PLATEAU REGION WATER PLAN

January 5, 2006

Prepared by

Far West Texas Water Planning Group

Prepared for

Texas Water Development Board

CHAPTER 10 APPENDICES RESPONSES TO COMMENTS

LBG-GUYTON ASSOCIATES

APPENDIX 10A

RESPONSES TO TWDB COMMENTS

APPENDIX 10A

RESPONSES TO TWDB COMMENTS

LEVEL 1
Comments and questions *must be satisfactorily addressed* in order to meet statutory, agency rule, and/or contract requirements.

1. An Executive Summary documenting key findings and recommendations of the planning group is required. None is provided. *[Title 31, TAC (TAC) §357.10(a)(2) and Exhibit "B", Section 1.2.7]* The Texas Water Development Board (TWDB) reserves the right to make additional comments for appropriate consideration and responses.

Response: **Executive Summary is now in the Plan.**

2. Page 1-7, First line: Change 2000 population number given, 115,129 to TWDB approved figure, 114,742. (See comments on 2-7 regarding the inclusion of Leakey in Table 2-1.) *[Title 31, TAC §357.5(d)(1)&(2)]*

Response: **Correction made.**

3. Page 1-18, Last two paragraphs: Include in Chapter 1 a description of identified water quality problems in the region, which might include a summary of the water quality information presented in Chapter 5. *[Title 31, TAC §357.7(a)(1(C)]*

Response: **Section 1.4.5 added to address water quality issues.**

4. Page 1-19, Second paragraph under Section 1.3.2 Municipal: Revise the estimated historical use for Del Rio from 12,106 to 11,988 acre-feet for the year 2000, which is the value that appears in Table 2-2 on page 2-13 and is the TWDB approved value. *[Title 31, TAC §357.5(d)(1)&(2)]*

Response: **Correction made.**

5. Page 1-21, Second paragraph under Section 1.3.4, Agriculture and Ranching: Revise the paragraph to show the approved TWDB year-2000 water use numbers of 20,236 acre-feet for irrigation and 2,752 acre-feet for livestock. These water use numbers are correct on page 1-19 of the IPP under 1.2.1 Major Demand Categories and in Table 2.2 on page 2-13 of the IPP. In addition, revise Kinney County's share of irrigation water use in 2000 to 70 percent. *[Title 31, TAC §357.5(d)(1)&(2)]*

Response: **Correction made.**

6. Page 1-27, First paragraph under Section 1.4.2.1 Rio Grande Basin: The IPP summarizes the 1944 Treaty between Mexico and the United States and states that the Treaty allocates water between the two countries based on a percentage of flows from each country's tributaries to the Rio Grande, which is approximately a 50-50 split. This is an incorrect description of the treaty provisions. The United States receives 1/3 of the flow from six tributaries (Rio Conchos, San Diego, San Rodrigo, Escondido, Salado Rivers, and Las Vacas Arroyo), provided that the running average over a five-year period cannot be less than 350,000 acre-feet per year. Only the smaller, non-treaty tributaries split 50-50.

Response: **Statement has been deleted from Section 1.4.2.1 and is corrected in Chapter 3 – Section 3.3.1.**

7. Page 1-35, Section 1.5.2 Local Water Management Studies and Plans: Include a summary of pertinent local and regional water plans, including any that have been completed since the 2001 Plateau Regional Water Plan. *[Title 31, TAC §357.7(a)(1)(I) and (K)]*

Response: **Subject addressed in Section 1.5.2.**

8. Provide information on the plan's impact to navigation *[Title 31, TAC §357.5(e)(8)]*

Response: **Statement added at end of second paragraph in Section 1.1.1 and as a footnote in Table 4-3 that there are no impacts to navigation.**

9. Include a description of how any publicly available plans of major agricultural, municipal, manufacturing and commercial water users were considered. *[Title 31, TAC §357.5(k)(1)(E)]*

Response: **Description added in 4th and 5th paragraphs of Section 1.1.1.**

10. Include a description of how the federal Clean Water Act was considered. *[Title 31, TAC §357.5(k)(2)(B)]*

Response: **Description added in 8th paragraph of Section 1.1.1.**

11. Page 2-3, First paragraph: Clarify if summary tables of population and water demand projections were provided to municipalities, water providers, county judges, and non-municipal water use representatives. *[Contract Scope of Work, Tasks 2.3 & 2.4]*

Response: **Statement clarified in first sentence of Section 2.2.**

12. Page 2-6, First complete paragraph: Revise year-2000 population from 115,129 to TWDB approved population of 114,742 and the year-2060 population projection from 206,910 to TWDB approved projection of 206,297. *[Title 31, TAC §357.5(d)(1)&(2)]*

Response: **Correction made in Section 2.3.2. However, Year-2060 population revision is 205,910 rather than 206,297.**

13. Page 2-7, Table 2-1: Adding Leakey's population of 387 to Real County exceeded the approved totals for both Real County and the Plateau Planning Area. While the Plateau Planning Group may identify and plan for Leakey as a separate water user group, it must recognize that the population for Leakey is included in the approved County-other population, and therefore the County-other total for Real County must be reduced by 387. If the Plateau Planning Group plans for Leakey as a separate user group, it needs to include Leakey in all pertinent tables and analyses. *[Title 31, TAC §357.5(d)(1)&(2), §357.7(a)(3)(A), and §357.7(a)(4)(A)]*

Response: **Correction made.**

14. Page 2-11, First paragraph: Revise the reference to wholesale water providers from the sentence, "The municipal category includes cities, wholesale water providers, and county rural use" as the general statement that wholesale water providers are included in the municipal category is not accurate. An alternative would be to use the term, retail public utilities, instead of wholesale water providers. *[Title 31, TAC §357.2(8)]*

Response: **Correction made.**

15. Page 2-13, Table 2-2: Report water demand data by river basin. *[Title 31, TAC §357.7(a)(2)(A)(iv)]*

Response: **Water demand is reported by river basin in Appendix 2A.**

16. Page 2-16, Paragraph starting on page 2-16 and ending on page 2-17: Provide water demands for wholesale water providers (City of Del Rio) by water use category, county, and river basin. *[Title 31, TAC §357.7(a)(2)(B)]*

Response: **Table is made and added to Section 2.4.1.**

17. Appendices 3A and 3B: Provide source availability and supply capacity under drought of record conditions for the years 2000, 2010, 2020, 2030, 2040, 2050, and 2060. *[Contract Exhibit "B," Section 3.3.1]*

Response: **Correction made in Appendices 3A, 3B and 3C.**

18. Page 3-25, Last line: Verify the firm yield of Canyon Lake. Region L identifies the firm yield as 90,000 acre-feet.

Response: **Correction made in Section 3.3.8.**

19. Report current water supplies legally and physically available by city, retail pubic utility, water use category, county, and river basin. *[Title 31, TAC §357.7(a)(3)(A)]*

Response: **Supplies reported in Appendix 3B.**

20. Provide current water supplies for wholesale water providers (City of Del Rio) by water use category, county, and river basin. *[Title 31, TAC §357.7(a)(3)(B)]*

Response: **Supplies reported in Appendix 3C.**

21. Provide the results of that the following supplemental study items: 1) assisting local groundwater conservation districts in locating appropriate wells for recorders; and 2) using the data from the recorders to further characterize aquifer and spring response to seasonal climatic conditions and regional pumping stresses. In addition, provide this data to the TWDB and local groundwater conservation districts for the refinement of appropriate groundwater availability models. *[Contract, Supplemental Scope of Work, Task 3]*

Response: **Discussed in last paragraph in Section 3.2.7. Separately bound report is provided with the Plan.**

22. Identify groundwater sources that might benefit from desalination technology. *[Contract, Supplemental Scope of Work, Task 3.6]*

Response: **Added as Section 3.2.10.**

23. Page 4-1, Section 4.3 Strategy Evaluation Procedure: Describe the process used to identify potentially feasible water management strategies. *[Title 31, TAC §357.5(e)(4)]*

Response: **Description is provided in Section 4.3 and illustrated in Figure 4-1.**

24. Table 4-1: Report the results of the water supply demand analysis by river basin, if a county is in more than one river basin. *[Title 31, TAC §357.7(a)(4)(A)(iv)]*

Response: **Table provided in Appendix 4B.**

25. Page 4-9, Section 4.5 Irrigation Strategies: The second sentence states that the quantity of water needed to meet the full irrigation demands cannot be realistically achieved and that irrigators compensate by adjusting the amount of acreage or changing the type of crop. Provide an evaluation of water management strategies to meet this need or provide a justification for not meeting the need. *[Title 31, TAC §357.7(a)(7) and Title 31, TAC §357.7(a)(5)(C)(i)]*

Response: **Irrigation strategies are discussed in Section 4.6 and in Table 4-6.**

26. Page 4-9, Section 4.5 Irrigation Strategies: Table 4-1 shows Bandera and Kerr Counties as having irrigation needs. Clarify if the five best management irrigation strategies for water conservation in Section 4.5 are to be applied to both counties. In addition, conservation water management strategies must be identified by type of measure, estimated savings, timeline, and anticipated costs. *[Contract Exhibit "B," Section 4.2.7.b]*

Response: **Clarification made in Table 4-3 and Table 4-6.**

27. Provide documentation that the plan protects existing water rights, water contracts, and option agreements. *[Title 31, TAC §357.5(e)(3)]*

Response: **Statement made in 6th paragraph of Section 1.1.1 and in Section 4.1.**

28. Provide documentation that the plan protects water rights, water contracts, and option agreements associated with Amistad International Reservoir. *[Title 31, TAC §357.5(h)]*

Response: **Statement made in Section 4.1.**

29. Provide information on consideration of emergency transfers of surface water, including portions of water rights for non-municipal use that may be transferred without unreasonably damaging the property of the non-municipal water rights holder. *[Title 31, TAC §357.5(i)]*

Response: **Information added to Section 4.10.**

30. Environmental water needs are to be determined using site-specific studies or, if site-specific studies are not available, the 1997 Consensus Criteria for Environmental Flow Needs for all water management strategies requiring permit authorization. *[Contract Exhibit "B," Section 4.2.8.c]*

Response: **Environmental impacts are presented in Table 4-5. There are no strategies requiring permit authorization.**

31. Present a water supply and demand analysis for Del Rio, as the Plateau Planning Area's only wholesale water provider, by water use category, county, and river basin or clarify that this information is the same for both Del Rio's retail and wholesale customers. *[Title 31, TAC §357.7(a)(4)(B)]*

Response: **Supply-demand analysis for Del Rio is provided in Table 4-2.**

32. The regional water plan must contain a quantitative reporting of quantity, quality, reliability and cost of water delivered and treated for all potentially feasible water management strategies. *[Title 31, TAC §357.7(a)(8)(A)(i)]*

Response: **Report provided in Table 4-3 and Table 4-4.**

33. Provide a quantitative reporting of environmental impacts for all potentially feasible water management strategies evaluated. *[Title 31, TAC §357.7(a)(8)(A)(ii)]*

Response: **Report provided in Table 4-5.**

34. Provide a quantitative reporting of impacts on agricultural resources for all potentially feasible water management strategies evaluated. *[Title 31, TAC §357.7(a)(8)(A)(iii)]*

Response: **Report provided in Table 4-3 and in individual strategy descriptions.**

35. Provide information on any threats to agricultural and natural resources of the water management strategies evaluated. *[Title 31, TAC §357.7(a)(8)(C)]*

Response: **Report provided in Table 4-3 and in individual strategy descriptions.**

36. Provide information on recreation of the water management strategies evaluated. *[Title 31, TAC §357.7(a)(8)(D)]*

Response: **Report provided in Table 4-3.**

37. Provide documentation of how the capital and per acre-feet costs (for the costs that were included) were developed. *[Contract Exhibit "B," Section 1.2.2]*

Response: **Documentation provided in Section 4.3 and Table 4-4.**

38. Provide documentation that capital costs include construction costs, engineering, land and easements, environmental, interest during construction, and purchased water cost (if applicable). *[Contract Exhibit "B," Section 4.2.9]*

Response: **Documentation provided in Section 4.4.**

39. Provide documentation that annual costs include operations and maintenance, power cost, purchased water cost (if applicable), and debt service. *[Contract Exhibit "B," Section 4.2.9]*

Response: **Documentation provided in Section 4.4.**

40. Document that total costs were discounted and shown in terms of present value. *[Contract Exhibit "B," Section 4.2.9]*

Response: **Documentation provided in Section 4.4.**

41. Provide discussion of the evaluation of desalination as a viable strategy. *[Contract Scope of Work, Task 4.6]*

Response: **Discussion provided in Section 4.8.**

42. Include the effects on surface water and groundwater water conditions of exporting Edwards Plateau groundwater from the region. *[Contract Scope of Work, Task 4 Supplement Study]*

Response: **Discussion provided in Section 4.9.**

43. Include the reassessment of Kerrville's water management strategy 133-4, which is locating new water-supply wells in a remote well field. *[Contract Scope of Work, Task 4 Supplemental Study]*

Response: **Reassessment of the Kerrville strategy 133-4 was undertaken in the spring evaluation of western Kerr County as discussed in the last paragraph of Section 3.4, Appendix 3E, and the spring report. The reassessment is also addressed in Section 4.5.2 strategy J-2.**

44. The IPP includes one sentence under 5.6 Water Quality Impacts of Implementing Water Management Strategies as a place holder. Include the key parameters of water quality identified by the Plateau Planning Group as important to the use of the water resource. In addition, analyze the impacts of recommended water management strategies on those key parameters of water quality. *[Title 31, TAC §357.7(a)(12))]*

Response: **Discussion provided in Section 5.6.**

45. Include a consolidation of the water conservation and drought management recommendations that are developed in Chapter 4 of the regional water plan. *[Title 31, TAC §357.7(a)(11)]*

Response: **Discussion included in Section 6.2.**

46. Identify factors specific to each water supply source, designated in accordance with §357.7(a)(3), to be considered in determining whether to initiate a drought response. *[Title 31, TAC §357.5(e)(7)(A)]*

Response: **Discussion included in Sections 6.3.2, 6.3.2.1 and 6.3.2.2.**

47. Identify actions to be taken as part of a drought response. The IPP in Appendix 6A summarizes water supply management and drought contingency plans for Bandera, Brackettville, Del Rio, Fort Clark MUD, Headwaters Groundwater Conservation District, and Kerrville, which is useful information but does not satisfy the requirement to identify actions for each water supply source designated in accordance with *Title 31, TAC* §357.7(a)(3). *[Title 31, TAC §357.5(e)(7)(B)]*

Response: **Actions provided in Table 6-1 in Section 6.3.2.2.**

48. The IPP has one page in Chapter 7 as a place holder. Describe how the regional water plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources. *[Title 31, TAC §357.7(a)(13)]* In order to approve the Plateau Regional Plan the TWDB must determine that it is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources. Accordingly the regional water plan must contain sufficient information to support such determination. *[Title 31, TAC §357.14(2)(C)]*

Response: **Discussion added in Chapter 7.**

49. Appendix 7A: Complete the last column of the matrix in the final regional water plan. *[Contract Scope of Work, Task 7.1]*

Response: **Planning Group has chosen to delete this table and has responded to the requirement of demonstrating the long-term protection of water, agricultural, and natural resources in the text of Chapter 7.**

50. Document the process used to consider recommendations for ecological stream segments and reservoir sites. *[Contract Scope of Work, Task 8.1]*

Response: **Documents considered were the TPWD recommended segments as already discussed in Section 8.7. A public planning group meeting in Del Rio was devoted to taking public comment on the issue. No revision to the IPP is considered necessary.**

LEVEL 2
Comments and suggestions that *might be considered* to clarify or help enhance the plan.

51. Consider including chapter titles.

Response: **Correction made.**

52. Page 1-7, First line: Correct reference to Table 2-1 rather than Figure 1-2.

Response: **Reference to a table or figure is deleted.**

53. Page 1-7, Second paragraph: The last sentence states that population estimates, which are based on census data, do not include the transient population, such as hunters and tourists that has a resulting significant impact on overall water supply demand for the region. Consider including data or other documentation to support the assertion that the transient population has a significant impact on water demand.

Response: **No data or documentation provided in this plan. Planning Group will consider developing this data for the next plan.**

54. Page 1-20, Figure 1-8: Correct the title for the pie chart in Figure 1-8 to reflect the data included.

Response: **Figure 1-8 corrected.**

55. Page 1-43, Section 1.7.6 International Boundary and Water Commission (IBWC): The second sentence states that the IBWC is currently involved in discussions with Mexico as to how or when Mexico will be able to make up its "water debt" under the 1944 treaty. This situation has been evolving. Since that writing, Mexico has agreed to repay the "water debt" by September 30, 2005, and there may be additional developments over the next several weeks. Consider reflecting the current status of the "water debt".

Response: **Correction made.**

56. Page 2-11, Section 2.4 Water Demand: The reference in the second paragraph should be Table 2-2 instead of Figure 2-4. Consider referencing Figure 2-4 in the text of Chapter 2.

Response: **Correction made.**

57. Page 2-11, First paragraph: Figure 2-3 is referred to in the tenth line; however there is no Figure 2-3.

Response: **Figure 2-3 has been added.**

58. Page 2-15, Figure 2-5: Figure 2-5 is not referenced in Chapter 2.

Response: **Figure 2-5 is now referenced in the 1st sentence of second paragraph of Section 2.4.**

59. Pages 2-17 through 2-22, Municipal Water Use, Manufacturing Water Use, Irrigation Water Use, Livestock Water Use, and Mining Water Use Tables: The phrase "Water Demand Projections" should be added to the titles of these tables, as all five tables include projected water demands through 2060 along with the estimated historical water use for 2000.

Response: **Corrections made.**

60. Page 2-20, Last paragraph: In addition to the background information on exotic game, the Plateau Planning Group should consider including any statistical data that it or the groundwater conservation districts in the Plateau Planning Area may have on water demands and water supply sources for exotic game.

Response: **Information is not provided in this plan. Planning Group will consider developing this data for the next plan.**

61. Page 2-23, Fourth paragraph: The first line refers to Section 2.4.5 (Livestock). It should be Section 2.4.4.

Response: **Correction made.**

62. Page 3-25, Second paragraph: The statement that this puts the 1956 occurrence of 14.5 cfs into the 10 percent nonexceedance category, might be stated more accurately that 14.5 cfs is within the 0 to 10 percent nonexceedance category.

Response: **Correction made in last paragraph of Section 3.3.7.**

63. Page 3-26, Third paragraph under Section 3.3.5 The Nueces River Basin: The first sentence states, "Noted previously was the observation that, for this river basin, the drought-of-record occurred not in the 1950s, but in 1996." The Regional Water Plan might indicate where 1996 was previously described as the drought-of-record for the Nueces River Basin.

Response: **Sentence has been modified in Section 3.3.3.**

64. Page 3-30, First paragraph: Reference is made to Appendix 3C, which is not included in the IPP.

Response: **Appendix 3C is changed to 3D and added.**

65. Appendix 3B: The last column should be titled water supply capacity rather than infrastructure capacity.

Response: **Correction made.**

66. Chapter 3 contains Table 3-3 but no Table 3-1 or 3-2. The IPP refers to Table 3-2 on pages 3-25 and 3-27. No reference is made to Table 3-1.

Response: **Table numbering corrected.**

67. Page 5-10, Second Paragraph: The last sentence states that all secondary drinking water standards were detected above the screening level in some samples. This statement may not be accurate, since the data in Table 5-2 shows 0 percent for copper.

Response: **Correction made.**

68. Page 8-8, Section 8.3.6 Eliminate the Unfunded Mandate: Please note that there is provision in Title 31, TAC §357.5(j) for simplified planning at a substantially reduced cost compared to a complete regional water plan. Simplified planning is available to planning groups that have sufficient supplies to meet their needs for the 50-year planning period. Simplified planning requires only that a planning group: (1) identify water supplies that are available for voluntary redistribution, (2) adopt the state water plan information as the regional water plan, and (3) other activities upon approval of the TWDB executive administrator.

Response: **Section has been revised.**

69. Page 10-7, First paragraph: "Federal Open Meetings Act" in the last sentence should be revised to "State Open Meetings Act."

Response: Correction made in Section 10.4.

70. Page 10-7, Second paragraph: Consider including the actual dates of the public hearings as August 17 and 18, 2005.

Response: Correction made in Section 10.4.

APPENDIX 10B

RESPONSES TO ORAL

PUBLIC HEARING COMMENTS

APPENDIX 10B

RESPONSES TO ORAL PUBLIC HEARING COMMENTS

DEL RIO, TEXAS - AUGUST 17, 2005

Cecil Smith: How was groundwater availability determined?

Response: **The TWDB groundwater availability models for the Hill Country Trinity and the Edwards-Trinity (Plateau) aquifers were used to estimate water level impacts resulting from varying levels of withdrawals. The objective was to select a level of withdrawal that would not cause spring flows to diminish to a point that base flow to the rivers would be significantly impacted. Each county representative on the planning group selected a maximum level of withdrawal (pumping) that would result in an acceptable level of impact. Comment by Tully Shahan: For this plan, groundwater availability was not estimated as a percent of recharge.**

Darlene Shahan: Is the volume of spring flow discharge included in the availability number?

Response: **No**

Comment by Darlene Shahan:

In future plans, spring flow should be quantified in respect to the total surface water flow so that the spring's influence on base flow can be observed.

Richard Ward: How accurate was the first plan compared to this plan?

Response: **This current plan is significantly more accurate because a more recent census (year 2000) was used to estimate water demand, and groundwater and surface water models were used to estimate supply availability. Additional water level monitoring wells were installed as a supplemental project to this planning effort.**

Richard Ward: How accurate is recharge and was rainfall studies used to estimate recharge?

Response: **Recharge is an important component built in to the groundwater availability models. Recharge estimates in these models are based on the latest knowledge available; however, this estimate should be considered strictly on a regional basis. Rainfall studies were not conducted as part of this planning effort, but are recognized as an important component of any recharge analysis.**

Comment by Richard Ward:

Recommend more rainfall monitoring to improve on how it impacts water levels.

Response by Cecil Smith:

Kinney County GCD will need time to establish a rainfall and water level network.

Comment by Darlene Shahan:

The public notice for the hearing was not placed in the Brackettville newspaper.

Darlene Shahan: Will there be future rounds of regional water planning?

Response: **Yes, it appears that the Legislature is still interested in the process.**

Darlene Shahan: Will future regional water plans include input from groundwater conservation districts?

Response: **Yes, groundwater conservation district management plans and goals are a key component of the Plateau regional planning process. HB 1763 also provides a road map to future GCD participation.**

Richard Ward: Is there water quality information in the plan and is water quality considered in estimates of availability?

Response: **Water quality is specifically addressed in Chapter 5 of the plan. Water quality is certainly an important component of the usability of a water supply source.**

KERRVILLE, TEXAS, AUGUST 18, 2005

Ray Buck: Please explain the definition of groundwater availability as shown on page 3-9. How is the term "significantly" to be measured?

Response: **The definition was developed to coincide with the Planning Group's desire to establish a water management plan that recognizes a sustainable level of water supply use that benefits the Region's economic health and quality of life. The term "significantly" is not quantified in this plan, but is rather left to the discretion of local water management interests.**

Comment by Ray Buck:
The use of Guadalupe River water currently permitted to UGRA should be listed as a strategy in Chapter 4 for the City of Kerrville.

Response: **Consultants will prepare this strategy for Planning Group consideration.**

Unidentified participant:
How accurate are the groundwater models used to estimate availability? There is new data suggesting that there may be significantly more water in the Trinity aquifer in Kerr County than is shown in the model.

Response: **The models contain the most current data that has been made available to the TWDB. As new data is verified, it is hoped that the models will be revised and can be used for the next round of regional planning. At this time, it seems reasonable for planning purposes to remain conservative with supply estimates.**

Unidentified participant:

Can the availability numbers generated in this plan be used by State agencies (TWDB) to dictate water supply use limitations back to local water-use entities?

Response: **The TWDB is not a regulatory agency and does not dictate water management policy on the local level. Groundwater Conservation Districts and River Authorities provide local management of water supplies. The TWDB does encourage local water management authorities to join in the regional planning process such that local management policy is reflected in the regional plan. The TWDB does use the projected water supply numbers to recommend infrastructure cost needs to the Legislature.**

Ronnie Pace:

The Plateau Regional Water Plan should include a Kerrville strategy the makes use of UGRA permitted surface water. (Similar to comment made by Ray Buck above)

Response: **Agree. (See response to Ray Buck above)**

APPENDIX 10C

RESPONSES TO WRITTEN

PUBLIC HEARING COMMENTS

APPENDIX 10C

RESPONSES TO WRITTEN PUBLIC HEARING COMMENTS

Texas Wildlife Association

(Excerpts from letter to Jonathan Letz, Chairman, Region J Water Planning Group from Kirby L. Brown, Executive Vice President, Texas Wildlife Association and David K. Langford, Vice President Emeritus, Texas Wildlife Association)

As you finalize your regional plan, we would be remiss if we did not bring voluntary land stewardship to your attention again. The relationship between the land's condition and the quality of and quantity of water available to Texans is inextricably linked. In fact, good land stewardship encompasses a myriad of activities far beyond brush control. Private landowners who optimize the condition of their land are effectively engaged in water ranching, in addition to the more visible activities of raising cattle or managing wildlife.

Incorporating good land stewardship into any water plan makes sense because, voluntary land stewardship is: complementary, cost-effective, sustainable, efficient, environmentally sensitive, multi-faceted, and governable.

Voluntary land stewardship is the logical place for water management to begin because land stewardship affects the water supply at its origins, not just at its destination. We find it difficult to understand why people charged with water management focus their efforts on destination and demand, while virtually ignoring the issues of origination and supply. If we maximize the effects of the rainwater that falls from the sky, then the answers to questions of demand are much more easily answered.

Response: **Good voluntary land stewardship has been added to Section 4.7 of Chapter 4 as a regional BMP strategy pertaining to Brush Management and land stewardship.**

WaterTexas

(Excerpts from letter to Jonathan Letz, Chairman, Region J Water Planning Group from Derek W. Sanders, CEO, WaterTexas)

Concern #1: Lack of Explanation and Documentation Regarding the Definition of Groundwater Availability

- Base flow
- Acceptable level of long-term aquifer impact
- Significantly affected
- Beyond a level anticipated due to naturally occurring conditions

Concern #2: Lack of Supporting Documentation Regarding Availability Calculations

On page 1-2, the IPP states that "Chapter 3 contains a detailed analysis of water supply availability in the Region." We do not agree that the IPP's level of analysis for calculating groundwater availability is detailed. This statement and others in the IPP imply a level of accuracy and completeness that is simply not present. The description of the procedure does not address the large number of assumptions and approximations required to perform the necessary GAM simulations and related calculations.

Concern #3: Potential Misuse of GAMs to Calculate Groundwater Availability

We strongly agree with the need for and benefit of using GAM results and GAM-based information to help estimate groundwater availability. However, we are concerned that the PWPG's GAM applications appear to have gone well beyond the GAMs' capability and intended use in providing credible predictions. Our concerns focus on the potential for developing unreliable estimates of groundwater availability by using the GAM (which was developed primarily to simulate regional groundwater flow processes) to simulate the impact of pumping on surface water/groundwater interaction. The IPP indicates this impact or potential impact is the key to the IPP recommendations, and yet by using the GAM the authors of the IPP have placed the validity of the entire analysis at risk.

Concern #4: Groundwater Policy that is Not Consistent with the Public Interest

Without clearly defined objectives such as targeted baseflows and a rationale for why these baseflows should be met, we are concerned that not enough scientific analysis has been performed to guide both the development and implementation of public policy. As it currently exists, the IPP does not provide sufficient information to guide groundwater districts or the general public in making informed decisions about management of groundwater resources and baseflows.

Response: **Groundwater availability is adequately defined from a regional perspective. The definition follows a Planning Group policy commitment to protect sources contributing to base flows of rivers. It is acknowledged that a more detailed availability analysis would be required for a site-specific water-supply development project.**

National Wildlife Federation, Environmental Defense, Sierra Club - Lone Star Chapter

(Excerpt from letter to Jonathan Letz, Chairman, Region J Water Planning Group from Myron Hess, National Wildlife Federation, Mary Kelly, Environmental Defense and Ken Kramer, Sierra Club, Lone Star Chapter)

Executive Summary

The executive summary may well be the only portion of the water plan that many members of the public will read. For this reason, it is important that it be made available for public comment prior to the finalization of the plan.

Response: An executive Summary has been provided in the final plan.

Chapter 1 - Plateau Region Description

Section 1.2.8. This section contains a good overall discussion of the agricultural and natural resources of the region. However, in order to adequately evaluate the proposed water management strategies (WMS) (as required by §357.7 (a)(8)(C)) and to identify threats to the agricultural and natural resources in the region (as required by §357.7 (a)(1)(L)), it is important that the plan include a reasonably detailed discussion of the various types of habitats present in the region (i.e. spring-fed aquatic and terrestrial, riparian, etc.), and key species dependent on them. This constitutes information needed to assess long-term impacts on natural resources and to perform a meaningful quantitative evaluation of potentially feasible water management strategies.

Response: TPWD's Suggested Ecologically Significant River and Stream Segments report is provided as Appendix 8B. This document provides habitat and species descriptions.

Section 1.2.8, Page 1-18, 2nd paragraph. It seems from this discussion that the only water quality threat to the natural resources of the region is the effect that significantly long drought conditions can have on both plant and animal species. While the plan does concede that there is a recognized concern in the region "of the effect that future development of water supplies might have on the diversity of species in the region", it does not specifically identify what these threats might entail, e.g., increased groundwater withdrawals and potential impacts on springflow and base flows to local rivers and streams, changes to natural flow conditions, etc. In addition, it is important to note that not just the diversity of the species is at risk, but associated habitat ranges, individual species abundance, etc.

Response: Threats to natural resources are discussed in a supplemental report on the springs in Kinney and Val Verde Counties. Threats are described in Kerrville and Camp Wood strategies J-2 and J-8 respectively. Additional discussion has also been added to Section 1.4.3.

Section 1.4.3, Page 1-31, 2nd paragraph. TWDB rules (§ 357.7 (a)(1)(D)) require a description of the region's major springs that are important for both "water supply or natural resource protection" purposes. The identification of springs important for natural resource protection is a new requirement applicable for this round of planning. It is unclear what criteria the group used to classify major springs in the region, apart from their importance as a municipal water supply. As the IPP acknowledges, the region has a wealth of springs that play an important role in supporting natural resources at and near the spring opening and in maintaining base flows of streams and rivers.

The group did a good job of including general information regarding the importance of springs in the Region throughout the plan. And the inclusion of Figure 1-11 – *Location of Documented Springs* – is helpful for an overall perspective on the prevalence of springs in the region. However, it is difficult to realistically quantify the value and extent of springflow in the region without descriptions and estimations of their general nature, i.e. relative flow rates, associated aquatic and wildlife habitats, etc. We acknowledge that this level of information is probably not known for each spring shown on Figure 1-11, but a generalized overview of the range of these qualities for the springs identified would also be useful. This is especially important for use in evaluating the proposed water management strategies for impact on springflow in the region.

Response: **Major Springs are further discussed in Chapter 3 along with a Section (3.4) pertaining to Groundwater-Surface Water Relationships. A supplemental report was also prepared that discusses the contribution of springs to the base flow of the upper Guadalupe River in Kerr County.**

Chapter 3 - Regional Water Supply Sources

Section 3.2.7, Page 3-9. The plan defines groundwater availability as "a maximum level of aquifer withdrawal that results in an acceptable level of long-term aquifer impact such that the base flow in rivers and streams is not significantly affected beyond a level that would be anticipated due to naturally occurring conditions." This statement is somewhat vague and could easily be misinterpreted. Major adverse impacts occur as a result of naturally occurring conditions during drought periods. The area does suffer from prolonged droughts where aquifer levels and associated outflows from the aquifer (i.e. springs, seeps, baseflows) decline in response. But, serious droughts occur fairly rarely and for comparatively short durations and the natural systems are able to recover when the drought conditions dissipate. Any additional large-scale withdrawals from the aquifer on a continual basis, other than what is naturally flowing out via springs, seeps, or through baseflows, would eventually advance the aquifer system to an unnaturally occurring condition.

Accordingly, the plan needs to qualify this statement by including what the long-term aquifer impact is projected to be – to the extent possible- given the chosen groundwater availability. If, increased groundwater withdrawals would impose drought-level impacts on the springs, seeps, and rivers on an ongoing basis, that likely would cause major adverse impacts on natural resources in the region. Accordingly, the issue requires further discussion.

Response: **This comment gets to the very heart of groundwater management issues. Any artificial withdrawal (pumping) of water from an aquifer disrupts the natural balance of the groundwater portion of the water cycle. Even a single windmill out in the middle of nowhere, changes this balance so slightly. Striking a balance of how much disruption due to human interference becomes a decision for policy makers. We realize that the groundwater availability definition provided in the Plateau Region Water Plan still leaves room for interpretation. However, we hope to be setting the stage statewide for a groundwater management policy that incorporates the important relationship between groundwater and surface water.**

Page 3-11, 1st paragraph. The plan states that the group identified reasonably acceptable levels of impact to surface water drains. It is important to state up front what these availability assumptions were (i.e., what impacts are considered acceptable) and include estimations of changes in aquifer storage and/or impacts to regional spring flows and baseflows to area rivers and streams based on these assumptions.

Response: **This level of evaluation, especially using the level of sophistication currently built into the GAMs, was beyond the time and budget limitations of the Plateau Region planning scope and budget. The Planning Group is recommending that additional data and studies be funded to reach this level of modeling sophistication.**

Section 3.2.7, Pages 3-9 through 3-11. Our understanding of groundwater availability determinations are that the region is to consider each of three different types of limiting conditions (physical, regulatory, and policy) and base availability determinations on the most restrictive. Thus, for example, groundwater district pumping limits may establish a regulatory condition that is more restrictive than physical conditions, such as subsidence or intrusion of poor quality water, and more restrictive than policy decisions, such as planned aquifer depletion. Conversely, a policy condition of balancing withdrawals with a percentage of recharge might impose the most restrictive limit.

At any rate, we would request that the planning group provide more information about the process by which the availability decisions were made and, specifically, about what type of condition served to establish the most restrictive limit.

Response: Groundwater conservation district limitations, if they exist (Kinney County), were given the highest priority. Physical limitations using GAM modeling was the next consideration.

Chapter 4 - Water Management Strategies

Section 4.2, Figure 4-1, Page 4-6. This figure shows that the group identified potentially feasible strategies to meet identified needs. It is unclear why these initial lists of strategies were not included, or identified, in the text as it is necessary to have that information in order to follow the group's choices for recommended strategies.

Response: All potentially feasible strategies were adopted by the Planning Group (Section 4.3).

Section 4.4, Table 4-2, Page 4-7. It is unclear whether this a listing of potentially feasible strategies or of recommended strategies. The caption should make that clear. The table is very incomplete. There is a need to clarify in the table, or elsewhere, which strategies are for which WUG and fill in the missing information. Additional background information is also needed on each of the strategies. For example: What does each of these strategies entail? Will they all be used simultaneously to fulfill demands? What are the timelines for implementation? How much water will be supplied by each strategy? As required by 357.7 (a)(9) of TWDB's rules, the plan must include specific recommendations of water management strategies to meet the needs **in sufficient detail** to allow state agencies to make financial or regulatory decisions to determine the consistency of the proposed action before the state agency with an approved regional water plan.

Given that this table and associated chapter is critically important for understanding the proposed strategies and for assessing the implications for the protection of natural resources in the region, as stated previously, we request that a mechanism be established to accept comments on this chapter once a complete draft is available.

By rule (§ 357.7 (a)(8)(A)(ii)), the environmental impacts of each potentially feasible strategy must be evaluated quantitatively, including a description of the potential impacts to the major springs in the region. If this level of evaluation was completed to construct this table, the associated information should be included in the plan.

Drought Management Measures. As required by 357.7 (a)(7)(B) of TWDB's rules, drought management is a water management strategy that must be evaluated. That provision, along with Section 16.053 (h)(7)(B) also requires that drought management be included as a water management strategy for each entity required to prepare a drought management plan

pursuant to Section 11.1272 of the Water Code. Drought management does not appear in Table 4-2. Although the planning group may decide, provided it documents the basis for that decision, not to include drought management as a water management strategy beyond those measures specifically required by Section 11.1272, it must include at least the Section 11.1272 level of drought management as a water management strategy. S.B. 2 made inclusion of drought management measures at least at the level required by Section 11.1272 a mandatory prerequisite for approval by TWDB of a regional water plan. See Tex. Water Code Ann. § 16.053 (h)(7)(B). The initially prepared plan does not comply with that requirement. For each entity required to prepare a drought contingency plan pursuant to Section 11.1272 – all three of the municipal WUGs identified with needs in the region - the water plan must include a water management strategy reflecting the drought period savings from that drought plan.

Conservation Measures. Water audits and loss audits are largely a reflection of compliance with new legislation. House Bill 3338, passed in 2003, requires all retail public utilities to perform water audits. That requirement is codified in Section 16.0121 of the Texas Water Code and explained in a TWDB publication entitled "Water Loss Manual." Thus, it appears that public education is the only conservation measure recommended or evaluated (as noted above, it is not clear whether Table 4-2 lists potentially feasible or recommended strategies) that is not already mandated by other laws for all three of the WUGs with needs. We certainly support educational activities as important water conservation measures that should be included. However, there are additional fundamental steps that also should be included.

As a conservation goal, Region L's plan includes recommended reductions for all municipal water user groups (WUGs): for those with water use of 140 gpcd and greater, a reduction of per capita water use by 1 percent per year until the level of 140 gpcd is reached; and for those with water use of less than 140 gpcd (and those reaching 140 gpcd through the 1% per year reduction), a reduction of per capita use by one-fourth percent (0.25) per year for the remainder of the planning period. This goal would be particularly beneficial for both Kerrville and Camp Wood, both with per capita consumption rates greater than 140. For guidance on conservation strategies, other than public education, that could be recommended to meet the needs of Camp Wood and Kerrville, potentially feasible strategies and their associated demand reductions and costs can be found in the GDS Associates study *Quantifying the Effectiveness of Water Conservation Techniques in Texas,* March 2002.

For comparison, here is an example of cost data for municipal water conservation from the Initially Prepared Plans for Region L and estimates of cost data from the GDS Associates study for Region J.

Cost data for individual water conservation measures (=individual Best Management Practices)

Region L

measure	Cost per ac-ft of water saved*
urban, single family Toilet Retrofit	$396
urban, single family Showerheads and Aerators	$82
urban, single family Clothes Washer Rebate	$757
urban, multi family Toilet Retrofit	$352
urban, multi family Showerheads and Aerators	$47
urban, multi family Clothes Washer Rebate	$575
suburban, single family Toilet Retrofit	$478
suburban, single family Showerheads and Aerators	$99
suburban, single family Clothes Washer Rebate	$913
suburban, multi family Toilet Retrofit	$310
suburban, multi family Showerheads and Aerators	$42
suburban, multi family Clothes Washer Rebate	$575

Region J

measure	Cost per ac-ft of water saved**
rural, single family Toilet Retrofit	$477
rural, single family Showerheads and Aerators	$137
rural, single family Clothes Washer Rebate	$947
rural, multi family Toilet Retrofit	$356
rural, multi family Showerheads and Aerators	$66
rural, multi family Clothes Washer Rebate	$553

Notes:

*Cost estimates taken from the Region L IPP. Region L costs are amortized at 6% over the projected length of service on the measure (e.g., toilet service life = 25 years).

**Cost estimates taken from *Quantifying the Effectiveness of Water Conservation Techniques in Texas*, GDS Associates, March 2002, Region J costs are amortized at 5%.

Cost data for water conservation program (=assemblage of measures)

Region L

program	Cost per ac-ft of water saved*
Rural	$396
Urban	$458
Suburban	$520

Response: Chapter 4 has been significantly improved.

Chapter 5 - Water Quality Impacts and Impacts of Moving Water from Agricultural Areas

The rules require a description of the major impacts of recommended water management strategies on key parameters of water quality. This chapter seems to focus more on how the quality of the source water may potentially impact the recommended water management strategies. Table 4.2 includes a ranked scale of potential impacts to key water quality parameters, however without additional background information and details on the impact assessment, it is impossible to adequately assess the proposed strategies. For example: Which water quality parameters are affected by the proposed strategies? Did the group assess how increased groundwater withdrawals may impact surface water quality? For these reasons, the background information used to make these qualitative rankings should be included in the text of the plan.

Response: See Section 5.6.

Section 5.6, Page 5-25. This section states that there is not expected to be any impacts to water quality from the proposed WMSs. This is not consistent with the "low" ranking that all of the WMS' received in Table 4.2.

Response: Table 4-3 lists no new impacts or possibly positive impacts.

Chapter 6 - Water Conservation and Drought Contingency

Section 6.6, Page 6-13. Please include the website address for these forms. We assume that the "Word Perfect"/"PDF" references were originally hyperlinks to the forms.

Response: Section has been improved.

Section 6.7, Page 6-15. Same comment as above.

Response: Section has been improved.

Appendix 6B - Model Water Conservation Plans

The documents included here appear to be water conservation plan forms rather than model conservation plans. We believe that a model plan must include examples of the water conservation measures the planning group considers to be appropriate. For example, the model plan should reflect the best features of the various example plans included in Appendix 6A.

Response: The PWPG will consider this comment for the next planning period.

Appendix 6C - Model Drought Contingency Plans

The documents and information included here provide more information and guidance than that included in Appendix 6B. However, we still believe that a model plan should be included with examples of the drought period savings the planning group considers to be appropriate.

Response: The PWPG will consider this comment for the next planning period.

Chapter 7 - Plan Consistency

It is impossible to review this chapter in its incomplete form. Given that this chapter is critically important for the protection of natural resources in the region, as stated previously, we request that a reasonable mechanism be established to accept comments on this chapter once a complete draft is available.

As you know, the Texas Legislature, in recognition of the key importance of this information, specifically provided that TWDB may not approve a regional water plan absent an affirmative finding that the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources. See Texas Water Code Section 16.053(h)(7)(C).

Response: Chapter 7 has been completely rewritten.

Chapter 8 - Recommendations

It is disappointing to see that the Planning Group has again declined to recommend any streams for designation as unique stream segments. The Texas Legislature acted definitively in expressly limiting the legal effect of such designations: "This designation **solely** means that a state agency or political subdivision of the state may not finance the actual construction of a reservoir in a specific river or stream segment designated by the legislature under this subsection." Tex. Water Code Ann. § 16.053 (f). It is difficult to imagine how that language could be made clearer than stating that it only means that one thing. Despite the lack of recommendations, we appreciate the inclusion in the Appendix of information about the segments suggested for consideration by the Texas Parks and Wildlife Department.

Response: Comment acknowledged.

Section 8.2.2. Conservation Management of State-Owned Lands. This recommendation makes a lot of sense.

Response: Comment acknowledged.

Section 8.4.5 and 8.4.6, Page 8-11. We are assuming that the planning group is referring to these as benefits for all RWPGs. If this is true, the specific reference to the "Plateau Regional Water Planning Groups" should be removed and replaced with just "Regional Water Planning Groups."

Response: Wording in these recommendations has been appropriately changed in the final plan.

Guadalupe-Blanco River Authority

(Excerpts from letter to Jonathan Letz, Chairman, Region J Water Planning Group from Fred M. Blumberg, Deputy General Manager & Chief Operations Officer, GBRA)

On page 3-25 of Section 3.3.3 the draft Region J plan states that "Kerr County has a Memorandum of Understanding with the Guadalupe-Blanco River Authority (GBRA) indicating that GBRA is placing 6,000 acre-ft/yr of water in reserve for the County, dependent on GBRA's obtaining an amendment to its water right for Canyon Reservoir." That statement does not accurately describe the Memorandum of Understanding between GBRA and the County dated October 1, 1999. A more accurate description of the MOU is found on pages 3-10 and 3-11 of the 2006 Plan of the South Central Texas Regional Water Planning Group (SCTRWPG or Region L), which reads in part, "Pursuant to a Memorandum of Understanding (MOU) between GBRA and the Commissioners' Court of Kerr County, SCTRWPG recognizes a potential commitment of approximately 2,000 acft/yr from the firm yield of Canyon Reservoir for the calendar years 2021 through 2050. GBRA's hydrology studies have indicated that a commitment of about 2,000 acft/yr would be necessary to allow permits for 6,000 acft/yr to be issued by TCEQ for diversion in Kerr County."

On page 3-25 of Section 3.3.4 the draft Region J Plan states that "the firm yield of Canyon Reservoir is 62,000 acre-ft/yr…." GBRA's TCEQ permit for Canyon Reservoir (Certificate of Adjudication 18-2074, as amended) currently authorizes an average annual diversion of 90,000 acft/yr. The firm yield of Canyon Reservoir used in the Region L (SCTRWPG) Plan (based on daily operations of Canyon Reservoir pursuant to Certificate of Adjudication 18-2074, as amended, and subject to the hydrologic assumptions adopted by Region L) ranges from 88,232 acft/yr to 87,484 acft/yr in years 2000 and 2060, respectively.

Response: **The final Plateau Region Water Plan incorporates changes that reflect the above comments.**

APPENDIX 10D

RESPONSES TO PARKS AND WILDLIFE COMMENTS

APPENDIX 10D

RESPONSES TO PARKS AND WILDLIFE COMMENTS

(Excerpts from letter to Jonathan Letz, Chairman, Region J Water Planning Group from Larry D. McKinney, Ph.D., Director of Coastal Fisheries, Texas Parks and Wildlife Department)

Chapter 1.2.7 and 1.2.8 of the Plateau Region IPP briefly describe natural resources but do not include listings of threatened and endangered species. The importance of environmental and recreational flows are discussed in Chapters 1.3.6 and 2.5 but the IPP does not include a quantitative reporting of environmental factors. Table 4.2 does list impacts on environmental factors and other natural resources. For example, environmental impacts associated with all water management strategies were characterized as "low". Though Chapter 4.5 offers extensive discussion of irrigation water supply strategies, there was no mention in that section of environmental impacts. Regarding threats to the resources due to water quantity, Chapter 1.2.8 states that headwater regions are particularly susceptible to droughts and consequent water table drops. Chapter 1 mentions only fecal coliform bacteria and "high levels of nutrients" are tied to reduced dissolved oxygen availability for fish. Water quality problems are also mentioned in Chapter 5. In 5.4, diazanon was mentioned as problematic in Medina Lake, as was selenium in the Rio Grade above Amistad Reservoir. Further, in 5.5, urban runoff and vehicular traffic in streambeds were identified as sources of water quality problems. Section 5.5.4 states that water quality problems "pose potential threats to natural resources and the ecological environments." How these threats to natural resources will be addressed is not discussed. Section 7.4 Natural Resources is blank in the draft plan. Even though Section 7.1 says that Appendix 7A is provided to "assist the reader in locating specific required inclusions…", the column in that appendix showing where the materials can be found is blank. Chapter 3.27 does recognize that groundwater withdrawal must not significantly impact baseflows in rivers and streams beyond what would naturally occur. Similarly, Chapter 3.4 discusses the importance of springs and the significance of groundwater-surface water interactions.

Response: **Additional language has been added to the entire plan that addresses many of the above comments. In particular, Chapter 4 has been further developed to address potential strategy impacts to the environment and natural resources.**

The Plateau IPP recommends conservation for meeting future water needs. Section 6.5 includes extensive discussion of numerous water conservation elements, including water-saving plumbing fixtures, water conservation education and land use management. TPWD especially supports the Region's consideration of brush control/management as an additional means of conserving water if done in a manner that can also benefit wildlife habitat. Wastewater reuse is also included as a water management strategy.

Response: **The final plan has added brush management and good land stewardship as a regional strategy in Chapter 4.**

TWPD is disappointed that the plan does not recommend nomination of any stream segments as ecologically unique. The region chose not to recommend any specific segments "because the subsequent ramifications of designation are not fully understood."

Response: **Although the Planning Group, based on public opinion voiced at public meetings, chose not to include specific segments, it is hoped that this plan expresses the Group's intent and desire to protect environmental and natural resource needs.**

The 2005 Plateau Region IPP recognizes that the region contains some of the most ecologically pristine areas in the state and that preservation of those areas is economically important. The IPP also states that the region has followed a policy of "always considering the impact that their decisions have on the area's ecological resources". While TPWD is please to see many of our earlier comments have been addressed, concerns remain regarding the lack of required detail necessary to describe potential impacts.

Response: **TPWD staff has provided valuable and well-appreciated assistance in developing the 2006 Plan. The PWPG hopes to continue this relationship during the next planning session, and intends to continue to address concerns in your comments.**