



COMAL TRINITY GROUNDWATER CONSERVATION DISTRICT

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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 2022 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 2022 year. The first CTGCD Management Plan was approved by the Texas Water Development Board (TWDB) on April 25, 2018. The Plan set timelines varying from one to five years to achieve the management goals as outlined in the Management Plan. CTGCD has met its goals within this period.

DISTRICT MISSION

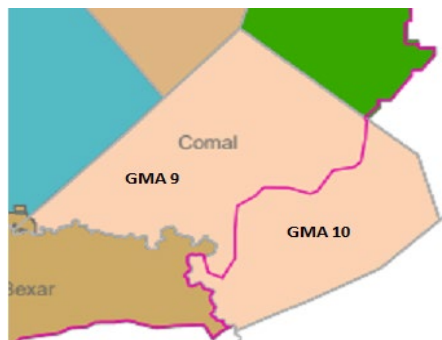
The Comal Trinity Groundwater Conservation District was created under Chapter 36 of the Texas Water Code for the purpose of conserving, preserving, recharging, protecting, and preventing waste of groundwater from the Trinity Aquifer and its subdivisions within Comal County. The District conducts administrative 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 175,000 population in 2021 (US Census Bureau estimate, 2022 estimate not available at the time of this report). US Census data shows that Comal County realized 67% growth between the years of 2010 and 2020.



REPORT ON 2022 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 an authorization 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 tables, below, summarize the well drilling and plugging permitted in 2022.¹

Application Types - 2022	Applications Received
Domestic/Livestock	132
Geothermal	1
b) < 25,000 gpd	6
c) > 25,000 gpd	9
e) Test Bore	2
f) Complete Test Bore < 25,000 gpd	1
Monitor Well	1
Total Received:	152
Applications Approved:	139
Wells Plugged:	17

MP Objective 1. A	Applications Received	Applications Approved	Wells Completed
GMA 9	124	126	114
GMA 10	28	24	24
Total	152	150	138

CTGCD has maintained an active program of identifying and working with property owners to plug wells that have been abandoned or are of a compromised nature². CTGCD Board adopted Resolution #09192022 “A Resolution to Join a Memorandum of Understanding (MOU) With the Texas Department of Licensing and

¹ CTGCD Management Plan Goal 1.A

² CTGCD Management Plan Goal 1.C



Regulation (TDLR) And the Texas Commission on Environmental Quality (TCEQ) to Coordinate Efforts For Referral and Investigation Of Complaints Regarding Abandoned and Deteriorated Wells Within the Jurisdiction of the Comal Trinity Groundwater Conservation District” on September 19, 2022.

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.³

		GMA-9 Pumped	GMA-9 MAG Availability	GMA-10 Pumped	GMA-10 MAG Availability
1Q2022			9,383		33,554 *
	Gallons:	319,535,518		634,197,394	
	Acre-ft:	981	8,402	1,946	31,608
2Q2022					
	Gallons:	373,871,436		631,595,984	
	Acre-ft:	1,147	7,255	1,938	29,669
3Q2022					
	Gallons:	418,871,741		696,699,033	
	Acre-ft:	1,285	5,970	2,138	27,531
4Q2022					
	Gallons:	331,417,547		486,596,316	
	Acre-ft:	1,017	4,952	1,493	26,038
2022 Total to-date	Acre-ft:	4,431		7,516	
	MAG Used to-date		47%		22%

* GMA-10 MAG was updated in 2018 from 29,284 to 33,554; New number will be reflected in 2022 DFC Report.

* GMA-9 MAG for CTGCD was corrected by TWDB in 2021 from 10,076 which included the whole of Comal County to 9,383 for District.

Final 2023.02.21

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

³ CTGCD Management Plan Goal 1.B



CTGCD office for the public. There was one public presentation organized by CTGCD and held in the Vintage Oaks Community Center on September 19, 2022.⁴ The workshop was held during the board meeting describing the role of CTGCD, with guests from SJTXW, Inc./Canyon Lake Water Service Co. presenting information regarding their role in water supply and conjunctive water management. During the event, 30 pamphlets were distributed.⁵ An additional event, the National Night Out in a neighborhood within the District was attended by President Larry Hull, and a presentation was given by General Manager, H.L. Saur on October 4, 2022.

In addition, Dr. Larry Sunn, a Board member, along with Dr. Stephen Grainger offer free consultation to county residents on rainwater catchment systems and education and were very active in 2022 performing site visits and presentations for community members. Details of those visits are included in the quarterly board minutes.⁶

Additionally, in 2022, there were numerous articles written by Dr. Larry Sunn and published locally in *The Front Porch News* (8), *Canyon Lake Living* (9), and *Spring Branch Neighbors* (10).⁷

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.⁸

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 provide the 2023 Management Plan to each entity once it is approved by TWDB and adopted by the CTGCD Board. Additionally, President Larry Hull attended the January 19, 2022 meeting of the South-Central Texas Regional Water Planning Area, Region L.⁹

In 2022, 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 narrowly focused on Desired Future Conditions Joint Planning activities for the 2022 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

⁴ CTGCD Management Plan Goal 2.A, 7.C, 7F

⁵ CTGCD Management Plan Goal 2.A

⁶ CTGCD Management Plan Goal 7.E

⁷ CTGCD Management Plan Goal 2.A, 7.E

⁸ CTGCD Management Plan Goal 3.0

⁹ CTGCD Management Plan Goal 4.A



groundwater trends were presented by General Manager, H.L. Saur, at each quarterly meeting of the CTGCD Board (February 28, May 23, September 19, and November 14, 2022).¹⁰ 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

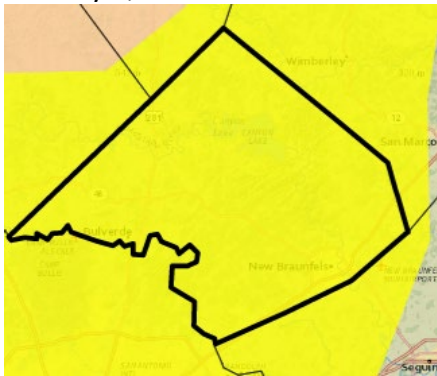
The District has not been made aware of any natural resource issues which impact the use and availability of groundwater to date.¹¹ However, the District is home to several quarries (mining/industrial operations) and collects quarterly water usage information from them. This category is the second largest groundwater user type in the district, behind municipal users.

STRATEGIES TO ADDRESS DROUGHT CONDITIONS

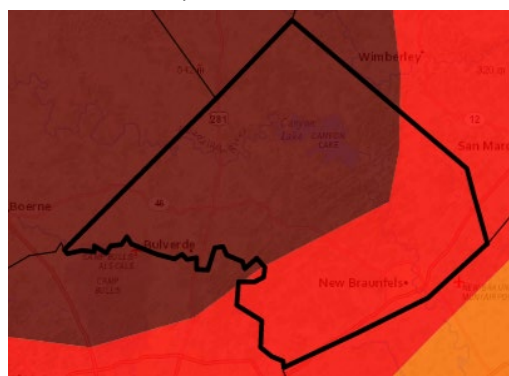
The District monitored and collected data quarterly from the U.S. Drought Monitor and Drought.gov (National Integrated Drought Information System) and the information was reported to the Board at the quarterly board meetings.¹² Additionally, precipitation patterns as reported by the National Weather Service (NOAA) were reported to the Board quarterly.¹³ Dry conditions worsened as the county went from Abnormally Dry designation to Exceptional Drought for most of the county by year end.

**U.S. Drought Monitor
Texas**

January 4, 2022



December 27, 2022



¹⁰ CTGCD Management Plan Goal 4.B

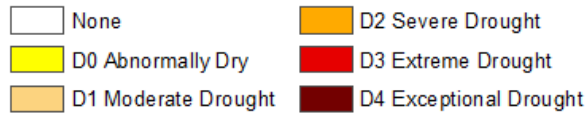
¹¹ CTGCD Management Plan Goal 5

¹² CTGCD Management Plan Goal 6.A

¹³ CTGCD Management Plan Goal 6.B



Intensity:



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 chart¹⁴ shows the number of hits to the various Water Conservation themed pages on the website:

Rainwater Harvesting, Conservation and Controlling Waste

www.ComalTrinityGCD.com	2022 Page Views	2021 Page Views
/rainwater-harvesting	285	139
/conservation	65	47
/controlling-waste	12	5

Rainwater harvesting is promoted strongly by the District, both in the pamphlet¹⁵, news articles, and on the website. As discussed previously, CTGCD representatives presented two informational workshops to the public, one specifically regarding rainwater harvesting¹⁶. Board member, Dr. Larry Sunn, has been very active in the community educating members of the public both within and outside the CTGCD boundaries.

Printed media, in the form of pamphlets and news articles (as described earlier) are also a part of CTGCD’s commitment to groundwater conservation.

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 2022. Brush Control is one method of supporting recharge enhancement, and the District includes information on the pamphlets that are distributed at the events and locations previously mentioned.¹⁷

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.¹⁸

¹⁴ CTGCD Management Plan Goal 2.A, 7.A, 7.E
¹⁵ CTGCD Management Plan Goal 7.B (67 distributed 2022)
¹⁶ CTGCD Management Plan Goal 7.B (9/19/22, 10/04/22), 7.E
¹⁷ CTGCD Management Plan Goal 7.D, 7.F
¹⁸ CTGCD Management Plan Goal not applicable



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 2022, 9 wells were active 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.¹⁹

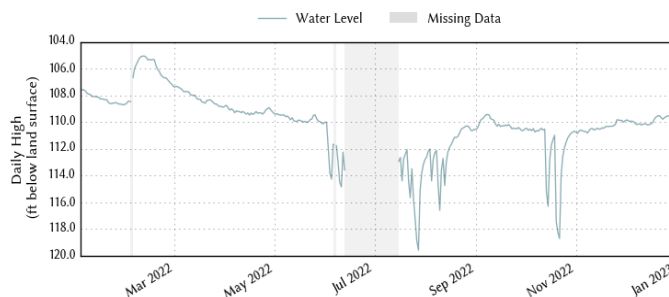
Well #	Water Level in Feet 1/1/2022	Water Level in Feet 1/1/2023	Change in Water Level
#1	186.4	204.5	-18.1
#2	97.1	97	+0.1
#3	520.1	526.8	-6.7
#5	347.9	347.2	+0.7
#6	436.5	476.1	-39.6
#8	390.5	398.7	-8.2
#9	302.7	300.6	+2.1
#10	313.8	328.1	-14.3
#11	362.9	362.6	+0.3
<u>TWDB</u> 6815211	107.6	109.6	-2
<u>TWDB</u> 6807407	326.5	318.2	+8.7
		Average Change 1/1/22-1/1/23	-7.07'

The Desired Future Condition for the Trinity Aquifer Modeled Available Groundwater (MAG) in GMA 9 in 2022 was based on a specific model run and scenario—Scenario 6 in GAM Task 10-005 (Hutchison, 2010) and GAM Task 10-050 (Hassan, 2012). That calls for comparisons of average and allowable drawdown to 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.

There are two TWDB monitored wells in Comal County. These wells have more historical data; however, they are representative of a small area within the county.

State Well Number 6815211 is 109.67 feet below land surface on 2023-01-03

Oldest record 7/20/2010 water level was 103.12 below surface. As of 1/3/2023, water was 109.67 below, representing a drop of 6.55 feet.



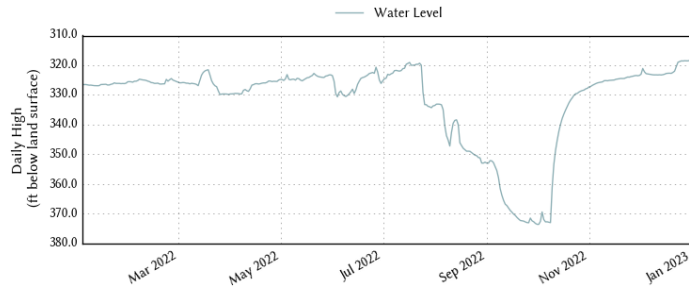
2.08' drop from 1/3/2022 thru 1/3/2023.

¹⁹ CTGCD Management Plan Goal 8.A



State Well Number 6807407 is 317.78 feet below land surface on 2023-01-03

On 12/30/2008 water level was 291.75 below surface. As of 12/31/2022, water level was 318.36 below, representing a drop of 26.61 feet.



8.72' increase from 1/3/2022 thru 1/3/2023.

ADDRESSING DESIRED FUTURE CONDITIONS: GROUNDWATER MANAGEMENT AREA JOINT PLANNING PROCESS²⁰

There were five GMA-9 DFC planning meetings in 2022; May 9, June 21, August 15, October 17, and December 9, 2022, of which three were attended by a CTGCD representative. Additionally, CTGCD provided a report of Management Plan achievements and DFC monitoring results at the December 9, 2022 meeting.

There were three GMA-10 meetings held in 2021; February 22, May 25, and August 24, 2022, all of which were attended by a CTGCD representative. On October 20, 2022, GMA 10 received notification that the 2021 DFC Explanatory Report was administratively complete. This was adopted by Resolution #11142022 by the CTGCD board on November 14, 2022.

APPENDIX A – CTGCD Pamphlet

²⁰ CTGCD Management Plan Goal 8.B



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.twrdb.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/>

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.



COMAL TRINITY
Groundwater Conservation District
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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.

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

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."

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.

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

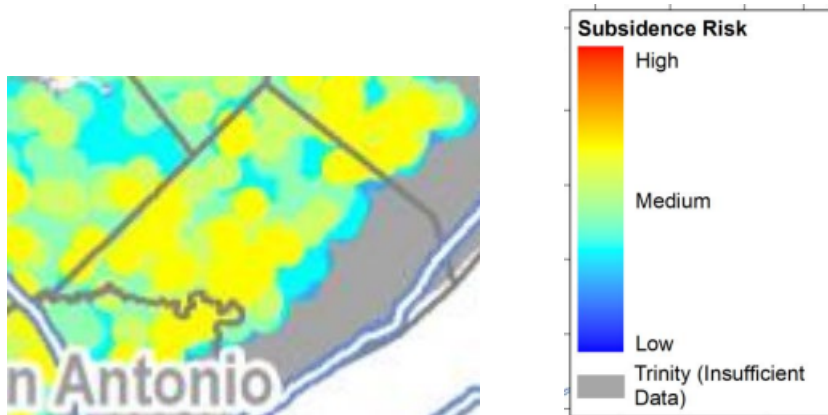
Test your water annually for Coliform Bacteria and Nitrates

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

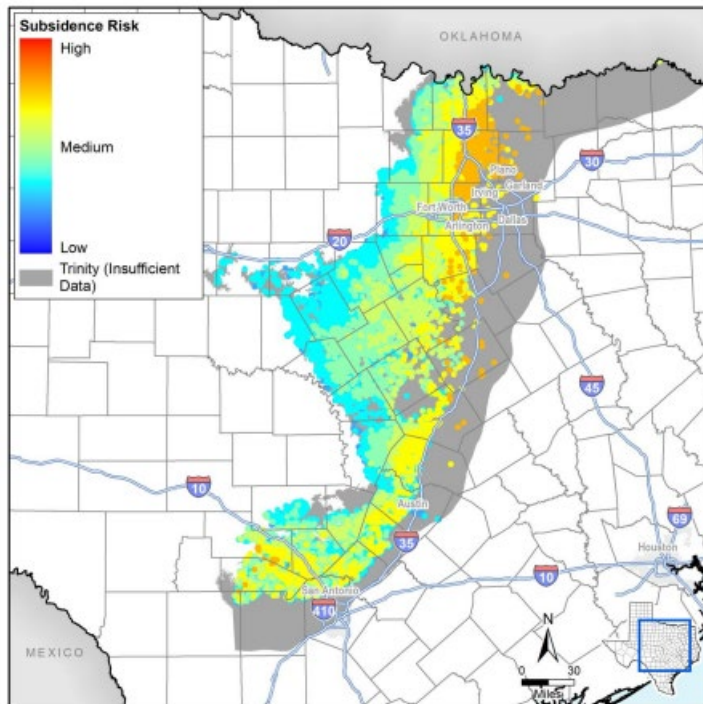


Figure 4.49. Trinity Aquifer subsidence risk vulnerability at well locations.



APPENDIX C

Comal Trinity Groundwater Conservation District Management Plan Revision Record

Date Adopted	Version/Resolution
March 19, 2018	Original Adoption, Board Resolution
In Progress (2023.03.06)	Revision #1 (2023)

