

**Exhibit C**  
**Scope of Work**

**REGION K SCOPE OF WORK**

**Study 1 – Surface Water Availability Modeling**

Re-evaluate Lower Colorado River availability utilizing the Texas Commission on Environmental Quality (TCEQ) water availability model (WAM).

- a. Develop detailed scopes of work for sub-tasks to be shared by the Region K consultant, the Lower Colorado River Authority (LCRA) and City of Austin, and their consultants. This scope development will involve meeting with the Scoping Committee, the consultants for LCRA and the City of Austin, and meeting with the Lower Colorado Regional Water Planning Group (LCRWPG) for presentation of the scope of services in the grant application package, and response to Texas Water Development Board (TWDB) comments on the scope items. All detailed scopes of work for sub-tasks developed for this study will be submitted to TWDB for approval, and a notice to proceed from the Executive Administrator of the TWDB is required.
- b. Conduct a detailed review of the hydrologic and water right information in the TCEQ WAM for the Colorado River. There were nine technical issues identified in the 2006 Region K Plan that this task would attempt to clarify, as follows:

The WAM's representation of a zero firm yield for several reservoirs in the basin;  
The WAM's approach to modeling environmental flow restrictions on water rights;  
The naturalized flows used in the WAM;  
The WAM's incorporation of channel gains and losses;  
The WAM's treatment (or lack thereof) of "futile call" issues;  
The WAM's incorporation of existing subordination agreements;  
The WAM's backup of Austin's steam electric water rights with LCRA stored water;  
Inconsistencies with how interregional strategies are addressed in the planning cycle relative to application of WAM Run 3; and,  
Other technical issues.

- c. Contact TCEQ staff to discuss the current status of the Colorado River WAM and determine whether or not modifications to include the "priority circumvention" subroutine or any other significant changes are anticipated by TCEQ. Also discuss any written agreements that are provided by LCRA or any of the upstream rights holders with TCEQ staff and determine status of any efforts to include them in the WAM.
- d. Research and present alternative WAM versions (LCRA-San Antonio Water System [SAWS], LCRA No Call-Brandes, TCEQ Priority Circumvention if available, and others as identified) and the advantages and disadvantages of each to the Water Modeling Committee (one meeting).

- e. Coordinate with Region F and determine if there are any additional agreements or other specific items that Region F desires to incorporate (up to three meetings anticipated, with all by conference call or by Region F representatives coming to Region K area).
- f. Coordinate with LCRA regarding incorporation of LCRA-SAWS Water Project (LSWP) water availability in the model. Verify that the LSWP can be modeled with the alternative WAM versions being considered.
- g. Meet with the LCRWPG Water Modeling Committee to discuss the findings of the WAM review in terms of any clarification or resolution they may bring to the “No Call” assumption used in the second round of planning (one meeting).
- h. Report to the Water Modeling Committee on Region F input and determine whether to incorporate any changes requested (same meeting as g above).
- i. Assist the Water Modeling Committee and the LCRWPG in choosing a course of action and deciding which surface water availability model to use for planning purposes (one meeting, plus one meeting of the LCRWPG).
- j. Research information from any other relevant major project undertaken by any entity or water right holder that may have impacts on water availability estimates.
- k. Incorporate information on the revised schedule for cooling water needs for additional generating capacity for the South Texas Nuclear Project, as appropriate.
- l. Research information on any new water right, any amendment or any agreements between parties since the January 2006 Regional Plans for inclusion in the model.
- m. Develop a Technical Memorandum of the findings of Scope of Work Items 1b – l.
- n. Present the Technical Memorandum and proposed model to the Water Modeling Committee and LCRWPG for approval and request approval from the Executive Administrator of the TWDB to use the model to determine water availability within Region K.
- o. Model up to three scenarios to determine whether or not any of the negative issues associated with the model used in the last round are present.
- p. Use the selected model to determine availability of surface water supplies and compare to availabilities determined in the last round. Determine whether the model is producing acceptable results for the entire Colorado River Basin.
- q. Present initial results to the Water Modeling Committee and LCRWPG and discuss alternatives if needed.
- r. Determine if there are new shortages due to the revised modeling.

- s. Develop a scope of services and budget for analysis of additional water management strategies as needed. This scope of services would be performed in the second biennium funding cycle of this third planning round.

#### Work Products

Prepare a draft and final report to include the following sections: executive summary, purpose of study including how the study supports regional water planning, methodology, results, and recommendations, if applicable. The draft report will be submitted to the planning group and the TWDB for review and comment. All comments will be addressed in the final report.

Components of the reports will include:

1. Technical memorandum summarizing the findings of Scope of Work Item 1b - 1.
2. Revised WAM suitable for use in determining availability
3. Revised availability numbers by water source
4. Revised supply numbers by water user group (WUG)
5. Revised shortages analysis
6. Identification of any additional shortages over and above those in the last round
7. Scope and budget for additional analysis of new strategies for next biennium of current planning round (round 3)

Work products for this task will also include refinements to Chapters 3 and 4 including additional tables, charts and graphs. The report will be submitted per TWDB requirements and results from this study will be included in the 2011 LCRWPG regional water plan. The development, analysis, and reporting of results will follow methodologies and guidance according to Exhibit B, and agency rules.

### **Study 2 – Environmental Impacts of the Water Management Strategies**

This task will conduct a more detailed evaluation of the impacts of the proposed water management strategies throughout Region K under projected demand conditions for the planning period. It will include identification of quantitative indicators for identified environmental factors such as impacts to sensitive environmental and wildlife habitat, agricultural lands or public lands, instream flows and freshwater inflows into Matagorda Bay, water quality, and sustainable aquifer yields.

- a. Perform a quantitative impact analysis of the proposed water management strategies for instream flows at five designated control points on the Colorado River and its major tributaries.
- b. Perform a quantitative impact analysis of the water management strategies for freshwater inflows into Matagorda Bay.
- c. Research information on any new environmental criteria in any amendment to an existing water right or such criteria in any new water right or any agreements between parties, since publication of the January 2006 Regional Plans, for inclusion in the model.
- d. Prepare tabular comparisons for each strategy of the impacts to land and water resources.

- e. Determine if the impacts are reasonable, consistent with protection of environmental flows, and consistent with long-term protection of the state's water resources, natural resources, and agricultural resources.
- f. Utilize the LCRA Water Management Plan guidelines when evaluating freshwater inflows impacts and instream flow impacts. Incorporate information from the most recent studies conducted by LCRA on bay and estuary inflows, as well as instream flows.
- g. Coordinate with LCRA regarding incorporation of information from LSWP impact studies.
- h. Present information to LCRWPG and discuss results.
- i. Assist LCRWPG in determining long-term viability of projects and water management strategies analyzed, and present results at a LCRWPG meeting.
- j. For any strategies that are determined to have unreasonable impacts, develop a scope and budget for investigation of new strategies to replace the ones with unreasonable impacts. This scope and budget will be for the second biennium of the third planning round.

#### Work Products

Prepare a draft and final report to include the following sections: executive summary, purpose of study including how the study supports regional water planning, methodology, results, and recommendations, if applicable. The draft report will be submitted to the planning group and the TWDB for review and comment. All comments will be addressed in the final report.

The report will include refinements to Chapters 4, 5, and 7 including additional tables, charts and graphs outlining the quantified impacts in more detail and comparing environmental conditions anticipated throughout the planning period both with and without the selected water management strategies. The report will be submitted per TWDB requirements and results from this study will be included in the 2011 LCRWPG regional water plan. The development, analysis, and reporting of results will follow methodologies and guidance according to Exhibit B, and agency rules.

#### **Study 3 – Evaluate High Growth Areas**

- a. Develop maps which include the water user groups ( WUGs) with shortages and the extent of the area in southern Travis and northern Hays counties where the shortages exist.
- b. Meet with the Barton Springs/Edwards Aquifer Conservation District (BS/EACD) to determine progress of their meetings with potential providers of surface water and groundwater to this area to make up for shortages of local groundwater determined by the BS/EACD modeling. If appropriate, set up follow-up meetings with wholesale providers, such as the LCRA, City of Austin (COA), and the Guadalupe-Blanco River Authority (GBRA), with interest in serving this area as well as WUGs in the area which need supply.
- c. Coordinate with existing water providers in the high growth area regarding changes since publication of the January 2006 Regional Plan.

- d. Evaluate impacts of revised availability numbers for high growth areas of Hays County and Travis County.
  - i. Barton Springs/Edwards Aquifer Conservation District
    - 1. Update availability numbers based on BS/EACD findings
    - 2. Determine impacts on water management strategies for the area
  - ii. Hays-Trinity Groundwater Conservation District
    - 1. Determine Lower Trinity Aquifer availability
    - 2. Determine impacts on water management strategies for the area
  - iii. Further analyze the viability of the Onion Creek Recharge structure strategy
- e. Develop a scope of work for the second biennium to evaluate water management strategies for the high growth area based on the findings of Scope of Work Items 3a – d.
- f. Coordinate with groups trying to identify water needs for the State Highway (SH) 130 corridor. This task will consist primarily of trying to determine a better location for specific portions of County-other populations in Travis and Bastrop counties.
- g. Make revisions to shortage analyses based on revisions to available supplies.
- h. Meet with WUGs in the area and review potential shortages and possible water management strategies to meet those shortages. COA, LCRA, Aqua Water Supply Corporation (WSC), and others will be evaluated as potential water providers for this growth area.
- i. Develop a scope of work for the second biennium to evaluate water management strategies based on Wholesale Water Providers' and WUGs' inputs and to apply water management strategies for that portion of the County-other population assigned to the SH-130 corridor.

#### Work Product

Prepare a draft and final report to include the following sections: executive summary, purpose of study including how the study supports regional water planning, methodology, results, and recommendations, if applicable. The draft report will be submitted to the planning group and the TWDB for review and comment. All comments will be addressed in the final report. The report will include revised figures, tables and text in Chapters 3, 4, and 5 of the Region K plan, documenting the reductions and additions to groundwater availability as well as the revised shortage analysis based on the aquifer reductions. The report will be submitted per TWDB requirements and results from this study will be included in the 2011 LCRWPG regional water plan, where appropriate. The development, analysis, and reporting of results will follow methodologies and guidance according to Exhibit B, and agency rules.

#### **Public Outreach/Administration**

- a. Attend regularly scheduled meetings of the LCRWPG even when there is not a specific report by the consultant team.
- b. Coordinate with Board staff to determine adequacy of notice for each instance in which notice is required.
- c. Provide all required notices of availability for scopes of work, grant applications, and draft and final documents. This includes providing notices in the newspaper of general circulation in each county.
- d. Perform other duties as assigned.

#### Work Products

Work products from this scope will include properly prepared notices of availability of scopes of work and draft and final products, properly prepared newspaper notices, etc.