

Request for Consistency Waiver in the Region G Water Plan to Address the Trinity Basin Transmission Facilities Project for Johnson County Special Utility District (JCSUD)

Background

The information in Tables 1 and 2 following, taken from the 2008 Water Master Plan for Johnson County Special Utility District and historical records clearly indicate the need for additional surface water supplies based on growth and usage patterns. Table 1 immediately below shows that:

- During the period from 1993 to 2008 demand for JCSUD water has grown from 1.81 million gallons per day (MGD) to 4.97 MGD.
- Population served has grown within the same time period from 19,604 to 40,594.
- The percentage of total demand furnished by Trinity wells has shrunk from 53% in 1993 to 30% today.

Table 1

Year	Demand, MGD	Population	Percent Demand, Trinity Aquifer	Percent Demand, Surface Water
1993	1.81	19,604	53	47
1994	2.1	19,671	51	49
1995	2.16	20,837	52	48
1996	2.48	21,656	57	43
1997	2.50	23,334	65	35
1998	3.02	25,649	72	28
1999	3.14	27,794	53	47
2000	3.65	29,499	48	52
2001	3.38	30,385	45	55
2002	3.36	31,141	42	58
2003	3.19	30,608	35	65
2004	3.24	31,235	38	61
2005	4.54	31,556	40	60
2006	4.81	31,581	38	62
2007	4.81	39,672	33	67
2008	4.97	40,594	30	69

Table 2 following indicates the results of projecting usage and population. It shows that:

- By 2028, the population served will have doubled by growing 195%.
- Water demand will have increased 124%.
- Sufficient surface water supplies will be called upon to furnish 83% of total demand.

Table 2

Year	Demand, MGD	Population	% Demand, Trinity Aquifer	% Demand, Surface Water
2013	6.05	51,837	26	73
2018	8.27	70,920	22	77
2028	13.6	116,610	16	83

Recent developments have shown that the Trinity and Paluxy aquifers, which furnish JCSUD its ground water, are being developed beyond projected capacity. JCSUD is a ground water system, and has suffered the loss of several wells, with more failures imminent as the aquifers are pumped.

As the tables above indicate, JCSUD will grow increasingly dependent upon treated surface water to meet demands. Note that these population projections are higher than those projected in the 2009 Four-County Study. The differences may perhaps be explained in the differing methodologies and operative growth assumptions used in the 2009 Four-County Study versus those employed in the JCSUD Master Plan. A comparison is shown below in Table 3. Interpolation was used to conform JCSUD projections onto a 10-year cycle used in the Four-County Study.

Table 3

Report	2010	2020	2030
JCSUD Master Plan	45,092	80,058	125,748
Four-County Study	32,281	62,092	94,540
Percent Difference	39.7%	29.9%	33.0%

Currently Recommended Water Strategies

The 2006 Brazos G Regional Water Plan, section 4C.17.9.2, Water Supply Plan, lists three strategies to help the District assure a future water supply. Those are:

- Conservation.
- Purchase water from the Trinity River Authority Joe Pool Reservoir Reuse Project.
- Use of Lake Granbury supply and Aquifer Storage and Recover (ASR) in the Trinity Aquifer.

Since the Plan was released, each of these strategies was examined and evaluated by JCSUD management and staff. The results of these evaluations can be summarized as follows:

- Conservation

The effectiveness of conservation measures in assuring future supplies is questionable when compared to the magnitude of future needs. In essence, the effects of conservation, even when incentivized by judicial enforcement are difficult to quantify in terms of projecting a future surplus or shortage, and hence conservation is not a reliable option.

- Purchase water from the Trinity River Authority Joe Pool Reservoir Reuse Project

This alternative essentially depended upon taking water from Joe Pool Reservoir in amounts equaling that of treated waste water treatment plant effluent discharged into a receiving stream tributary to Joe Pool Reservoir. At this writing, no wastewater treatment plant or plants currently discharge into the Joe Pool watershed in sufficient amounts to justify using the reuse project in the amounts projected for JCSUD needs. Also, utilizing this alternative would require construction of a water treatment plant and miles of pipelines, the output of which would be anchored by reuse agreements to one or several waste water treatment plants' effluent discharge, which may or may not match JCSUD needs.

- Use of Lake Granbury Supply

Subject of a previous study by HDR made part of the JCSUD Feasibility Report to apply for TWDB funding, it was determined in that study that it would not be cost effective for JCSUD to purchase additional water from Lake Granbury. Lake Granbury water requires treatment at the Brazos River Authority's (BRA) SWATS plant by reverse osmosis, which is more expensive than conventionally treated potable water. Although JCSUD currently has 8.73 MGD under contract with the BRA, the expense of SWATS water has been and remains a motivation to obtain more economical supplies of treated surface water from the Trinity Basin.

- Aquifer Storage and Recover (ASR) in the Trinity Aquifer

The Aquifer Storage and Recover (ASR) in the Trinity Aquifer is probably the most problematic approach for securing additional supplies of water for JCSUD. In essence, the alternative would require JCSUD to make a very large outlay for drilling and completing injection wells in suitable geological formations, constructing treatment facilities, storage tanks and pump stations along with pipelines, easements, permits and a host of system adjustments. Needless to say, the expense would be a very large burden on JCSUD and its customers in terms of debt and water rates.

Alternative Strategy Selected by JCSUD

JCSUD has opted to pursue a different strategy. The District has reached agreement with the City of Mansfield to purchase affordable future supplies of Trinity Basin treated surface water to furnish future needs. In order to transport the treated water to areas within the JCSUD service area, the District must construct the Trinity Basin Transmission Facility infrastructure project. The project will consist of:

- A new pump station and 1.0 million gallon (MG) ground storage tank.
- A 30-inch diameter transmission line.
- Associated branch lines to transmit water to pumping stations.

Exhibit A
Pipeline Alignment for 30-inch Transmission Line and Pump Station Location

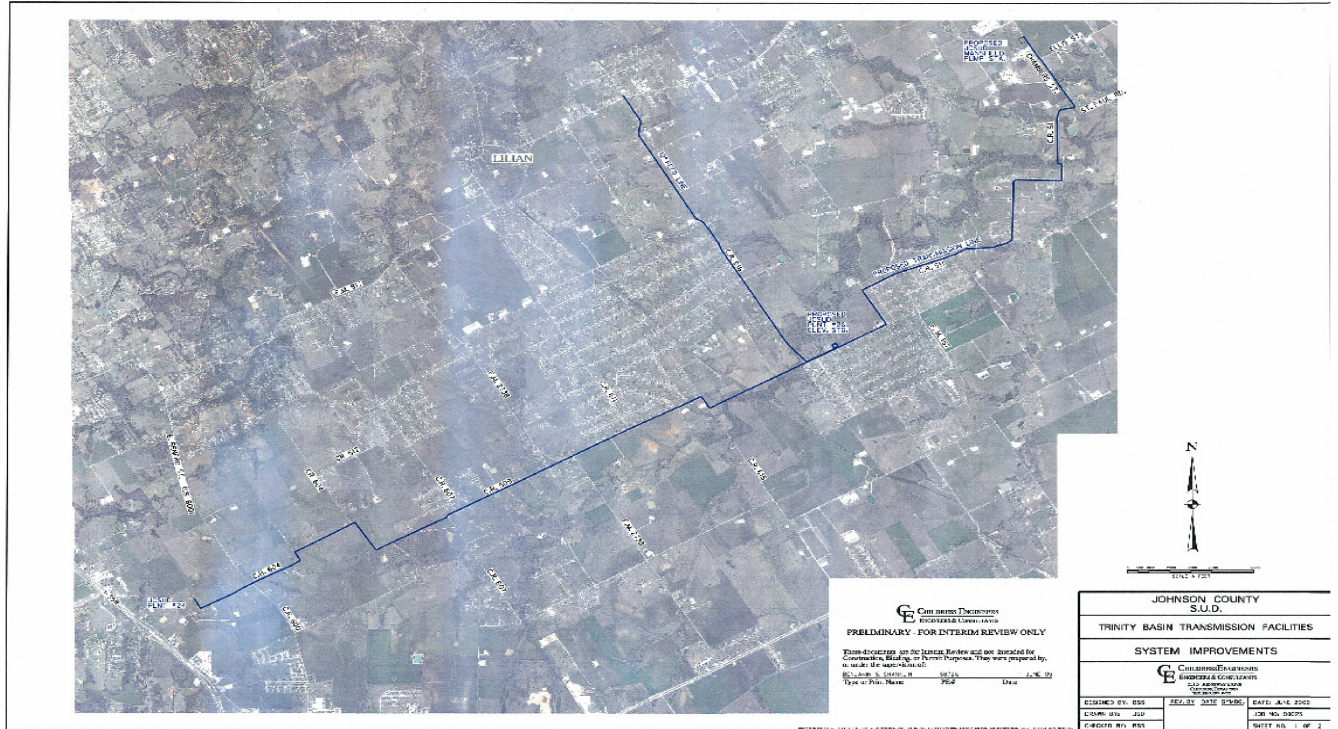
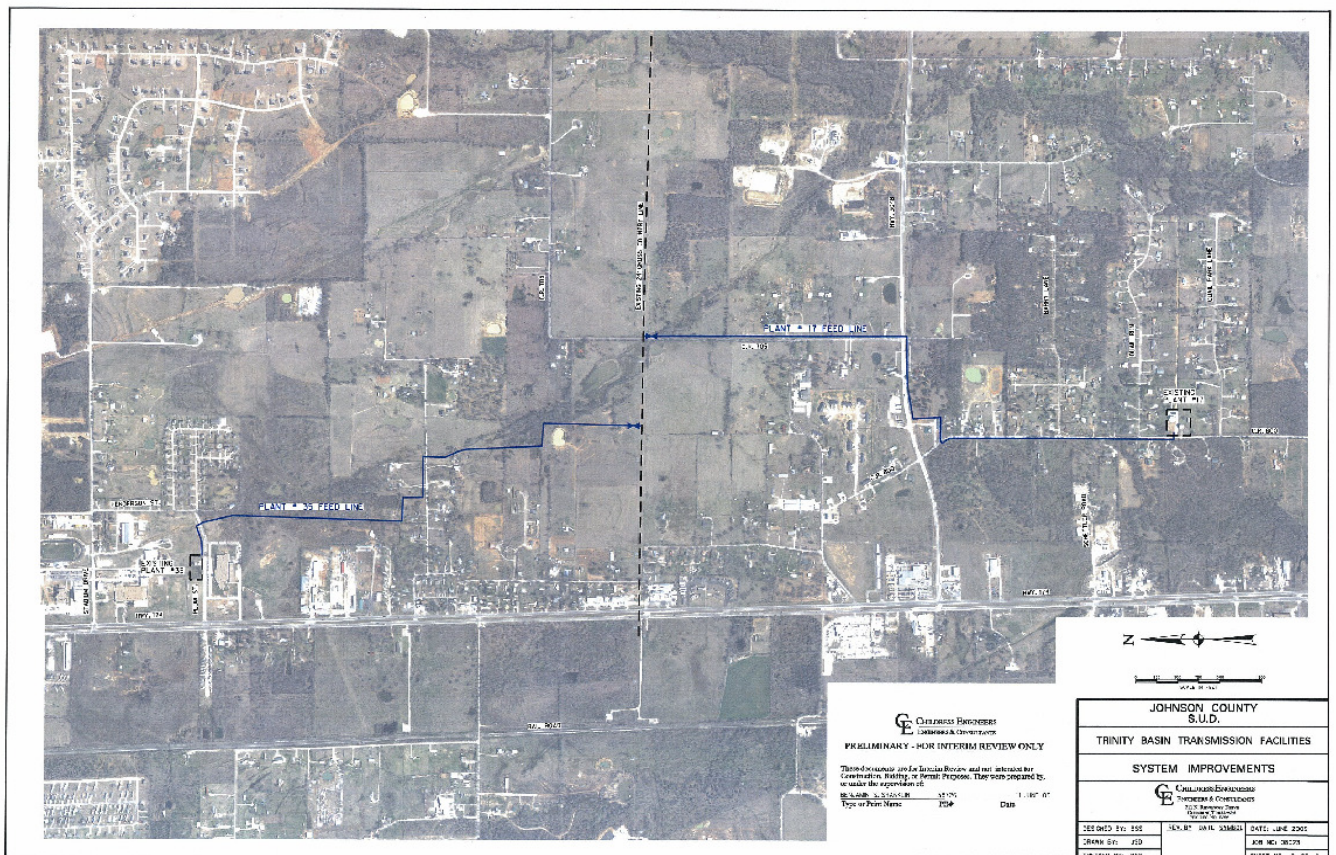


Exhibit B
Branch Transmission Lines



The project is intended to ultimately furnish the maximum amount of water available under the current contract between JCSUD and the City of Mansfield: 9.0 MGD, or 10,082 ac-ft per year. A layout of the project is shown above in Exhibits A and B and included as 11x17 attachments to this request.

Because this approach to assuring future supplies of potable water was not specifically included in the 2006 Brazos G Regional Water Plan, a consistency waiver is requested.

The consistency waiver will essentially permit JCSUD to continue pursuing its chosen strategy for assuring a future supply of treated surface water. The waiver would allow work covered under "soft costs" (such as engineering, land acquisition, legal costs, etc.) to continue. This work is essential to finalize and plan the work in a continuous manner with no momentum-breaking delays.

A natural consequence attending the waiver will be for JCSUD to apply for an amendment to the Brazos G Plan to include the project in the 2006 Brazos G Regional Water Plan. The amendment, anticipated to qualify as a minor amendment, is presently in-work at JCSUD.