

# Status Report on Development of DFC Monitoring for Simsboro Aquifer

Presented to  
BVGCD Board of Directors  
by LBG-Guyton Associates



February 11, 2016



# BACKGROUND

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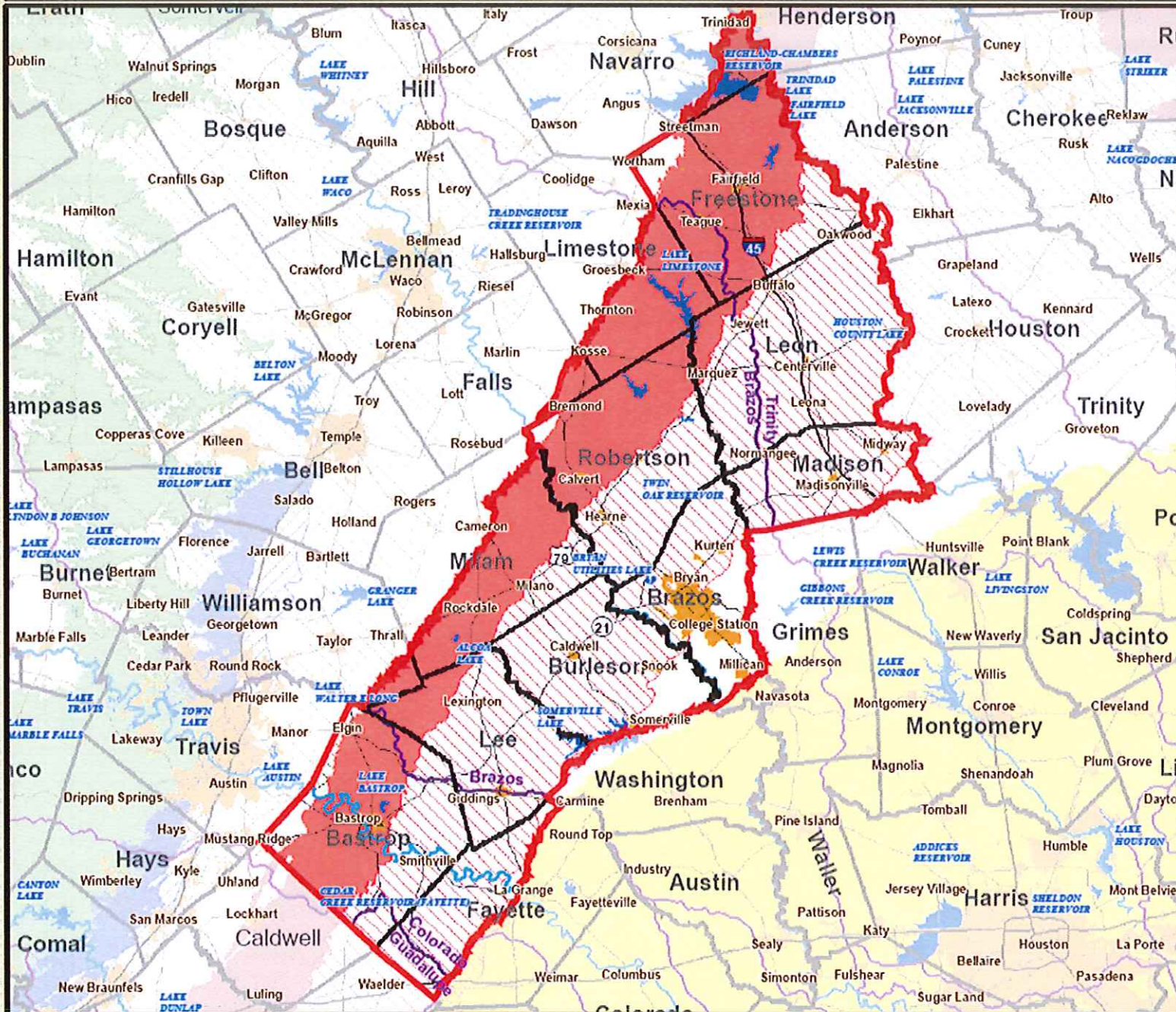
- Desired Future Conditions (DFC) developed by GMA 12 Consider Estimated Future Pumping in All of the GMA Area
- One Objective is to Measure Groundwater Pumping
- A Second Objective is to Measure Drawdown (drawdown based on water levels measured in wells) Changes Resulting from the Pumping

# BACKGROUND (cont'd)

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- Develop a Matrix for Measuring Average Drawdown Changes
- Matrix Adopted by GMA 12 is the Average Drawdown Change for an Aquifer Over the Footprint of the Aquifer Within a GCD and Within the GMA

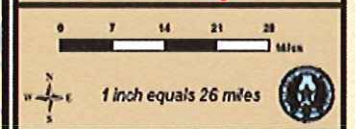
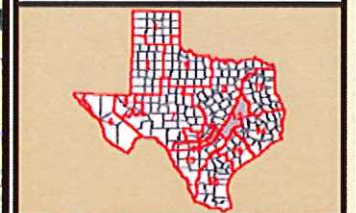
# Groundwater Management Area #12



## MAP LEGEND

- GMA #12
  - River
  - River Basin
  - Reservoir
  - Cities
  - Counties
- ### Major Aquifers
- Cenozoic Pecos Alluvium
  - Seymour
  - Gulf Coast
  - Carrizo - Wilcox (outcrop)
  - Carrizo - Wilcox (down dip)
  - Hueco - Mesilla Bolson
  - Ogallala
  - Edwards - Trinity Plateau (outcrop)
  - Edwards - Trinity Plateau (down dip)
  - Edwards Bfz (outcrop)
  - Edwards Bfz (down dip)
  - Trinity (outcrop)
  - Trinity (down dip)

**DISCLAIMER**  
 No claims are made to the accuracy or completeness of the data nor to its suitability for a particular use. The scale and compilation of information shown here is approximate.  
 Also prepared by Mark Hayes  
 Texas Water Development Board  
 GIS Section  
 12/21/2009



# POTENTIAL APPROACH FOR MONITORING AVERAGE AQUIFER DRAWDOWNS

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- DFC Based on Drawdowns that Span 2000 to 2070
- Average Drawdowns Estimated for Each Aquifer and DFCs Vary Between Aquifers

# APPROACH FOR DEVELOPING AVERAGE DRAWDOWNS

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- Develop a network of as evenly spaced as possible observation wells spread over the district with most Simsboro screened wells 700 to 3,000 feet deep. With wells 700 to 3,000 feet, depend on existing wells or wells constructed in the future.
- Objective to add additional observation wells in areas void of them by converting abandoned oil or gas wells to observation wells

# APPROACH FOR DEVELOPING AVERAGE DRAWDOWNS (cont'd)

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- Measure the static water in each well at least four times per year. Will measure static water level in extra wells as an observation well may be unavailable in the future.
- Calculate average drawdown over area while equally weighing the well water-level measurements collected during the winter months

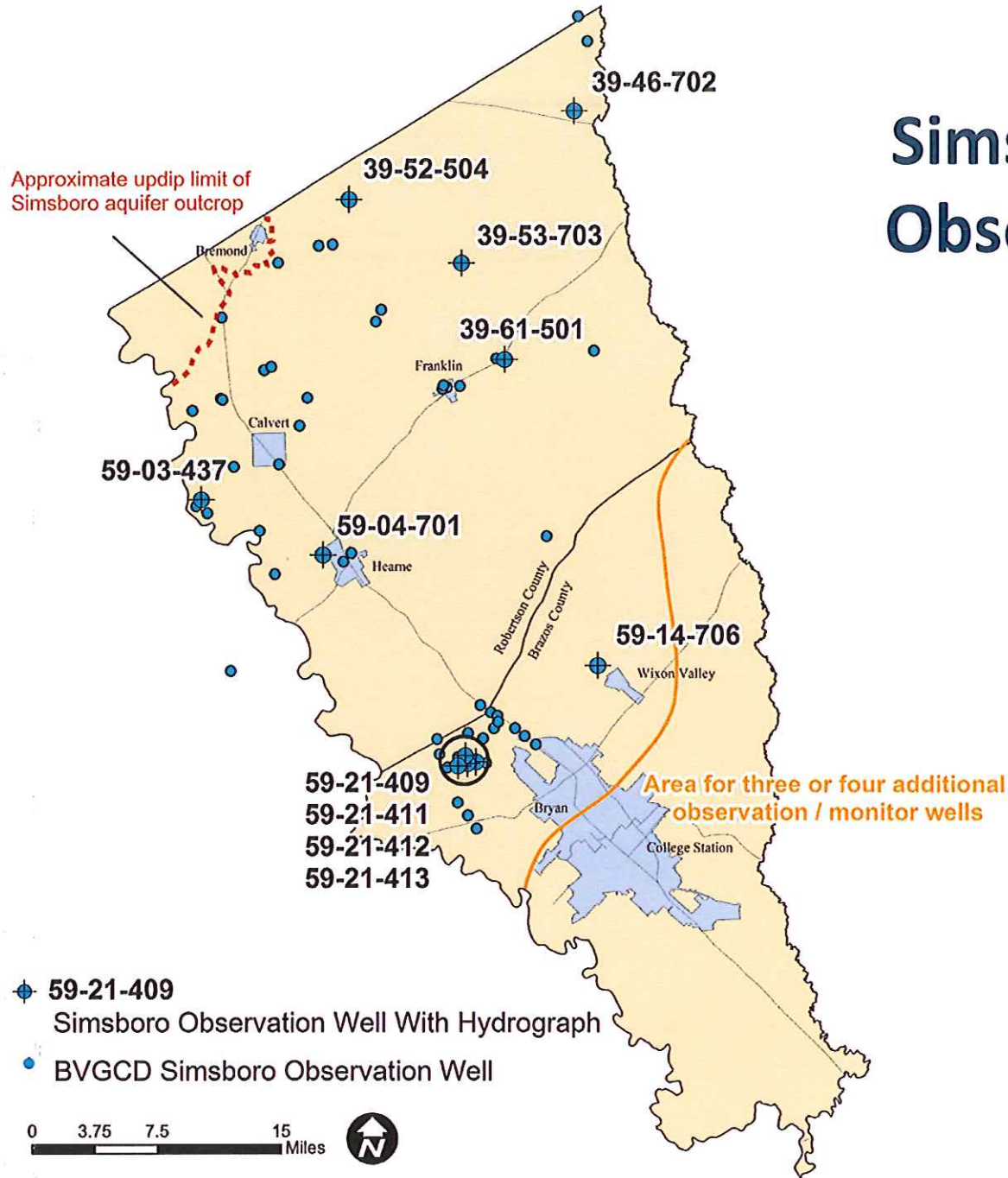
# APPROACH FOR DEVELOPING AVERAGE DRAWDOWNS (cont'd)

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- Utilize the GAM to estimate average drawdown in areas of south Brazos County from 2000 to 2010 if no oil or gas wells area located to convert to observation wells

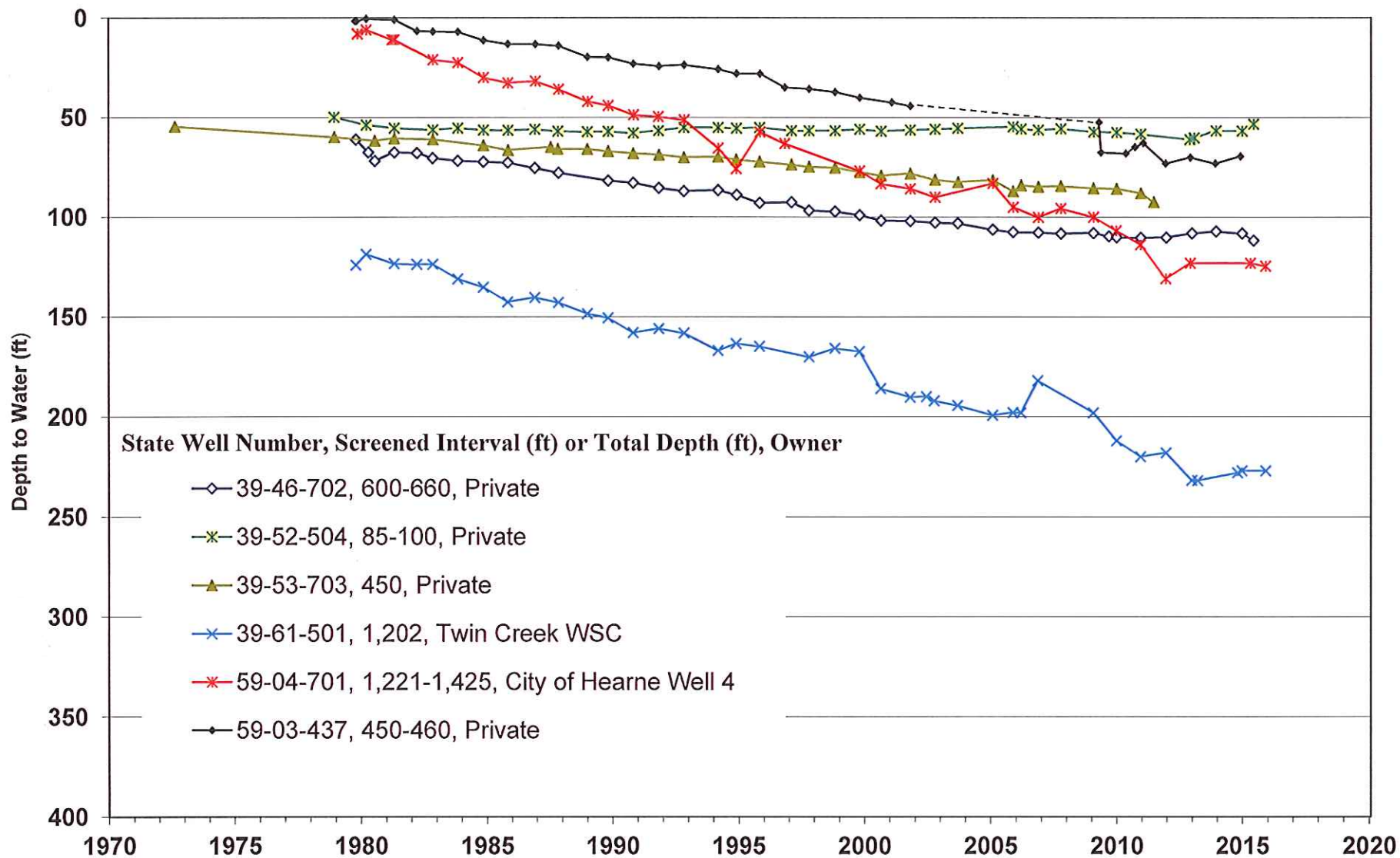


# Simsboro Aquifer Observation Wells



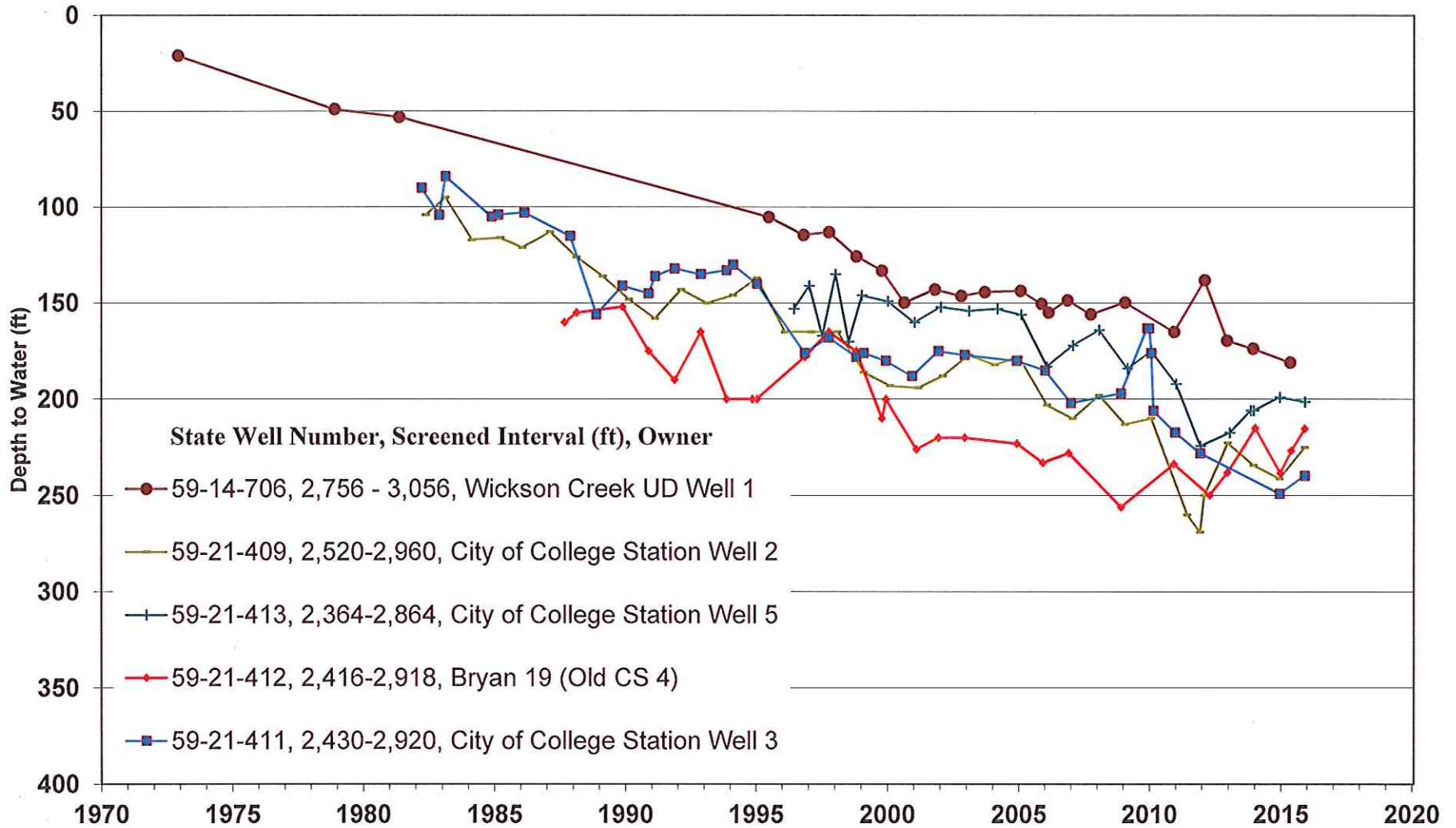
# SIMSBORO AQUIFER OBSERVATION WELLS

## Robertson County

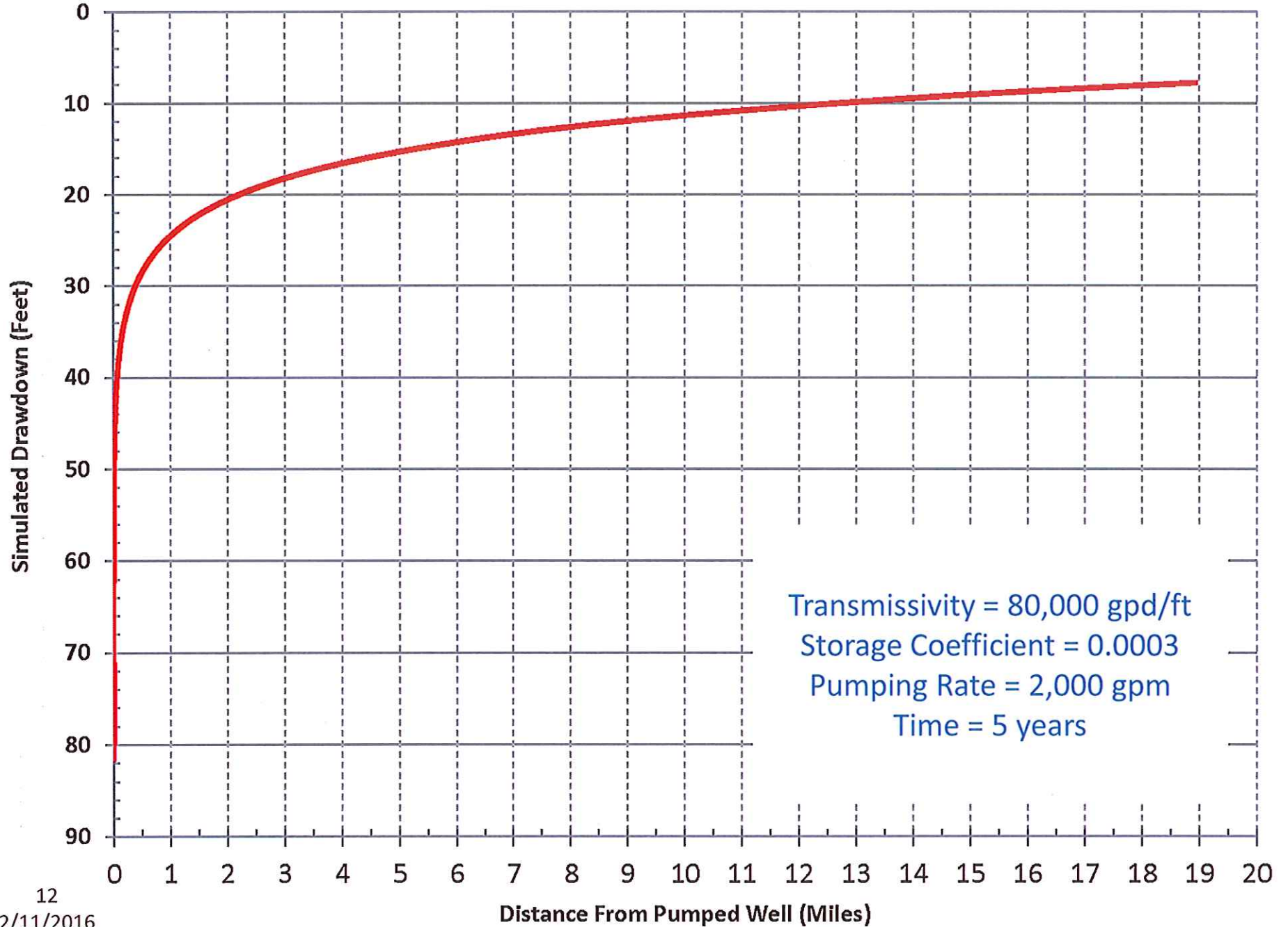


# SIMSBORO AQUIFER OBSERVATION WELLS

## Brazos County



### Cross Sectional Plot of Simulated Distance - Drawdown Effects in Simsboro Aquifer



# DFC ATTAINMENT

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Whether reaching Threshold 1, 2, or 3 or a DFC, base it on the three-year running average of average drawdown each year

## GROUNDWATER PUMPING AND WATER LEVELS IN SIMSBORO SCREENED WELLS OUTSIDE BVGCD

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- Monitor/inventory groundwater pumping in surrounding counties
- Collect water-level data in wells located in surrounding counties
- Use data to help evaluate changes in average drawdown in BVGCD

Thank you!

Questions?