



# TEXAS WATER DEVELOPMENT BOARD



James E. Herring, *Chairman*  
Lewis H. McMahan, *Member*  
Edward G. Vaughan, *Member*

J. Kevin Ward  
*Executive Administrator*

Jack Hunt, *Vice Chairman*  
Thomas Weir Labatt III, *Member*  
Joe M. Crutcher, *Member*

December 8, 2010

RECEIVED

DEC 22 2010

GBRA – Seguin Office

William E. West, Jr.  
General Manager  
Guadalupe-Blanco River Authority  
933 E. Court Street  
Seguin, Texas 78155

Re: Regional Water and Wastewater Facility Planning Grant Contract between the Texas Water Development Board (TWDB) and the Guadalupe-Blanco River Authority (GBRA), TWDB Contract No. 0904830942, Draft Report Comments

Dear Mr. West:

Staff members of the TWDB have completed a review of the draft report prepared under the above-referenced contract. ATTACHMENT I provides the comments resulting from this review. As stated in the TWDB contract, the GBRA will consider incorporating draft report comments from the EXECUTIVE ADMINISTRATOR as well as other reviewers into the final report. In addition, the GBRA will include a copy of the EXECUTIVE ADMINISTRATOR'S draft report comments in the Final Report.

The TWDB looks forward to receiving one (1) electronic copy of the entire Final Report in Portable Document Format (PDF) and six (6) bound double-sided copies. The GBRA shall also submit one (1) electronic copy of any computer programs or models, and, if applicable, an operations manual developed under the terms of this Contract.

If you have any questions concerning the contract, please contact David Meesey, the TWDB's designated Contract Manager for this project at (512) 936-0852.

Sincerely,

Carolyn L. Brittin  
Deputy Executive Administrator  
Water Resources Planning and Information

Enclosures

c: David Meesey, TWDB

### *Our Mission*

*To provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas.*

P.O. Box 13231 • 1700 N. Congress Avenue • Austin, Texas 78711-3231  
Telephone (512) 463-7847 • Fax (512) 475-2053 • 1-800-RELAYTX (for the hearing impaired)  
[www.twdb.state.tx.us](http://www.twdb.state.tx.us) • [info@twdb.state.tx.us](mailto:info@twdb.state.tx.us)

TNRIS - Texas Natural Resources Information System • [www.tnr.is.state.tx.us](http://www.tnr.is.state.tx.us)  
*A Member of the Texas Geographic Information Council (TGIC)*



## Kendall County/City of Fair Oaks Ranch Water/Wastewater Planning Study

### Attachment I – Comments for TWDB Contract #0904830942

1. The Executive Summary and Chapter 3 should clearly identify recommendations for regional water treatment and distribution facilities based on the analysis of alternatives, including a “no regional action” scenario. This was done for wastewater treatment alternatives (see last sentence on page ES-5: "The recommended development scenarios for wastewater master planning for Kendall County consist of multiple regional facilities as summarized in Table ES-2").
2. Please consider including a map of the study area, the water treatment/distribution alternatives, and the potential wastewater treatment plant sites and collection system routes in the Executive Summary.
3. On page ES-3, the summary of shortages for two Kendall County zones is referred to as “small”, however 350 acre-feet/year is the shortage indicated for the IH-10 corridor. It is unclear how this relates to the other shortages. Please consider listing exact amounts for each zone shortage.
4. There is no reference to Appendix A prior to mention of Appendix B in Section 1.3. Please consider referencing Appendix A where the exhibits are located.
5. Please provide a "detailed quantification of costs and effectiveness of each [regional water supply treatment facilities] option" in Chapter 3 as specified in Task 5 of the contract scope of work. This should include costs of the regional water treatment and distribution alternatives that were analyzed during the study. Alternatives that were examined and associated costs should be clearly identified. Table 3.16 (p. 3.19) does not differentiate between regional and non-regional facility alternatives. This information is presented more clearly for wastewater treatment plant construction costs (see page 4-19, Table 4.7, Conceptual Construction Costs of Regional WWTPs).
6. On page 3.19, please replace the error reference at the end of the first sentence with a reference to Table 3.16.
7. Task 5 of the contract scope of work contains a requirement to include the characterization of the gain/loss relationship between the Guadalupe River and the Trinity Aquifer.” Please include this analysis in the appropriate section of the report.
8. On page 4-9, last paragraph, please define “STEP/STEG” in the heading.

9. On page 4-13, last paragraph, please clarify the last sentence that reads “Effluent storage ponds provide 4.0 acre-feet of storage volume at the golf course and 26.9 acre-feet at the golf course.”
10. Please consider changing the font size in the main body of the report to 12 point, as stated in Exhibit E of the contract.
11. In general, the Exhibits are difficult to read in the electronic version. For example, the many purple squares indicating well sites on Exhibit 1-4 are easily confused with the Fair Oaks Ranch area color indicated in the legend. Please consider simplifying exhibit maps or inserting simplified figure maps into the body of the report.
12. Please include the appendices in at least one printed copy of the report in addition to the electronic files of the appendices that were submitted.

Draft Response to TWDB Comments on Kendall County Regional Water and Wastewater Planning Study (Received 01/03/2011)  
 January 19 2011

	Comment	Response
1	<p>1. The Executive Summary and Chapter 3 should clearly identify recommendations for regional water treatment and distribution facilities based on the analysis of alternatives, including a “no regional action” scenario. This was done for wastewater treatment alternatives (see last sentence on page ES-5: "The recommended development scenarios for wastewater master planning for Kendall County consist of multiple regional facilities as summarized in Table ES-2").</p>	<p>A single regional water treatment and distribution system option was assessed during the study and found not viable. Added Section '3.3.1 Single Regional Water System Option' in the body of the report. Added summary in 'Executive Summary' and in ' Conclusion' sections of the report.</p>
2	<p>2. Please consider including a map of the study area, the water treatment/distribution alternatives, and the potential wastewater treatment plant sites and collection system routes in the Executive Summary.</p>	<p>Study area location map added in executive summary. References to other maps are also added.</p>
3	<p>3. On page ES-3, the summary of shortages for two Kendall County zones is referred to as “small”, however 350 acre-feet/year is the shortage indicated for the IH-10 corridor. It is unclear how this relates to the other shortages. Please consider listing exact amounts for each zone shortage.</p>	<p>Updated to include shortage amounts on page ES-4.</p>
4	<p>4. There is no reference to Appendix A prior to mention of Appendix B in Section 1.3. Please consider referencing Appendix A where the exhibits are located.</p>	<p>Updated to mention Appendix A in Section 1-1.</p>
5	<p>5. Please provide a "detailed quantification of costs and effectiveness of each [regional water supply treatment facilities] option" in Chapter 3 as specified in Task 5 of the contract scope of work. This should include costs of the regional water treatment and distribution alternatives that were analyzed during the study. Alternatives that were examined and associated costs should be clearly identified. Table 3.16 (p. 3.19) does not differentiate between regional and non-regional facility alternatives. This information is presented more clearly for wastewater treatment plant construction costs (see page 4-19, Table 4.7, Conceptual Construction Costs of Regional WWTPs).</p>	<p>Added Section '3.3.1 Single Regional Water System Option' in the body of the report.</p>
6	<p>6. On page 3.19, please replace the error reference at the end of the first sentence with a reference to Table 3.16.</p>	<p>Error reference not found.</p>

	Comment	Response
7	7. Task 5 of the contract scope of work contains a requirement to include the characterization of the gain/loss relationship between the Guadalupe River and the Trinity Aquifer.” Please include this analysis in the appropriate section of the report.	Gain/loss studies not included in contractual scope of work.
8	8. On page 4-9, last paragraph, please define “STEP/STEG” in the heading.	Updated to include 'Septic Tank Effluent Pump/Septic Tank Effluent Gravity '.
9	9. On page 4-13, last paragraph, please clarify the last sentence that reads “Effluent storage ponds provide 4.0 acre-feet of storage volume at the golf course and 26.9 acre-feet at the golf course.”	Updated to “4.0 acre feet at the WWTP and 26.9 acre feet at the golf course”
10	10. Please consider changing the font size in the main body of the report to 12 point, as stated in Exhibit E of the contract.	As per TWDB request, a version of the report is prepared with Time New Roman 12 point by the consultant. However, it results in some unintended mixed heading fonts. GBRA project manger would like to request maintaining the original formatting of the report. Please note that an Arial 11 point version of the report was attempted prior to the submittal of the draft report which had caused similar difficulties in the formatting of the report.
11	11. In general, the Exhibits are difficult to read in the electronic version. For example, the many purple squares indicating well sites on Exhibit 1-4 are easily confused with the Fair Oaks Ranch area color indicated in the legend. Please consider simplifying exhibit maps or inserting simplified figure maps into the body of the report.	Inserted location map in executive summary. Exhibit 1-4 is a very large map (44" by 34") which was included to show all Cow Creek GCD wells, it does not have any other additional information that is not included in the smaller maps. When printed out in the proper size of the exhibit, the map shows the location of the wells.
12	12. Please include the appendices in at least one printed copy of the report in addition to the electronic files of the appendices that were submitted.	Printed copy of the appendices will be provided for final report.

John Kight

ES-2, page 3-5, Table 3.8:  
Availability from Trinity Aquifer. GAM Run 10-005.

Response: Added the following sentence, 'A Groundwater Management Area 9 (GMA 9) meeting was held on July 26, 2010 where a Desired Future Condition (DFC) statement was adopted for the Trinity Aquifer. The DFC statement for Trinity Aquifer allows for an increase in average drawdown of approximately 30 ft through 2060 consistent with "Scenario 6" in TWDB Draft GAM Task 10-005.

This DFC statement was adopted after the shortage and water supply analysis option of this study was completed and the initial draft report was prepared. While a final availability for Trinity Aquifer in Kendall County is not certain until an official Managed Available Groundwater (MAG) number is adopted, the adopted DFC is associated with 11,450 ac-ft/yr of groundwater in Kendall County as per TWDB Draft GAM Task 10-005 Report.'

Section added in Page 3-5 and Page 6-1. Reference to the GAM Run 10-005 added in ES-2.

ES-4, ES-5, Table 4.5:  
Tapatio Springs/ Kendall County Utility District. Added.

ES-6:  
Table ES-2: OSSFs with < 5000 GPD.  
Response: Footnote added. 'State rule allows entities with less than 5000 GPD of wastewater flow to be permitted as OSSF systems.'

Page 1-1:  
City of Boerne ETJ area. Added.  
Major road should include FM474, FM1376, and HW 3351. Added.

Page 2-10:  
Table 2.7: Density (ac/lot) in Northern Kendall County should be 20.

Response: Paragraph will be added to explain this density is based on Kendall County Development regulations. Maximum possible occupancy in each zone is computed based on the density governed by Kendall County Development rules. In Northern Kendall County, based on projected population of 3,665 in 2040, the density will be 128 ac of land per lot. It is highly unlikely that the density of Northern Kendall County will reach a 6 ac/lot, A more reasonable maximum density for the area is 20 ac/lot.

Page 3-14:  
Region L Strategy. Recommended removing strategy.

Response: As per the scope of the report, the strategy options in region L needs to be evaluated in this study, therefore, the alternative cannot be removed entirely. Added the following sentence 'Based on recommendation of an advisory group member, this is an improbable and cost-prohibitive alternative.'

Page 3-18 and 3-19:  
Update cost estimate for rainwater harvesting

Response: Updated.

P 4-7:  
Question about training for homeowners who maintain their own OSSFs.

Response: Added 'Kendall County is currently looking into adopting rules that will require training for individual homeowners who choose to self maintain their OSSFs.'

P 4-15:  
Tapatio Springs added as a WWTP location.

P 4-18:  
Figure 4.2: Add label.

P 4-19:  
Add statement regarding collection system. Collection system cost will double to triple the total cost of treatment systems.

Response: Added 'Cost of the collection system may be a determining factor which could outweigh the cost of treatment facilities, and should be evaluated prior to any decision making process.' We don't know that the range is 2 to 3 times the cost of treatment.

P 4-21:  
Is easement cost included?

Response: No. Added 'Estimated costs of force mains do not include the cost of easements which can be variable based on the route of the pipelines and can potentially add substantial additional costs.'

P. 5-2:  
Edit Figure 5.1.

Response: Figure out of City of Boerne report. Unable to modify.

P 5-6:  
Too technical and perhaps irrelevant for general population. Move to Appendix.

Response: Choose to keep the section in the report by choice of the GBRA PM. Added 'Results from water quality model simulations with non-point loadings show addition of flows at each discharge point and impact of dissolved oxygen concentration and other nutrient contents.'

P. 6-1:  
Question about Population conclusion.

Response: Statement revised.

Ron Emmons, City of Fair Oaks Ranch

1. A statement is made on Page ES-3 and Page 3-18 regarding the Fair Oaks Ranch “future development of the their *entire ETJ*” (emphasis mine). Does this statement refer to the full 3,000+ acres in the ETJ or does it only include those areas that are currently annexed with the City but within the ETJ?

Response: It includes the entire ETJ (3000 acres) shown in the map.

2. Page ES-4 and Page 4-7: Include Comal County as another regulatory entity in the OSSFs statement for Fair Oaks Ranch.

Response: Added.

3. Table ES-2 under last column: what is GDP?

Response: Corrected to GPD (Gallons per Day).

4. Page 3-5: I know that the bulk of the study was completed prior to GMA-9 meeting regarding the proposed DFC, but can it be incorporated into the final report to give us a clearer picture rather than making some assumptions?

Response: Added the following sentences, ‘A Groundwater Management Area 9 (GMA 9) meeting was held on July 26, 2010 where a Desired Future Condition (DFC) statement was adopted for the Trinity Aquifer. The DFC statement for Trinity Aquifer allows for an increase in average drawdown of approximately 30 ft through 2060 consistent with “Scenario 6” in TWDB Draft GAM Task 10-005.

This DFC statement was adopted after the shortage and water supply analysis option of this study was completed and the initial draft report was prepared. While a final availability for Trinity Aquifer in Kendall County is not certain until an official Managed Available Groundwater (MAG) number is adopted, the adopted DFC is associated with 11,450 ac-ft/yr of groundwater in Kendall County as per TWDB Draft GAM Task 10-005 Report.’

Section added in Page 3-5 and Page 6-1. Reference to the GAM Run 10-005 added in ES-2.

5. Pages 4-3 and so on references Exhibit 6-1, but no such exhibit could be located in the report. Do you mean Exhibit 4-1?

Response: Yes. Edited.

6. Table 4-3, the location of the Fair Oaks Ranch WWTP is 29745 No Le Haze, Fair Oaks Ranch, TX 78015

Response: Added.

7. All the maps/drawings depict an annexed portion of Fair Oaks Ranch in Kendall County that in fact is not annexed. It is a triangular section that has Ammann Road to the north, City limit (just east of Rolling Acres Trail) to the west, and Kendall/Comal County line for remainder. See attached pdf for clarification.

Response: Thanks for pointing this out. Updated.



Kathleen Ligon, TWDB

One minor concern is the font size - it's a little difficult to read and would be preferable in a 12 pt. Times New Roman (see Exhibit E in the contract).

Response: Based on September 14 Meeting feedback, font size can be changed to Arial 11 (equivalent size of Times New Roman 12).

A larger concern - chapter 3 gives very little detail on water facility alternatives and doesn't include costs of the different facility alternatives considered (see task 5 in the scope of work). The wastewater chapter does a much better job of this, with detailed descriptions of alternatives. Please let me know if you'd like to discuss this further, or if you'd like for me to discuss it with AECOM.

Response: Cost of different facility alternatives are included in table 3.16 on Page 3-15. Section moved to an independent section of costing to make it stand out.

Michael Mann, City of Boerne

In section 3.2.3.2 (third paragraph), it seems to me that mentioning that the Development Agreement between the City and Marlin-Atlantis for the Esperanza development requires that all lawn irrigation on automatic sprinkler systems utilize the reuse water distribution system that will be constructed in the development.

Response: Added.

As a technical correction in section 4.4.2, the City's new WWTRC will discharge into the Menger Creek just upstream of the Cibolo, not Browns Creek.

Response: Corrected.