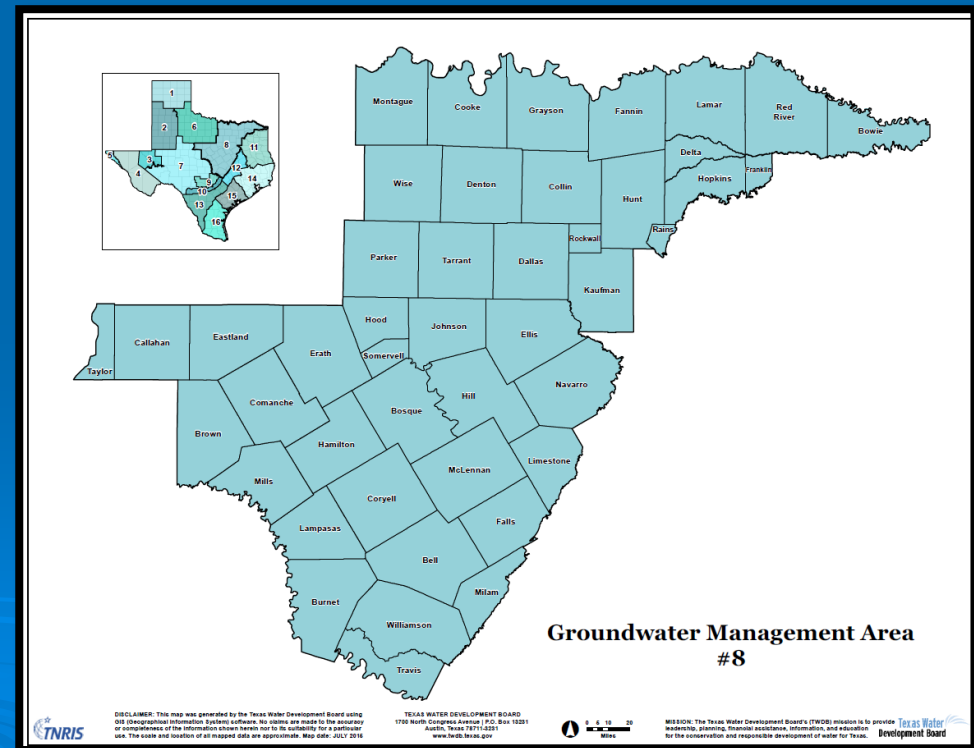


# Groundwater Management Are (GMA8) **Case Study** Similar Rules - Same Aquifer

*Dirk Aaron, Clearwater UWCD*  
*Doug Shaw, Upper Trinity GCD*



# Case Study

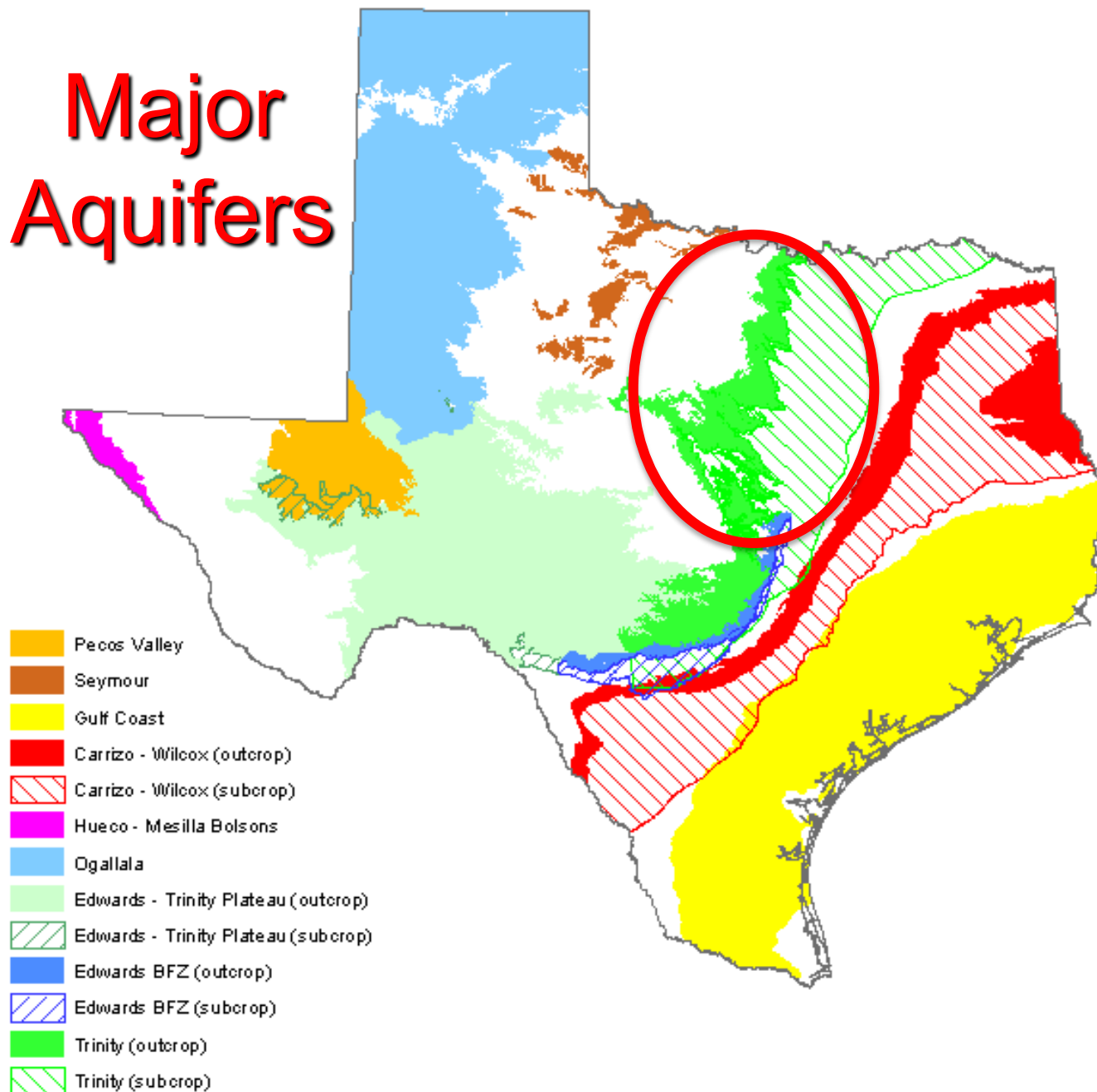
## *2-Districts in GMA 8*

- Discuss Separate History
- Discuss Similarities
- Discuss Dissimilar
- Why and So What?

## Discussion

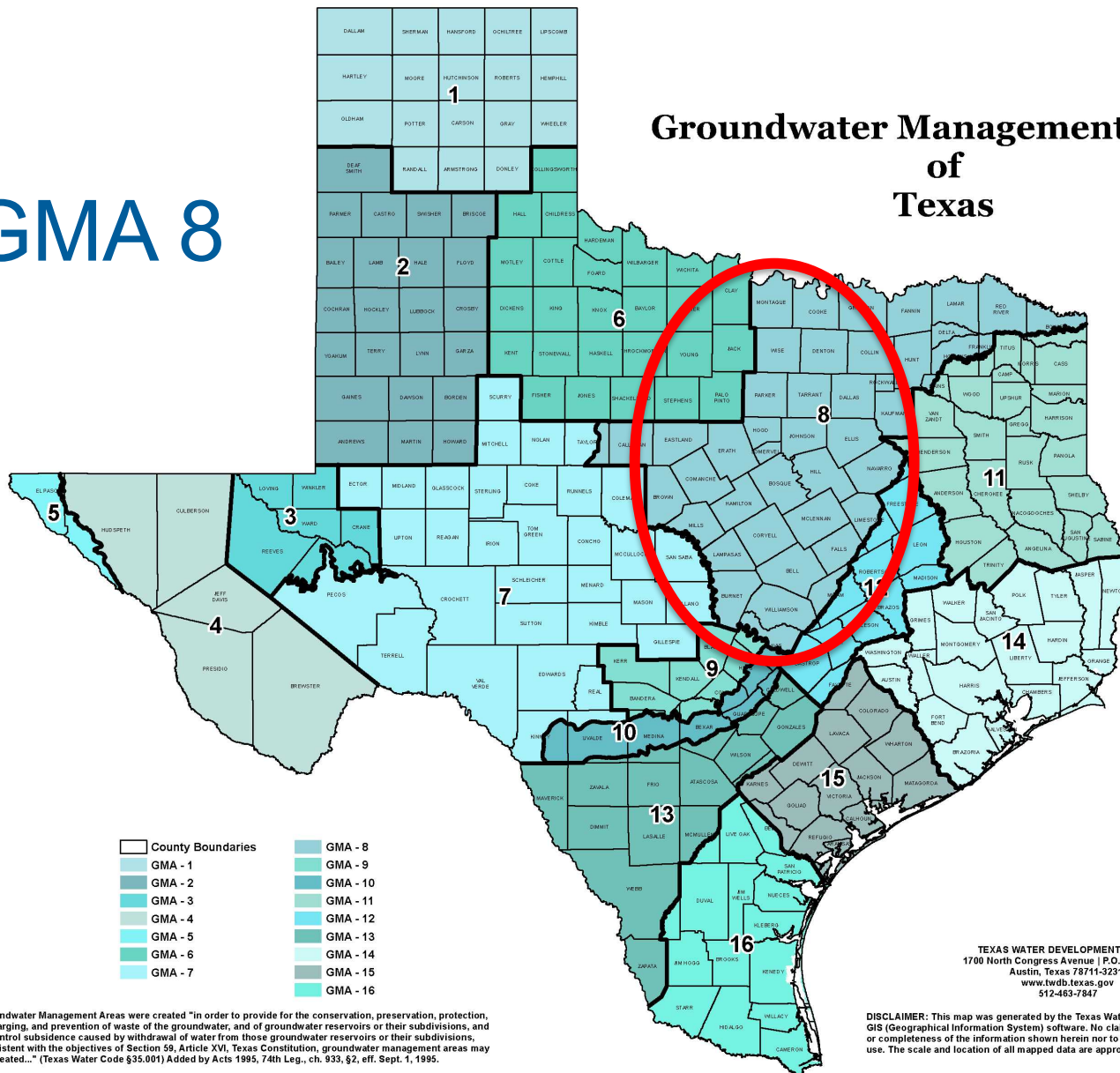


# Major Aquifers



# GMA 8

## Groundwater Management Areas of Texas



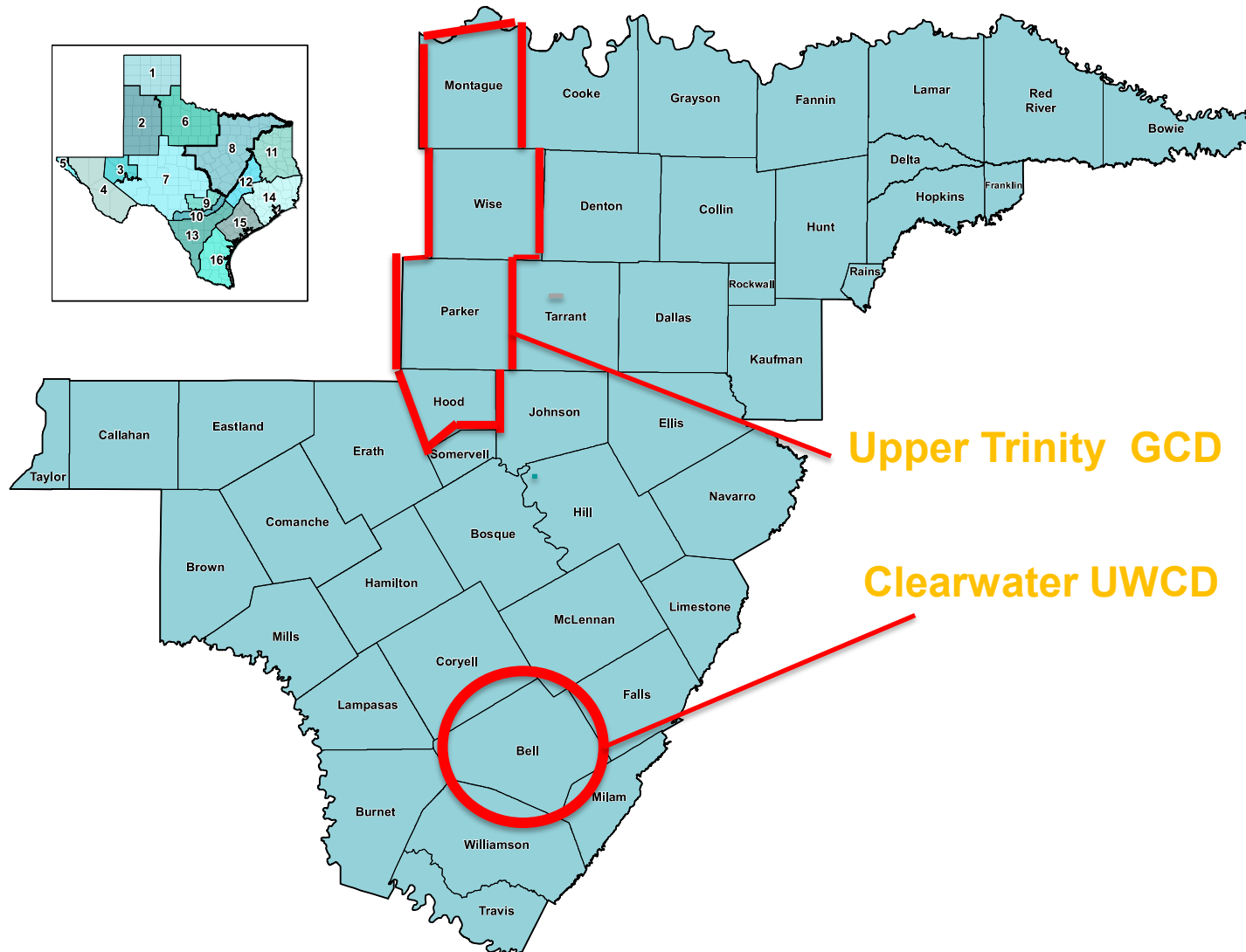
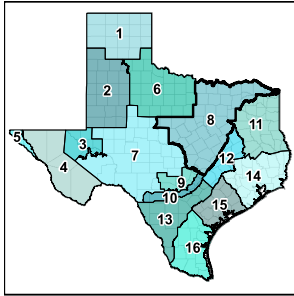
Groundwater Management Areas were created "in order to provide for the conservation, preservation, protection, recharging, and prevention of waste of the groundwater, and of groundwater reservoirs or their subdivisions, and to control subsidence caused by withdrawal of water from those groundwater reservoirs or their subdivisions, consistent with the objectives of Section 59, Article XVI, Texas Constitution, groundwater management areas may be created..." (Texas Water Code §35.001) Added by Acts 1995, 74th Leg., ch. 933, §2, eff. Sept. 1, 1995.

The responsibility for Groundwater Management Area delineation was delegated to the Texas Water Development Board (Section 35.004, Chapter 35, Title 2, Texas Water Code). The initial Groundwater Management Area delineations were adopted on December 15, 2002 (356.23, TWDB Rules).

TEXAS WATER DEVELOPMENT BOARD  
1700 North Congress Avenue | P.O. Box 13231  
Austin, Texas 78711-3231  
www.twdb.texas.gov  
512-463-7847

DISCLAIMER: This map was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate. Map date: JAN-2014





Upper Trinity GCD

Clearwater UWCD

# Clearwater UWCD

- District Map
- When/how were you created?
- Elected/Appointed Board?
- Tax/Fee based – Annual income?
- Wells in the Data Base?
- Population Trends?
- Trends (demographics/characteristics)

# Elected Board of Directors

## *November General Election*

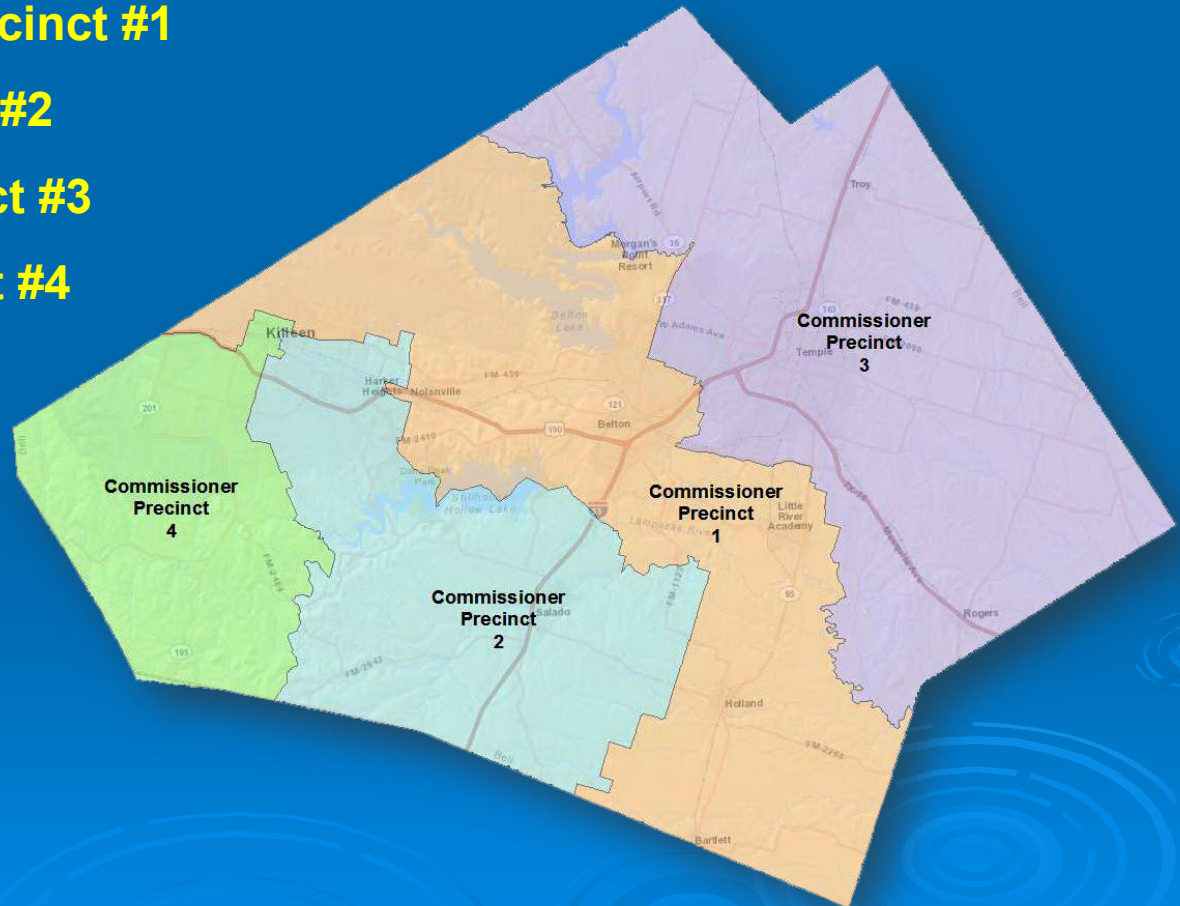
# Leland Gersbach - Precinct #1

## Gary Young - Precinct #2

## Jody Williams- Precinct #3

# Scott Brooks- Precinct #4

## David Cole - At-Large



*Every drop counts!*

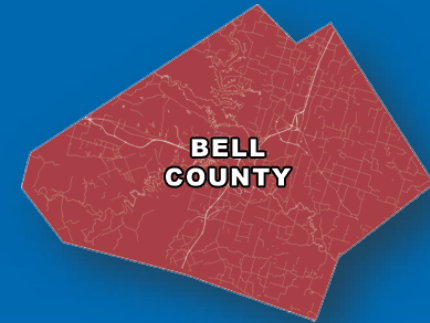
# History of District



- ❖ Created by 71<sup>st</sup> Legislature in (HB 3172) 1989
- ❖ Confirmed by Bell County in 1999
- ❖ Doors opened for business in 2002



- ❖ District's jurisdiction includes all of Bell County
  - ❖ approximately 1,055 square miles
  - ❖ 2019 Est. Population is 355,642
  - ❖ 2002 Population was 248,009
  - ❖ No Jurisdiction on Federal Lands



- ❖ Authority to levy ad valorem tax at rate not to exceed
  - \$ .05 /\$100 assessed value
  - \$0.00357 /\$100 assessed value —FY20 tax rate
  - Generates \$734,499 for FY20
  - Not Production Fee Based



# District Rules – Major Points

- ❖ All wells in Bell County are required to be registered.
- ❖ Wells exempt from permitting include:
  - ❖ Domestic purposes or for watering livestock or poultry
  - ❖ Exempt wells limited 17 gpm. (25,000 gallons per day)
  - ❖ Exempt Wells limited to 10 acres or more
    - ❖ smaller tracts are acceptable if they were lawfully configured prior to March 1, 2004 as a tract less than 10 acres in size.

**5,098** Exempt wells

**4,346** Exempt wells “Grandfathered”

**935** New wells since “2002”

**44** New Wells in “2019”



# Non-Exempt Wells

## ❖ All Non-Exempt Wells must:

161 Permitted Wells

- ❖ Obtain a permit
- ❖ Report monthly production
- ❖ Special provisions/conditions are part of the permit (including export)
- ❖ Permitted based beneficial use and defensible need.
- ❖ Must meet tract size, setback spacing and on column pipe size and tract size

## ❖ Three Tier application process

- ❖ <10 acre feet,  drilling/operating permit required for all <37 ac-ft
- ❖ 10-37 ac-ft, 
- ❖ >37 ac-ft require three step process:
  - ❖ Drilling permit application,
  - ❖ Hydro-Report by Applicant
  - ❖ Operating permit application



Every drop counts!

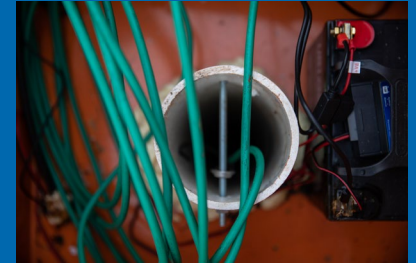


# Monitor Well Program

*Measure What you Manage*

## ➤ Total of **100** monitor Wells

- Edwards BFZ - 39
- Upper Trinity - 5
- Middle Trinity - 30
- Lower Trinity - 26



## ➤ Measure with Multiple Methods

- TWDB, Permit Holders, CUWCD Wells (Transducer, E-Line, Sonic)

## ➤ Measure Monthly and/or Quarterly

## ➤ Available on Public Well Site



# Issues Impacting CUWCD

## New/Unregistered Wells

Month	2018		2019	
	New	Exist	New	Exist
Jan	8	0	1	0
Feb	7	1	7	22
Mar	4	2	5	0
April	1	8	5	6
May	5	3	5	26
June	4	2	5	31
July	6	2	7	8
Aug	4	2	6	82
Sept	0	2	3	1
Oct	0	34	-	
Nov	4	3	-	
Dec	3	9	-	
<b>Total</b>	<b>46</b>	<b>68</b>	<b>44</b>	<b>176</b>
<b>By Yr</b>	<b>114</b>		<b>220</b>	

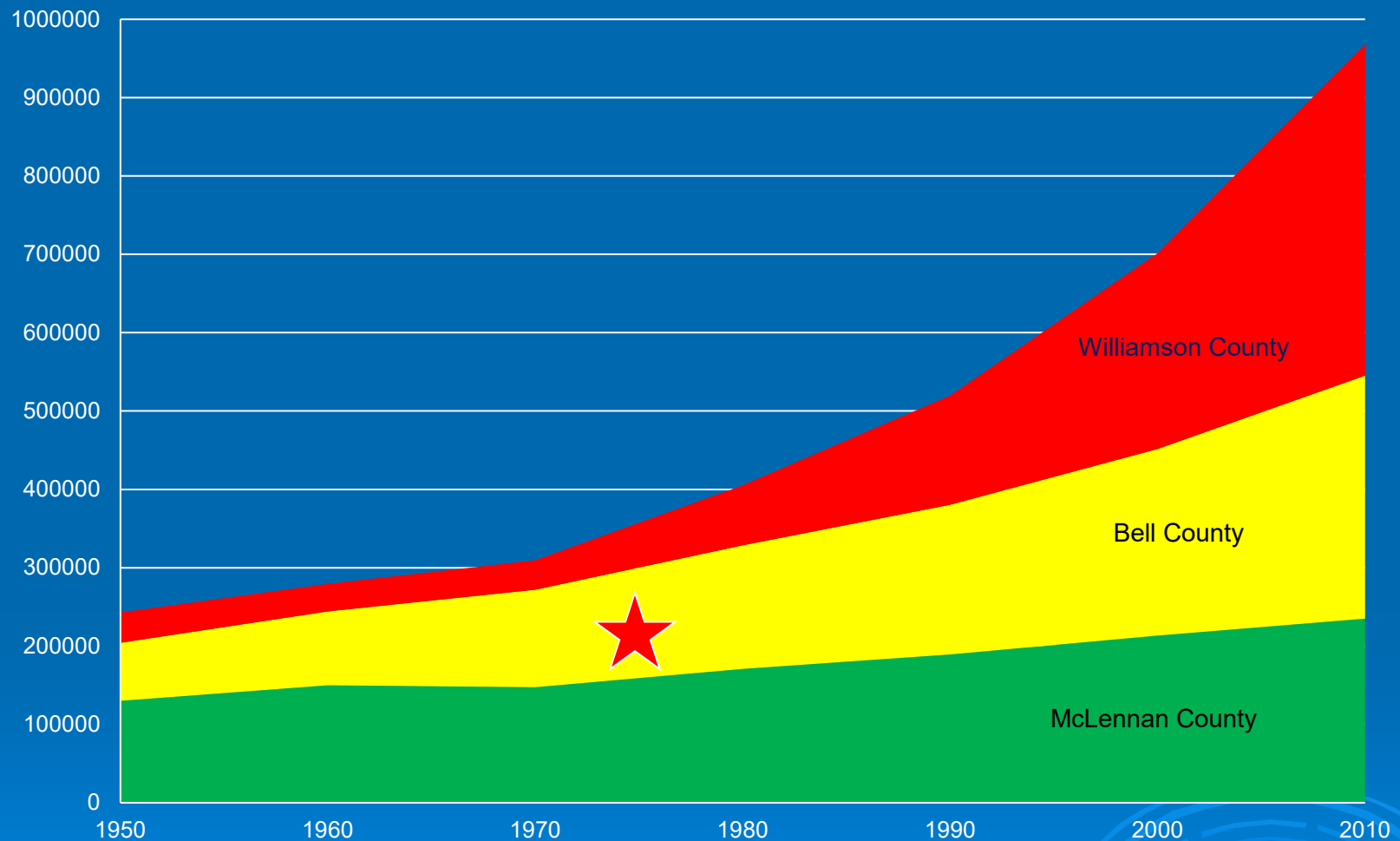
## 2018 GW Water Production ( 3288 ac-ft)

Source Use Ac-ft	# of Wells	Domestic Exempt	Domestic Non-Exempt	Ag	Mining	Public Water Supply
Edwards BFZ	55	484	21	393	4	1659
Upper Trinity	5	223	0	0	0	0
Middle Trinity	30	258	261	1	46	0
Lower Trinity	23	48	8	0	229	1127
Alluvial	21	677	4	354	0	0
<b>Total:</b>	<b>134</b>	<b>1690</b>	<b>294</b>	<b>747</b>	<b>279</b>	<b>2786</b>

- 48% of GW use is for Public Water Supply
- 30% of all GW use is for Private Domestic (exempt use)
- 3% all wells are non-exempt – Produce 48% of GW
- 97 % are exempt domestic – Produce 52% of GW
- 114 new wells processed on average per year



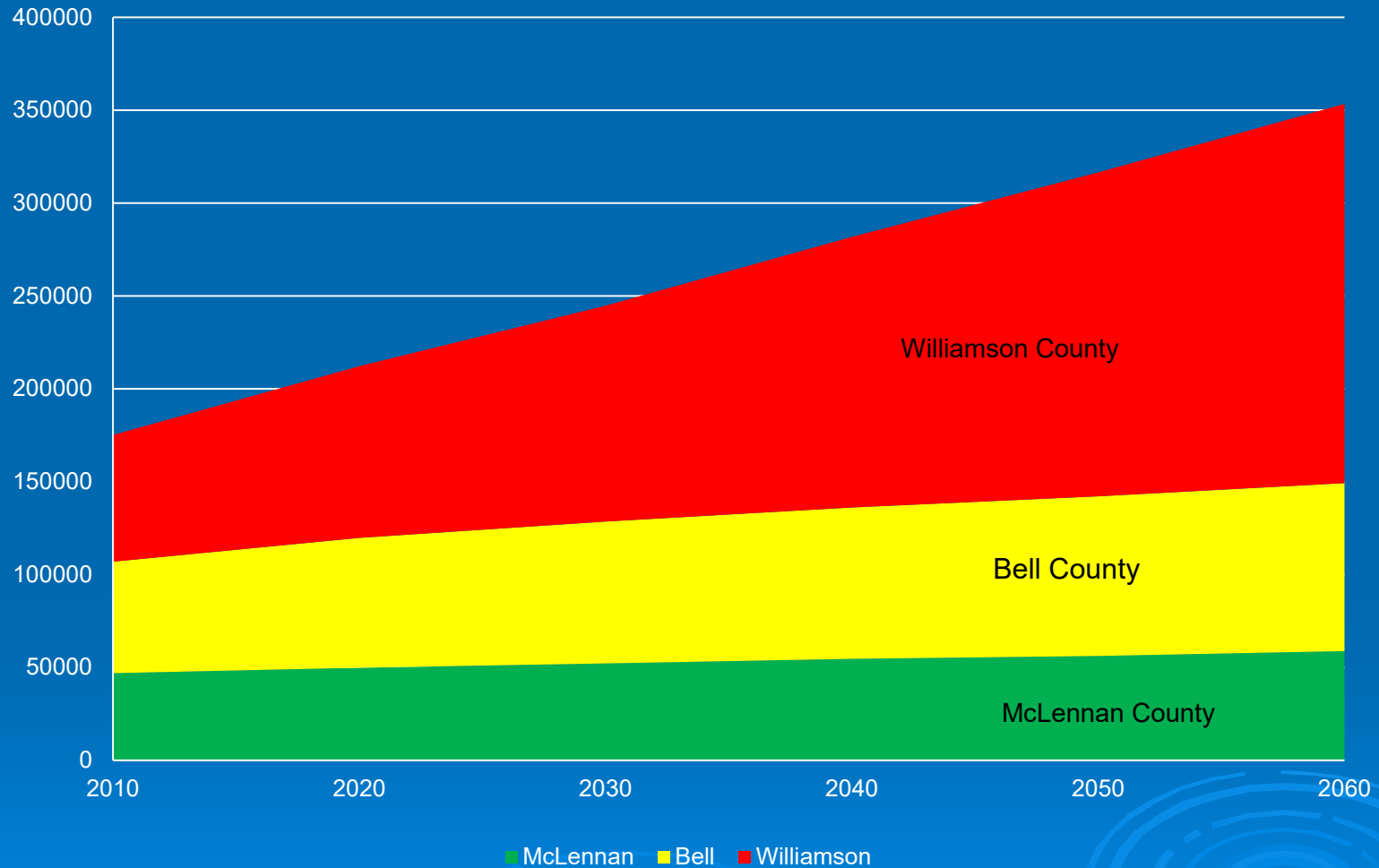
# Issues Impacting Bell County



*Historic Trends / Population*



# Issues Impacting Bell County



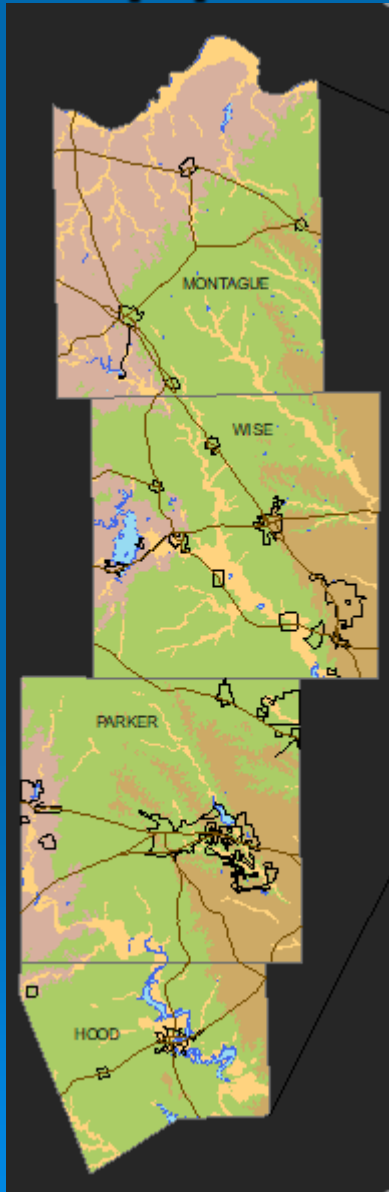
Water Demand (Acre-Feet/Year)

# Upper Trinity GCD

- District Map
- When/how were you created?
- Elected/Appointed Board?
- Tax/Fee based – Annual income?
- Wells in the Data Base?
- Population Trends?
- Trends (demographics/characteristics)?



# Appointed Board of Directors



- 2 Directors appointed by each County Commissioners Court to serve staggered 4-year terms:
  - Tracy Mesler – Montague County
  - Mike Berkley – Montague County
  - Don Majka – Wise County
  - Brent Wilson – Wise County
  - Time Watts – Parker County
  - Shannon Nave – Parker County
  - Richard English – Hood County
  - Jarrod Reynolds – Hood County







# History of District

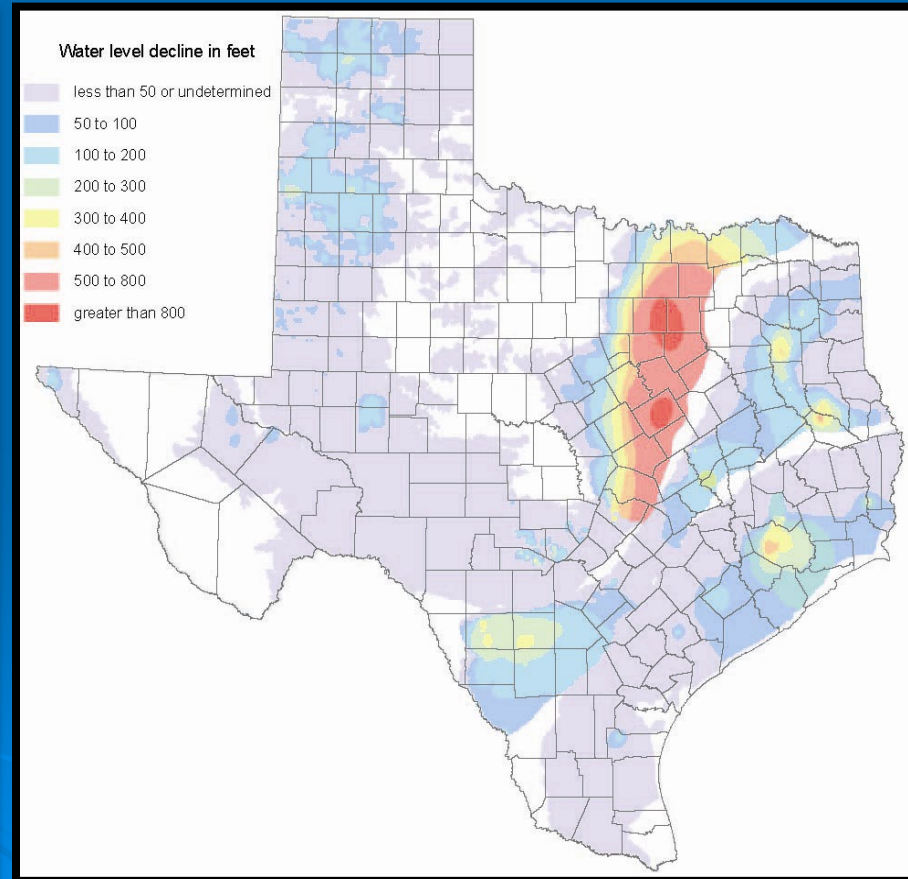
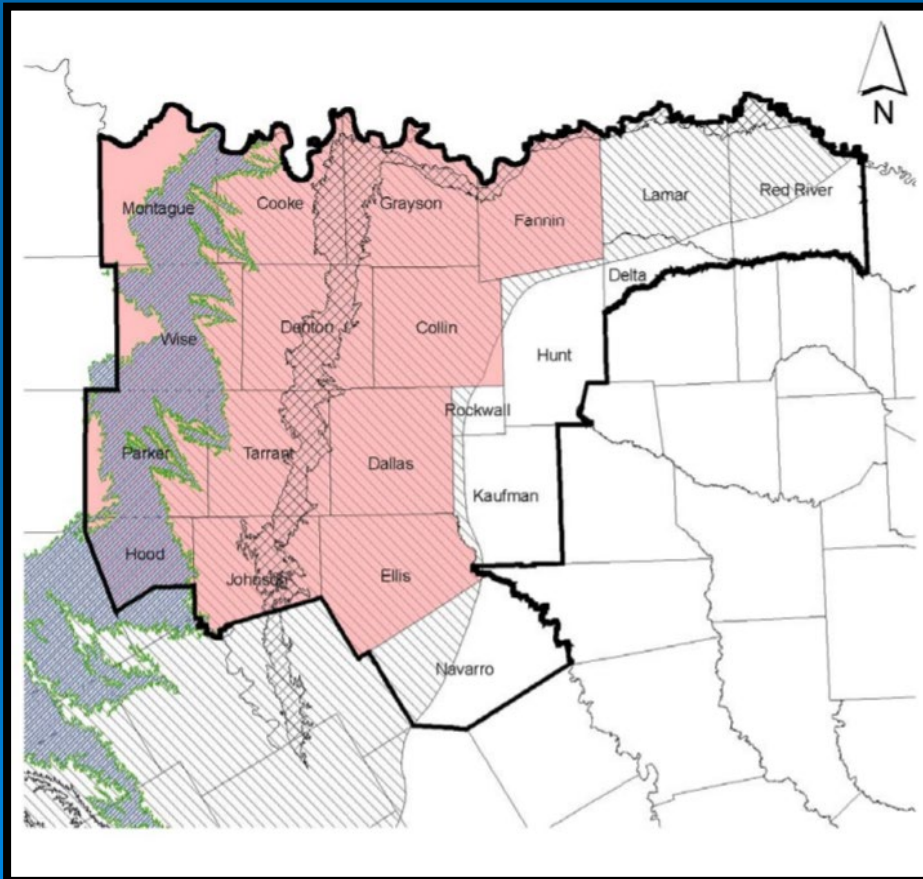
- ❖ **Created by 80<sup>th</sup> Legislature**
  - ❖ (SB 1983) in 2007
- ❖ **Confirmed by Hood, Montague, Parker and Wise County voters in 2007.**
- ❖ **Doors opened for business in 2009.**
- ❖ **District's jurisdiction includes all of Hood, Montague, Parker and Wise Counties.**
  - ❖ Approximately 3,200 square miles.
  - ❖ 2018 Est. Population is 288,619
  - ❖ 2010 Population was 246,955
- ❖ **Fee Based**
  - ❖ \$0.22/1,000 gallons of water produced by non-exempt wells
  - ❖ Fee to process new well applications



**No authority to levy ad valorem tax**



# North Central TX Priority Groundwater Management Area (PGMA)



# District Rules – Major Points



- ❖ All wells drilled after January 1, 2009 in the District are required to be registered.

>11,000 registered exempt wells

- ❖ Wells exempt from permitting include:

- ❖ All wells that are used solely for domestic, livestock, poultry or agricultural use.
- ❖ Wells that is not have the capacity, as equipped to produce more than 17.36 gallons per minute
- ❖ Minimum **2 acres to drill any new well**
  - ❖ smaller tracts are acceptable if they were lawfully configured prior to January 1, 2009 as a tract less than 2 acres in size.
- ❖ Subject to spacing requirements, both from other wells and property lines.



# Non-Exempt Wells

- ❖ All non-exempt wells must:

>1,000 permitted wells

- ❖ Register with the District
- ❖ Obtain a permit – adopted August 2019
- ❖ Report monthly production

- ❖ Two types of permits:

- ❖ Historic Use Permit

- ❖ Applies to wells that are currently approved or in operation
- ❖ Based on maximum historic use for well or well system

- ❖ Operating Permit

- ❖ Applies to future wells
- ❖ Based on allocation of GW related to surface acreage owned or controlled by the applicant



# Monitor Well Program

*Measure What you Manage*

## ➤ Total of >150 monitor Wells

- Trinity
  - Antlers – Outcrop/Subcrop
  - Paluxy – Outcrop/Subcrop
  - Glen Rose – Outcrop/Subcrop
  - Twin Mountains – Outcrop/Subcrop
- Cross Timbers

## ➤ Measure with Multiple Methods

- Transducer, E-Line, Steel Tape and Sonic

## ➤ Measure download data Quarterly

- Transducer and Sonic d instruments collect data water level data every minute



# Issues Impacting UTGCD

New Well applications processed in 2018

	Hood	Parker	Wise	Montague	
January	2	16	13	5	
February	7	39	20	2	
March	0	37	20	10	
April	6	37	41	10	
May	10	55	43	8	
June	7	58	37	10	
July	10	79	51	4	
August	11	56	57	10	
September	4	38	42	8	
October	8	54	33	10	
November	2	49	33	13	
December	8	48	56	5	
<b>Total</b>	<b>75</b>	<b>566</b>	<b>446</b>	<b>95</b>	<b>1,182</b>

2018 Water Production (acft)

Public Water Supply	Oil and Gas Prod.	Commercial/ Business	Exempt
10,810	1,590	253	18,559

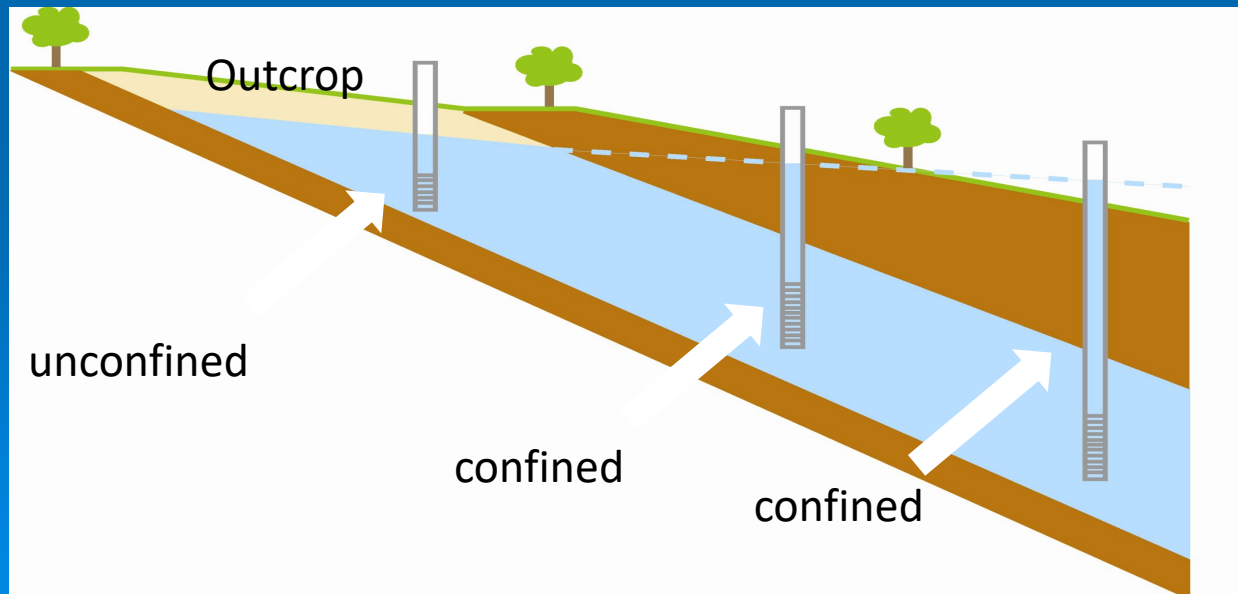
- Water use for “Public Water Systems”, “Oil and Gas” and “Commercial/Business” are based on reported pumping.
- Exempt use estimates are based on estimates from the TWDB and other local data

- The largest user of Groundwater are **privately owned domestic wells**(exempt use)
- **Processes 1,100 new well applications** per year
- Approximately **98%** of these new wells are for exempt domestic use – growth in Parker and Wise county is dominated by subdivisions that depend on private wells as the sole source of water.



# UTGCD Geology

- The Geology of the UTGCD is dominated by the steeply dipping **Outcrop** of the Trinity Aquifer.
- In the western portion of the District, the Trinity may have less than 30 ft. of saturated thickness, occur at less than 100 ft. below surface and may only be capable of producing 5 gallons per minute or less
- In the eastern portion of the District, the Trinity may have more than 500 ft. of thickness, made up of 3 distinct water bearing units of the Trinity (Paluxy, Glen Rose and Twin Mountains) with the capability of producing up to 100 gallons per minute.



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# 2 Districts in GMA 8

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## District Rules

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## Discussion



# Rules on Wells

## Spacing Requirements

### Clearwater UWCD

- Yes
- 50 ft. setback
- **Minimum 100 ft.** between other wells
- Additional based on Col. pipe size + tract size

### Upper Trinity GCD

- Yes
- 50 ft. setback
- **Minimum 150 ft.** between other wells
- Additional based on proposed gallons per minute

## What do you consider an exempt well?

### Clearwater UWCD

- 17 gpm
- 10 contiguous acres or more

### Upper Trinity GCD

- 17 gpm
- Domestic & agriculture wells

### Clearwater UWCD

- Yes, and subject to same requirements as other wells

### Upper Trinity GCD

- Yes, and subject to spacing and metering & reporting requirements

## Do you permit Frac Wells?

# Rules on Wells

Number of monitoring wells

Clearwater UWCD	Upper Trinity GCD
100	150

Metering/Reporting requirements

Clearwater UWCD	Upper Trinity GCD
Yes, Monthly	Yes, Monthly

Production Fees

Clearwater UWCD	Upper Trinity GCD
No	Yes

Property Taxes

Clearwater UWCD	Upper Trinity GCD
Yes	No

# Permitting

What mechanisms do you use for permitting?

Clearwater UWCD	Upper Trinity GCD
<ul style="list-style-type: none"> <li>• Historic use</li> <li>• Beneficial use</li> <li>• Column pipe size</li> <li>• Tract size</li> </ul>	<ul style="list-style-type: none"> <li>• Historic use</li> <li>• Tract Size</li> <li>• Annual production</li> <li>• Allocation based on thickness of aquifer and acreage owned</li> </ul>

Permit term length

Clearwater UWCD	Upper Trinity GCD
30 progressive terms Renewed Annually	5-year permit terms

Separate export permit required?

Clearwater UWCD	Upper Trinity GCD
No, Provision within Operating Permit	No, Provision within Operating Permit

# Desired Future Conditions (DFCs)

## Clearwater DFC

- Measure Static water levels quarterly for the Trinity Aquifer (Trend analysis) for the Three Layers of the Trinity Aquifer.
- Measured through comparison of reported non-exempt pumping and estimated exempt pumping against the Modeled Available Groundwater (MAG)
- Measure Springflow of the Spring Complex for the Edwards BFZ

## Upper Trinity DFC

- Measure Static water levels quarterly for the Trinity Aquifer (Trend analysis) for the Three Layers of the Trinity Aquifer.
- Measured through comparison of reported non-exempt pumping and estimated exempt pumping against the Modeled Available Groundwater (MAG)



# Case Study

## 2-Districts in GMA 8

- Discuss Separate History
- Discuss Similarities
- Discuss Dis-similarities
- Why and So What?

# Discussion



# Discussion prompts

## ➤ Similarities

- In what ways are similar?

## ➤ Dis-Similarities

- In what ways are you different?

## ➤ Context for Differences

- In the ways that you are different, what about your individual contexts requires it?
- In what ways could you be more similar?

# Questions?

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Doug Shaw:

[Doug@uppertrinitygcd.com](mailto:Doug@uppertrinitygcd.com)

