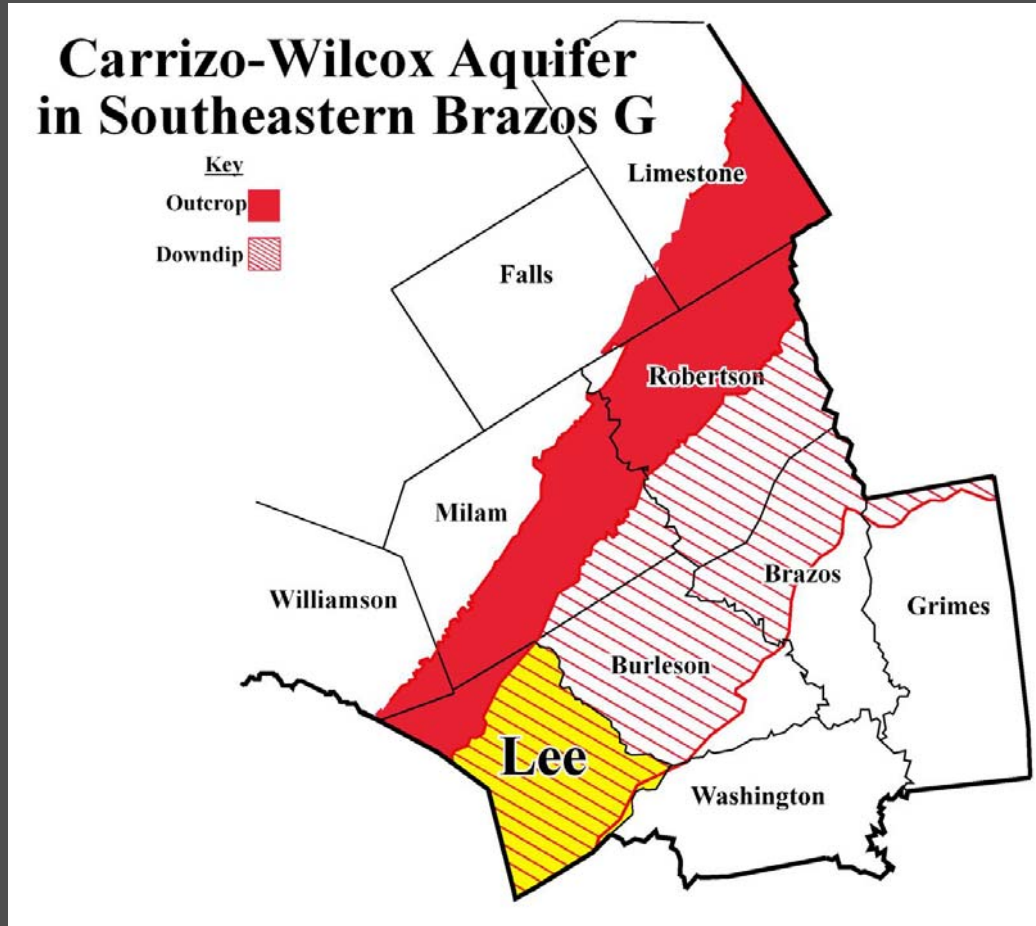


Groundwater Availability In Southeastern Brazos G



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How Much Is Available??

Carrizo-Wilcox Aquifer System

- Region G Estimate for Lee County = 45,000 acre-feet per year
- LPGCD Estimate for Lee County = maximum of 10,000 acre-feet per year

Assessing Groundwater Availability

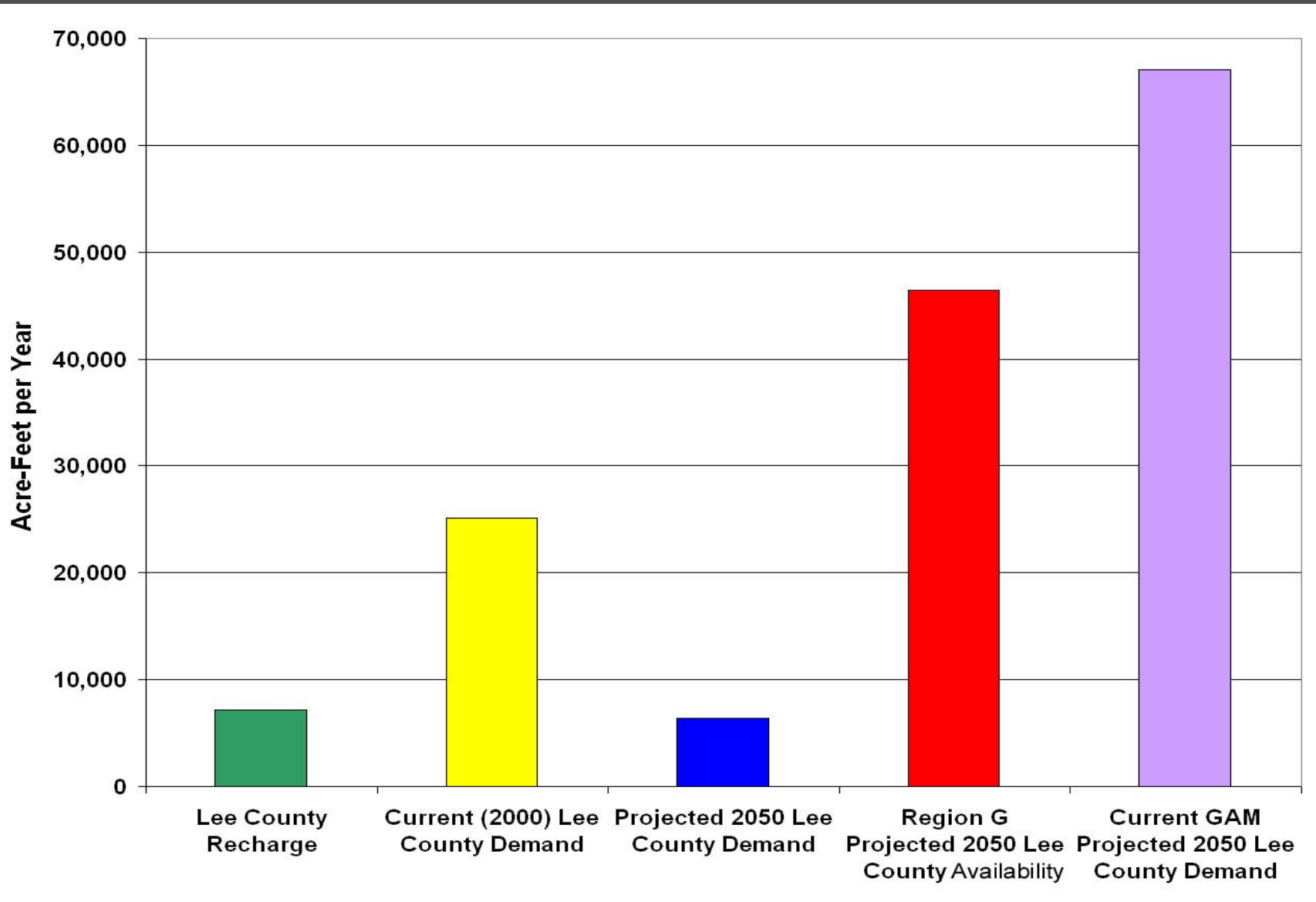
- Both Regions and GCDs charged with assessing GW availability
- By statute GCDs charged with protecting and preserving groundwater resources for its citizens
- LPGCD has set “**sustainable basis**” as its mission statement
(Sometimes equated with concept of “Safe Yield”)

Sustainability

- **Elusive concept to define**
- **“[W]e define ground-water sustainability as development and use of ground water in a manner that can be maintained for an indefinite period of time.”**

(Modified from Alley et al., 1999, Sustainability of Ground-Water Resources, U. S. Geological Survey Circular 1186)

LPGCD Concern



Groundwater Availability

Lee County Storage

- Based on the Central Carrizo-Wilcox GAM, the entire amount of artesian storage in the Carrizo-Wilcox Aquifer in Lee County is only **292,270 ac-ft**
- At a use rate of **45,000 ac-ft/yr**, an amount of groundwater equal to the entire volume of groundwater in artesian storage in the Carrizo-Wilcox Aquifer in Lee County will be withdrawn in **less than ten years**

Groundwater Sustainability

Trends at End of Planning Period

- **Have water levels stabilized?**
- **Has the amount of artesian storage been depleted?**
- **Have water levels fallen below the top of the aquifer?**
- **Are base flow discharges to surface streams affected?**
- **Is groundwater being mined?**

Hydrographs for Wells in Lee Co.

45,000 ac-ft/yr withdrawal (Mod. From HDR)

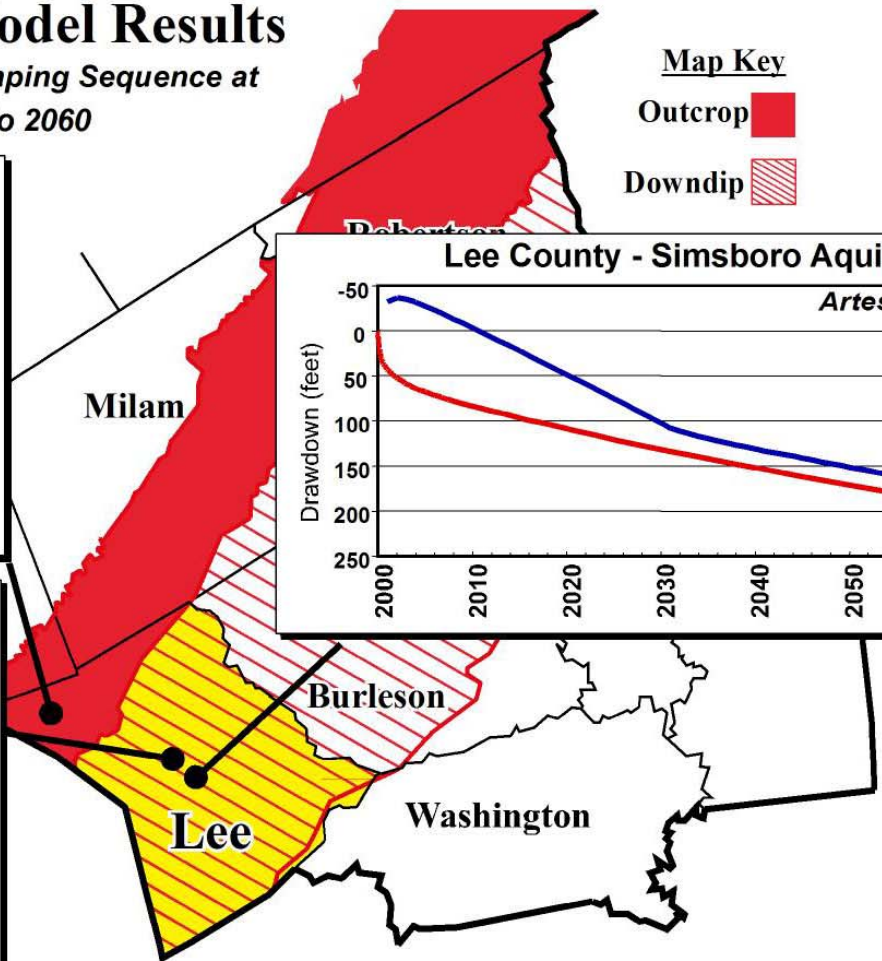
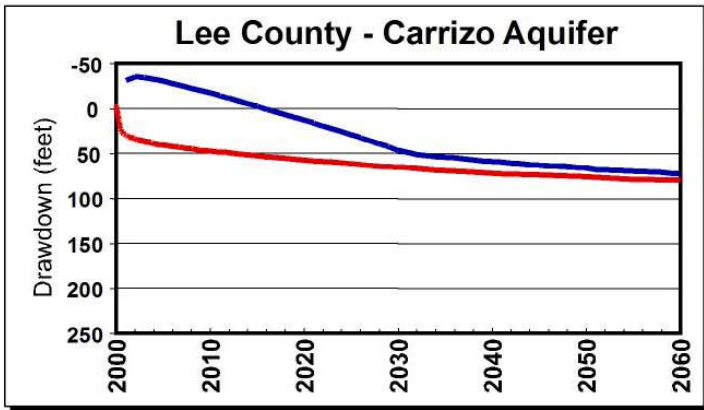
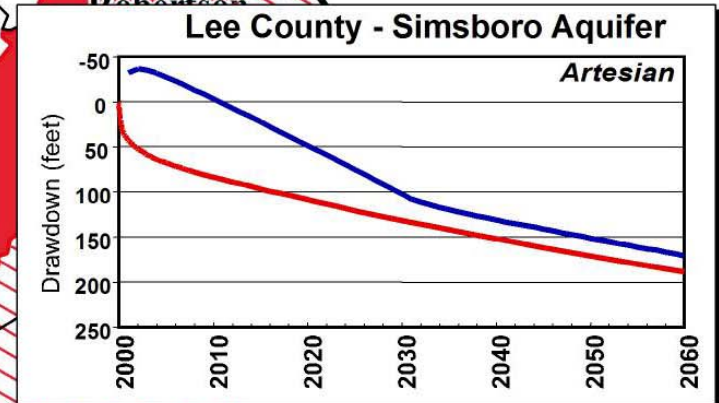
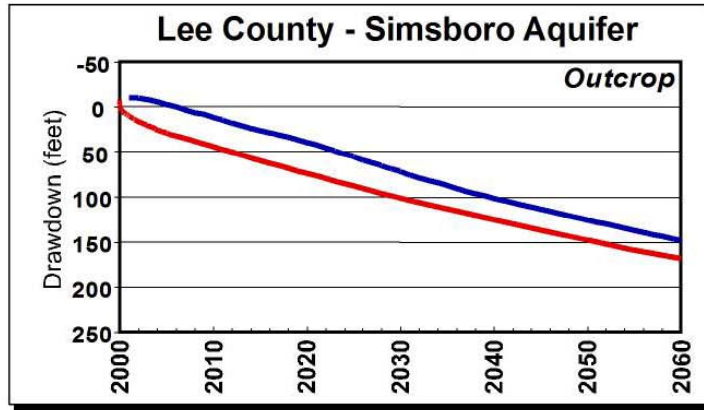
Carrizo-Wilcox Aquifer - Model Results

Scenario: Constant Pumping and Ramped Pumping Sequence at Revised Brazos G 2001 Availability Estimates to 2060

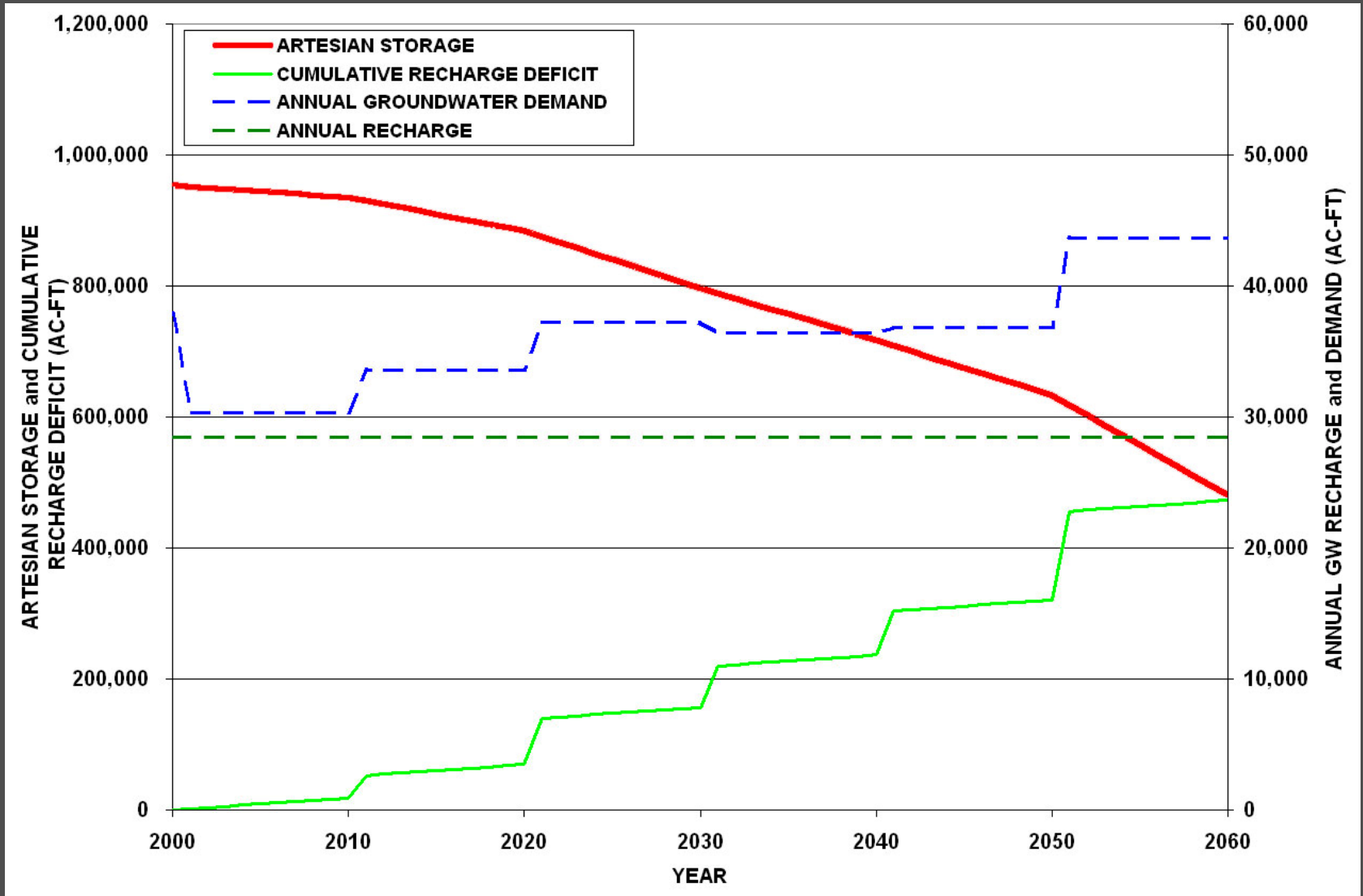
Map Key

Outcrop 

Downdip 



Summary of In-County Water Balance



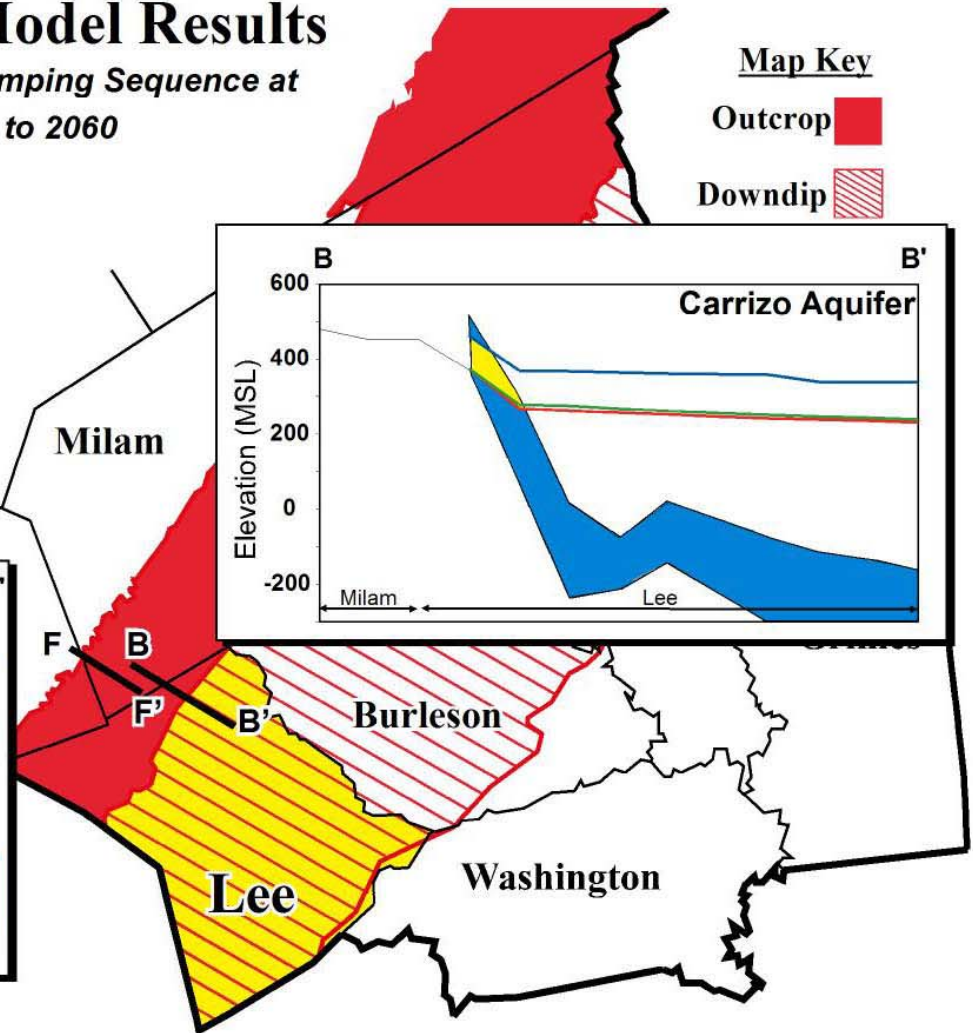
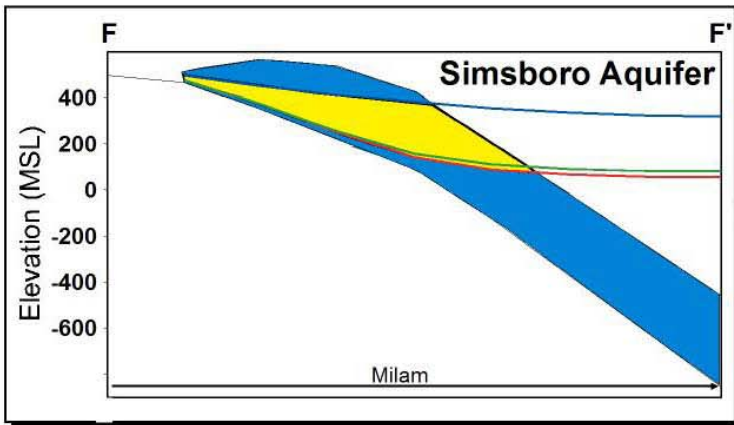
Changes in Storage in Lee Co.

45,000 ac-ft/yr (Mod from HDR)

Carrizo-Wilcox Aquifer - Model Results

Scenario: Constant Pumping and Ramped Pumping Sequence at Revised Brazos G 2001 Availability Estimates to 2060

- 2000 Water Levels
- 2060 Water Levels (Constant Pumping)
- 2060 Water Levels (Ramped Pumping)



Effects on Evapotranspiration and Streams

45,000 ac-ft/yr (Mod from HDR)

Carrizo-Wilcox Aquifer - Model Results

Net Water Balance of Stream & Evapotranspiration in Brazos G Region for Constant Pumping at Revised Brazos G 2001 Availability Estimates, 2000 — 2060

