



# **Water Supply Study for Johnson and Parker Counties**

**Region G Meeting  
June 9, 2004**

**Study Sponsors:**

**Brazos River Authority**

**Tarrant Regional Water District**





# Study Objectives



- Identify areas of Johnson and Parker Counties that will need additional water and sewer services in the future
- Working together with major water and sewer service providers in the counties, brainstorm options for providing services to those areas
- Identify feasible alternatives to be further evaluated in a more detailed study



# Background



- Combined population of both counties is expected to triple by 2060
- First round of SB1 studies concluded that nearly all public water systems must develop additional supplies
- Interim short-term SB1 strategy for many systems is to overdraft aquifers
- BRA & TRWD have common interest to increase supplies and water quality



# Parker Co. Water Suppliers

(>75 ac-ft/yr)



- Central Texas Utilities (Aquasource)
- City of Aledo
- City of Azle
- City of Hudson Oaks
- City of Mineral Wells
- City of Reno
- City of Springtown
- City of Weatherford
- City of Willow Park
- Deer Creek Waterworks INC
- Horseshoe Bend Water System
- Millsap WSC
- North Rural WSC
- Parker County WSC
- Santo WSC
- Walnut Creek SUD



# Johnson Co. Water Suppliers

(> 75 ac-ft/yr)



- City of Alvarado
- City of Burleson
- City of Cleburne
- City of Godley
- City of Grandview
- City of Keene
- City of Rio Vista
- City of Venus
- Aquasource H2M Water Systems
- Bethany Water Supply Corp
- Bethesda Water Supply Corp
- Crest Water Company
- Johnson Co FWSD #1
- Johnson Co. SUD
- Mountain Peak WSC
- Parker WSC
- TECON Water Co.



# Authorized Sewer Service Providers



## Parker County

- Aquasource Development Co
- City of Aledo
- City of Azle
- City of Hudson Oaks
- City of Mineral Wells
- City of Springtown
- City of Weatherford
- City of Willow Park
- Deer Creek Water Works

## Johnson County

- Blue Water Oaks POA
- City of Alvarado
- City of Burleson
- City of Cleburne
- City of Keene
- City of Mansfield
- City of Godley
- City of Grandview
- City of Rio Vista
- City of Venus
- Grand Ranch Treatment Co
- Johnson Co SUD
- Johnson Co. FWSD





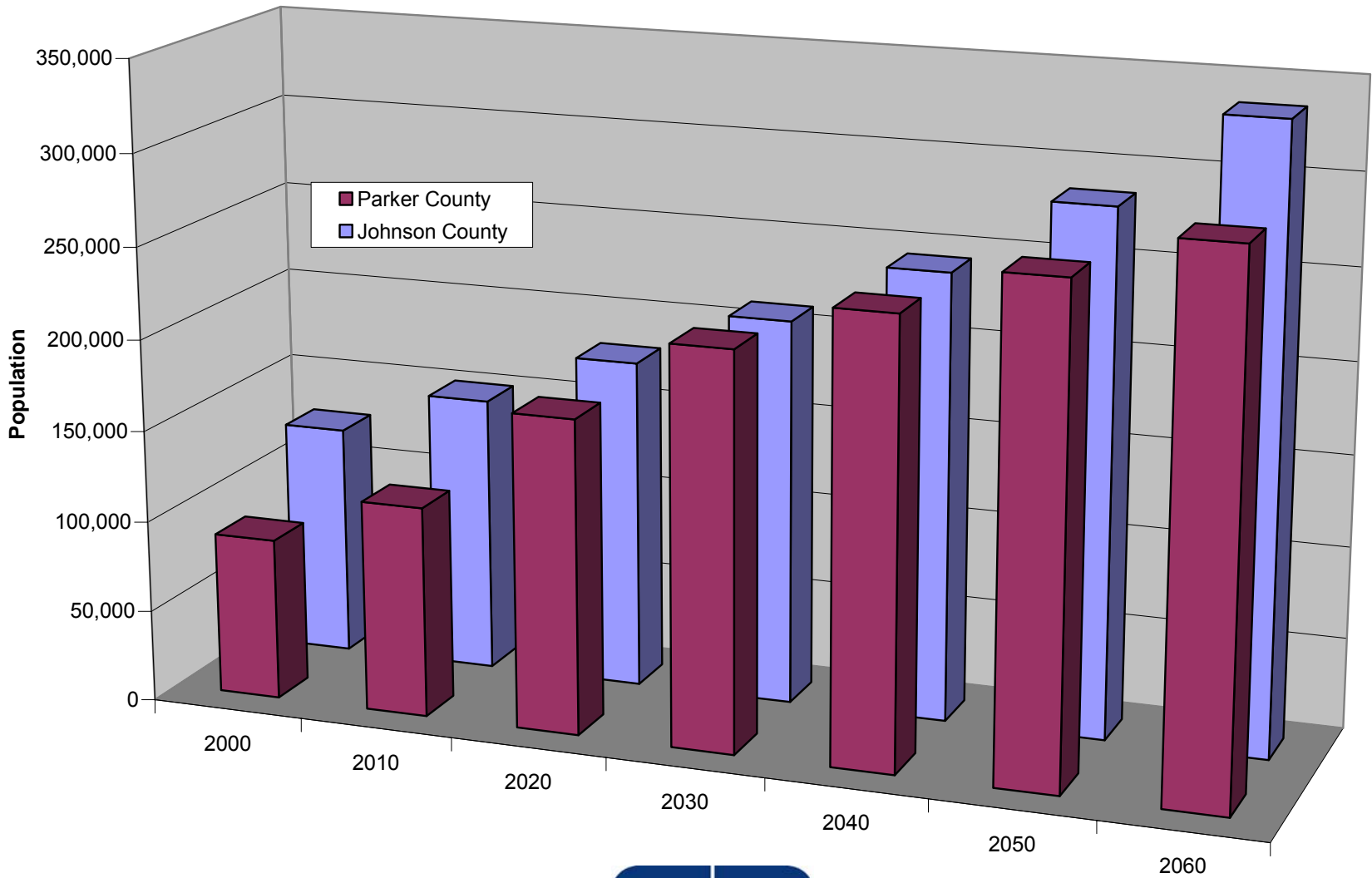
# Technical Approach



- Develop population, water demand and wastewater projections from Texas Water Development Board Senate Bill One planning data.
- Identify existing water supply sources and relationships between water suppliers
- Develop potential supply scenarios to satisfy projected needs
- Prepare conceptual level estimates of capital and operating costs
- Screen the alternatives on the basis of cost and other evaluation criteria
- Seek input from Stakeholders

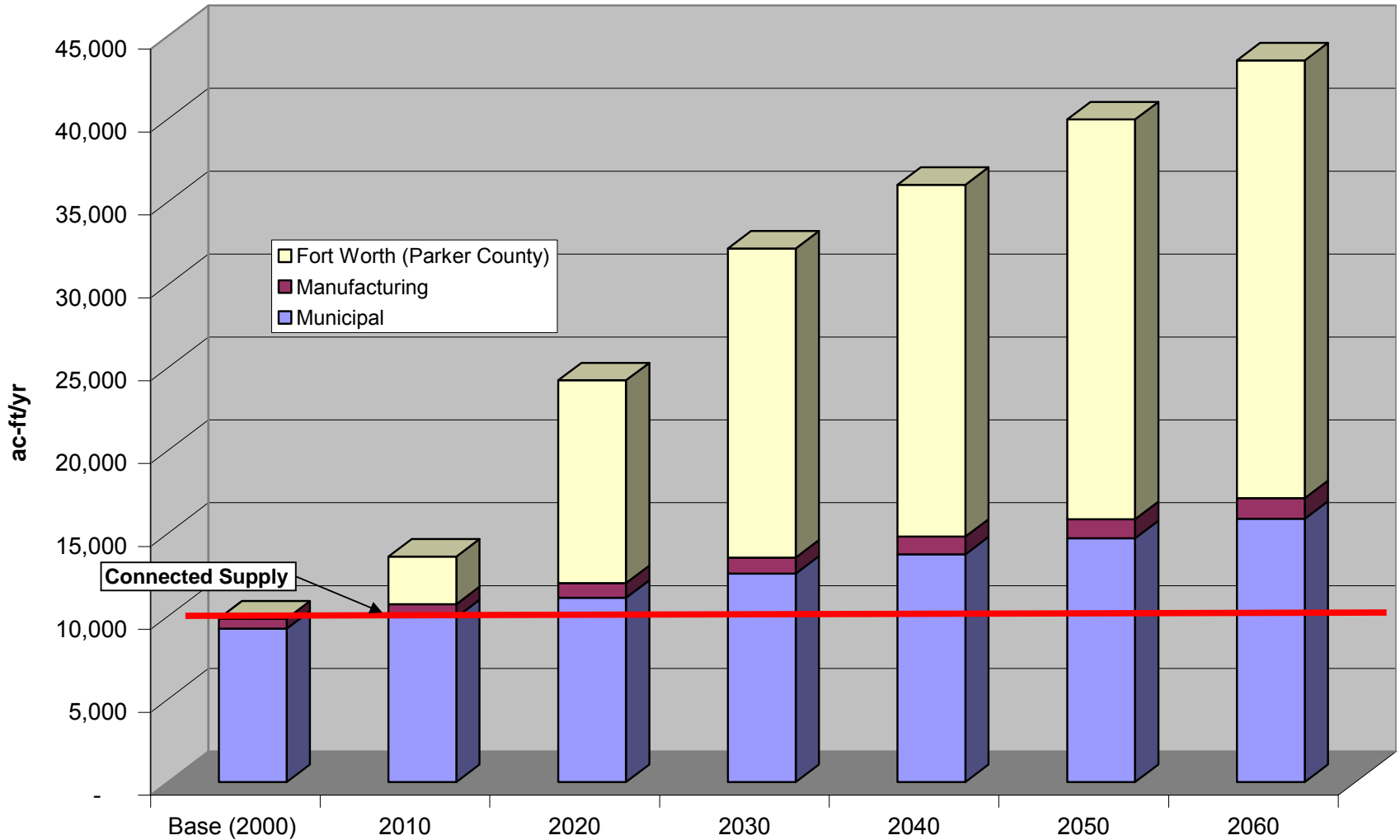


# Population Projections





# Parker County Water Demand Projections\*

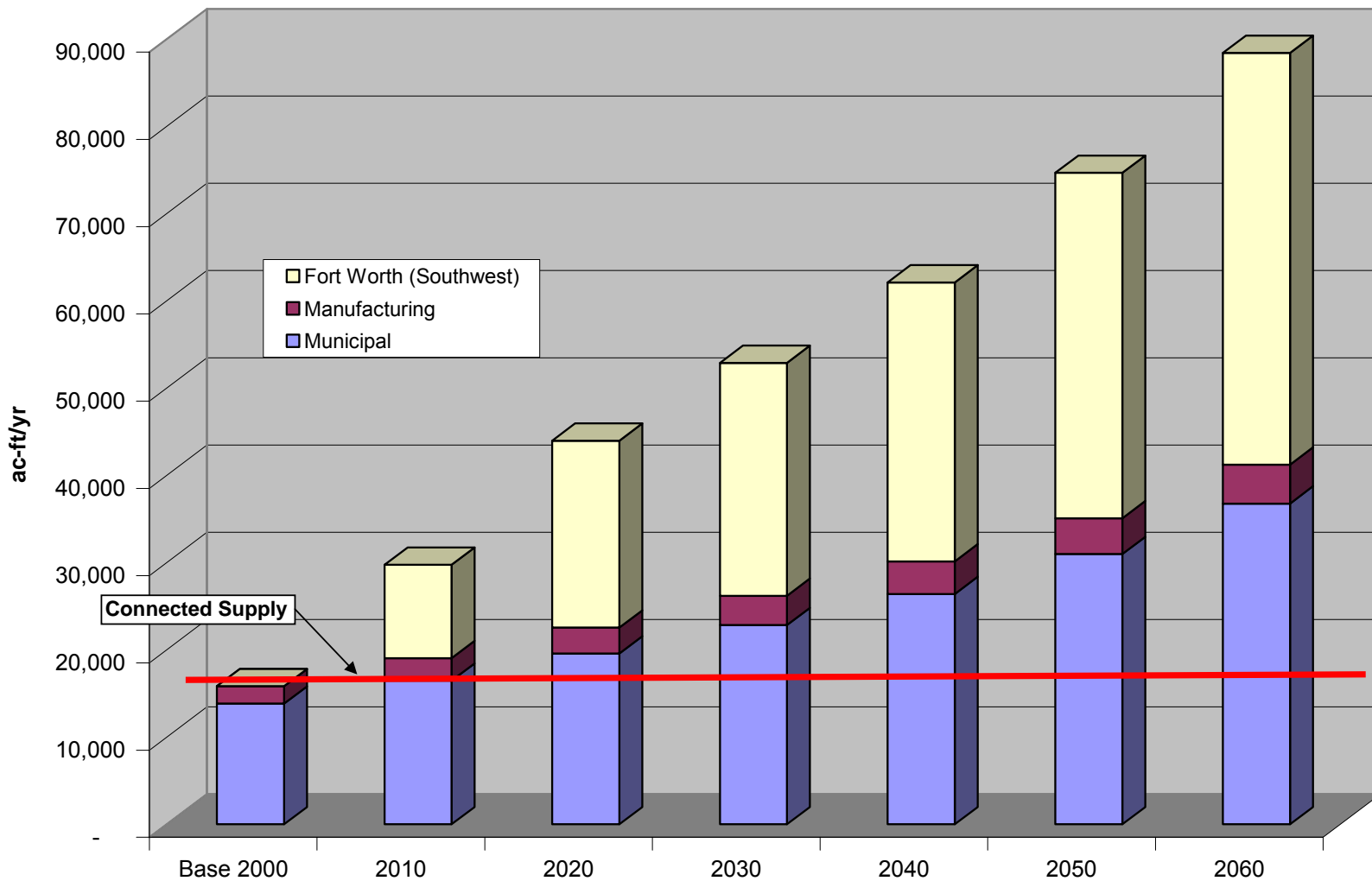


\* For users with projected shortages only.





# Johnson County Water Demand Projections\*



\* For users with projected shortages only.





# Water Supply Scenarios to Serve Johnson County



- ✓ **Scenario J-1:** Expand SWATS System
- ✓ **Scenario J-2:** Regional Water Treatment Plant (WTP) in Northwest Johnson County Using Blended Raw Water from TRWD and BRA Sources
- ✓ **Scenario J-3:** Regional WTP near Alvarado Using Blended Raw Water from TRWD and BRA Sources



# Water Supply Scenarios to Serve Parker County



- X **Scenario P-1:** Expand Existing Sources
- ✓ **Scenario P-2:** Regional WTP in SE Parker County Using Blended Raw Water from TRWD and BRA Sources
- X **Scenario P-3:** Regional WTP in South Parker County Using Raw Water from BRA Only
- ✓ **Scenario P-4:** Weatherford Regional System Using Raw Water from TRWD Only



# Water Supply Scenarios to Serve Both Counties



- ✓ **Scenario C-5:** Regional WTP in NW Johnson Co. (blended raw water) + Regional WTP near Alvarado (blended raw water) + Weatherford Regional System (TRWD raw water)
- ✓ **Scenario C-6:** Expand SWATS + Regional WTP near Alvarado (blended raw water) + Weatherford System
- ✓ **Scenario C-7:** Regional WTP in SW Tarrant Co. (blended raw water)



# Evaluation Criteria



- Estimated capital and operating costs
- Effective use of BRA's available supply
- Leveraged use of TRWD's supply to bring additional water to the region
- Protection of the interests of BRA and TRWD's existing customers
- Environmental and permitting issues
- Political and institutional issues



# Recommended Scenarios for Further Consideration



- ✓ Regional Water Treatment Plant (WTP) in Northwest Johnson County Using Blended Raw Water from TRWD and BRA Sources
- ✓ Regional WTP in NW Johnson Co. (blended raw water) + Regional WTP near Alvarado (blended raw water) + Weatherford Regional System (TRWD raw water)
- ✓ Regional WTP in SW Tarrant Co. (blended raw water)



# Wastewater Service Scenarios



- Cleburne Northeast Regional Wastewater Treatment Plant
- Nolan River Regional Wastewater Treatment Plant
- Chambers Creek Regional Wastewater Treatment Plant
- Expanded Weatherford Regional System
- Bear Creek Regional Wastewater Treatment Plant



# Conclusions



- Groundwater supplies inadequate to meet future demands
- Regional plant NW Johnson or SW Tarrant plant could economically serve the surrounding communities, including new growth in Fort Worth's ETJ
- Means to use a significant amount of available BRA water supply & leverage TRWD supply
- Large demand in the early years to support infrastructure development



# Conclusions



- Emergency back-up to Rolling Hills WTP and surrounding communities
- Regional NE Johnson County plant could economically serve a large area with unmet needs, including the rapidly growing areas around Mansfield and Burleson
- Second source of supply for Mansfield as existing plant reaches maximum build out
- Emergency back-up supply to smaller local systems
- Strong stakeholder support







# Recommendations



- Proceed with Phase II Study
- Limit alternatives to NW Johnson/SW Tarrant WTP and/or NE Johnson WTP
- Coordinate evaluations with long range master plans of Fort Worth and Mansfield
- Assess feasibility of both scenarios considering varying levels of participation by Fort Worth and Mansfield



# Questions?

