

# Clearwater Source

Clearwater Underground Water Conservation District

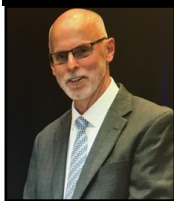
[www.cuwcd.org](http://www.cuwcd.org)

2022 Annual Newsletter

| December 2022

| Volume 18, Issue 1

## POPULATION GROWTH IS UPON US IN BELL COUNTY

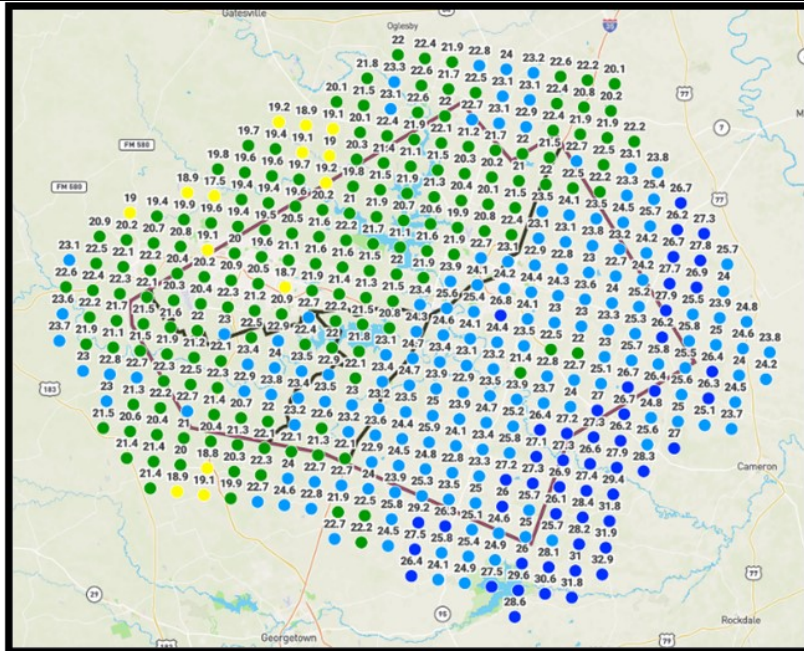


2022 is the tenth year I have served as the General Manager of Clearwater and continue to be amazed at the growth in our County that did not exist or was contemplated less than 15 years ago and considered to be very rural. Those days are passed as we see all of the new homes and new people moving to the IH35 corridor. This is our annual newsletter mailed to all well owners and published on our website. The articles you will

find in this edition are designed to update citizens in Bell County who have groundwater resources. Our goal is to be transparent on the current status of the groundwater system and our onslaught of dry conditions which will continue until March or April 2023. In all our hope is to focus on and understand the nature and challenges in Texas due to increase population growth and the nature of our limited water resources.

The map to the right illustrates the lack of rainfall in our County which should be 33 inches or more per year. The fact remains, Texas lives in a perpetual drought with intermittent floods. We are definitely in a very dry cycle as are many counties along the IH35 corridor.

**Dirk Aaron**, General Manager  
Clearwater UWCD



## 2023 A YEAR FOR CHANGES AND CHALLENGES

The Board of Directors of Clearwater UWCD have officially amended the District Rules (effective November 1, 2022) after investing approximately \$1.5 million (since 2014) in advanced scientific endeavors. With this new understanding, CUWCD has made significant changes to the permitting process and protection of landowner rights. Clearwater Directors amended the rules in both a legal and scientific manner. Due to our enhanced understanding, we have been able to address many complex questions. CUWCD has established management zones, limited column pipe sizes depending on the zone, enhance exempt well spacings and enhance tract size limits on non-exempt wells. Remedies have been added for exceptions, waivers, and tract size encumbrances.

Many of the rule changes will impact property owners who are applying for exempt domestic wells on tracts of land with 10 acres or more. Specific changes will also impact non-exempt wells necessitating a drilling permit and/or operating permit for beneficial use other than domestic needs such as public water supply wells, commercial or industrial wells, quarry wells, aggregate mining wells, or small business wells.

On the District website ([www.cuwcd.org](http://www.cuwcd.org)), you will find the new application forms that are required effective November 1, 2022 along with the new application guidelines for non-exempt wells, general maps of the five different management zones and the limits to each zone for minimum tract size and limits to column pipe sizes and enhanced spacing between other wells completed to the same layer of the Trinity, the Edwards BFZ and all the minor aquifer systems within the District.

Clearwater approached these changes by working with drillers, permit holders, and identified stakeholders in a manner to share our science and apply that to specific limitations of the geology (especially in western Bell County) in order to extend protections to existing well owners and future well owners.

The approved amendments to the existing rules are summarized as follows:

- The amendments framed up how the District is to issue operating permits according to Aquifer Management Zones with site-specific rules;
- Revised the Standard Provisions incorporated into permits issued by the District;
- Revised the process for submitting meter readings to the District;
- Require that meters be installed in accordance with the manufacturer's specifications;
- Refined permitting requirements for exploratory wells;
- Refined the spacing requirements for certain exempt wells;
- Clarified language regarding historic and existing use permits;
- Clarified drilling and/or operating permits requirements;
- Incorporate a process for complying with Bell County Subdivision Regulations;

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### BOARD OF DIRECTORS

**Leland Gersbach** - Precinct 1  
2013-Present (President)

**Jody Williams** - Precinct 3  
2018-Present (Director)

**Gary Young** - Precinct 2  
2014-Present (Secretary)

**Scott Brooks** - Precinct 4  
2018-Present (Director)

**David Cole** - At large  
2013-Present (Vice-President)

### MISSION STATEMENT

To implement an efficient, economical, and environmentally sound groundwater management program to protect and enhance the water resources of the District.

### WATER QUALITY SCREENING

The District's in-house lab offers registered well owners free screening for common constituents and bacteria. Annual screening is recommended.

## UPDATE TO ESTIMATED GROUNDWATER PUMPING IN TRAVIS AND WILLIAMSON COUNTIES

(This article is a summary of a recent report to Clearwater by Michael R. Keester, PG – R. W. Harden & Associates, Inc.)

The recent technical memorandum provided to Clearwater UWCD is an update to the evaluation of pumping estimates in Travis and Williamson counties discussed in the May 5, 2020 technical memorandum. The methods developed for the initial evaluation were also applied for this update. To prepare the update, we obtained additional well data for the years 2020 and 2021 from the Texas Water Development Board ("TWDB") and Texas Commission on Environmental Quality ("TCEQ") databases (TCEQ, 2022; TWDB, 2022a; TWDB, 2022b; TWDB, 2022c). We then input the additional data into our analyses to extend the update of pumping estimates through the year 2021.

As discussed in the 2020 Technical Memorandum, the evaluation is based on the number of wells completed in each aquifer, the size of the well, and the identified use of water from the well. A limitation of the approach is that changes in pumping is correlated with the number of wells with the assumption that more wells results in more groundwater pumping. While our analysis does account for wells being plugged, it does not consider the transition from groundwater to alternate water supplies. This and other limitations of the approach are addressed in the 2020 Technical Memorandum. Despite the identified limitations, we believe the approach provides a reasonable estimate of long-term trends in groundwater pumping.

In 2020 and 2021 a total of 654 new wells were completed in Travis and Williamson counties based on records from the available databases. Of these new wells, 311 were constructed in Travis County with 343 new wells in Williamson County. In both counties most of the new wells were for domestic use though 55 irrigation wells were completed for irrigation use in Travis County in 2020. In general, irrigation and municipal supply wells are constructed for higher production capacities. In the two counties in 2020 and 2021, there were a total of 95 irrigation wells and 13 municipal wells completed.

With the additional wells, the estimated pumping in 2021 from all aquifers in both counties was 44,325 acre-feet. The 2021 estimated pumping represents an increase of 848 acre-feet from the 2019 estimate of 43,477 acre-feet. Figure 1 below illustrates the estimated pumping values along with the TWDB estimated groundwater pumping.

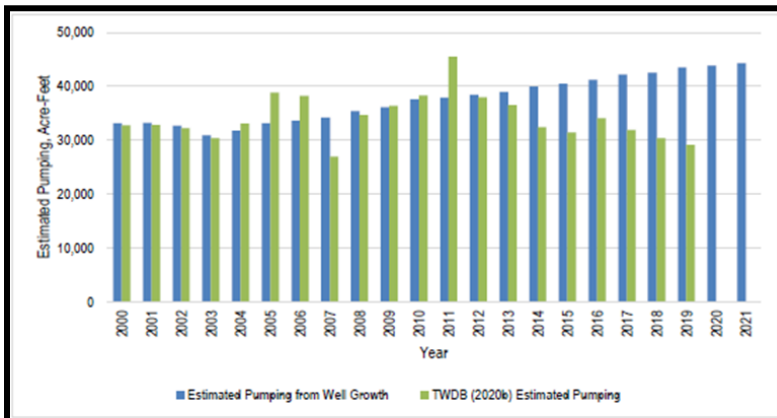


Figure 1. Estimated groundwater pumping from all aquifers in Travis and Williamson counties.

A diverging trend between the TWDB estimated pumping and estimated pumping based on well growth continued during the additional two years. However, in the 2020 Technical Memorandum we observed that pumping estimates from the two sources were diverging in Williamson County but were similar in Travis County. For 2018 and 2019 the pattern switched. As shown in Figure 2, TWDB estimated pumping for Travis County declined from 19,001 acre-feet in 2017 to 12,064 acre-feet in 2019 despite the addition of 93 irrigation wells and 10 municipal wells during the two-year period (2018 and 2019).

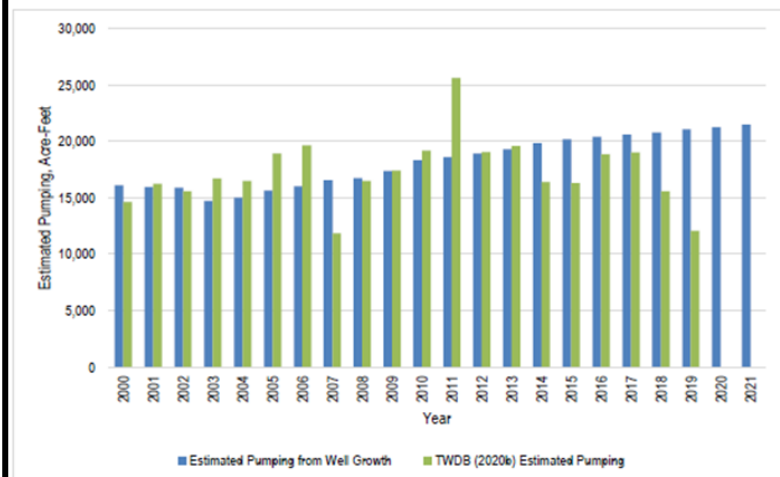


Figure 2. Estimated groundwater pumping from all aquifers in Travis County.

For Williamson County, the TWDB pumping estimate increased over the two-year period from 12,904 acre-feet in 2017 to 17,009 acre-feet in 2019 (Figure 3).

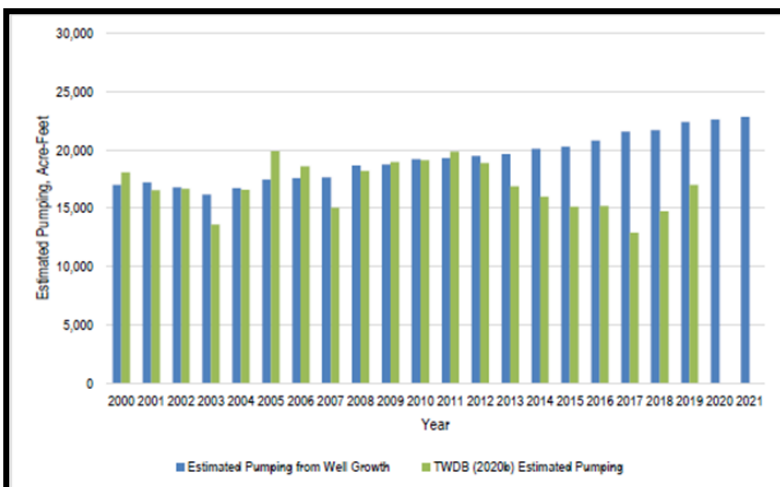


Figure 3. Estimated groundwater pumping from all aquifers in Williamson County.

TWDB estimated total pumping in Travis and Williamson counties has steadily declined since 2011 despite an increase in the number of wells. While TWDB estimated pumping in Williamson County increased from 2017 through 2019, the increase was offset by greater declines in Travis County. Like the TWDB total estimated pumping, TWDB estimated pumping from the Trinity Aquifer declined in both counties.

Estimated pumping based on the growth in the number of wells suggests an increase in total pumping of less than 1,000 acre-feet from 2019 through 2021. Most of the new wells completed during 2020 and 2021 were for domestic use. However, there were also several wells which are generally designed for higher production (95 new irrigation wells and 13 new municipal use wells).

A conclusion discussed in the 2020 Technical Memorandum remains accurate; namely, most of the new wells in Travis and Williamson counties are being completed in the Trinity Aquifer. In addition, most of these new wells are for domestic purposes. For these wells, we would not expect annual production to decline significantly unless it becomes too difficult to pump groundwater due to insufficient available drawdown associated with declining water levels. We are aware that such water-level declines in the Trinity Aquifer are occurring, which suggests that pumping is continuing to occur and likely increasing with the growth in the number of wells.

## Understanding Groundwater Vocabulary



### GROUNDWATER VOCABULARY

**Rule of Capture** grants landowners a legal right to capture the water beneath their property without regard to effects on neighboring wells except in cases of waste or malice.

**Groundwater Ownership** the Texas Legislature and Texas Supreme Court have recognized that landowners have a constitutionally protected property right in groundwater and own the groundwater below the surface as real property, subject to the rule of capture and regulation by GCDs.

**GAM** a groundwater availability model is a regional groundwater flow model approved by the TWDB.

**Joint Planning** the process by which GCDs in a GMA work together to develop DFCs, review groundwater management plans, assess the accomplishments of the GMA, and evaluate the need to modify the DFCs.

**Management Plan** a plan adopted by a GCD, approved by the TWDB, and forwarded to regional water planning groups that outlines the GCD's management goals and objectives. The plan must include performance standards, methods for achievement, and groundwater estimates.

**TAGD** the Texas Alliance of Groundwater Districts is a 501(c)(3) association that assists GCDs, provides outreach and education, and facilitates communication.

**GCDI** the GCD Index is available on TAGD's website and is a searchable, interactive online information bank with data on GCDs across the state.

[texasgroundwater.org](http://texasgroundwater.org)



### GROUNDWATER VOCABULARY

**GCD** Groundwater Conservation Districts are political subdivisions created to protect aquifers and manage the use of groundwater. GCDs are granted authority in Chapter 36 of the Texas Water Code to manage groundwater production through various methods, including well spacing and production limitations.

**GMA** Groundwater Management Areas are designated by the TWDB for regional planning purposes. GCDs within the GMA meet to jointly develop DFCs for the GMA region.

**DFC** a Desired Future Condition is a quantifiable condition of an aquifer at a specified future time. It may be based on aquifer levels, spring flows, or volumes of water in the aquifer (example: average drawdown not to exceed 75 feet at the end of 50 years). In setting DFCs, GCDs balance groundwater production with conservation and protection of the aquifer and then manage that production on a long term basis to achieve and maintain the DFC.

**TWDB** The Texas Water Development Board is the state agency responsible for overseeing state and regional water planning, providing financial assistance for local government water projects, and studying the state's surface water and groundwater resources.

**MAG** the Modeled Available Groundwater is calculated by the TWDB and is the amount of water that may be produced on an average annual basis to achieve a DFC. The MAG is one tool used by GCDs to ensure consistency with the DFC, and is used by regional water planning groups.

[texasgroundwater.org](http://texasgroundwater.org)



## TAGD's Guide to Texas Groundwater Districts



**TAGD**  
TEXAS ALLIANCE OF  
GROUNDWATER DISTRICTS

## TAGD's GUIDE TO TEXAS GCDs

**CHAPTER 36, TEXAS WATER CODE**

All GCDs are governed by the laws defined in Chapter 36 of the Texas Water Code. Chapter 36 provides specific instruction on operational, permitting, procedural, and planning requirements.

**ACCOUNTABILITY & OVERSIGHT**

As political subdivisions, GCDs are subject to special purpose district laws. Additionally, GCDs are subject to local accountability through local boards and public input, as well as state agency and judicial oversight. GCDs are also accountable to each other through the GMA process and development of DFCs.

**CONSERVATION & PROTECTION**

The fundamental mandate of a GCD is to balance the protection of the resource with a landowners' right to produce water. GCD rules protect groundwater by ensuring fair access to and long term management of the resource.

**COOPERATIVE MANAGEMENT**

All GCDs are required to set cooperative management goals within their GMAs through the adoption of a DFC. This requires GCDs to coordinate their groundwater usage and manage cooperatively within an aquifer.

[texasgroundwater.org](http://texasgroundwater.org)



**TAGD**  
TEXAS ALLIANCE OF  
GROUNDWATER DISTRICTS

## TAGD's GUIDE TO TEXAS GCDs

**NOT ALL AQUIFERS ARE CREATED EQUAL**

Texas has 9 major and 21 minor aquifers, and each operates differently. GCD rules are designed to address the different hydrogeologic characteristics of each aquifer. GCD rules must allow for differences in hydrology between and within aquifers.

**LOCAL CONDITIONS**

Different groundwater uses require different management. The type, frequency, and volume of groundwater usage can affect the aquifer. For example, groundwater produced for agriculture in a rural area may allow different spacing than groundwater produced for a public water supply in an urban area. Chapter 36 allows GCDs to address local conditions in their rules.

**ENABLING LEGISLATION MATTERS**

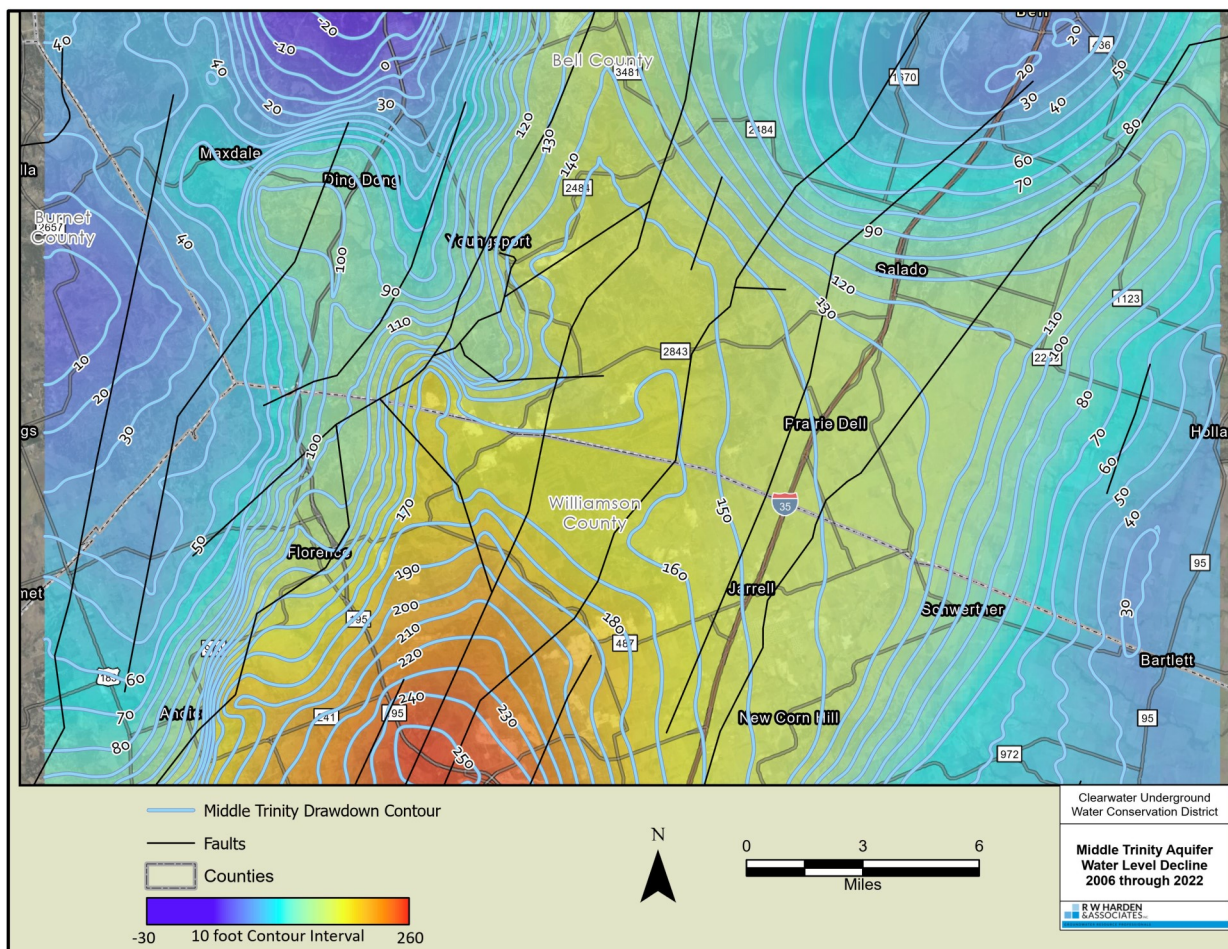
Most GCDs are locally created by legislative action. A GCD's individual enabling legislation defines the districts characteristics, including its financing and exemptions. A GCD's enabling legislation and its subsequent rules affect its management.

**PROPERTY RIGHTS & MARKET TRANSACTIONS**

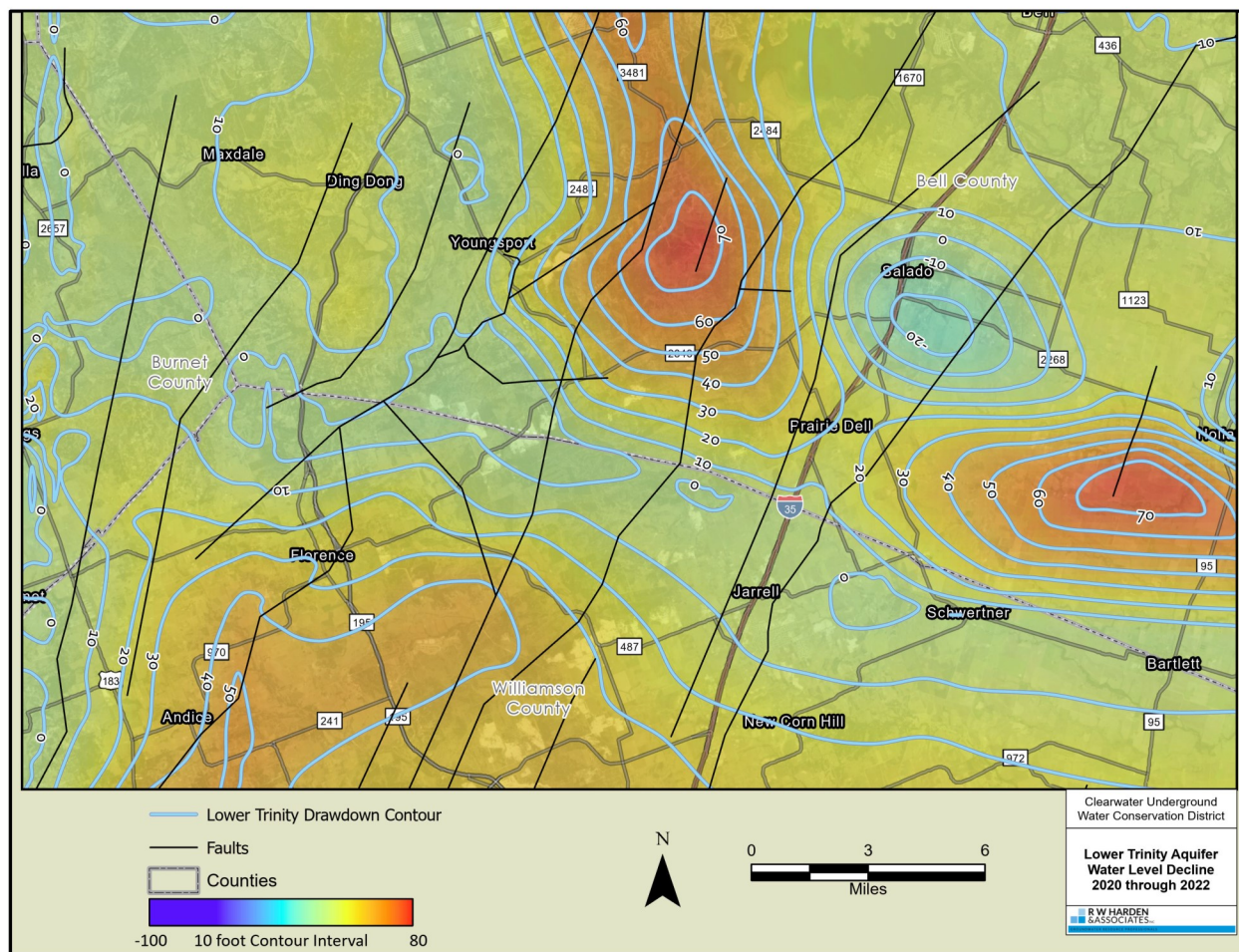
GCDs ensure equal protection of all property rights and investment-backed expectations. GCDs also provide regulatory certainty for market transactions through permitting and by managing to the DFC.

[texasgroundwater.org](http://texasgroundwater.org)





The map to the left illustrates the declining water levels in the Middle Trinity Aquifer from 2006 through 2022.



The map to the right illustrates the declining water levels in the Lower Trinity Aquifer from 2006 through 2022.





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Belton, TX 76513

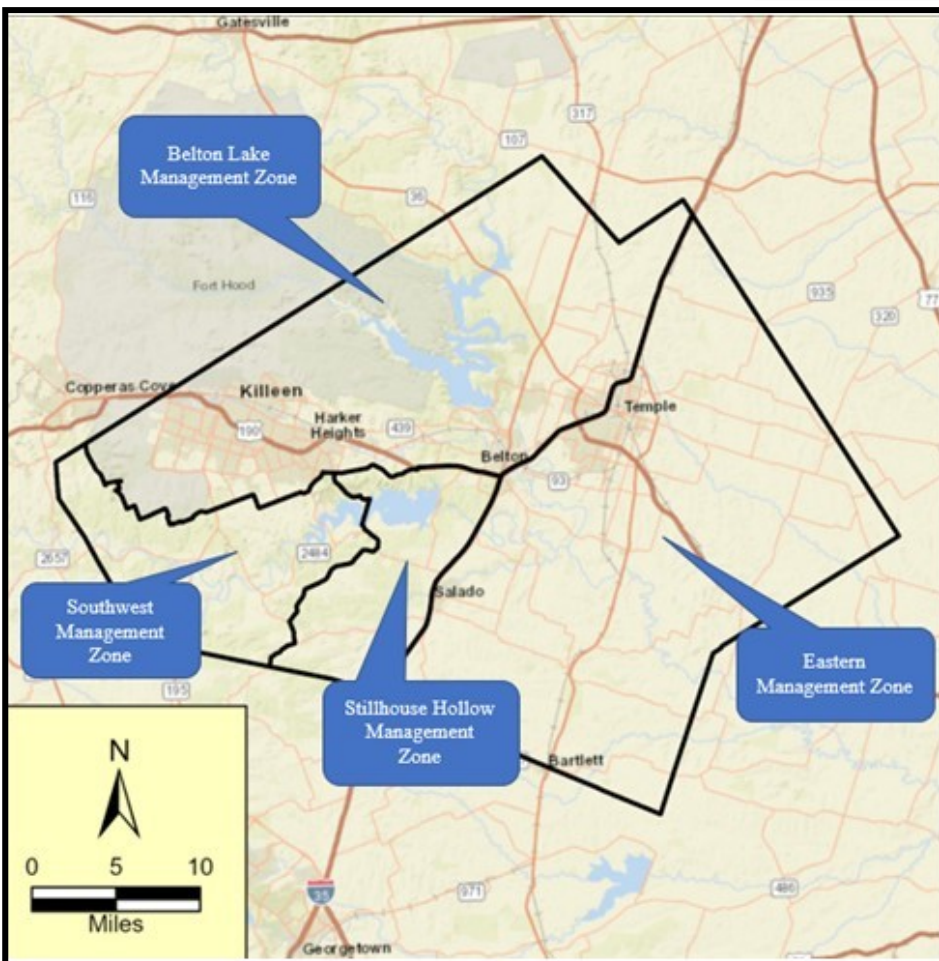


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- Require Well Completion Reports for certain operating permit applications;
- Established five Management Zones within the boundaries of the District;
- Clarified rules regarding the commingling of injurious water and fresh water and the re-completion of wells pursuant to 16 Texas Administrative Code Chapter 76;
- Establish minimum spacing, column pipe size, tract size, and property line setback requirements by Aquifer Management Zone;
- Provided criteria for granting exceptions to the minimum spacing, column pipe size, tract size, and property line setback requirements for each respective Aquifer Management Zone;
- Define additional terms in the definition section of the rules;
- Clarified methods for filing and serving documents with the District;
- Made other non-substantive formatting and grammatical revisions to the old rules.

The following chart illustrates the specific setback and column pipe restrictions for Exempt Domestic Wells in the amended rules. This chart further defines what constitutes an “Exempt Well” for Domestic and/or Livestock & Poultry needs and what they are limited to such as maximum column pipe size, maximum gallons per minute, and minimum setbacks from property lines and from other wells.

<b>** Management Zone</b>	<b>*Max CPS</b>	<b>Max GPM</b>	<b>Spacing Wells</b>	<b>Spacing Property</b>
SW	1 ½	17.36 gpm	150 feet	75 feet
SH	1 ½	17.36 gpm	150 feet	75 feet
BL	1 ½	17.36 gpm	150 feet	75 feet
E	1 ½	17.36 gpm	150 feet	75 feet
E-BFZ	1 ½	17.36 gpm	150 feet	75 feet



The map to the left is of the new “**Trinity Aquifer Management Zones**” across Bell County. Specific GIS map to your property showing the management zone can be viewed at: <https://clearwater.lre-up.com/map>.



## Contact Us

[www.cuwcd.org](http://www.cuwcd.org)

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Contact the District office if you would like to be added to our e-mail list for more frequent updates.