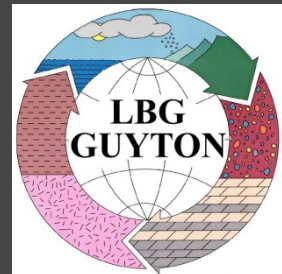


James Beach
LBG-Guyton Associates

GROUNDWATER SCIENCE AND POLICY IN CENTRAL TEXAS



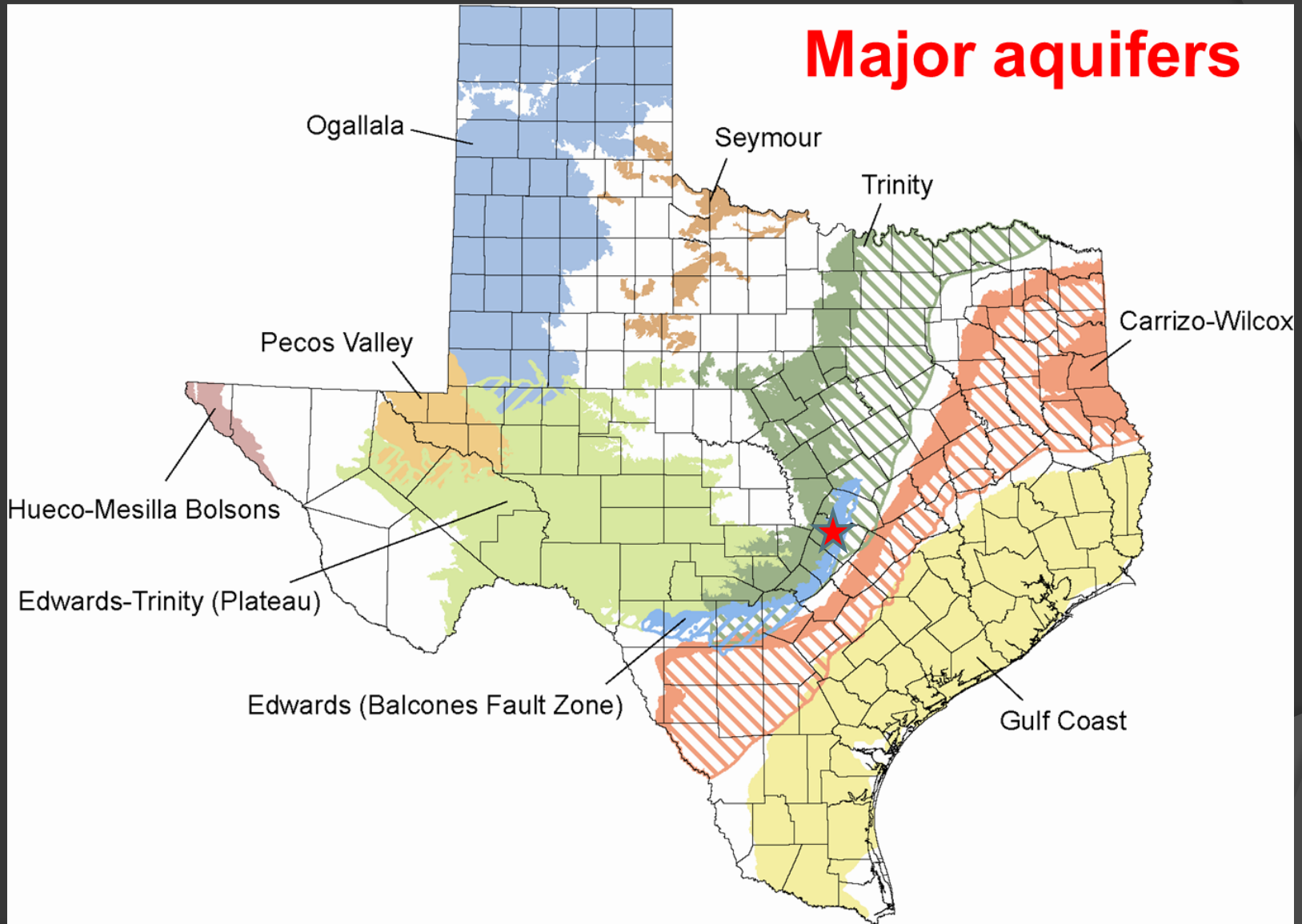
Topics

- Aquifers
- Supply and Regulation
- Issues
- Questions

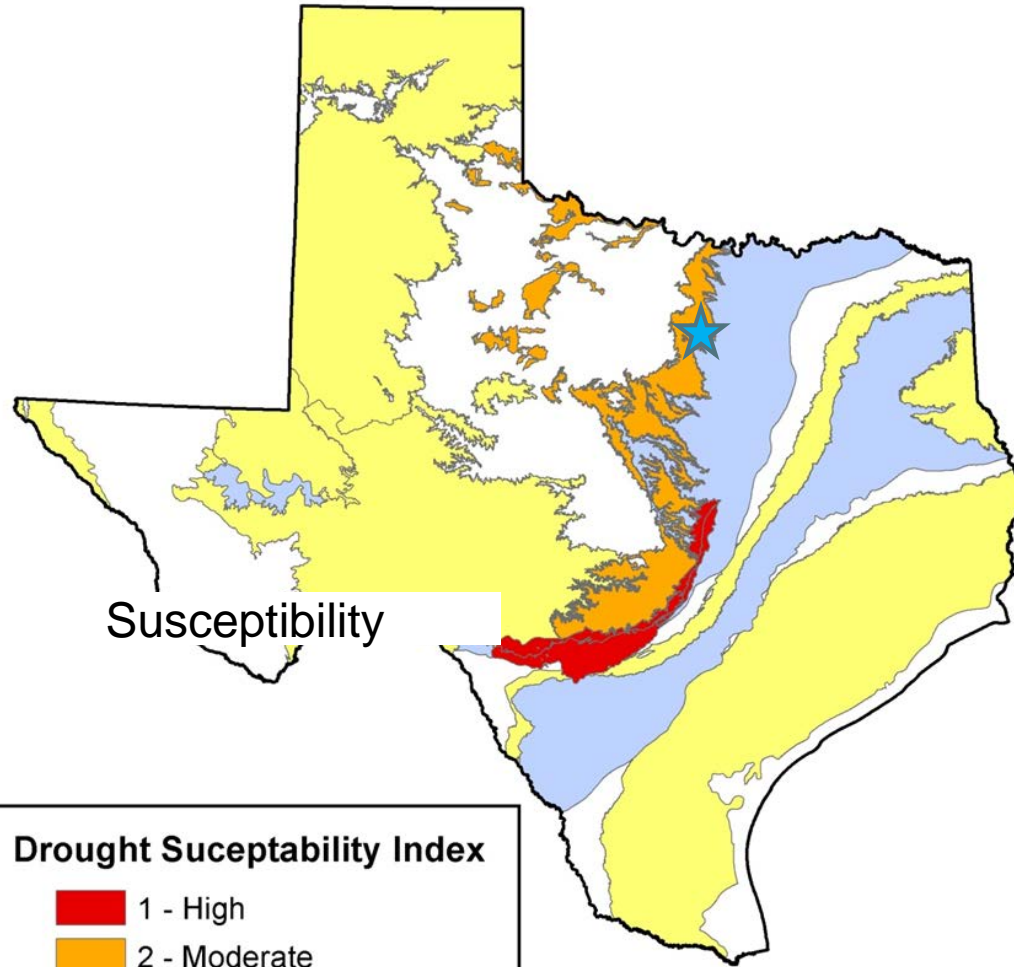


Aquifers

Major aquifers



Drought Susceptibility



Groundwater Supply and Regulation



Total estimated recoverable storage (Carrizo-Wilcox)

<i>Groundwater Conservation District (GCD)</i>	<i>Total Storage (acre-feet)</i>
No District	14,000,000
Brazos Valley GCD	180,000,000
Fayette County GCD	95,000,000
Lost Pines GCD	220,000,000
Mid-East Texas GCD	340,000,000
Post Oak Savannah GCD	170,000,000
Total	1,019,000,000

Source: Texas Water Development Board

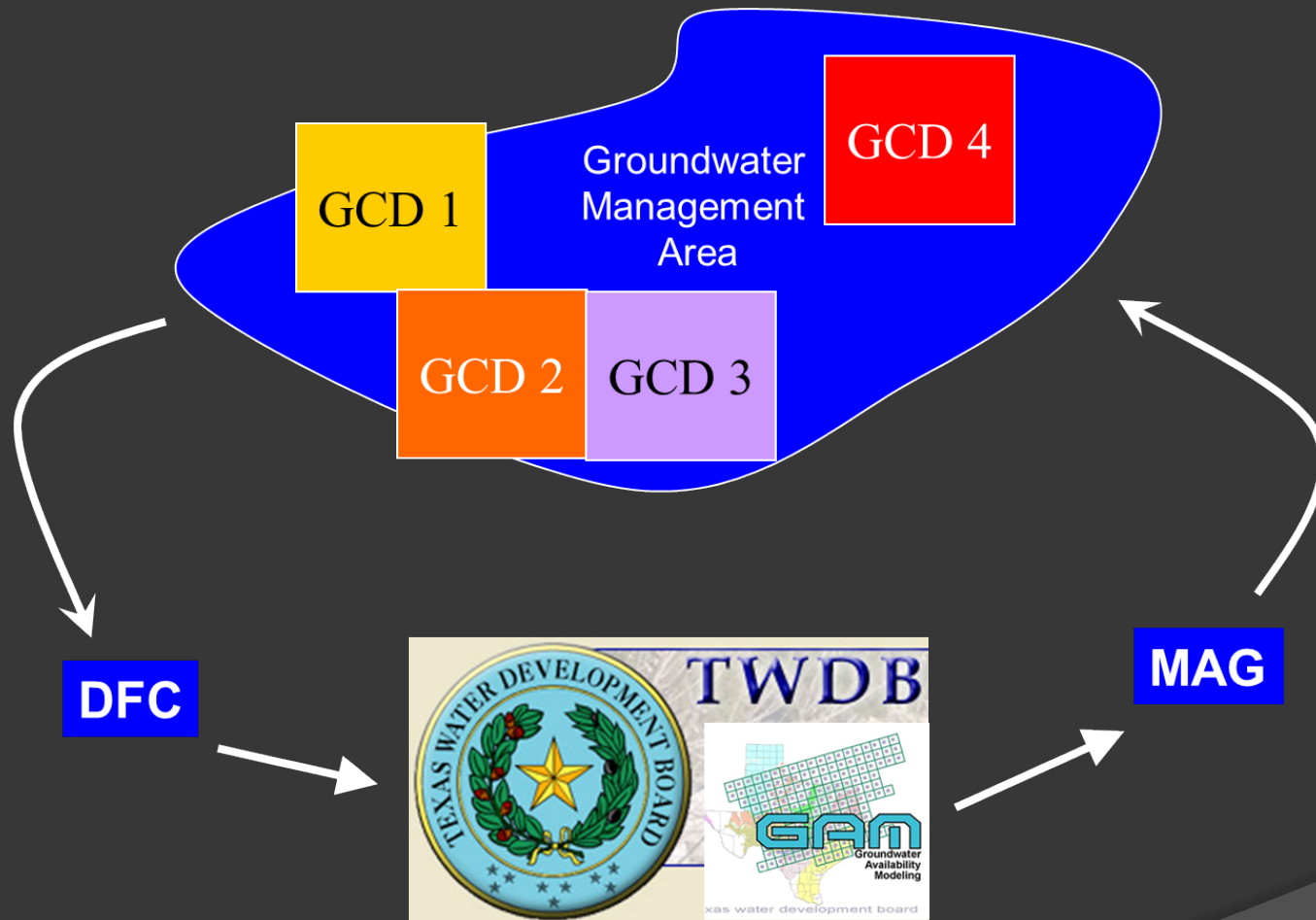


Groundwater Regulation/Planning

- ⦿ **GCD** - Groundwater Conservation Districts
- ⦿ **GMA** – Groundwater Management Area
- ⦿ **DFC** – Desired Future Condition
- ⦿ **GAM** – Groundwater Availability Model
- ⦿ **MAG** – Modeled Available Groundwater
- ⦿ **RWPG** – Regional Water Planning Groups

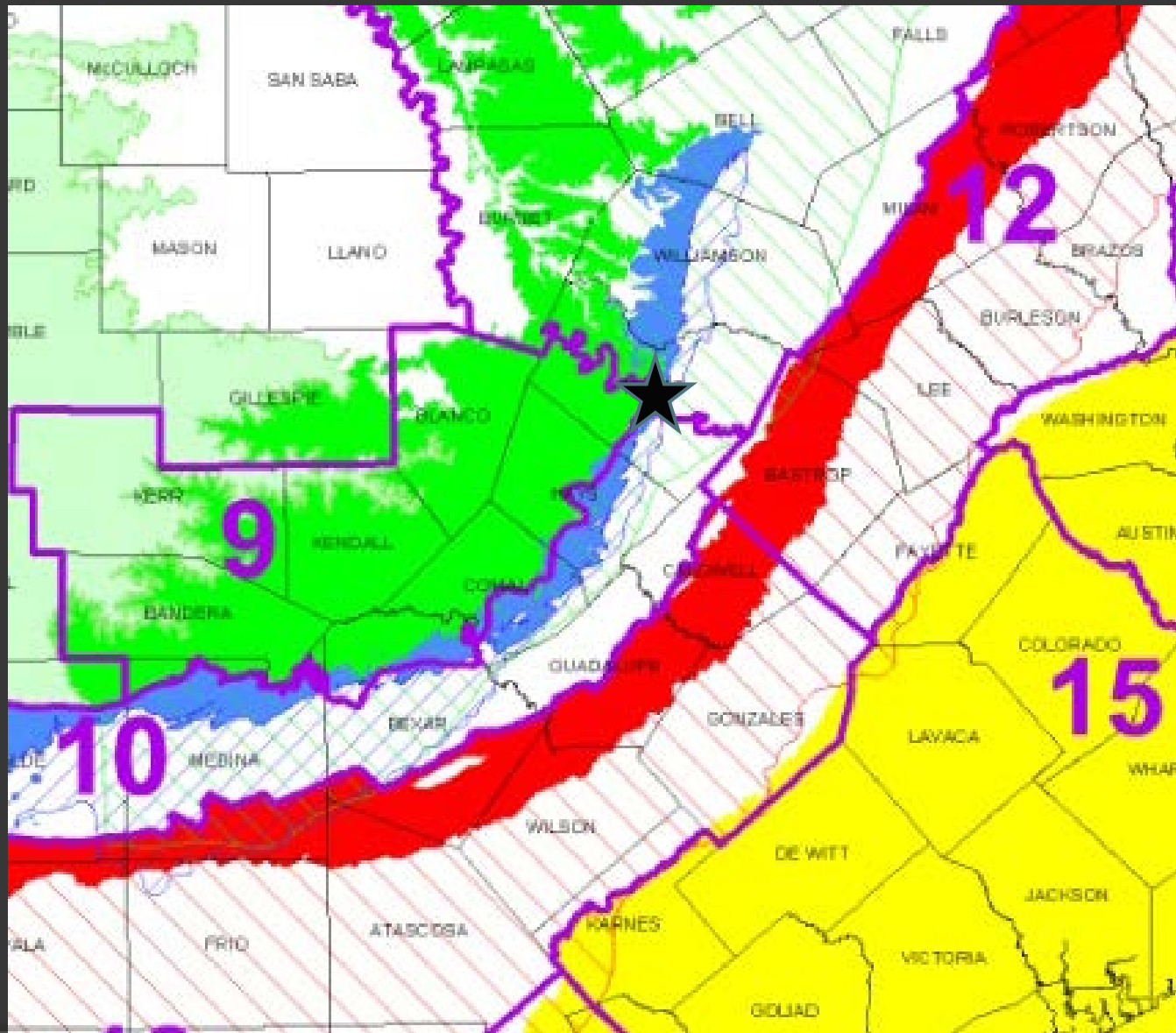


Joint Planning

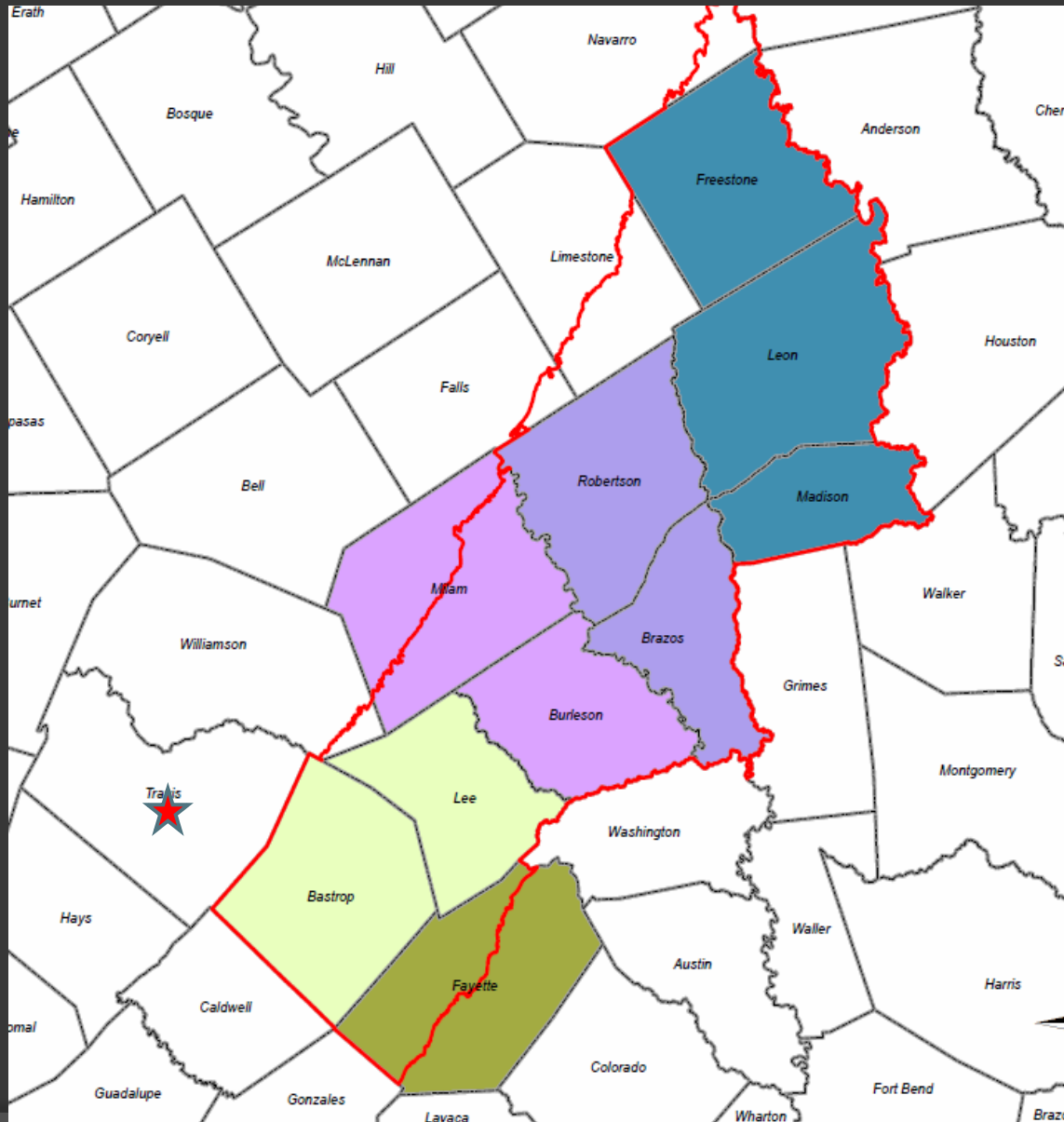




Central Texas GMAs



GMA-12



DFCs, MAGs, Planning

3 shifting targets

- DFCs – GCDs
- MAGs – TWDB
- Strategies – RWPGs
- Requires adaptive management



Approaches for Defining DFCs

- ⦿ Sustainability
- ⦿ Water Budget
- ⦿ Springflow or stream impact
- ⦿ Water Quality
- ⦿ Combination



DFC Considerations

Aquifer Uses or
Conditions

Supply Needs
and
Management
Strategies

Hydrological
Conditions

Environmental
Impacts

Subsidence
Impacts

Socioeconomic
Impacts

Private Property
Rights

DFC Feasibility

Other Relevant
Information

GMA-12 MAGs

From 2010 planning

2060 MAG (acre-feet/yr)

Aquifer →									
District	Brazos River Alluvium	Carrizo	Calvert Bluff	Simsboro	Hooper	Queen City	Sparta	Yegua-Jackson	Total
Brazos Valley	-	5,496	1,755	96,185	316	529	7,923	7,071	119,275
Fayette County	-	1,000	-	-	-	570	3,729	5,762	11,061
Lost Pines	-	12,052	3,985	37,249	2,592	1,133	1,877	-	58,888
Mid-East Texas	-	11,088	3,912	7,170	827	974	3,334	1,122	28,427
Post Oak Savannah	25,138	7,059	1,038	48,501	4,422	502	6,734	12,923	106,377
GMA 12	-	36,695	10,690	189,105	8,157	3,708	23,597	26,878	323,968

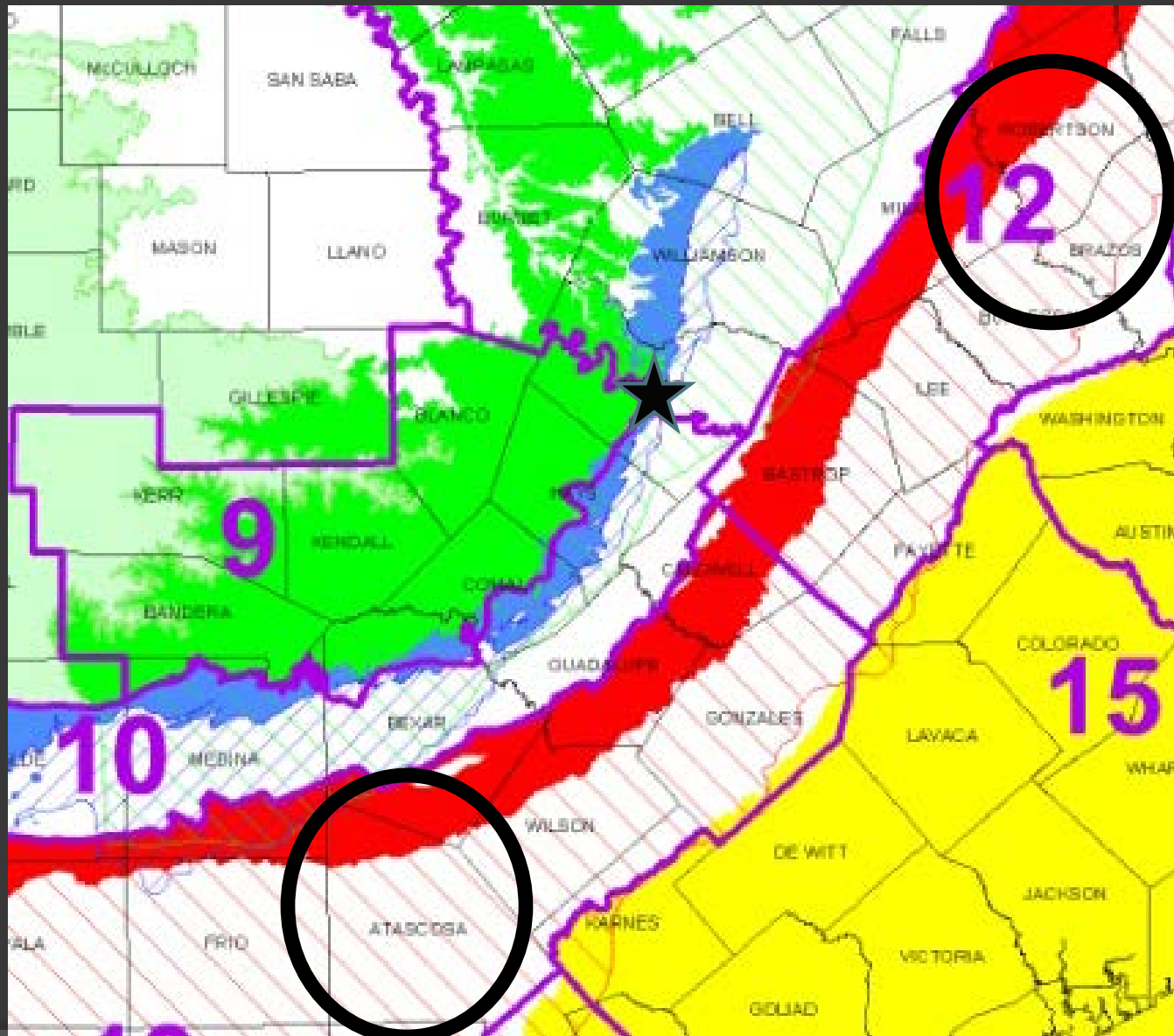


Groundwater and Surface Water Interaction

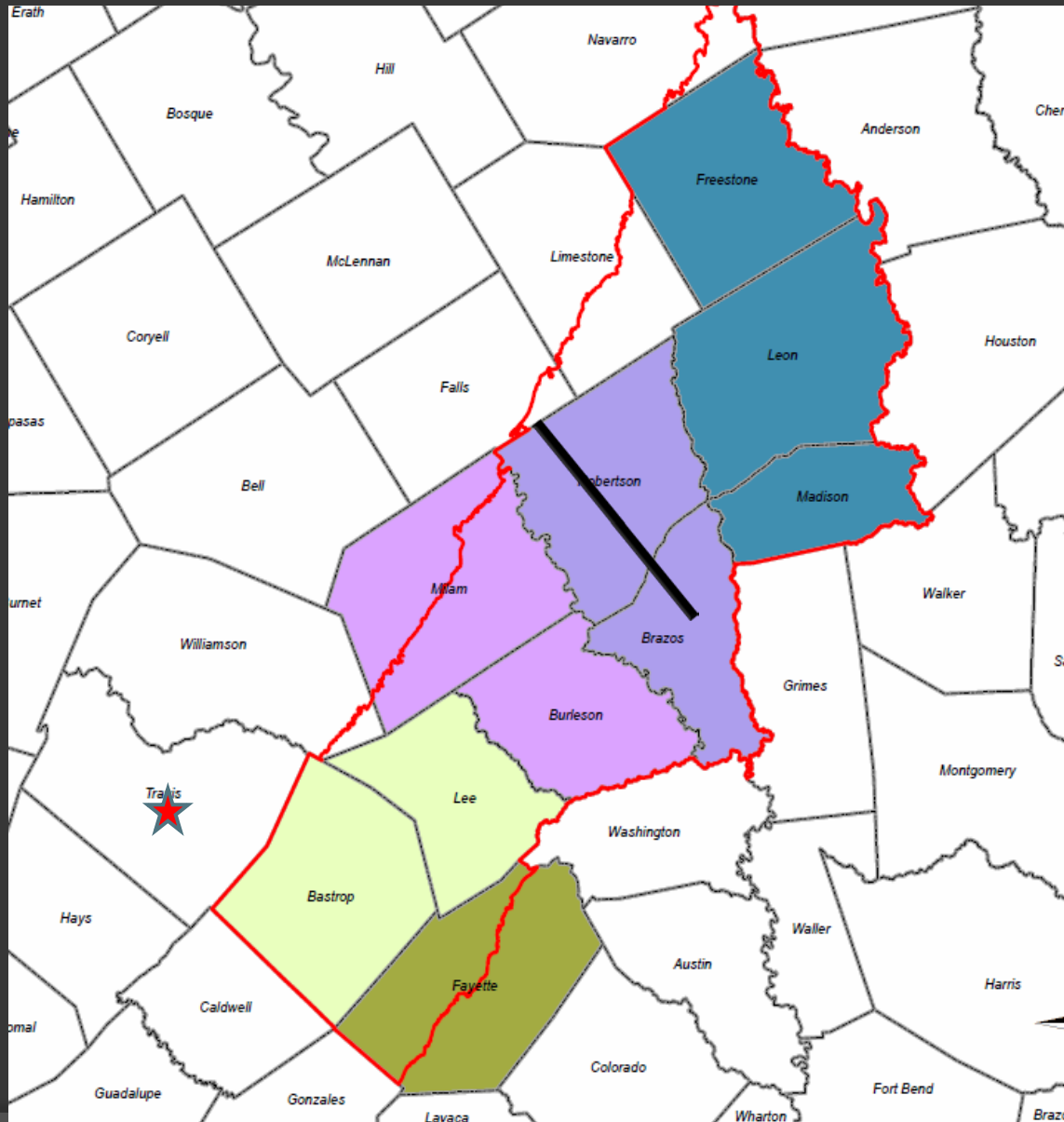




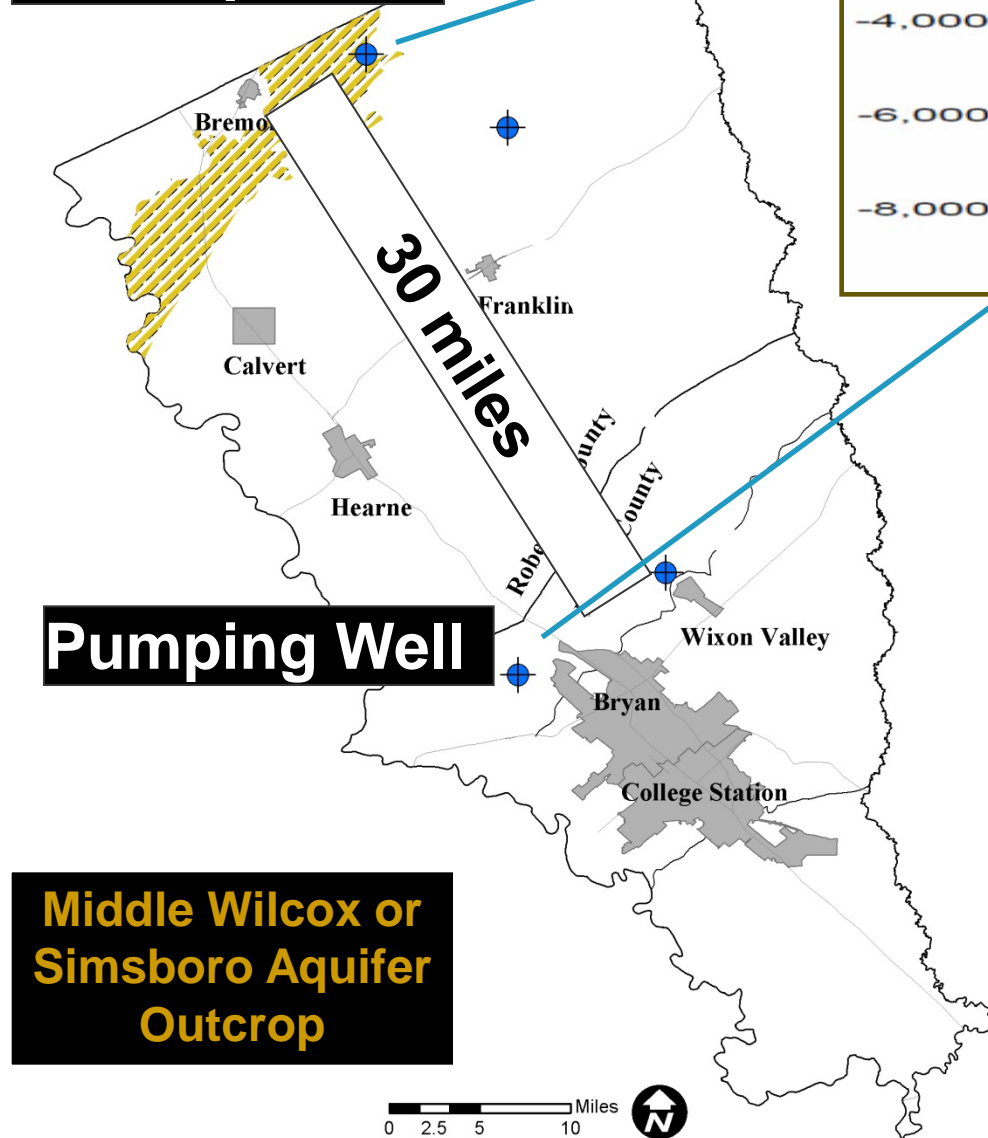
Central Texas GMAs



GMA-12

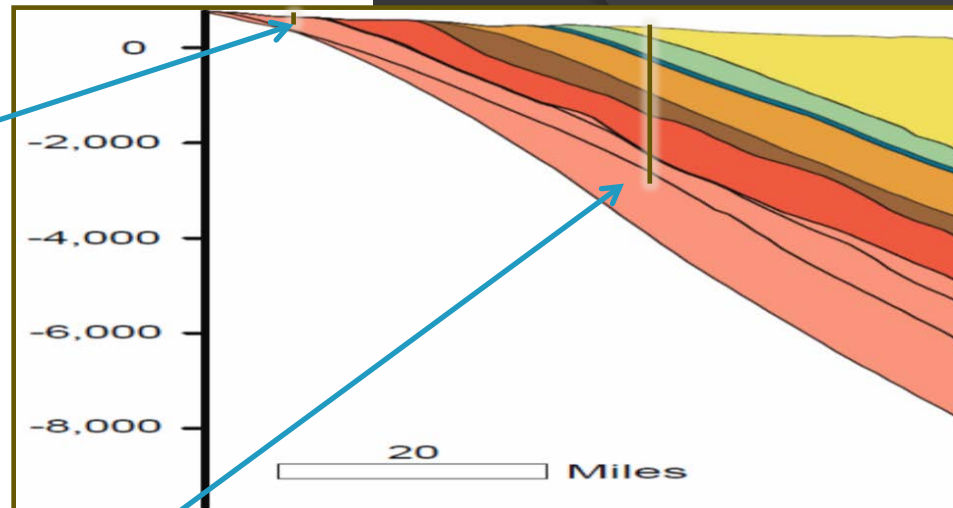


Outcrop Well

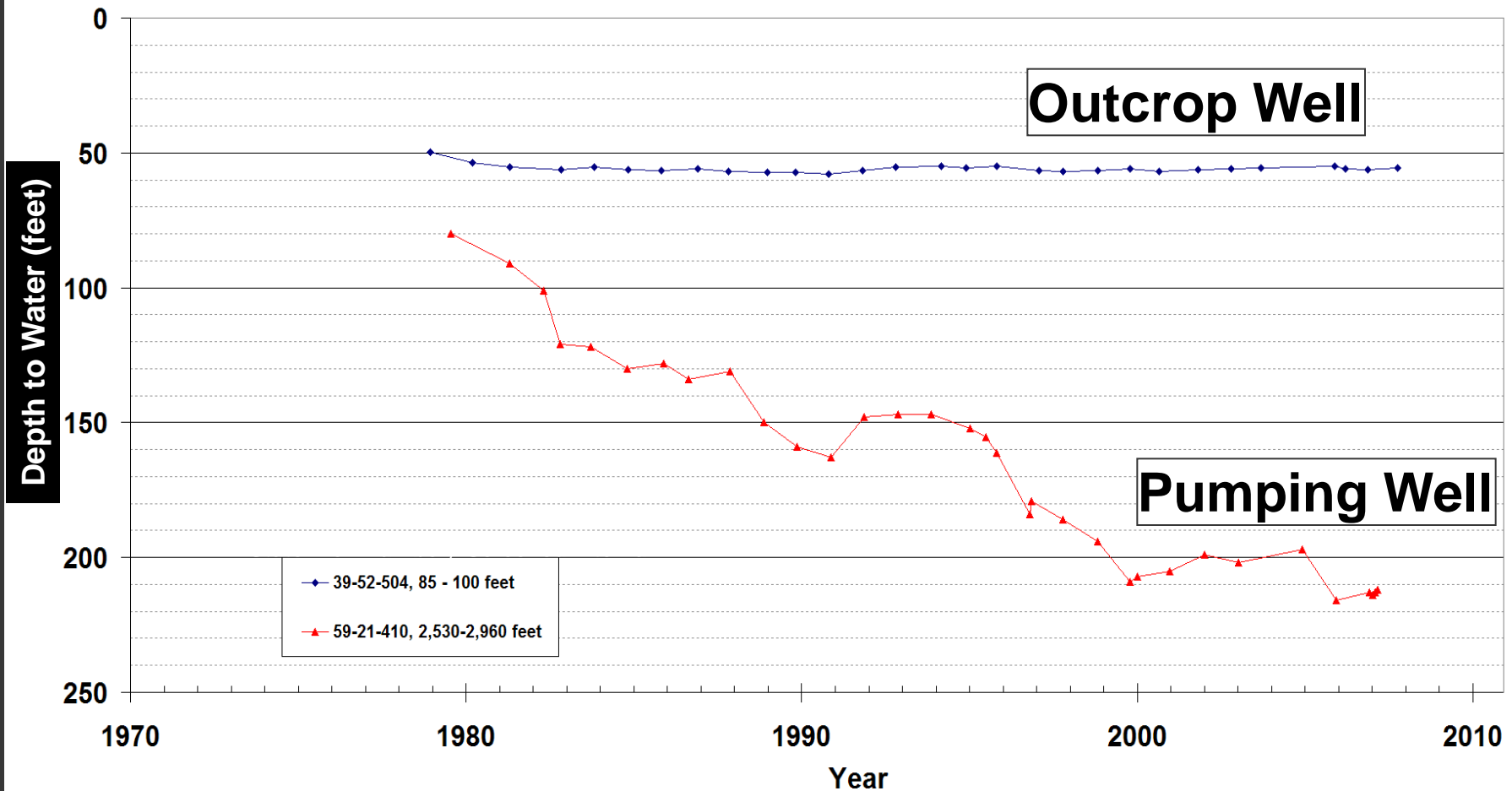


Pumping Well

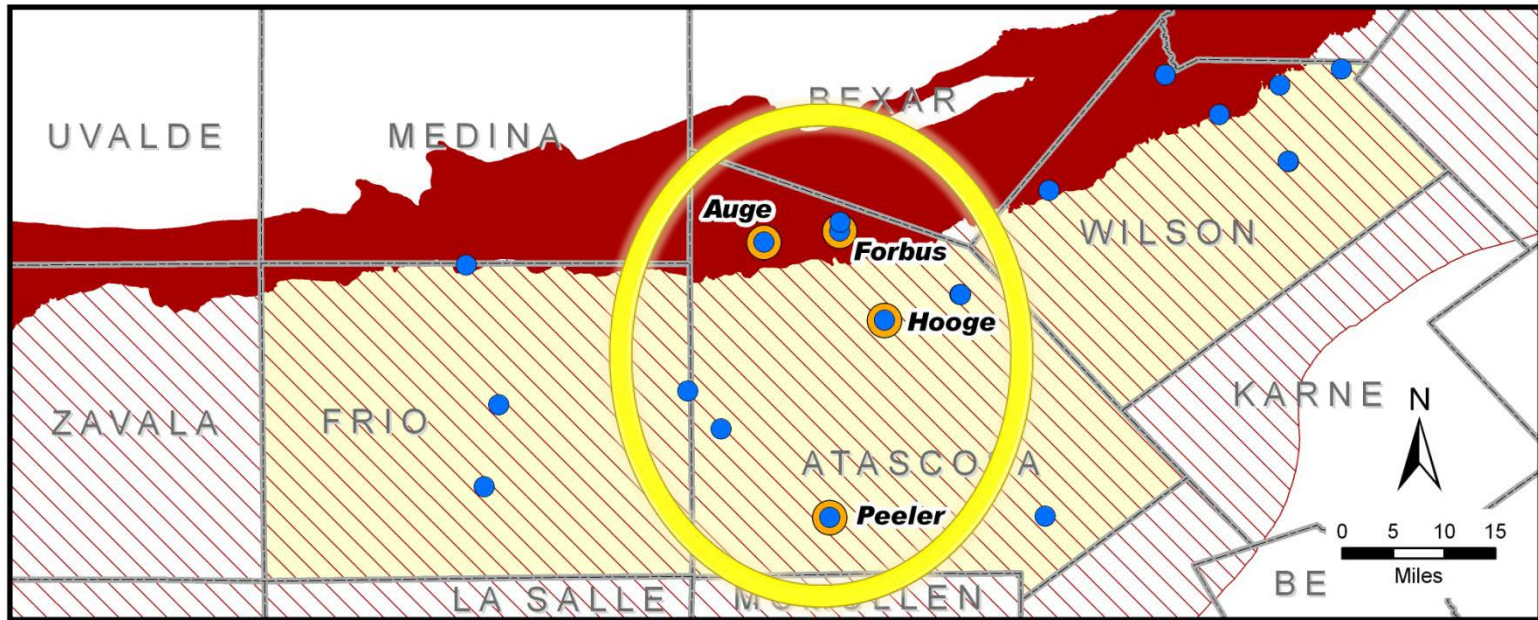
**Middle Wilcox or
Simsboro Aquifer
Outcrop**



Outcrop and Downdip Hydrographs in Brazos and Robertson Counties



Atascosa County Monitoring Wells



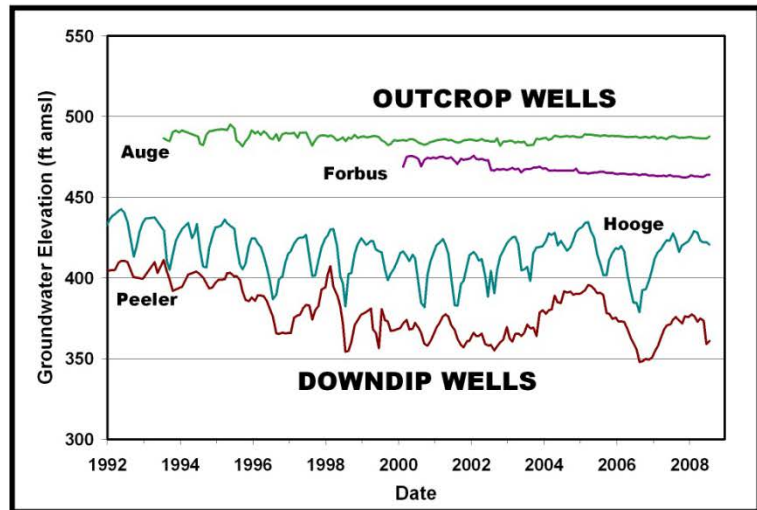
Explanation

- Monitoring Well
- Atascosa County Hydrograph Well
- Carrizo - Wilcox (outcrop)
- ▨ Carrizo - Wilcox (subcrop)

ATASCOSA COUNTY



LBG-Guyton Associates



Considerations

- ⦿ New Drought of Record?
- ⦿ Conjunctive Use
- ⦿ Groundwater can be drought-proof supply for occasional use
- ⦿ Permits and transmission costs
- ⦿ Reconciling risk and cost of risk abatement





Thanks!
Any Questions ?