

Finding Balance Between Regulation, Management and Property Rights in the Central Carrizo-Wilcox

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Gary Westbrook, General Manager
Post Oak Savannah GCD

Serving the citizens of Milam and Burleson Counties

POSGCD Background and Reasons for creation (2001)

I. Resources + Location + Growth =

>35,000 acres water rights leased by 2000



II. Local Concerns

a. Existing Area Users (100% Burl. Co., 90% Milam Co.- use groundwater)

Municipal, Industrial, Agricultural

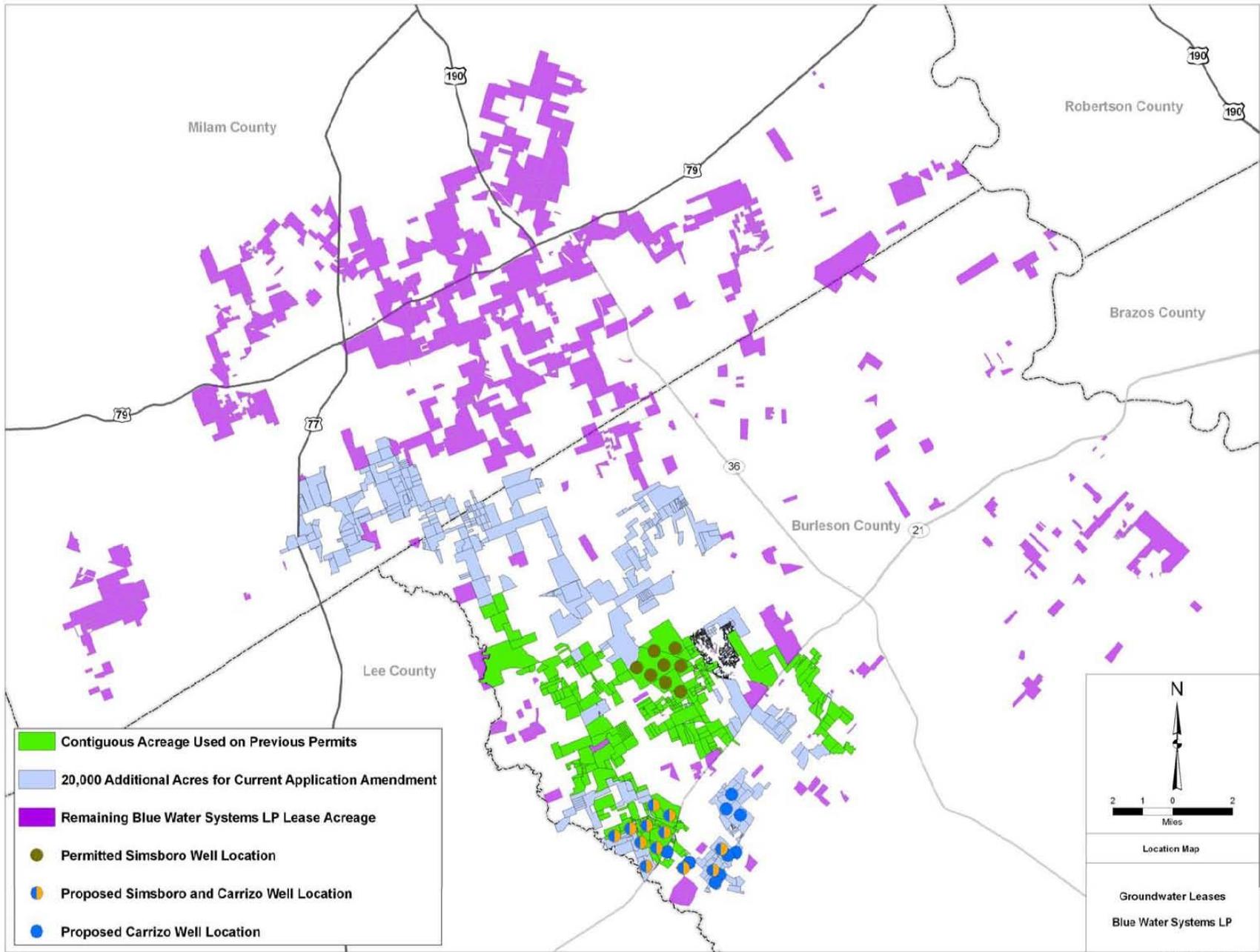
b. Future Growth

c. Reasonableness of Management Strategies

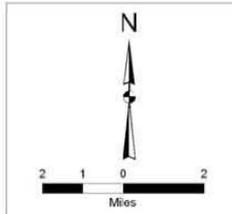
d. Insufficient Science

e. Unknown area future projects (in and out of District)

f. Property Rights



- Contiguous Acreage Used on Previous Permits
- 20,000 Additional Acres for Current Application Amendment
- Remaining Blue Water Systems LP Lease Acreage
- Permitted Simsboro Well Location
- Proposed Simsboro and Carrizo Well Location
- Proposed Carrizo Well Location



Location Map

Groundwater Leases
Blue Water Systems LP

Source of the struggle for Property Rights: Historic or Existing users vs. Future users

Existing Users: “Protect my investment/livelihood”

Future Users: “Protect my property rights”



3 Key Questions:

- How do you both protect the aquifers and allow property owners to benefit from their property?
- How do you protect the rights of those property owners who wish to produce, and still protect the rights of those who do not wish to produce yet?
- How do you manage these private property rights equitably?

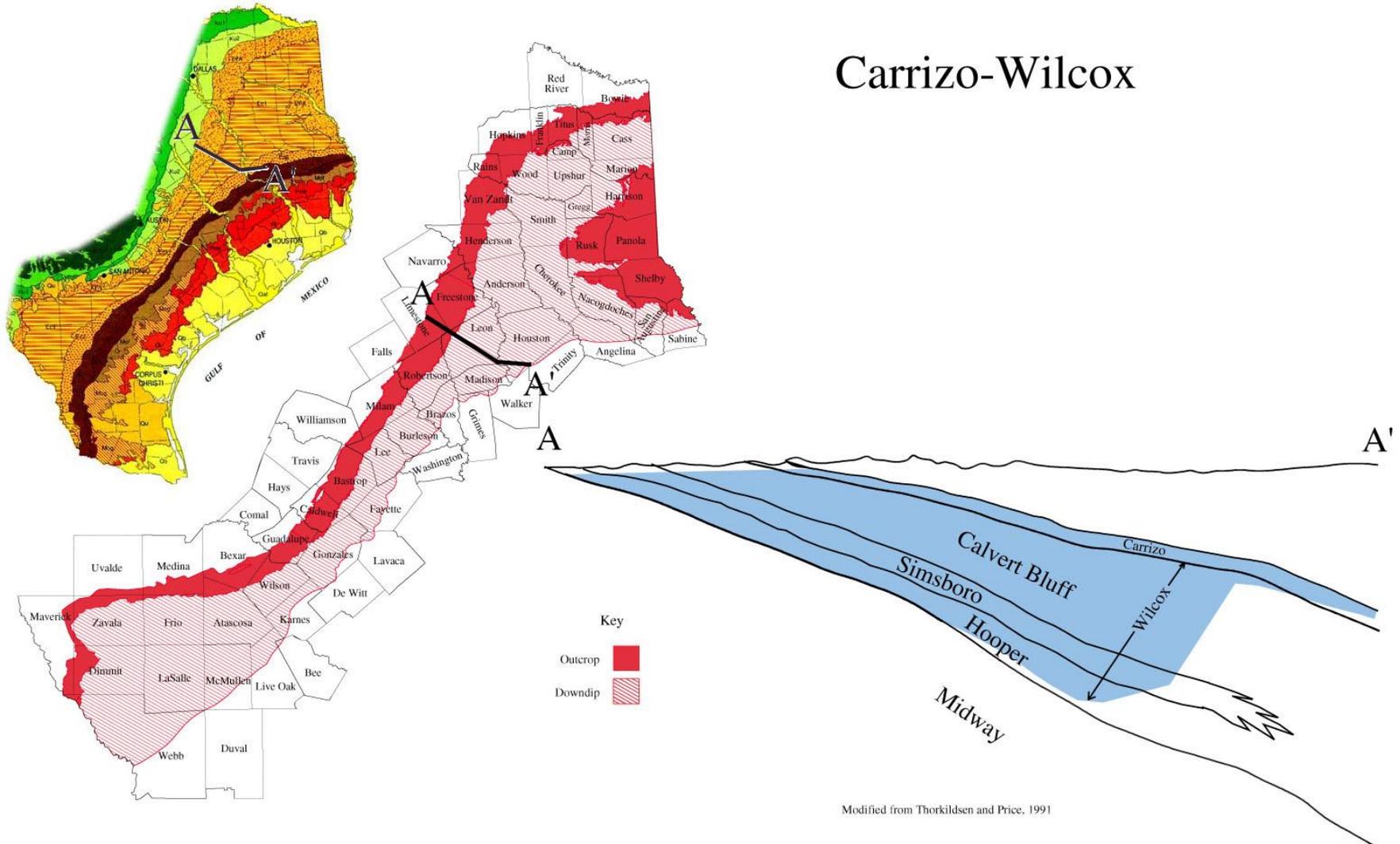
POSGCD History

- 2001- Created by 77th Legislature (HB1784)
- 2002- Confirmed by election both counties
- 2003- Resolution for Local Water Utilities
- 2004- Adopt Rules and Management Plan
- 2005- Adopt strategies to limit impacts to aquifers, including protection of shallow parts of aquifers
- 2006- Implement Groundwater Conservation Grants
- 2010- GMA 12 Adopts Desired Future Conditions
- 2013- Codified by 83rd Legislature



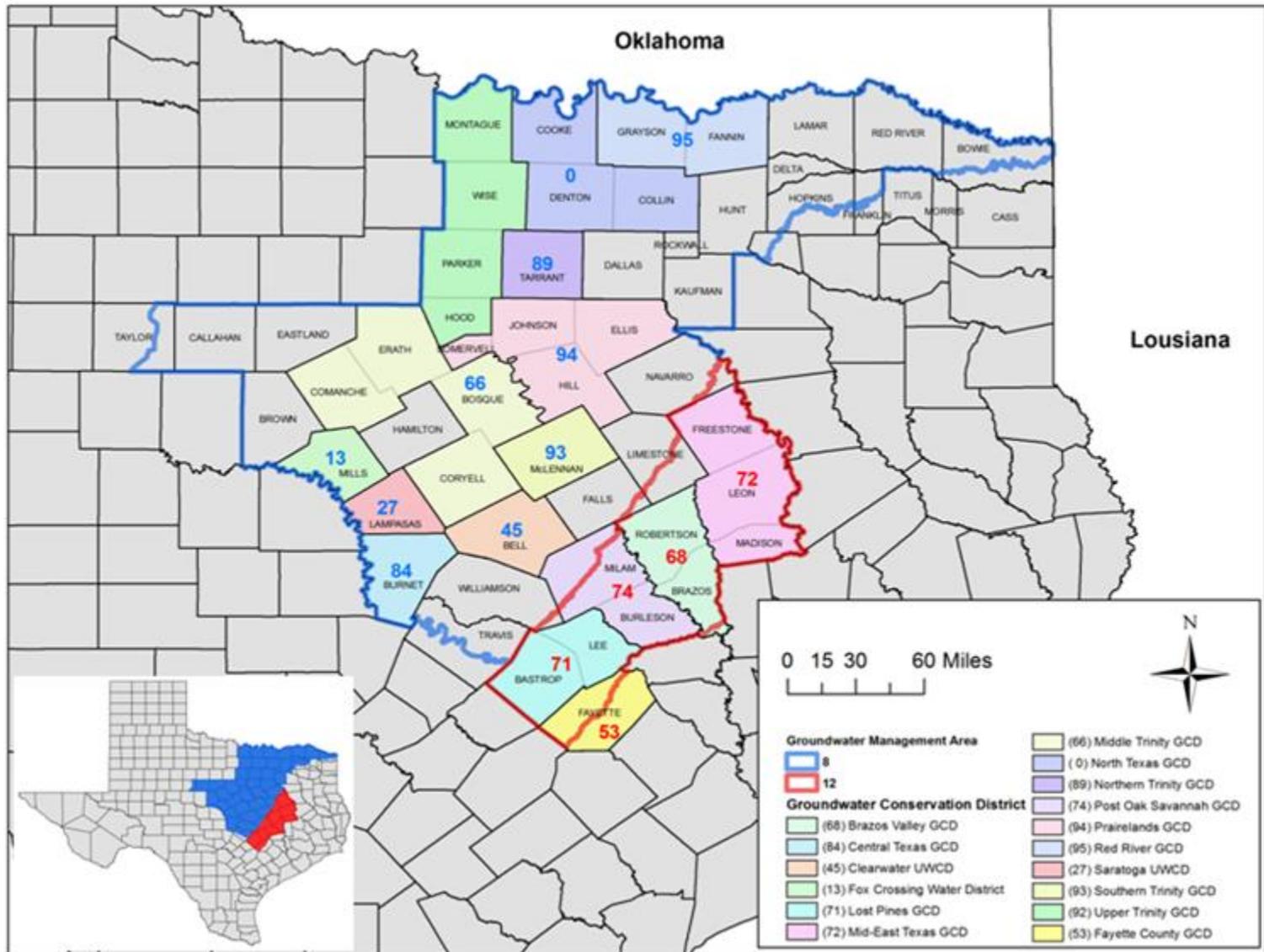
Groundwater resources within POSGCD

Carrizo-Wilcox Aquifer



Modified from Thorkildsen and Price, 1991

Groundwater Management Areas 8 and 12



Groundwater Management Areas (GCD Joint Planning)

DFC- (Desired Future Condition) A quantitative statement of a future condition of the aquifer (at least 50 years out)

MAG- (Modeled Available Groundwater) Amount of groundwater which must be produced on an average annual basis to achieve the DFC

When considering the adoption of Desired Future Conditions it is important to remember Section 36.108(d-2) which states:

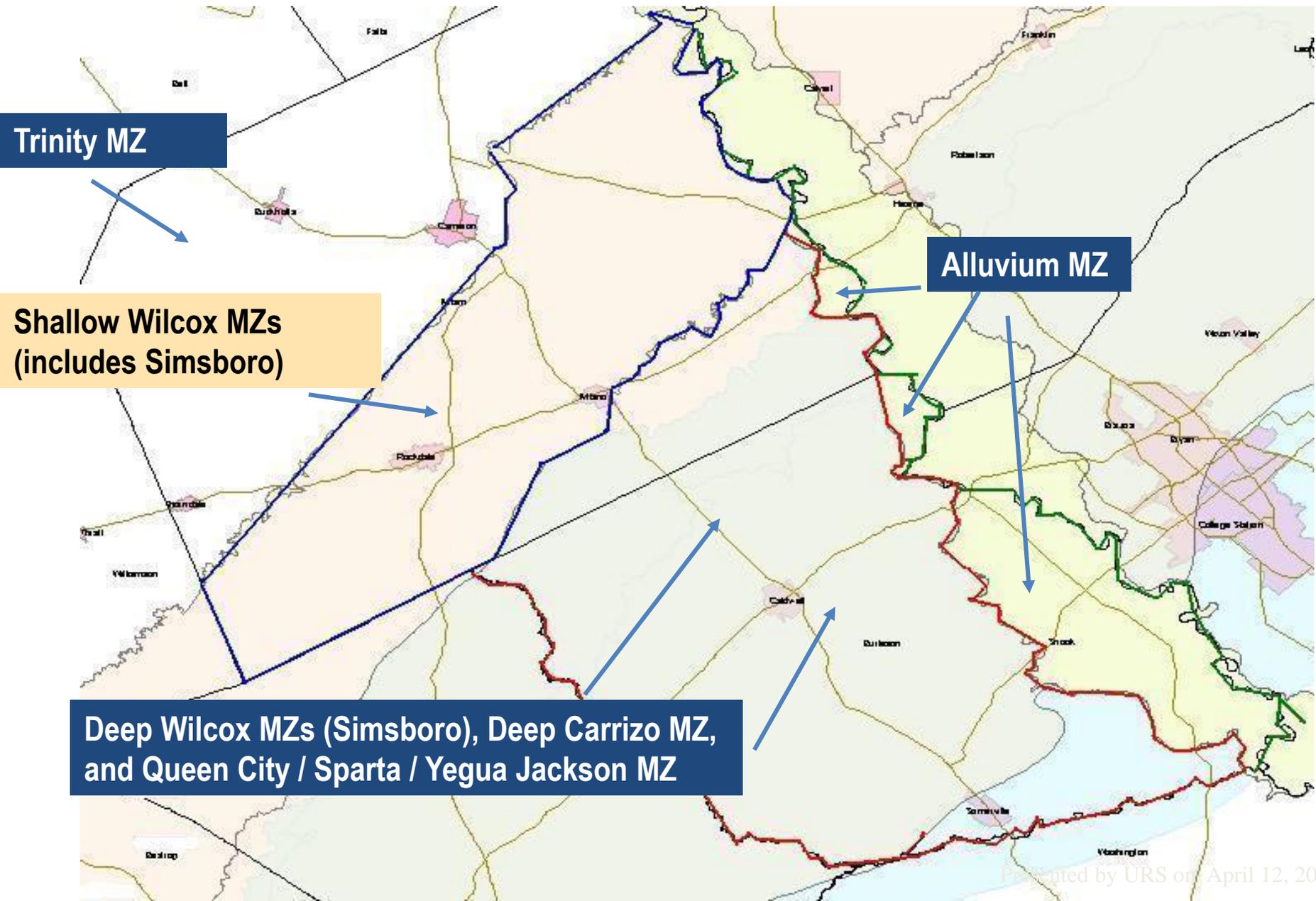
The desired future conditions ... must provide a balance between the highest practicable level of groundwater production and the conservation, preservation, protection, recharging, and prevention of waste of groundwater and control of subsidence ...

****GCDs can protect existing users (wells)****

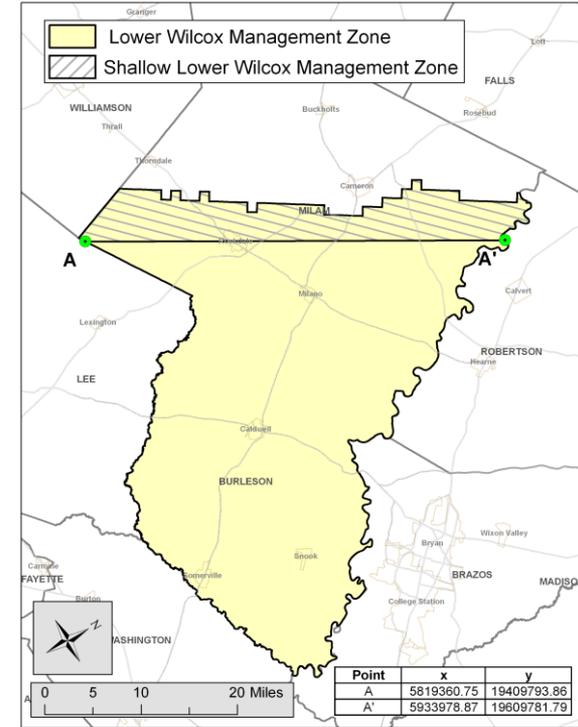
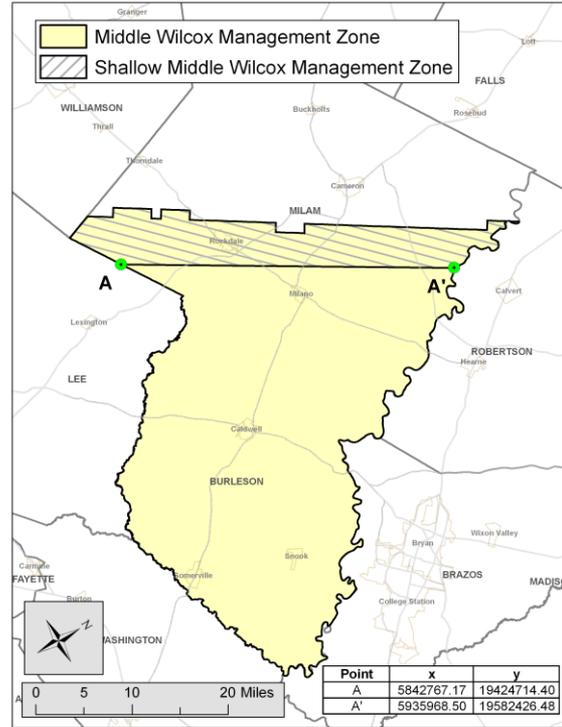
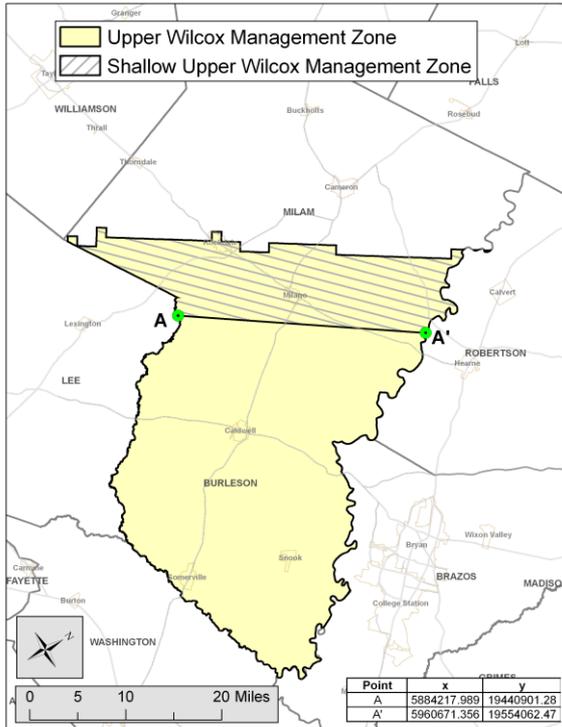


Management Strategies of POSGCD

POSGCD- Management Zone Boundaries

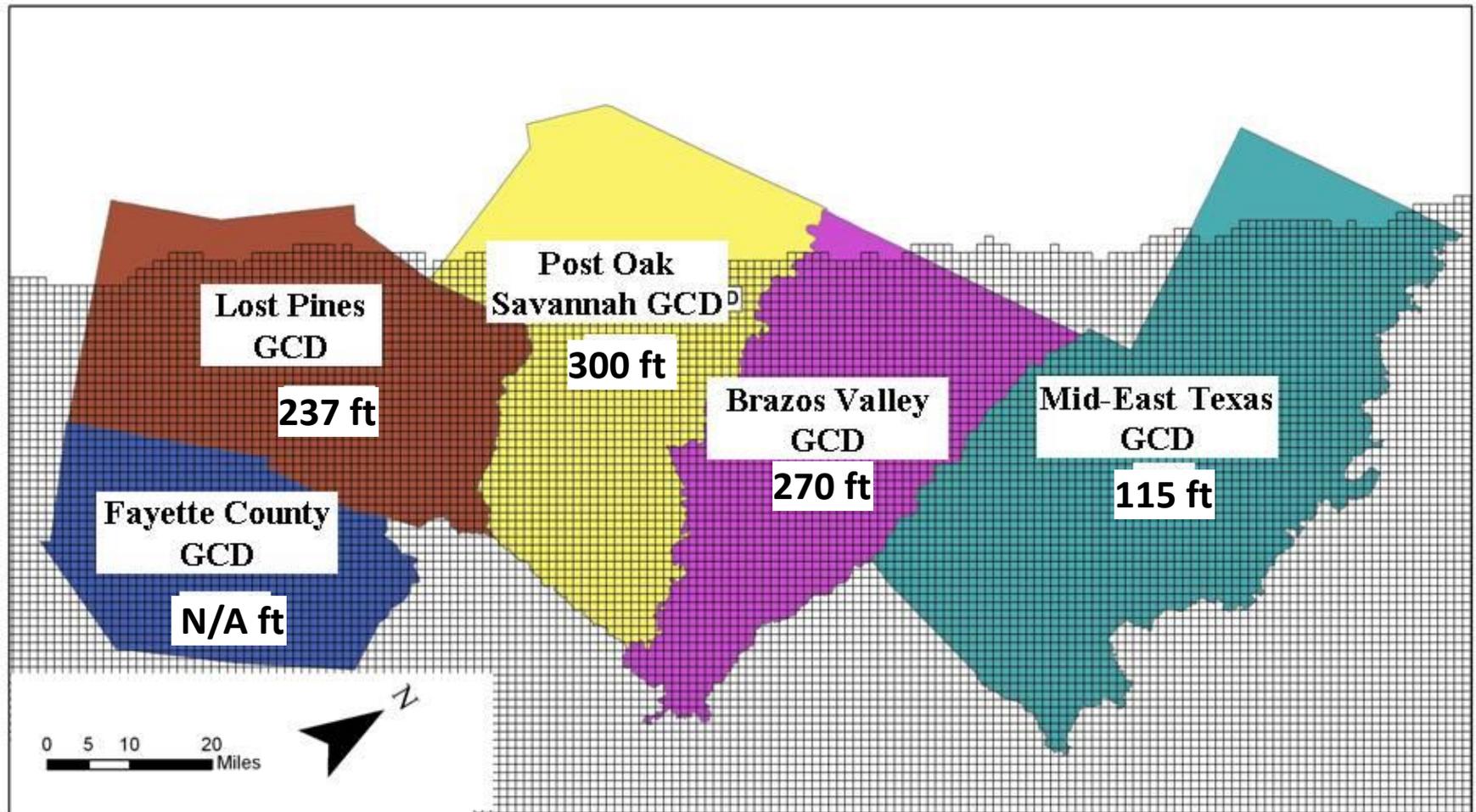


Drawdown DFCs and Thresholds from 2000 to 2060 (from Management Plan)

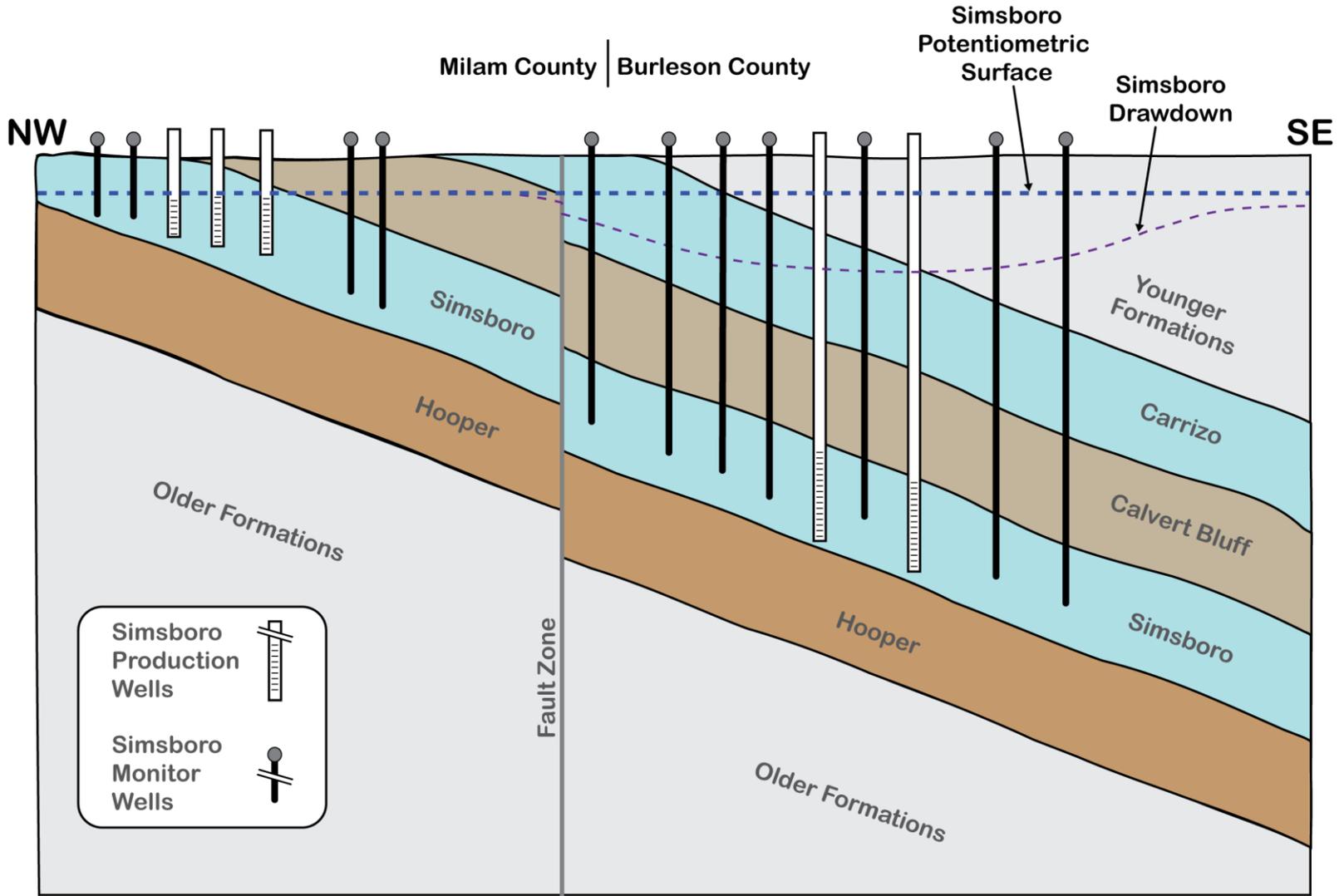


Aquifer	Average Drawdown (ft) from 2000 to 2060	
	DFC for entire area	Threshold for Shallow Management Area
Calvert Bluff	140	20
Simsboro	300	20
Hooper	180	20

GMA 12 Adopted DFCs: Expressed in Average across District for Simsboro (2010 to 2060)



Schematic Cross Section Simsboro Drawdown



Avg. Drawdown in
Shallow Simsboro Wells
is 15' x 326 sq. miles

Avg. Drawdown in
Deep Simsboro Wells
is 400' x 809 sq. miles

Rockdale Wells and Water Levels**

Well Name	Screen Depth	Pump Depth	Water Level	Well Buffer	Total Buffer
New Texas	370	273	128	145	242
Airport	443	235	134	101	309
Tracy	346	224	137	87	209
Runway	450	285	154	131	154
Praesel	225	225	N/A	N/A	N/A
Belton (m)	390	N/A	134	N/A	N/A

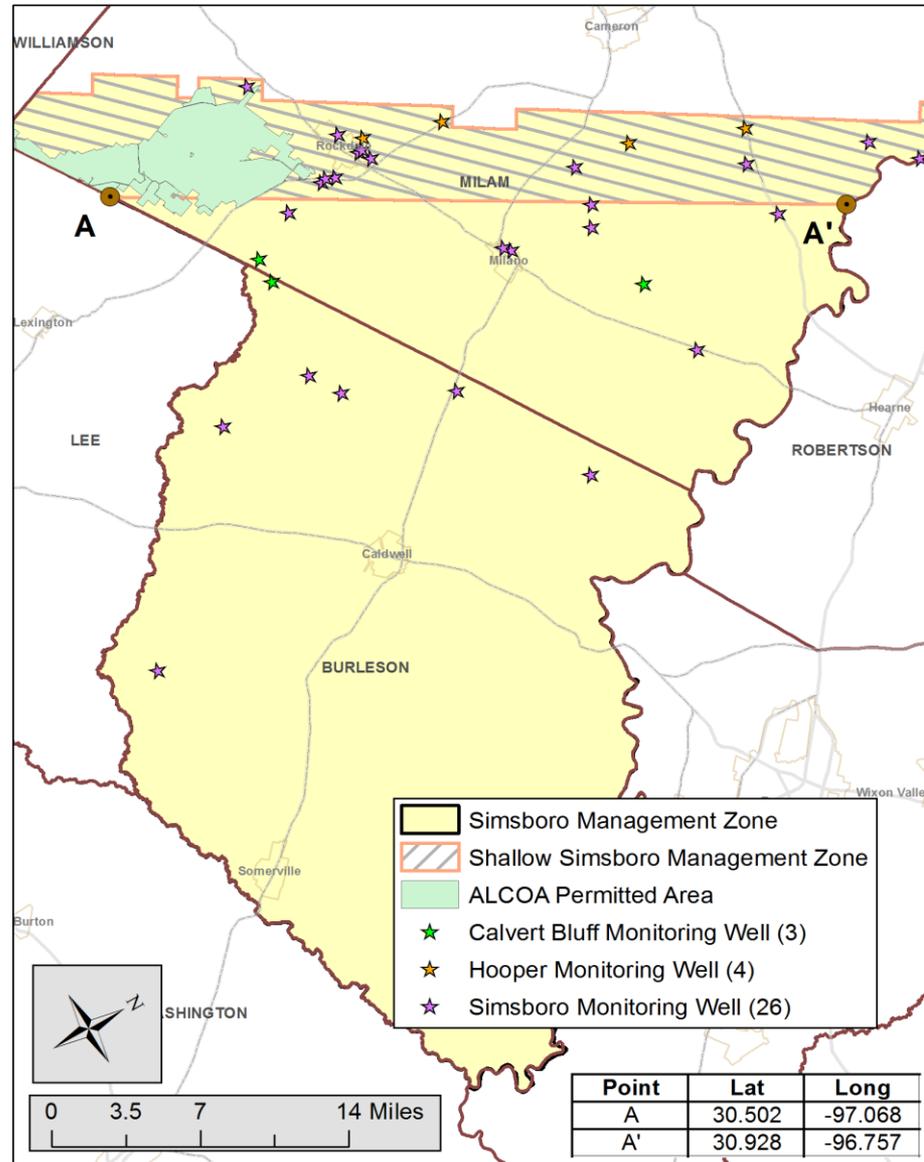
**Rockdale wells are located in the shallow portion of the Carrizo-Wilcox formations

Well Buffer = difference between Water Level and Pump Depth

Total Buffer= difference between Screen Depth and Water Level (if able to drop pumps)

(m) = monitor well only

POSGCD Monitoring Locations for Wilcox Aquifer



Relevant Factors for Consideration in Management of Groundwater Resources

- Chapter 36
- The purpose of the rules of the District;
 - Protection of Resource
 - The equitable distribution of the resource;
- The economic hardship resulting from grant or denial of a permit, or the terms prescribed by the permit;
- The potential effect the permit may have on the aquifer, sustainability of the recharge on the aquifer as a whole, and groundwater users;
- The Desired Future Conditions and the estimated Modeled Available Groundwater Values; and
- The Management Goals, Objectives, and Performance Standards in Management Plan

POSGCD Groundwater Management

- First Priority- Protection of water levels
 - Overall Desired Future Conditions
 - Shallow zones restrictions on water level change
 - District Monitor well network
 - Established Management Strategies
- Second Priority- Property Rights
 - Right to produce Max of 2 AF/Acre/Year (now)
 - Protection when not producing** (for future)
 - Fair Share & Equitable- treat everyone the same on any given day (conditional permits)

Management Utilizing DFCs

- Adjusting permits based on Threshold Levels (Rules- Sec. 16)
 - Examples of Thresholds
 - Percentage of DFC drawdown
 - DFC is avg. 300 feet (Simsboro)
 - 1st Threshold is at 70% of DFC or 210 feet- notice and evaluations
 - 2nd Threshold is at 80% of DFC or 240 feet- additional evaluations, May begin management actions
 - 3rd Threshold is at 90% of DFC or 270 feet- possible curtailment of permits, considering other strategies

Predicted Drawdown Over Time

Zone/Aquifer		Sparta	Queen City	Carrizo	Calvert Bluff	Simsboro	Hooper
Post Oak GCD	2020	19	28	89	96	196	108
	2040	24	37	109	128	254	147
	2060	27	42	122	154	306	184
Lost Pines GCD	2020	4	10	33	57	151	74
	2040	6	15	49	79	191	105
	2060	6	18	63	102	238	135
Brazos Valley GCD	2020	7	8	35	66	161	104
	2040	11	12	51	94	222	144
	2060	12	13	61	117	273	178
Mid-East Texas GCD	2020	-1	-2	34	40	68	56
	2040	-2	-3	46	57	93	78
	2060	-3	-5	55	70	115	97
Fayette County	2020	30	27	26	73	139	99
	2040	48	46	47	105	182	138
	2060	60	60	63	133	226	174

Note: Work in progress, all results are preliminary

Monitoring Summary

- 108 monitoring wells (adding more)
 - 93 incidental wells (manual measurements)
 - 15 continual wells (hourly measurements)
- Winter and Summer measurements
- Monitoring results available on website
- Continuous evaluations and reports to Board
- Currently- Water Level trends are stable
- No change in management at this time

POSGCD tools to protect water levels

- Well Spacing- varies between aquifers
- Contiguous Acreage requirements
- Modified Correlative Rights system- maximum limit on production per acre
- Management Zones
- Total permitted amounts
- Permit requirements
- Five year review of permits
- DFC Process (GMA and District shallow zones)
- Thresholds and adjustments to production
- Ongoing Water Level Monitoring and Evaluations

POSGCD- Next Steps

- Continue Improvements to Science (GAM)
- Ongoing Evaluation of Current Management
- Ongoing Evaluation of Court Cases in Property Rights and Fair Share (Oil & Gas)
- Continue Monitoring of Groundwater
- Continue to evaluate monitoring results
- Continue to evolve Rules

Questions?

Contact info:

Gary Westbrook

General Manager

Post Oak Savannah GCD

Phone: 512-455-9900

Fax: 512-455-9909

Email: gwestbrook@posgcd.org

Website: www.posgcd.org



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