COMAL TRINITY GROUNDWATER CONSERVATION DISTRICT

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Larry Sunn, Secretary (retired 7/31/23)	At-Large

District Staff

H.L. Saur, General Manager

Carl Haack, Assistant General Manager

Valerie Posladek, Administrator

Comal Trinity GCD
PO BOX 664, Spring Branch Texas 78070
830-885-2130
www.comaltrinitygcd.com

This Annual Report for 2023 provides performance and progress in achieving management goals of the Comal Trinity Groundwater Conservation District (CTGCD or District). This report is prepared by the General Manager and staff and is presented to the CTGCD Board of Directors and the public at the first board meeting following the end of the 2023 year. The first CTGCD Management Plan was approved by the Texas Water Development Board (TWDB) on April 25, 2018, with a revised Management Plan approved by the TWDB on May 5, 2023. This Annual Report tracked the plan goals from this revised Plan for the whole of 2023. CTGCD has met its goals within this period.

DISTRICT MISSION

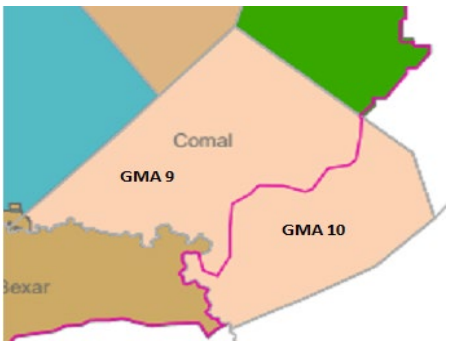
The Comal Trinity Groundwater Conservation District was created under Chapter 36 of the Texas Water Code for the purpose of conserving, preserving, recharging, protecting, and preventing waste of groundwater from the Trinity Aquifer and its subdivisions within Comal County. The District conducts administrative and technical activities and programs to achieve these purposes. The District uses the authority granted under its enabling legislation, HB2407, and TWC Chapter 36 and other state laws to conduct aquifer research, monitor water well drilling and production from non- exempt wells, collect and archive well water and aquifer data, issue authorizations for well drilling, modification, equipping, and plugging, 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.

GUIDING PRINCIPLES

The District recognizes that groundwater resources throughout this region are of vital importance to all citizens and must be managed effectively. The CTGCD Management Plan serves as a guideline for the District to ensure greater understanding of local aquifer conditions, development of groundwater management concepts and strategies, and subsequent implementation of appropriate groundwater management policies.

GENERAL DESCRIPTION OF THE DISTRICT

The Comal Trinity Groundwater Conservation District resides within the majority of Comal County, excluding a small portion of territory included within the boundaries of the Trinity Glen Rose Groundwater Conservation District. The District covers 559 square miles and resides in two Groundwater Management Areas (GMA-9 and GMA-10) with just under 185,000 population in 2022 according to the US Census Bureau estimate (2023 estimate not available at the time of this report). US Census data shows that Comal County realized 58.8% growth between the years of 2010 and 2022.



REPORT ON 2023 GROUNDWATER MANAGEMENT PLAN GOALS AND ACHIEVEMENTS

ACTIONS, PROCEDURES, PERFORMANCE AND AVOIDANCE NECESSARY TO EFFECTUATE THE MANAGEMENT PLAN AND DETAILS OF HOW THE DISTRICT WILL MANAGE GROUNDWATER SUPPLIES

MANAGEMENT PLAN GOAL 1 – STRATEGIES FOR EFFICIENT USE OF GROUNDWATER

The District continues its program of issuing well drilling/operating permits. While the District does not issue permits for water usage allocations, it maintains a permitting and registration program for all new water wells drilled within the District's jurisdiction. These activities ensure management of water well use to include spacing requirements, Non-Exempt well registration, and water usage reporting requirements. The table, below, summarizes the well drilling and plugging activities in 2023.[1]

	Applications Received	Wells Completed
Commercial		
<25,000 gpd	3	2
Domestic		
Domestic	95	108
Landscape	2	3
Replacement	2	2
Livestock	2	3
Geothermal	2	3
Public Water Supply		
< 25,000 gpd	1	0
>25,000 gpd	1	3
Total Drilling:	**108**	**124**
Well Plugging	**14**	**12**

[1] CTGCD Management Plan Goal 1.A

Water usage data collection for identified non-exempt wells began January 1, 2016. Monitoring of acre-feet of water used as compared to the two GMA's Modeled Available Groundwater (MAG) occurs throughout the year and is reported to the Board on a quarterly and annual basis.[2]

		GMA-9 Pumped	GMA-9 MAG Availability	GMA-10 Pumped	GMA-10 MAG Availability
1Q2023			9,383		33,554
	Gallons:	288,209,352		646,383,098	
	Acre-ft:	884	8,499	1,984	31,570
2Q2023					
	Gallons:	349,224,466		678,686,817	
	Acre-ft:	1,072	7,427	2,083	29,488
3Q2023					
	Gallons:	460,707,187		753,584,083	
	Acre-ft:	1,414	6,013	2,313	27,175
4Q2023					
	Gallons:	191,684,091		624,821,724	
	Acre-ft:	588	5,425	1,918	25,257
2023 Total	Acre-ft:	3,958		8,297	
	MAG Used to-date	42%		25%	

Final 2024.02.12, 98% Reports Rcvd

Fees are collected per District rules and rates as defined in those rules. The complete rules are available at www.ComalTrinityGCD.com. The production income funds administrative and operational activities of the District, and reserves are in place for potential capital improvement and District growth needs as determined by the Board of Directors.

Strategies to Control and Prevent Waste of Groundwater

Public outreach and education are a focus for CTGCD and, typically, board members or staff are active in attending and presenting materials and information at various events throughout the year. Pamphlets developed by the District (Appendix A) are distributed at each event and are always available in the CTGCD office for the public. There were 56 pamphlets picked up by members of the public. There were two public presentations by CTGCD representatives in 2023: Board President and CTGCD General Manager presented at the Tri-Cities High Twelve Club of Comal County (04/11/2023) and CTGCD hosted and participated in the Comal County Water Talk by the Texas Water Development Board (10/18/2023).[3] A big message in the presentations is how much groundwater is used for landscape irrigation (estimated at least 65%).

[2] CTGCD Management Plan Goal 1.B
[3] CTGCD Management Plan Goal 2.A

Strategies to Prevent and Control Subsidence

While the Management Plan includes a goal to prevent and control subsidence, this issue has not been identified by CTGCD in Comal County. Appendix B cites the latest study in support of the CTGCD assertion that this Management Plan goal is not relevant to the District currently.[4]

Strategies to Address conjunctive surface water management issues

Per the TWDB, "conjunctive use water management strategies combine multiple water sources, usually surface water and groundwater, to optimize the beneficial characteristics of each source, yielding additional firm water supplies." Within the District, GBRA and SJWTX, Inc. are most involved in conjunctive water management and the District will attend any meetings called by either agency if the opportunity arises. Additionally, President Larry Hull attended the November 2, 2023, meeting of the South-Central Texas Regional Water Planning Area, Region L.[5]

In 2023, CTGCD representatives participated in multiple GMA Joint Planning meetings for both GMA-9 and GMA-10 (dates and discussion are recorded in quarterly minutes). This year the meetings for both GMAs were focused primarily on Desired Future Conditions Joint Planning activities for the 2026 Explanatory Report to TWDB. This Explanatory Report considers spring flow and surface water in addition to groundwater.

An additional Management Objective set out in the Management Plan to monitor at least five District wells and report to the Board quarterly has been achieved. Reports of monitored wells and groundwater trends were presented to the Board at each quarterly meeting of the CTGCD Board (March 6, June 19, August 21, and November 13, 2023).[6] More details are provided in the section of this report titled "Addressing Desired Future Conditions".

Strategies to Address natural resource issues which impact the use and availability of groundwater, or which are impacted by using groundwater

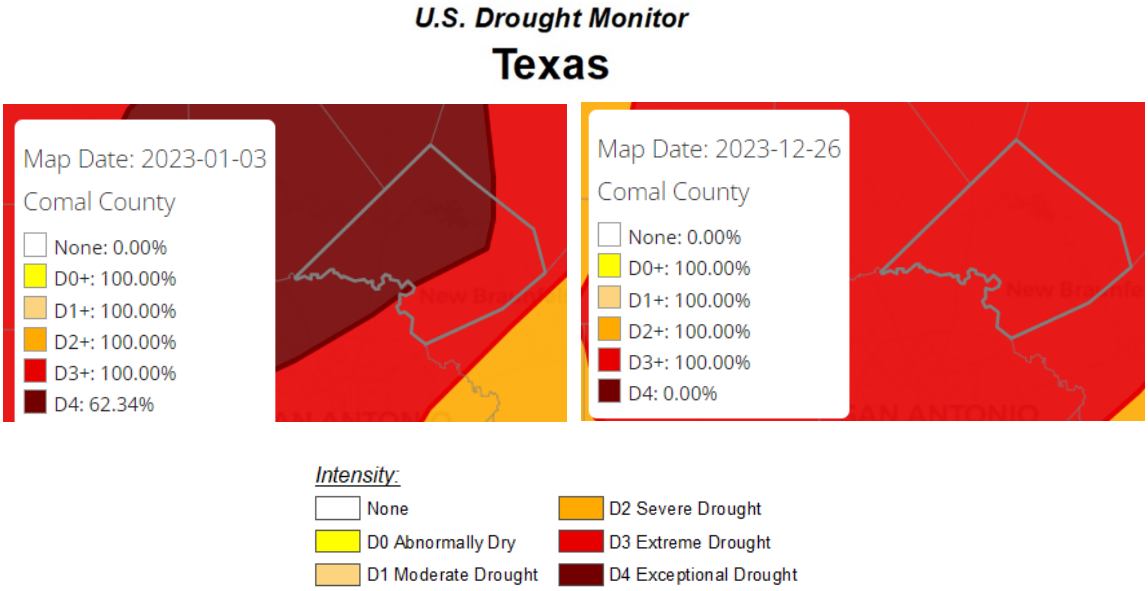
The District considers the greatest potential for natural resource issues which impact the use and availability of groundwater could arise from the use of water by Industrial/Mining operations. The District is home to several quarries (mining/industrial operations) and collects quarterly water usage information from them. This category is the second largest groundwater user type in the district, behind municipal users. In 2023, the reported groundwater usage by this group was 3,438 acre-feet (with 98% of reports received at the date of this report).[7]

In addition, the District maintains a strong program of identifying and gaining compliance with plugging of abandoned or compromised wells. This directly protects the quality and availability of groundwater by preventing contamination. In 2023, 12 wells were identified, and all were plugged.[8]

[4] CTGCD Management Plan Goal 3.0
[5] CTGCD Management Plan Goal 4.A
[6] CTGCD Management Plan Goal 8.A
[7] CTGCD Management Plan Goal 5.A
[8] CTGCD Management Plan Goal 5.B

Strategies to Address Drought Conditions

The District monitored and collected data quarterly from the U.S. Drought Monitor (https://www.drought.gov/states/texas/county/Comal) and the information was reported to the Board at the quarterly board meetings.[9] Additionally, precipitation patterns as reported by the National Weather Service (https://water.weather.gov/precip/) were reported to the Board quarterly.[10] Dry conditions continued as the 62% of the county began the year in Exceptional Drought, which improved slightly by year-end but the 100% of the county was still in Extreme Drought.



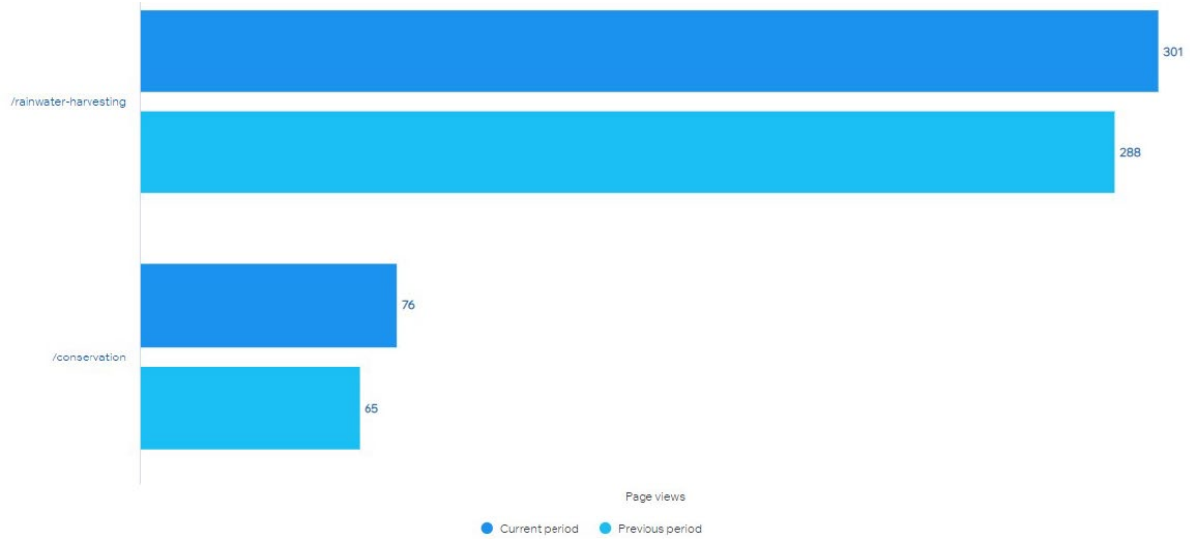
https://www.waterdatafortexas.org/drought/drought-monitor?period=2023-12-26&areaType=county&areaName=Comal

[9] CTGCD Management Plan Goal 6.A
[10] CTGCD Management Plan Goal 6.B

Strategies to Address Groundwater Conservation and Rainwater Harvesting

The website maintained by CTGCD is an important source of information and includes links to groundwater conservation education on its Conservation page: https://www.comaltrinitygcd.com/conservation

This chart[11] shows the number of hits to the Rainwater Harvesting and Water Conservation pages on the website:



Rainwater harvesting is promoted strongly by the District, both in the pamphlet[12], news articles, and on the website. CTGCD representatives presented an informational workshop to the public regarding the water district and the importance of water conservation and actively continues educational efforts on behalf of CTGCD. In addition, Dr. Larry Sunn, retired Board member (7/31/2023), along with Dr. Stephen Grainger offer free consultation to county residents on rainwater catchment systems and education and were very active in 2023 performing site visits and presentations for community members and groups. Details of those visits are included in the quarterly board minutes.[13]

Additionally, in 2023, there were numerous articles written by Dr. Larry Sunn regarding rainwater harvesting and published locally in *The Front Porch News (12), Canyon Lake Living (6), Spring Branch Neighbors (2),* and *Bulverde Spring Branch Highlights (1).*[14]

Strategies to Address Recharge Enhancement, Brush Control, and Precipitation Enhancement

Recharge enhancement is a strategy to increase groundwater stores and the District was receptive to exploring these avenues, however, the General Manager reports that there have been no findings related to recharge enhancement in the District in 2023. Brush Control is one method of supporting recharge enhancement, and the District includes information on the pamphlets that are distributed at

[11] CTGCD Management Plan Goal 2.A, 7.A
[12] CTGCD Management Plan Goal 7.C (56 distributed 2023)
[13] CTGCD Management Plan Goal 7.C
[14] CTGCD Management Plan Goal 2.A

the events and locations previously mentioned.[15] The CTGCD Management Plan states that the precipitation enhancement goal is not applicable to the District as this objective is not cost effective at this time.[16]

Addressing Desired Future Conditions (DFCs)

The District Management Plan calls for water level monitoring in the Trinity Aquifer. The District has installed WellIntel monitoring equipment in twelve wells throughout the District. In 2023, twelve CTGCD wells and two TWDB wells were actively monitored the entire year. The General Manager provides a monitor well report at each quarterly board meeting and provides annual drawdown totals of the monitored wells to the Board and included, below.[17]

2023 12 Months In-Service Well Monitoring

Name	Minimum Date	Maximum Date	# of Readings	Minimum Value	Maximum Value	Start Reading*	Last Reading	Difference
#1	1/1/2023	1/1/2024	13	203.95	213.7	204.07	210.89	-6.82
#2	1/1/2023	1/1/2024	13	96.79	97.13	97.01	97.56	-0.55
#3	1/1/2023	1/1/2024	13	523.57	532.49	526.9	523.57	3.33
#5	1/1/2023	1/1/2024	12	347.13	355.18	347.48	353.43	-5.95
#6	1/1/2023	1/1/2024	12	461.17	522.12	491.26	476.79	14.47
#8	1/1/2023	1/1/2024	13	397.11	400.74	397.47	400.35	-2.88
#9	1/1/2023	1/1/2024	13	298.86	300.92	300.82	302.32	-1.5
#10	1/1/2023	1/1/2024	12	320.89	326.57	320.9	323.63	-2.73
#11	1/1/2023	1/1/2024	13	362.57	364.2	362.57	362.59	-0.02
#12	1/1/2023	1/1/2024	13	420.28	431.91	420.75	425.76	-5.01
#13	1/1/2023	1/1/2024	13	337.99	342.9	340.43	340.74	-0.31
#14	1/1/2023	1/1/2024	13	228.99	239.12	230.62	233.42	-2.8
6807407	1/1/2023	1/1/2024				343.93	354.6	-10.67
6815211	1/1/2023	1/1/2024				109.65	110.82	-1.17
							Average Change 2023	-1.62

* below ground level

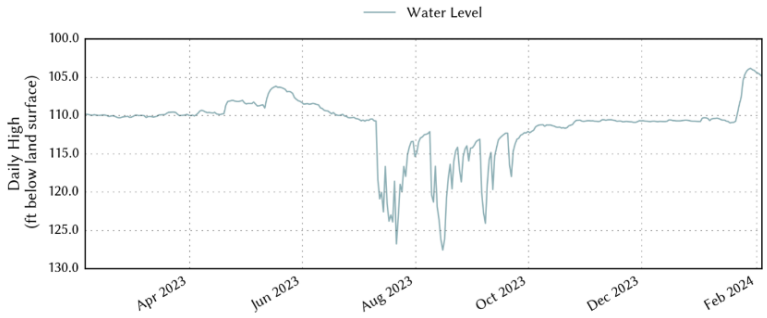
The Desired Future Condition (DFC) for the Trinity Aquifer Modeled Available Groundwater (MAG) in GMA 9 in 2023 was determined by a specific model run and scenario—*MAG for the Trinity Aquifer, GMA 9, for CTGCD (in ac-ft) GAM Run 21-014 MAG* which allows 9,383 acre-feet per year water usage to stay within the DFCs. Likewise, the DFCs for GMA 10 were set by the *GAM Run 16-033 MAG* allowing for 33,554 acre-feet water usage per year.

The DFCs call for comparisons of average and allowable drawdown to the generally agreed upon baseline 2008 water levels. However, the CTGCD monitoring capability only came online in 2019 so comparisons with average drawdown and allowable drawdown from the DFC is not yet possible as the data period is not long enough for significant comparisons. The two TWDB monitored wells in Comal County have more historical data; however, they are representative of a very small area within the county.

[15] CTGCD Management Plan Goal 7.D
[16] CTGCD Management Plan Goal not applicable
[17] CTGCD Management Plan Goal 8.A

State Well Number 6815211 is *104.90* feet below land surface on 2024-02-04

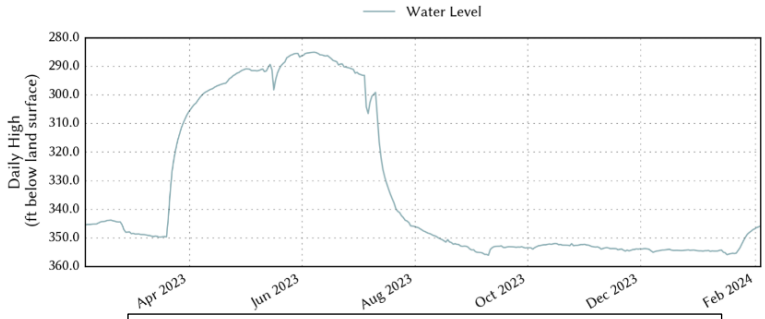
Oldest record 7/20/2010 water level was 103.12 below surface. As of 12/31/2023, water was 110.81 below land surface, representing decrease of 7.69 feet.



1.18' increase from 1/1/2023 thru 12/31/2023

State Well Number 6807407 is *345.95* feet below land surface on 2024-02-04

On 12/30/2008 water level was 291.75 below surface. As of 12/31/2023, water level was 354.45 below, representing a drop of 62.7 feet



10.61 decrease from 1/3/2023 thru 12/31/2023.

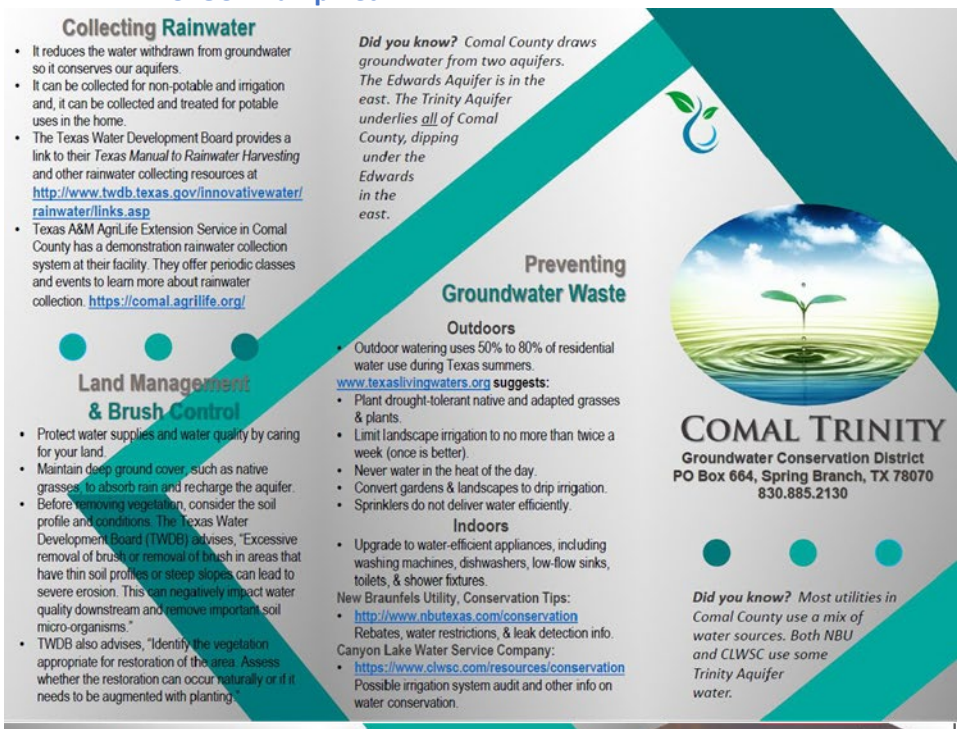
Addressing Desired Future Conditions: Groundwater Management Area Joint Planning Process[18]

There were five GMA-9 DFC planning meetings in 2023; February 21, April 25, July 25, September 26, and November 28, 2023, of which three were attended by a CTGCD representative. Additionally, CTGCD provided a report of Management Plan achievements and DFC monitoring results at the November 28 meeting.

There were four GMA-10 meetings held in 2023; March 1, May 10, and July 17, and October 16, 2023, all of which were attended by a CTGCD representative.

[18] CTGCD Management Plan Goal 8.B

APPENDIX A – CTGCD Pamphlet



Collecting Rainwater

- It reduces the water withdrawn from groundwater so it conserves our aquifers.
- It can be collected for non-potable and irrigation and, it can be collected and treated for potable uses in the home.
- The Texas Water Development Board provides a link to their *Texas Manual to Rainwater Harvesting* and other rainwater collecting resources at http://www.twdb.texas.gov/innovativewater/rainwater/links.asp
- Texas A&M AgriLife Extension Service in Comal County has a demonstration rainwater collection system at their facility. They offer periodic classes and events to learn more about rainwater collection. https://comal.agrilife.org/

Land Management & Brush Control

- Protect water supplies and water quality by caring for your land.
- Maintain deep ground cover, such as native grasses, to absorb rain and recharge the aquifer.
- Before removing vegetation, consider the soil profile and conditions. The Texas Water Development Board (TWDB) advises, "Excessive removal of brush or removal of brush in areas that have thin soil profiles or steep slopes can lead to severe erosion. This can negatively impact water quality downstream and remove important soil micro-organisms."
- TWDB also advises, "Identify the vegetation appropriate for restoration of the area. Assess whether the restoration can occur naturally or if it needs to be augmented with planting."

Did you know? *Comal County draws groundwater from two aquifers. The Edwards Aquifer is in the east. The Trinity Aquifer underlies all of Comal County, dipping under the Edwards in the east.*

Preventing Groundwater Waste

Outdoors

- Outdoor watering uses 50% to 80% of residential water use during Texas summers.

www.texaslivingwaters.org **suggests:**

- Plant drought-tolerant native and adapted grasses & plants.
- Limit landscape irrigation to no more than twice a week (once is better).
- Never water in the heat of the day.
- Convert gardens & landscapes to drip irrigation.
- Sprinklers do not deliver water efficiently.

Indoors

- Upgrade to water-efficient appliances, including washing machines, dishwashers, low-flow sinks, toilets, & shower fixtures.

New Braunfels Utility, Conservation Tips:

- http://www.nbutexas.com/conservation
  Rebates, water restrictions, & leak detection info.

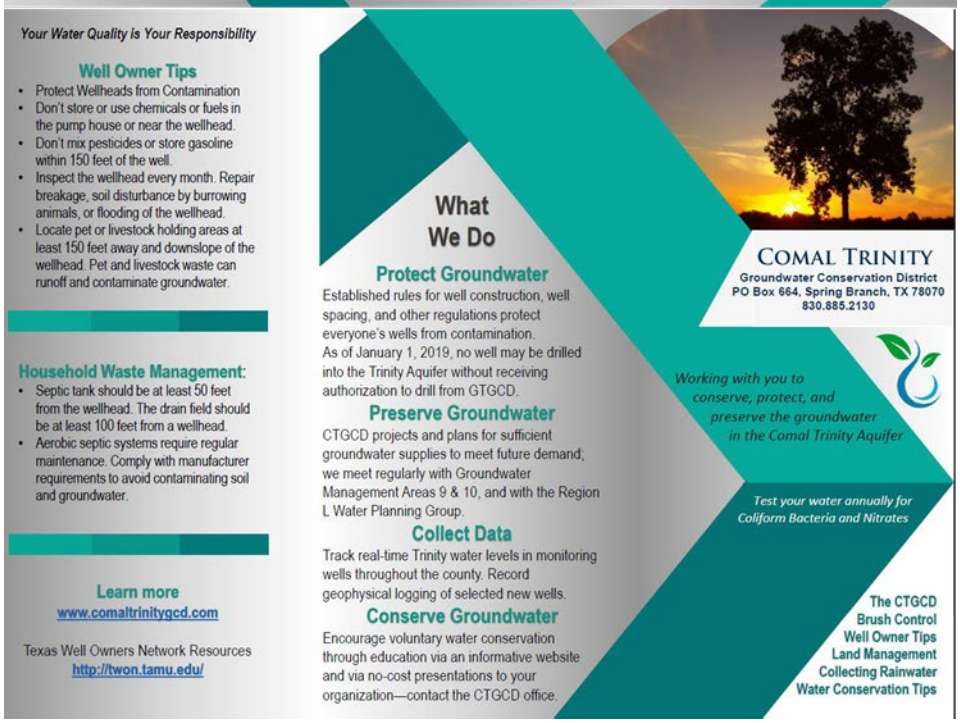
Canyon Lake Water Service Company:

- https://www.clwsc.com/resources/conservation
  Possible irrigation system audit and other info on water conservation.

COMAL TRINITY

Groundwater Conservation District
PO Box 664, Spring Branch, TX 78070
830.885.2130

Did you know? *Most utilities in Comal County use a mix of water sources. Both NBU and CLWSC use some Trinity Aquifer water.*



Your Water Quality is Your Responsibility

Well Owner Tips

- Protect Wellheads from Contamination
- Don't store or use chemicals or fuels in the pump house or near the wellhead.
- Don't mix pesticides or store gasoline within 150 feet of the well.
- Inspect the wellhead every month. Repair breakage, soil disturbance by burrowing animals, or flooding of the wellhead.
- Locate pet or livestock holding areas at least 150 feet away and downslope of the wellhead. Pet and livestock waste can runoff and contaminate groundwater.

Household Waste Management:

- Septic tank should be at least 50 feet from the wellhead. The drain field should be at least 100 feet from a wellhead.
- Aerobic septic systems require regular maintenance. Comply with manufacturer requirements to avoid contaminating soil and groundwater.

Learn more

www.comaltrinitygcd.com

Texas Well Owners Network Resources
http://twon.tamu.edu/

What We Do

Protect Groundwater

Established rules for well construction, well spacing, and other regulations protect everyone's wells from contamination. As of January 1, 2019, no well may be drilled into the Trinity Aquifer without receiving authorization to drill from GTGCD.

Preserve Groundwater

CTGCD projects and plans for sufficient groundwater supplies to meet future demand; we meet regularly with Groundwater Management Areas 9 & 10, and with the Region L Water Planning Group.

Collect Data

Track real-time Trinity water levels in monitoring wells throughout the county. Record geophysical logging of selected new wells.

Conserve Groundwater

Encourage voluntary water conservation through education via an informative website and via no-cost presentations to your organization—contact the CTGCD office.

COMAL TRINITY
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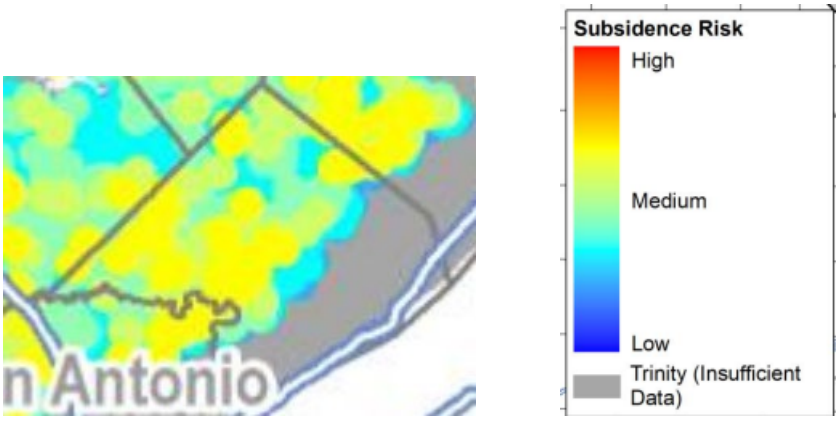
Working with you to conserve, protect, and preserve the groundwater in the Comal Trinity Aquifer

Test your water annually for Coliform Bacteria and Nitrates

The CTGCD
Brush Control
Well Owner Tips
Land Management
Collecting Rainwater
Water Conservation Tips

APPENDIX B

Identification of the Vulnerability of the Major and Minor Aquifers of Texas to Subsidence with Regard to Groundwater Pumping – TWDB Contract Number 1648302062, by LRE Water
http://www.twdb.texas.gov/groundwater/models/research/subsidence/subsidence.asp



Final Report: Identification of the Vulnerability of the Major and Minor Aquifers of Texas to Subsidence with Regard to Groundwater Pumping – TWDB Contract Number 1648302062

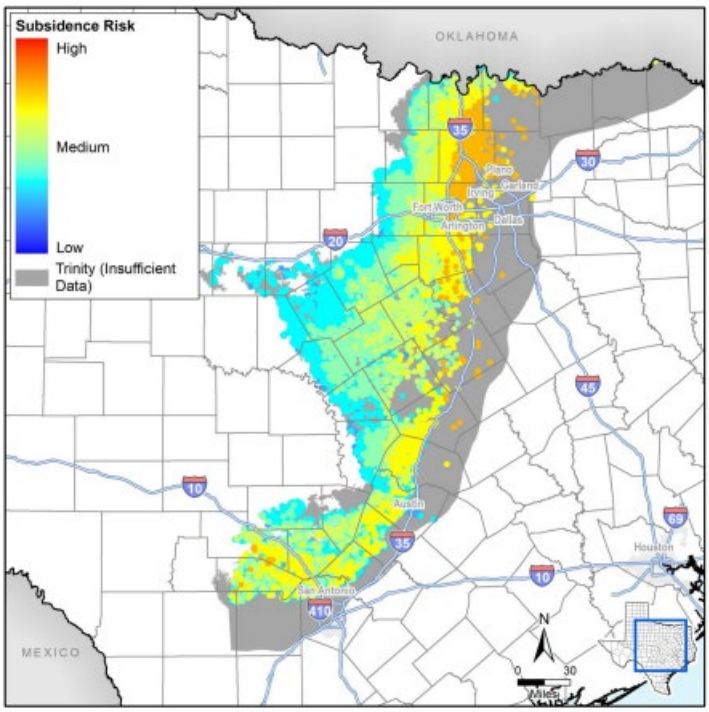


Figure 4.49. Trinity Aquifer subsidence risk vulnerability at well locations.

APPENDIX C

Comal Trinity Groundwater Conservation District Management Plan Revision Record

Date Adopted	Version
March 19, 2018	Original Adoption
March 13, 2023	Revision #1 (TWDB Approved May 5, 2023)