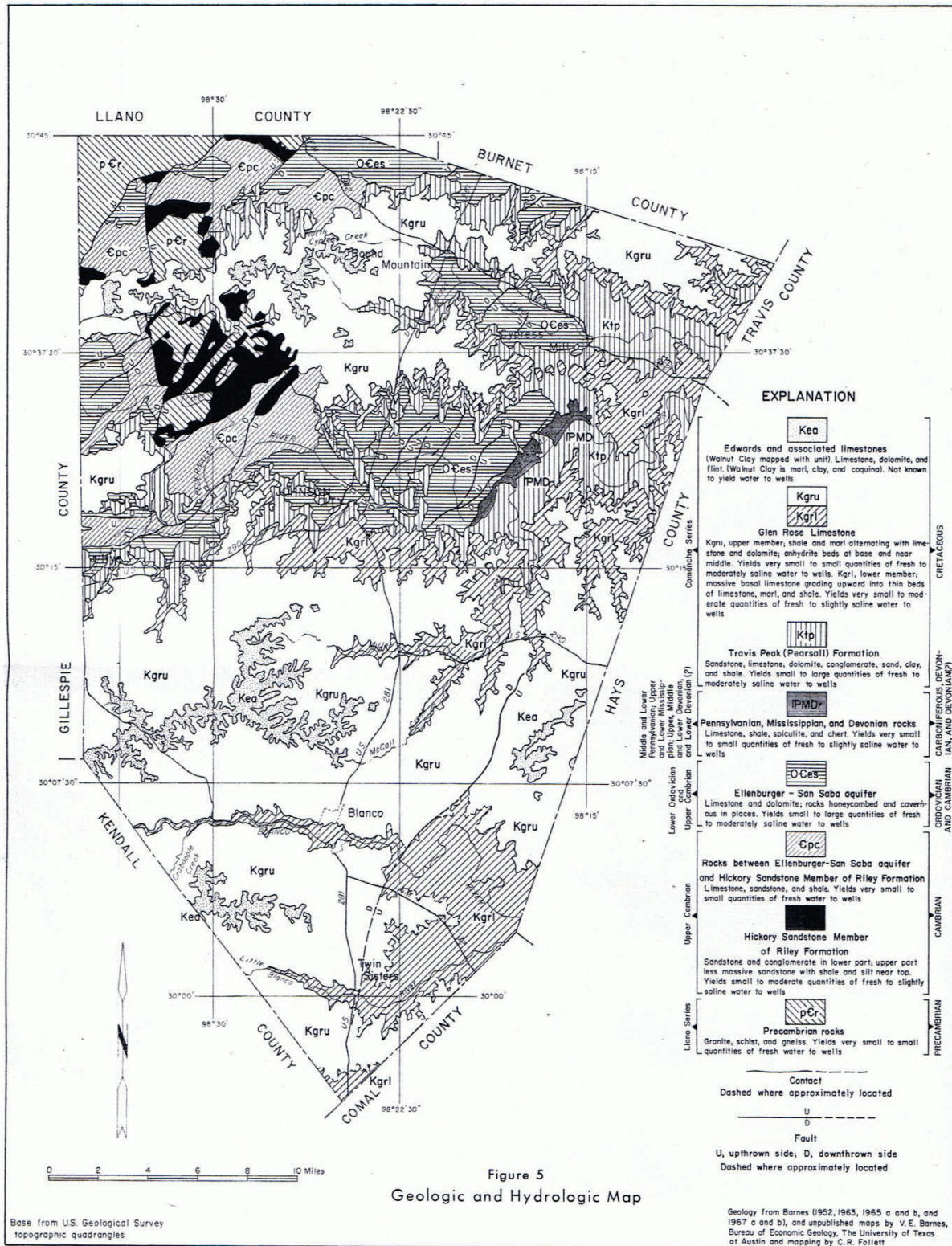
October 17, 2024

Appendices

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Appendix A

Geological and Hydrogeological Information on Blanco County



Geologic and Hydrologic Map of Blanco County, Texas

from

Texas Water Development Board Report 174, Groundwater Resources of Blanco County, Texas
C.R. Follett, USGS, August 1973

Geologic and Hydrologic Units and Their Water-Bearing Properties

SYSTEM	SERIES	GROUP	GEOLOGIC OR HYDROLOGIC UNIT	APPROXIMATE THICKNESS (FEET)	LITHOLOGY	WATER-BEARING PROPERTIES	
Quaternary	Holocene and Pleistocene		Alluvium, fanlomerate, and high-level gravel	0 - 20 ?	Gravel, sand, silt, and clay.	Not known to yield water to wells in Blanco County. Alluvium probably would yield very small to small quantities of fresh water in some places along the Pedernales and Blanco Rivers.	
Cretaceous	Comanche	Fredericksburg	Edwards and associated limestones	0 - 160	Hard massive limestone, nodular marly limestone, dolomite, and flint.	Not known to yield water to wells in Blanco County but may contribute some water to uncased holes tapping the Glen Rose Limestone. Yields water to springs near the base of the unit.	
			Walnut Clay	0 - 13	Silty marl, clay, and basal coquina.	Not known to yield water to wells.	
		Trinity	Glen Rose Limestone	Upper member	0 - 330 ?	Shale and marl alternating with thin beds of impure limestone and dolomite; impure anhydrite beds at base and near middle.	Yields very small to small quantities of fresh to moderately saline water to wells in much of the county.
				Lower member	0 - 250 ?	Massive fossiliferous limestone in basal part grading upward into thin beds of limestone, marl and shale; <i>Salenia texana</i> and <i>Corbula texana</i> Whitney beds at top.	Yields very small to moderate quantities of fresh to slightly saline water to wells in much of the county.
			Travis Peak (Pearsall) Formation	0 - 285 ?	Sandstone, massive fossiliferous limestone, sandy limestone, dolomite, conglomerate, sand, clay, and shale.	Yields small to large quantities of fresh to moderately saline water to wells in much of the county.	
		Coahuila	Nuevo León and Durango of Mexico	Stigo and Hosston Formations	0 - 210 ?	Shale, limestone, dolomite, sand, sandstone, and conglomerate.	Not known to yield water to wells in Blanco County.
Carboniferous, Devonian, and Devonian(?)	Middle and Lower Pennsylvanian; Upper and Lower Mississippian; Middle and Lower Devonian (?)		Pennsylvanian, Mississippian, and Devonian rocks	0 - 800 ?	Massive limestone, in part cherty, shale, calcareous spiculite, lenticular biohermal limestone, crinoidal limestone, and chert.	Yields very small to small quantities of fresh to slightly saline water to a few wells near the Pedernales River south of Cypress Mills and at Cypress Mills.	
Ordovician and Cambrian	Lower Ordovician and Upper Cambrian		Ellenburger - San Saba aquifer	0 - 2,310 +	Thinly to thickly bedded cherty limestone and dolomite; rocks honeycombed and cavernous in places.	Yields small to large quantities of fresh to moderately saline water to wells north of an east-west line about midway between Johnson City and Blanco.	
Cambrian	Upper Cambrian		Rocks between Ellenburger - San Saba aquifer and Hickory Sandstone Member of Riley Formation	0 - 755 +	Thinly to thickly bedded limestone, in part biohermal, glauconitic, and shaley; glauconitic to non-glauconitic sandstone; and shale.	Yields very small to small quantities of fresh water to wells north of U.S. Highway 290 and west of U.S. Highway 281.	
			Hickory Sandstone Member of Riley Formation	0 - 300 +	Mostly noncalcareous, non-glauconitic, crossbedded sandstone; lower part massive with conglomerate lenses near base; upper part less massive with considerable shale and silt near top.	Yields small to moderate quantities of fresh to slightly saline water to wells north of U.S. Highway 290 and west of U.S. Highway 281.	
Precambrian	Llano		Precambrian rocks	-	Mostly medium to coarse-grained granite, amphibole and mica schist, and quartz diorite gneiss.	Yields very small to small quantities of fresh water to wells.	

Geologic and Hydrologic Units in Blanco County, Texas

from

Texas Water Development Board Report 174, Groundwater Resources of Blanco County, Texas
C.R. Follett, USGS, August 1973

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Appendix B

District Resolution #20241017-01

STATE OF TEXAS

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RESOLUTION #20241017-01

COUNTY OF BLANCO

BLANCO-PEDERNALES GROUNDWATER CONSERVATION DISTRICT

ADOPTION OF REVISED GROUNDWATER MANAGEMENT PLAN

WHEREAS, the Blanco-Pedernales Groundwater Conservation District (BPGCD) is a groundwater conservation district created in accordance with and subject to Chapter 36, Texas Water Code and;

WHEREAS, Chapter 36.1071, Texas Water Code requires that the BPGCD, following notice and hearing, shall review its groundwater management plan every five years and revise as necessary and;

WHEREAS, the Texas Water Development Board (TWDB) certified the current BPGCD Groundwater Management Plan on January 23, 2019 in accordance with the provisions of Chapter 36.1071 and the BPGCD is required to review the Groundwater Management Plan, revise as necessary, and resubmit prior to January 23, 2024 and;

WHEREAS, the BPGCD has conducted the required review and prepared a draft Revised Groundwater Management Plan in accordance with the provisions of Chapter 36.1071 and;

WHEREAS, the BPGCD submitted the draft Revised Groundwater Management Plan to the TWDB on October 19, 2023 for pre-review which was returned with required and recommended changes by the TWDB on February 1, 2024, and then again on June 4, 2024, and;

WHEREAS, the BPGCD has incorporated the TWDB required and recommended changes to the draft Revised Groundwater Management Plan, and;

WHEREAS, the BPGCD has, on October 3, 2024, provided public notice of the October 17, 2024 Board Meeting with an agenda item addressing proposed revisions to the previously adopted and certified Plan and an agenda item providing for a Public Hearing on those changes, by posting the Board Meeting Agenda on the BPGCD website, on the BPGCD bulletin board or the front door of the District Office and by emailing a copy of the Board Meeting Agenda to the current agenda email distribution list and;

WHEREAS, on October 17, 2024, the Board of Directors of the BPGCD held a public hearing and offered the public the opportunity to comment on the proposed revisions to the previously adopted and certified Plan at the Board of Directors Meeting and;

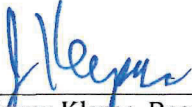
WHEREAS, the Board of Directors of the BPGCD has considered all public comment and;

WHEREAS, the Board of Directors of the BPGCD has determined that the proposed revisions are appropriate and contribute to the overall effectiveness of the BPGCD Groundwater Management Plan;

NOW THEREFORE BE IT RESOLVED, that the Board of Directors of the Blanco-Pedernales Groundwater Conservation District does hereby approve and adopt the revised Groundwater Management Plan with an effective date of October 17, 2024.

PASSED AND APPROVED THIS 17th DAY OF October, 2024,

with _____ ayes, _____ nays, and _____ abstentions.


Jimmy Klepac, Board President


Bob Reed, Board Secretary

Appendix C

Notice of Hearings and Meetings

Agenda for BPGCD Board of Directors Meeting October 17, 2024

Blanco-Pedernales Groundwater Conservation District

601 West Main, Johnson City, Texas 78636 | (830) 868-9196 | office@blancogw.org

Regular Board Meeting

Notice is given that a **Regular Meeting** of the Board of Directors of the Blanco-Pedernales Groundwater Conservation District will be held at the **District Office, 601 West Main, Johnson City, Texas** on **Thursday, October 17, 2024, at 1:30 p.m.** for the following purposes:

Agenda

1. Call to Order
2. Allegiance
3. Public Comment
4. Approval of Minutes for the September 19, 2024, Regular Board Meeting.
5. Financial Report
 - a. Monthly Financial Report
 - b. Quarterly Investment Report
6. General Manager, Staff, and Committee Reports
 - a. Operational Updates
 - b. Conferences Attended
 - c. Standing or Ad Hoc committee reports
7. Continuing Business
 - a. Discuss and possible action district drought status and drought conditions
8. New Business
 - a. Conduct a public hearing to discuss and gather feedback on the proposed Groundwater Management Plan for the District
 - b. Discuss and possible action on approving Groundwater Management Plan
 - c. Discuss and possible action on Logging Trailer Contract Amendment #2
 - d. Discuss and possible action on request for property tax-exempt status for historic property located at 426 RR 962 E, Round Mountain
 - e. Discuss and possible action on part-time clerical staff contracts
 - f. Discuss and possible action on Intera Work Order #5 for Hydrogeologic Services
 - g. Discuss and possible action regarding employment practices and disciplinary actions
 - h. Set Future meeting dates and propose future agenda items
9. Executive Session: The Board of Directors of the BPGCD reserves the right to meet in Executive Session at any time during this meeting to discuss any matters authorized by Texas Government Code Sections §551.071 (Consultation with Attorney), 551.072 (Deliberations about Real Property), 551.073 (Deliberations about Gifts

and Donations), 551.074 (Personnel Matters), 551.076 (Deliberations about Security Devices) and 551.086 (Economic Development). No final action or decision will be made in Executive Session.

10. Adjournment

Posted at the Front Door of the District Office, 601 West Main, Johnson City, Texas, on the 14th day of October, at 1:30 p.m.

Erik Kubinski 
General Manager, Blanco-Pedernales Groundwater Conservation District

The Blanco-Pedernales 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 District office at 830-868-9196 at least 24 hours in advance if accommodation is needed.

NOTICE OF A PUBLIC HEARING

GROUNDWATER MANAGEMENT PLAN

The Blanco-Pedernales Groundwater Conservation District has prepared a Draft of a Groundwater Management Plan that will be used to provide planning and guidance in the District's management and regulation of groundwater and wells in Blanco County. A Public Hearing on the Draft of the Groundwater Management Plan will be held at **1:30, October 17, 2024, at the District Office, located at 601 W Main St., Johnson City, Texas.** The Public Hearing shall follow the following agenda: (1) Board President opens Public Hearing. (2) Presentation of the Draft of the Groundwater Management Plan to the Public. (3) Public Comment. (4) Board President closes Public Hearing. The District will give consideration to all comments in the preparation of a Revised Draft which is expected to be adopted at a Board of Directors Meeting in November. The District encourages and solicits public review and comment on the Draft of the Groundwater Management Plan, copies of which will be available at the Blanco-Pedernales Groundwater Conservation District, located at 601 W Main St., Johnson City, Texas.

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Appendix D

Coordination with Surface Water Management Entities

Copies of Plan Transmittal Letters sent to:

Lower Colorado River Regional Planning Group (Region K)
Lower Colorado River Authority
Guadalupe-Blanco River Authority
City of Blanco
City of Johnson City
Canyon Lake Water Service Company

Blanco-Pedernales Groundwater Conservation District

601 West Main St., Johnson City, Texas 78636 | (830) 868-9196 | office@blancogw.org

October 31, 2024

Mayor Mike Arnold
City of Blanco
PO Box 750
Blanco, Texas 78606

RE: Revised Groundwater Management Plan for the Blanco-Pedernales Groundwater Conservation District

Dear Mayor Arnold,

Pursuant to Chapter 36.1071(a) of the Texas Water Code and 31 Texas Administrative Code Section 356.51, the Blanco-Pedernales Groundwater Conservation District is forwarding the attached files of our recently-revised Groundwater Management Plan to the City of Blanco for coordination with the regional surface water management entities.

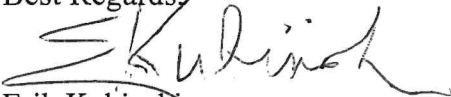
Proposed revisions to the existing Plan were pre-reviewed by Texas Water Development Board staff who recommended minor changes and data file updates. The Board of Directors adopted the draft plan at their Board Meeting on October 17, 2024.

We provided public notice of the hearing on October 3, 2024. This Agenda provided an opportunity for public comment under Agenda Item # 3. The Board and General Manager publicly reviewed the proposed changes during the meeting under Agenda Item # 8(a). The proposed revisions to the GMP were made available for public review either at our office or on our website (www.bpgcd.org). No adverse public comments were received either orally, in writing, by phone, or email.

Following the Public Hearing, the Board of Directors discussed the final draft Plan under Agenda Item # 8(a) and subsequently unanimously approved BPGCD Resolution # 20241017-01: Adoption of Revised Groundwater Management Plan as presented.

Thank you in advance for your cooperation in this matter. If you have any questions, please feel free to call me at (830) 868-9196.

Best Regards,



Erik Kubinski
General Manager

<https://www.bpgcd.org>
gm@blancogw.org

NOTE: Management Plan and Appendices can be viewed and copied at the following link:
<https://bpgcd.org/documents/>

Blanco-Pedernales Groundwater Conservation District

601 West Main St., Johnson City, Texas 78636 | (830) 868-9196 | office@blancogw.org

October 31, 2024

Mayor Stephanie Fisher
City of Johnson City
PO Box 369
Johnson City, Texas 78686

RE: Revised Groundwater Management Plan for the Blanco-Pedernales Groundwater Conservation District

Dear Mayor Fisher,

Pursuant to Chapter 36.1071(a) of the Texas Water Code and 31 Texas Administrative Code Section 356.51, the Blanco-Pedernales Groundwater Conservation District is forwarding the attached files of our recently-revised Groundwater Management Plan to the City of Johnson City for coordination with the regional surface water management entities.

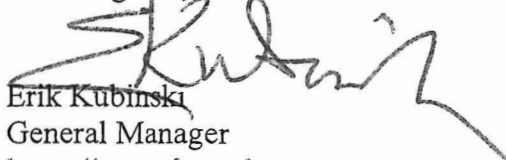
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Thank you in advance for your cooperation in this matter. If you have any questions, please feel free to call me at (830) 868-9196.

Best Regards,



Erik Kubinski
General Manager

<https://www.bpgcd.org>
gm@blancogw.org

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Blanco-Pedernales Groundwater Conservation District

601 West Main St., Johnson City, Texas 78636 | (830) 868-9196 | office@blancogw.org

October 31, 2024

Phil Wilson, General Manager
Lower Colorado River Authority
P.O. Box 220
Austin, TX 78767

RE: Revised Groundwater Management Plan for the Blanco-Pedernales Groundwater Conservation District

Dear Mr. Wilson,

Pursuant to Chapter 36.1071(a) of the Texas Water Code and 31 Texas Administrative Code Section 356.51, the Blanco-Pedernales Groundwater Conservation District is forwarding the attached files of our recently-revised Groundwater Management Plan to the Lower Colorado River Authority for coordination with the regional surface water management entities.

Proposed revisions to the existing Plan were pre-reviewed by Texas Water Development Board staff who recommended minor changes and data file updates. The Board of Directors adopted the draft plan at their Board Meeting on October 17, 2024.

We provided public notice of the hearing on October 3, 2024. This Agenda provided an opportunity for public comment under Agenda Item # 3. The Board and General Manager publicly reviewed the proposed changes during the meeting under Agenda Item # 8(a). The proposed revisions to the GMP were made available for public review either at our office or on our website (www.bpgcd.org). No adverse public comments were received either orally, in writing, by phone, or email.

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Best Regards,



Erik Kubinski
General Manager

<https://www.bpgcd.org>
gm@blancogw.org

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Blanco-Pedernales Groundwater Conservation District

601 West Main St., Johnson City, Texas 78636 | (830) 868-9196 | office@blancogw.org

October 31, 2024

Darrell Nichols, General Manager
Guadalupe Blanco River Authority
2225 E. Common Street
New Braunfels, Texas 78130

RE: Revised Groundwater Management Plan for the Blanco-Pedernales Groundwater Conservation District

Dear Mr. Nichols,

Pursuant to Chapter 36.1071(a) of the Texas Water Code and 31 Texas Administrative Code Section 356.51, the Blanco-Pedernales Groundwater Conservation District is forwarding the attached files of our recently-revised Groundwater Management Plan to the Guadalupe Blanco River Authority for coordination with the regional surface water management entities.

Proposed revisions to the existing Plan were pre-reviewed by Texas Water Development Board staff who recommended minor changes and data file updates. The Board of Directors adopted the draft plan at their Board Meeting on October 17, 2024.

We provided public notice of the hearing on October 3, 2024. This Agenda provided an opportunity for public comment under Agenda Item # 3. The Board and General Manager publicly reviewed the proposed changes during the meeting under Agenda Item # 8(a). The proposed revisions to the GMP were made available for public review either at our office or on our website (www.bpgcd.org). No adverse public comments were received either orally, in writing, by phone, or email.

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Thank you in advance for your cooperation in this matter. If you have any questions, please feel free to call me at (830) 868-9196.

Best Regards,



Erik Kubinski
General Manager

<https://www.bpgcd.org>
gm@blancogw.org

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Blanco-Pedernales Groundwater Conservation District

601 West Main St., Johnson City, Texas 78636 | (830) 868-9196 | office@blancogw.org

October 31, 2024

Region K Chairman David Van Dresar, c/o LCRA
Attn: Annette Keaveny
P.O Box 220
Austin TX, 78767-0220

RE: Revised Groundwater Management Plan for the Blanco-Pedernales Groundwater Conservation District

Dear Chairman Van Dresar,

Pursuant to Chapter 36.1071(a) of the Texas Water Code and 31 Texas Administrative Code Section 356.51, the Blanco-Pedernales Groundwater Conservation District is forwarding the attached files of our recently-revised Groundwater Management Plan to The Lower Colorado Regional Water Planning Group (Region K) for coordination with the regional surface water management entities.

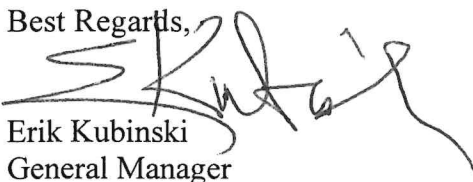
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Following the Public Hearing, the Board of Directors discussed the final draft Plan under Agenda Item # 8(a) and subsequently unanimously approved BPGCD Resolution # 20241017-01: Adoption of Revised Groundwater Management Plan as presented.

Thank you in advance for your cooperation in this matter. If you have any questions, please feel free to call me at (830) 868-9196.

Best Regards,



Erik Kubinski
General Manager

<https://www.bpgcd.org>
gm@blancogw.org

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Blanco-Pedernales Groundwater Conservation District

601 West Main St., Johnson City, Texas 78636 | (830) 868-9196 | office@blancogw.org

October 31, 2024

Aundrea Williams, President
The Texas Water Company
PO Box 1742
Canyon Lake, Texas 78133

RE: Revised Groundwater Management Plan for the Blanco-Pedernales Groundwater Conservation District

Dear Ms. Williams,

Pursuant to Chapter 36.1071(a) of the Texas Water Code and 31 Texas Administrative Code Section 356.51, the Blanco-Pedernales Groundwater Conservation District is forwarding the attached files of our recently-revised Groundwater Management Plan to The Texas Water Company for coordination with the regional surface water management entities.

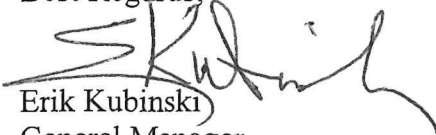
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Following the Public Hearing, the Board of Directors discussed the final draft Plan under Agenda Item # 8(a) and subsequently unanimously approved BPGCD Resolution # 20241017-01: Adoption of Revised Groundwater Management Plan as presented.

Thank you in advance for your cooperation in this matter. If you have any questions, please feel free to call me at (830) 868-9196.

Best Regards,



Erik Kubinski
General Manager

<https://www.bpgcd.org>
gm@blancogw.org

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Appendix E

Groundwater Management Area 9 Adoption of Desired Future Conditions November 15, 2021

and

Declaration by GMA 9 of Non-Relevant Aquifers

STATE OF TEXAS

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RESOLUTION # 111521-01

GROUNDWATER

MANAGEMENT AREA 9

Adopting the Groundwater Management Area 9 Joint Planning Committee’s Proposed Classification of Locally Managed Aquifers as Non-Relevant for Joint Planning Purposes and the Desired Future Conditions for Relevant Major and Minor Aquifers in GMA 9, and authorizing the GMA 9 Chairman to formally submit them and all other required information to the TWDB.

WHEREAS, the Groundwater Conservation Districts (GCDs) located within or partially within Groundwater Management Area 9 (GMA 9) are required under Chapter 36.108, Texas Water Code to conduct joint planning and designate the Desired Future Conditions (DFCs) for aquifers within GMA 9; and

WHEREAS, the Board Presidents or their Designated Representatives of the GCD Members of the Groundwater Management Area 9 Joint Planning Committee (GMA 9) have met as a Committee in various meetings and conducted joint planning in accordance with Section 36.108, Texas Water Code since September 2005; and

WHEREAS, GMA 9, having given proper and timely notice, held an open meeting of the GMA 9 Committee on March 22, 2021 in a ZOOM Virtual Meeting format allowed under a variance to the Open Meetings Act issued by the Governor of Texas due to the Covid pandemic; and

WHEREAS, following GMA 9's March 22, 2021 adoption of GMA 9 Proposed DFCs and the Proposed Classification of Non-Relevant Aquifers, and in accordance with Section 36.108, GMA 9 has solicited and considered public comment during a Public Hearing at each GCD located within or partially within GMA 9, through written public comments, and through public comment in person at various GMA 9 Committee meetings; and

WHEREAS, the GMA 9 Committee received and considered technical advice regarding the requirements contained in Chapter 36.108(subsections c-d3), including but not limited to local aquifers, hydrology, geology, recharge characteristics, local groundwater demands and usage, population projections, ground and surface water inter-relationships, and other considerations that affect groundwater conditions from the Texas Water Development Board (TWDB), Regional Water Planning Groups J, K, and L, consultants, hydrologists, geologists, and other groundwater professionals; and

WHEREAS, following public discussion and due consideration of the current and future needs and conditions of the aquifers in question, the current and projected groundwater demand estimates from local GCDs, the TWDB, and Regional Water Planning Groups J, K, and L, the potential effects on springs, surface water, habitat, and water-dependent species for DFCs set through the year 2060 for the Trinity Aquifer or 2080 for the Edwards Group of the Edwards-Trinity (Plateau), the Ellenburger-San Saba, and Hickory aquifers, the following motions were made and acted upon:

Motion #1:

Moved by George Wissmann and seconded by Micah Voulgaris to adopt the following Desired Future Condition through the year 2060 for the Trinity Aquifer located in GMA 9:

- Allow for An Increase in Average Drawdown of Approximately 30 Feet Through 2060 (Throughout GMA 9) Consistent With "Scenario 6" in TWDB GAM Task 10-005.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed.

Motion #2

Moved by Micah Voulgaris and seconded by Dave Mauk to adopt the following Desired Future Condition through the year 2080 for the Edwards Group of the Edwards-Trinity (Plateau) Aquifer for those portions located in Kendall and Bandera counties:

- Allow For No Net Increase in Average Drawdown in Kendall and Bandera Counties Through 2080.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed.

Motion #3

Moved by Micah Voulgaris and seconded by Dave Mauk to adopt the following Desired Future Condition through the year 2080 for the portions of the Ellenburger-San Saba Aquifer located in Kendall County:

- Allow for An Increase in Average Drawdown of No More Than 7 Feet in Kendall County Through 2080.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed.

Motion #4

Moved by Micah Voulgaris and seconded by Dave Mauk to adopt the following Desired Future Condition through the year 2080 for the portions of the Hickory Aquifer located in Kendall County:

- Allow for An Increase in Average Drawdown of No More Than 7 Feet in Kendall County Through 2080.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed.

Motion #5

Moved by Jimmy Klepac and seconded by Gene Williams to propose the classification of the Edwards Group of the Edwards-Trinity (Plateau) Aquifer located in Blanco County and Kerr County as non-relevant for the purposes of joint planning.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed

Motion #6

Moved by Jimmy Klepac and seconded by George Wissmann to propose the classification of the Ellenburger-San Saba Aquifer located in Blanco County and Kerr County as non-relevant for the purposes of joint planning.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed.

Motion #7

Moved by Charlie Flatten and seconded by Jimmy Klepac to propose the classification of the Hickory Aquifer located in Blanco, Hays, Kerr, and Travis counties as non-relevant for the purposes of joint planning.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed.

Motion #8

Moved by Jimmy Klepac and seconded by George Wissmann to propose the classification of the Marble Falls Aquifer located in Blanco County as non-relevant aquifer for the purposes of joint planning.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed.

Motion #9

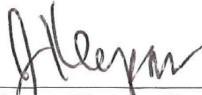
Moved by David Caldwell and seconded by Lane Cockrell to propose the classification of the Edwards Aquifer (Balcones Fault Zone) located in Bexar, Comal, Hays, and Travis counties as non-relevant for the purposes of joint planning.

The vote on the motion was 9 ayes, 0 nays, and 0 abstentions, and the Motion Passed.

Whereas, the above Motions and Votes of each Committee Member have been recorded in the Minutes of the November 15, 2021 GMA 9 Committee Meeting,

NOW THEREFORE BE IT RESOLVED, Groundwater Management Area 9 Joint Planning Committee Members present and voting on November 15, 2021 do hereby document, record, and confirm the above-described Motions and Votes.

Approved by consensus and signed on November 15, 2021 by the following Voting Groundwater Management Area 9 Joint Planning Committee Members:



Jimmy Klepac – Board President of the Blanco-Pedernales GCD



Dave Mauk – General Manager and Designated Representative for the Bandera County River Authority and Groundwater Conservation District



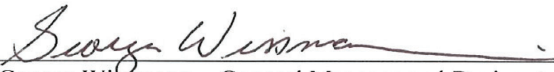
David Caldwell - General Manager and Designated Representative for the Medina County GCD



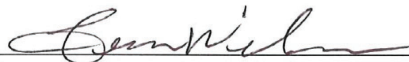
Charlie Flatten - General Manager and Designated Representative for the Hays Trinity GCD



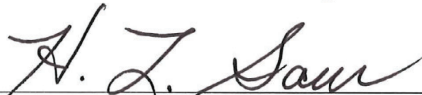
Micah Voulgaris – General Manager and Designated Representative for the Cow Creek GCD



George Wissmann – General Manager and Designated Representative for the Trinity Glen Rose GCD



Gene Williams - General Manager and Designated Representative for the Headwaters GCD



H.L. Saur - General Manager and Designated Representative of the Comal Trinity GCD



Lane Cockrell - General Manager and Designated Representative for the Southwestern Travis County GCD

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Appendix F

**Adoption of DFCs
and
Declaration of Non-Relevant Aquifers**

**by the
Blanco-Pedernales Groundwater
Conservation District**

March 23, 2023

STATE OF TEXAS

§

RESOLUTION #032323-01

§

COUNTY OF BLANCO

§

BLANCO-PEDERNALES GROUNDWATER CONSERVATION DISTRICT

**ADOPTION OF DESIRED FUTURE CONDITIONS AND NON-RELEVANT AQUIFERS
FOR BLANCO COUNTY IN ACCORDANCE WITH
GROUNDWATER MANAGEMENT AREA 9 JOINT PLANNING**

WHEREAS, the Blanco-Pedernales Groundwater Conservation District (BPGCD) is a groundwater conservation district created in accordance with and subject to Chapter 36, Texas Water Code and;

WHEREAS, the BPGCD is required under Chapter 36.108, Texas Water Code; to participate in Groundwater Management Area Joint Planning and;

WHEREAS, the BPGCD is located in Groundwater Management Area # 9 and;

WHEREAS, Groundwater Management Area 9 has completed the joint planning required under Chapter 36.108 on November 15, 2021, and by resolution, has adopted Desired Future Conditions (DFCs) for relevant aquifers and declared portions of certain aquifers as non-relevant for regional planning purposes, and submitted the resolution and an Explanatory Report to the Texas Water Development Board (TWDB) and;

WHEREAS Chapter 36.108 (d-4) and TWDB Rule 356.34 require districts within GMA 9 to adopt the DFCs as soon as possible after being notified that the GMA 9 resolution and Explanatory Report are administratively complete and;

WHEREAS, the TWDB notified GMA 9 on November 8, 2022 that the GMA 9 DFCs and the Explanatory Report are administratively complete;

NOW THEREFORE BE IT RESOLVED, that the Board of Directors of the Blanco-Pedernales Groundwater Conservation District does hereby adopt the following DFCs and non-relevant aquifers for Blanco County as described in the GMA 9 resolution and Explanatory Report:

- Trinity Aquifer (Upper, Middle, and Lower undifferentiated) - Allow for an increase in average drawdown of approximately 30 feet through 2060 consistent with "Scenario 6" in TWDB Draft GAM Task 10-005

Note: The above DFC is for GMA 9 as a whole. In Appendix A of Draft GAM Task 10-005, the DFC calculation for the overall Trinity Aquifer located in Blanco County under Scenario 6 would allow for an increase in average drawdown of approximately 19.2 feet in Blanco County.

The following aquifers or portions of aquifers are classified as Non-Relevant for regional planning purposes:

- Edwards Group of the Edwards Trinity (Plateau) located in Blanco Counties.
- Ellenburger-San Saba Aquifer located in Blanco County.
- Hickory Aquifer located in Blanco County.
- Marble Falls Aquifer located in Blanco County.

PASSED AND APPROVED THIS 23 DAY OF March, 2023,

with 4 ayes, 0 nays, and 0 abstentions.



Jimmy Klepac, Board President



Lanny Counts, Board Secretary

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Appendix G

Texas Water Development Board

Estimated Historical Water Use and 2022 State Water Plan Datasets:

Blanco-Pedernales Groundwater Conservation District

Estimated Historical Groundwater Use And 2022 State Water Plan Datasets:

Blanco-Pedernales Groundwater Conservation District

Texas Water Development Board
Groundwater Division
Groundwater Technical Assistance Section
stephen.allen@twdb.texas.gov
(512) 463-7317
June 30, 2023

GROUNDWATER MANAGEMENT PLAN DATA:

This package of water data reports (part 1 of a 2-part package of information) is being provided to groundwater conservation districts to help them meet the requirements for approval of their five-year groundwater management plan. Each report in the package addresses a specific numbered requirement in the Texas Water Development Board's groundwater management plan checklist. The checklist can be viewed and downloaded from this web address:

<http://www.twdb.texas.gov/groundwater/docs/GCD/GMPChecklist0113.pdf>

The five reports included in this part are:

1. Estimated Historical Groundwater Use (checklist item 2)
from the TWDB Historical Water Use Survey (WUS)
2. Projected Surface Water Supplies (checklist item 6)
3. Projected Water Demands (checklist item 7)
4. Projected Water Supply Needs (checklist item 8)
5. Projected Water Management Strategies (checklist item 9)
from the 2022 Texas State Water Plan (SWP)

Part 2 of the 2-part package is the groundwater availability model (GAM) report for the District (checklist items 3 through 5). The District should have received, or will receive, this report from the Groundwater Availability Modeling Section. Questions about the GAM can be directed to Grayson Dowlearn, grayson.dowlearn@twdb.texas.gov (512) 475-1552.

DISCLAIMER:

The data presented in this report represents the most up to date WUS and 2022 SWP data available as of 6/30/2023. Although it does not happen frequently, either of these datasets are subject to change pending the availability of more accurate WUS data or an amendment to the 2022 SWP. District personnel must review these datasets and correct any discrepancies to ensure approval of their groundwater management plan.

The WUS dataset can be verified at this web address:

<http://www.twdb.texas.gov/waterplanning/waterusesurvey/estimates>

The 2022 SWP dataset can be verified by contacting Sabrina Anderson (sabrina.anderson@twdb.texas.gov or 512-936-0886).

The values presented in the data tables of this report are county-based. In cases where groundwater conservation districts cover only a portion of one or more counties the data values are modified with an apportioning multiplier to create new values that more accurately represent conditions within district boundaries. The multiplier used in the following formula is a land area ratio: (data value * (land area of district in county / land area of county)). For two of the four SWP tables (Projected Surface Water Supplies and Projected Water Demands) only the county-wide water user group (WUG) data values (county other, manufacturing, steam electric power, irrigation, mining and livestock) are modified using the multiplier. WUG values for municipalities, water supply corporations, and utility districts are not apportioned; instead, their full values are retained when they are located within the district, and eliminated when they are located outside (we ask each district to identify these entity locations).

The remaining SWP tables (Projected Water Supply Needs and Projected Water Management Strategies) are not modified because district-specific values are not statutorily required. Each district needs only "consider" the county values in these tables.

In the WUS table every category of water use (including municipal) is apportioned. Staff determined that breaking down the annual municipal values into individual WUGs was too complex.

TWDB recognizes that the apportioning formula used is not ideal but it is the best available process with respect to time and staffing constraints. If a district believes it has data that is more accurate it can add those data to the plan with an explanation of how the data were derived. Apportioning percentages that the TWDB used are listed above each applicable table.

For additional questions regarding this data, please contact Stephen Allen (stephen.allen@twdb.texas.gov or 512-463-7317).

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.

BLANCO COUNTY

100% (multiplier)

All values are in acre-feet

Year	Source	Municipal	Manufacturing	Mining	Steam Electric	Irrigation	Livestock	Total
2019	GW	883	0	4	0	2,338	273	3,498
	SW	388	0	0	0	0	117	505
2018	GW	858	0	0	0	2,342	272	3,472
	SW	376	0	0	0	0	116	492
2017	GW	883	0	0	0	2,152	263	3,298
	SW	376	0	0	0	0	113	489
2016	GW	905	0	0	0	1,398	217	2,520
	SW	356	0	0	0	0	94	450
2015	GW	886	0	0	0	1,339	216	2,441
	SW	354	0	0	0	0	92	446
2014	GW	1,003	0	0	0	1,908	202	3,113
	SW	376	0	0	0	24	87	487
2013	GW	1,041	0	0	0	1,825	195	3,061
	SW	342	0	0	0	0	83	425
2012	GW	1,166	0	0	0	2,150	222	3,538
	SW	332	0	0	0	0	95	427
2011	GW	1,274	0	0	0	357	270	1,901
	SW	350	0	0	0	0	116	466
2010	GW	1,105	0	0	0	369	270	1,744
	SW	285	0	0	0	0	116	401
2009	GW	1,037	0	0	0	405	545	1,987
	SW	281	0	0	0	0	234	515
2008	GW	948	0	1	0	68	469	1,486
	SW	327	0	0	0	0	201	528
2007	GW	819	0	1	0	190	363	1,373
	SW	265	1	0	0	0	155	421
2006	GW	1,018	0	1	0	35	293	1,347
	SW	269	1	0	0	250	125	645
2005	GW	979	0	1	0	44	305	1,329
	SW	256	1	0	0	250	131	638
2004	GW	898	0	1	0	59	198	1,156
	SW	255	1	0	0	254	188	698

Projected Surface Water Supplies

TWDB 2022 State Water Plan Data

BLANCO COUNTY

100% (multiplier)

All values are in acre-feet

RWPG	WUG	WUG Basin	Source Name	2020	2030	2040	2050	2060	2070
K	Blanco	Guadalupe	Blanco Lake/Reservoir	463	463	463	463	463	463
K	Blanco	Guadalupe	Canyon Lake/Reservoir	600	600	600	600	600	600
K	Canyon Lake Water Service	Guadalupe	Canyon Lake/Reservoir	118	119	118	118	118	119
K	Livestock, Blanco	Colorado	Colorado Livestock Local Supply	101	101	101	101	101	101
K	Livestock, Blanco	Guadalupe	Guadalupe Livestock Local Supply	101	101	101	101	101	101
Sum of Projected Surface Water Supplies (acre-feet)				1,383	1,384	1,383	1,383	1,383	1,384

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.

BLANCO COUNTY			<i>100% (multiplier)</i>		All values are in acre-feet				
RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070	
K	Blanco	Guadalupe	316	365	393	407	418	425	
K	Canyon Lake Water Service	Guadalupe	83	115	147	180	213	245	
K	County-Other, Blanco	Colorado	576	653	688	698	701	696	
K	County-Other, Blanco	Guadalupe	432	490	517	524	526	523	
K	Irrigation, Blanco	Colorado	934	934	934	934	934	934	
K	Irrigation, Blanco	Guadalupe	393	393	393	393	393	393	
K	Johnson City	Colorado	353	411	443	460	473	480	
K	Livestock, Blanco	Colorado	255	255	255	255	255	255	
K	Livestock, Blanco	Guadalupe	76	76	76	76	76	76	
K	Mining, Blanco	Colorado	5	5	5	5	5	5	
Sum of Projected Water Demands (acre-feet)			3,423	3,697	3,851	3,932	3,994	4,032	

Projected Water Supply Needs

TWDB 2022 State Water Plan Data

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

BLANCO COUNTY

All values are in acre-feet

RWPG	WUG	WUG Basin	2020	2030	2040	2050	2060	2070
K	Blanco	Guadalupe	747	698	670	656	645	638
K	Canyon Lake Water Service	Guadalupe	142	119	89	58	28	-2
K	County-Other, Blanco	Colorado	263	186	151	141	138	143
K	County-Other, Blanco	Guadalupe	242	184	157	150	148	151
K	Irrigation, Blanco	Colorado	45	45	45	45	45	45
K	Irrigation, Blanco	Guadalupe	26	26	26	26	26	26
K	Johnson City	Colorado	47	-11	-43	-60	-73	-80
K	Livestock, Blanco	Colorado	262	262	262	262	262	262
K	Livestock, Blanco	Guadalupe	73	73	73	73	73	73
K	Mining, Blanco	Colorado	0	0	0	0	0	0
Sum of Projected Water Supply Needs (acre-feet)			0	-11	-43	-60	-73	-82

Projected Water Management Strategies

TWDB 2022 State Water Plan Data

BLANCO COUNTY

WUG, Basin (RWPG)

All values are in acre-feet

Water Management Strategy	Source Name [Origin]	2020	2030	2040	2050	2060	2070
Blanco, Guadalupe (K)							
Direct Reuse - Blanco	Direct Reuse [Blanco]	0	146	146	146	146	146
Drought Management	DEMAND REDUCTION [Blanco]	63	55	60	63	65	66
Municipal Conservation - Blanco	DEMAND REDUCTION [Blanco]	0	27	23	21	21	21
		63	228	229	230	232	233
Canyon Lake Water Service, Guadalupe (K)							
Drought Management	DEMAND REDUCTION [Blanco]	11	14	16	20	23	27
GBRA - MBWSP - Surface Water w/ASR	Carrizo-Wilcox Aquifer ASR [Gonzales]	0	0	0	0	0	3
Municipal Water Conservation	DEMAND REDUCTION [Blanco]	0	0	0	1	6	9
		11	14	16	21	29	39
County-Other, Blanco, Colorado (K)							
Brush Management	Trinity Aquifer [Blanco]	0	708	708	708	708	708
Drought Management	DEMAND REDUCTION [Blanco]	70	65	59	56	54	54
		70	773	767	764	762	762
County-Other, Blanco, Guadalupe (K)							
Drought Management	DEMAND REDUCTION [Blanco]	53	49	44	42	41	40
		53	49	44	42	41	40
Johnson City, Colorado (K)							
Drought Management	DEMAND REDUCTION [Blanco]	64	77	84	87	90	91
Expansion of Current Groundwater Supplies - Ellenburger-San Saba Aquifer	Ellenburger-San Saba Aquifer [Blanco]	0	100	100	100	100	100
Municipal Conservation - Johnson City	DEMAND REDUCTION [Blanco]	31	28	25	23	23	23
		95	205	209	210	213	214
Sum of Projected Water Management Strategies (acre-feet)		292	1,269	1,265	1,267	1,277	1,288

Appendix H

GAM RUN 23-017:

BLANCO-PEDERNALES GROUNDWATER CONSERVATION DISTRICT

GROUNDWATER MANAGEMENT PLAN

<https://www.twdb.texas.gov/groundwater/docs/GAMruns/GR23-017.pdf>

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Recognition of Achievement

Presented to the

Blanco-Pedernales Groundwater Conservation District

in recognition of completing the

District Groundwater Management Plan

approved on November 19, 2024. A review of the management plan has documented that the plan is administratively complete and in compliance with Texas Water Code §36.1071 and 31 TAC 356.



Bryan McMath
Executive Administrator





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

November 19, 2024

Erick Kubinski
General Manager
Blanco-Pedernales Groundwater Conservation District
601 West Main
Johnson City, Texas 78636

Dear Mr. Kubinski:

The purpose of this letter is to notify you that the groundwater management plan for the Blanco-Pedernales Groundwater Conservation District required by Texas Water Code § 36.1072 is administratively complete in accordance with Texas Water Code § 36.1071(a) and (e). The policies, plans, and opinions in the groundwater management plan represent those of the District and not those of the Texas Water Development Board.

We received the groundwater management plan for the administrative completeness review on October 31, 2024, and it was approved on November 19, 2024. Included with this letter is your District Groundwater Management Plan Certificate of Administrative Completeness.

However, we request the following corrections to the approved plan, as authorized by Texas Water Code § 36.1071(c)(2). This request does not render the management plan unapproved. Please send us an updated copy of your management plan after you have made these changes.

1. On page 17, please change "The Modeled Available Groundwater numbers (in acre-feet per year) for Blanco County are found in Appendix H and in the tables below" to "The Modeled Available Groundwater numbers (in acre-feet per year) for Blanco County are found in the tables below, and by using the hyperlink on page 18 to view the GAM Run 21-014 MAG report." This change is required because Appendix H presents a hyperlink to GAM Run 23-017 not a link to, or copy of, GAM Run 21-014 MAG.
2. On page 73, please change "GAM RUN 23-017 MAG" to the correct name of "GAM RUN 23-017."

Our Mission	:	Board Members
Leading the state's efforts in ensuring a secure water future for Texas	:	Brooke T. Paup, Chairwoman L'Oreal Stepney, P.E., Board Member Tonya R. Miller, Board Member
	:	Bryan McMath, Executive Administrator

Erick Kubinski, General Manager
November 19, 2024
Page 2

Thank you for participating in this effort and contributing to the future of groundwater conservation and management in the state of Texas. Your next five-year management plan is due on November 19, 2029.

If you have any questions or concerns, please contact Stephen Allen of our Groundwater Technical Assistance Department at 512-463-7317 or stephen.allen@twdb.texas.gov

Sincerely,



Bryan McMath
Executive Administrator

Enclosure

c w/o enc.: Stephen Allen, P.G., Groundwater
Robert Bradley, P.G., Groundwater
Abiy Berehe, P.G., Texas Commission on Environmental Quality
Peggy Hunka, P.G., Texas Commission on Environmental Quality