
Exhibit A
Scope of Work

Region K - 2011 Plan
Detailed Scope of Work
Lower Colorado Regional Water Planning Area

Introduction

The detailed scope of work presented below was prepared using the individual “Tasks” developed by the Texas Water Development Board (TWDB) as provided in the regional planning criteria document. “Subtasks” have been developed within each major task to identify the major elements of work anticipated to be accomplished for the Regional Water Plan (RWP).

Task 1. Planning Area Description

There have been numerous ongoing developments related to water supply development within Region K since the preparation of the 2006 Regional Water Plan (2006 RWP). These developments include the creation of new WUGs, accelerated growth within the SH130 and SH45 corridors, new environmental studies related to freshwater inflow needs in the region and revised water management plans by Wholesale Water Providers (WWP) in the region.

Subtask A. Revise planning area description.

Review listing of Water User Groups from this round with list from last round and include descriptions of all new WUGs.

1. Develop descriptions of SH 130 and SH 45 corridors and associated issues of expected development in those areas.
2. Review TWDB listing of threatened and endangered species and their habitat and incorporate any changes since the listing from the last round.
3. Review and incorporate discussion of 2006 Freshwater Inflow Needs Study as an update to the 1997 FINS.
4. Include discussion of LCRA management plan summarizing the trigger levels and allocation of interruptible supplies.

Task 2. Population and Water Demands

The State Demographer has prepared mid-census population estimates which show that the populations of some WUGs have already surpassed the 2010 projections. This condition is true primarily for the outlying service areas of the major urban center within the region (City of Austin) and its adjoining suburban growth areas, but also applies to many of the Hill Country retirement communities within the region.

Subtask A. Update population and demand estimates.

1. Prepare correspondence to all affected WUGs detailing population and demand draft projections proposed for the 2011 Region K Plan and request that they reply with any comments or requested changes. (Note- This activity will be coordinated with Task 6 to combine the proposed correspondence to individual WUGs related to water conservation. If supplemental funding for this task is approved, significant population changes may be proposed from the 2006 Plan. If no supplemental funding is available for this task, then the population and municipal demand projections will be very similar or identical to the 2006 Plan for most WUGs.)
2. Review any comments received for compliance with TWDB requirements and incorporate changes which meet TWDB conditions for changes. Coordinate with adjoining regions where appropriate to evaluate impacts of population changes across region boundaries.
3. Make changes as appropriate and provide final numbers to RWPB for approval.
4. Prepare and submit draft chapter two to the LCRWPG members and TWDB for review and approval.
5. Incorporate all approved changes to database tables as appropriate.
6. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for final draft of this chapter.

Subtask B. Revise population and demand estimates.

1. Incorporate changes made as a result of SH 130/45 demand areas study and high growth area study in southern Travis and northern Hays counties into table and figures for Chapter 2 of the revised regional water plan.
2. Correspond with Wholesale Water Providers to determine whether there are any recent or pending requests for service in their planning horizons and compare these requests to population projections for individual WUGs and County other within their service areas.
3. Review TWDB contracted steam-electric power generation demand numbers and make changes to the figures and tables based on the updated amounts as appropriate.

Subtask C. Create revised population and water demand projections for Region K WUGs based on data from Texas Data Center and compile the new projections in a technical appendix for use in this round of planning.

1. Research Texas State Data Center population projections for individual cities and determine what growth rate has occurred in the five years since the 2000 census, as well as individual annual projections since the 2005 mid-census estimates.

2. Develop projections for 2010 based on growth rates experienced during the first five years after the census, and any individual-year projections since that time.
3. Develop adjusted year 2010 populations for those WUGs which have experienced increases of 20 percent more than the 2006 Regional Plan projections.
4. Review potential for WUGs in the SH 130/45 corridor to have potentially higher growth rates than the Texas State Data Center projections.
5. Review "County Other" populations to determine whether the region's total population should be adjusted upward.
6. Review ongoing LCRA population study and incorporate findings as appropriate into the revised methodology.
7. Prepare methodology which meets TWDB requirements and submit to RWPG and TWDB for approval.
8. Develop revisions for population and water demand for individual WUGs in accordance with approved methodology.
9. Use projections from 2006 Plan or other approved growth rates after 2010 in order to develop projected populations to the year 2060.
10. Prepare a technical appendix for the 2011 Plan which outlines the basis for the revised projections and tabulates the recommended changes.
11. Submit draft and final appendix for RWPG and TWDB approval.

Task 3. Water Supply Analysis

One of the major changes to water supply availability in this region has already been analyzed during the first biennium for this round of planning. New surface water availability estimates were created using a revised Water Availability Model (WAM) and these estimates will be incorporated into this task from that prior activity. However, there are multiple groundwater sources whose availability is also changing as a result of the creation of new groundwater conservation districts (GCDs), new groundwater availability models (GAMs), or as a result of activities of the new Groundwater Management Areas (GMAs). These changes to groundwater availability will need to be assessed and incorporated into the 2011 RWP.

Subtask A. Incorporate Completed Groundwater Availability Revisions.

1. Incorporate MAG (managed available groundwater) supplies for aquifers covered under adopted GMA 8 Desired Future Condition.
2. Incorporate any appropriate submitted revisions to groundwater availability from GMAs which meet the established action dates and prepare revised tables for the 2011 Plan and for the TWDB database entries.
3. Revise projected shortages for WUGs by decade, where applicable, based on recommended revised groundwater and surface water supply estimates and revised demand projections.

4. Enter all revised data into DB07 and prepare revised tables and graphs for the revised Chapter 3 report section.

Subtask B. Revise Surface Water Availability and Compile Totals.

1. Update firm yield surface water supplies based on modeling efforts conducted in first biennium of this planning round, including incorporation of any revisions to water rights or contracts that have occurred since the last plan.
2. Compile total availability for all supplies into appropriate tables.
3. Revise wording for Chapter 3 of the plan to include the revisions to the supply availability estimates from the above tasks.
4. Submit revised chapter to LCRWPG members and TWDB for review and approval.
5. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for final draft of this chapter.
6. Incorporate the data from this portion of the plan into the TWDB database.

Subtask C. Incorporate Other Groundwater Availability Revisions.

1. Update groundwater availability supplies for the Barton Springs/Edwards Aquifer Conservation District based on revisions submitted to LCRWPG from the District's groundwater availability model and new allocation process.
2. Review the Desired Future Condition status of other GMA's covering Region K to determine status and whether or not they will be completed and submitted in time to be incorporated into the 2011 Region K Plan. Review will include establishment of a deadline for MAG's with minor impact and for MAGs with major impacts to available groundwater. Notify each of the seven GMAs of the established action date.

Subtask D. Develop Central Gulf Coast Aquifer Revisions

1. Update groundwater availability in the central Gulf Coast Aquifer area. The update will be based on reviewing GAM results available from GMA-15 and LCRA-SAWS project that were not available in time for the last planning round. In cooperation with the GCDs, evaluate and apply appropriate regional planning criteria to establish revised groundwater availability within Region K for the Gulf Coast Aquifer.
2. Meet with the water availability subcommittee for the LCRWPG to review the proposed revisions and potential impacts to selected water management strategies.
3. Recommend final revisions to LCRWPG of groundwater availability projections for each County using the middle Gulf Coast aquifer.
4. Prepare revised tables for the 2011 Plan and for the TWDB database entries.

Task 4. Identification, evaluation and selection of water management strategies based on needs.

Because of the changed conditions identified under task 2 and 3 above, it is assumed that the plan will require identification, evaluation and selection of new and/or expanded management strategies for approximately 40% of the current WUGs (or revisions to 20 WUG strategies) in order to provide adequate strategies for those WUGs that are experiencing significant changes in demand or supply. Additionally, there is some significant uncertainty associated with some water management strategies developed for future shortages in the later decades of the 2006 RWP. The LCRWPG desires to re-evaluate these strategies and to consider alternative strategies which might have greater reliability and sustainability for the 2011 RWP.

Subtask A. Update water management strategies.

1. Update water management strategies for all WUGs to reflect new known conditions, especially for those WUGs with increased demands or reduced supplies as a result of the Task 2 and 3 revisions.
2. Perform an update of water management strategies capital costs per Exhibit C for all strategies from the 2006 plan that will be carried over to the 2011 regional plan. This update will be performed for the majority of the strategies by updating the existing cost tables to the required construction price index.
3. Perform an update of water management strategies Operations and Maintenance (O&M) costs for strategies, as noted above, to be reflective of updated power and labor costs as well as annualized capital costs.
4. Identify any significant environmental impacts (qualitatively) for the updates to water management strategies.
5. Revise Chapter 4 of the plan to include the updated management strategies.
6. Submit updated chapter to LCRWPG members and TWDB for review and approval.
7. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for final draft of this chapter.
8. Incorporate data into the TWDB database.

Subtask B. Develop new water management strategies for RWPG consideration

1. Re-confirm water management strategies for all WUGs by sending correspondence to each WUG outlining the proposed strategy for the 2011 Plan for that WUG.
2. For WUGs with water management strategies which are no longer appropriate due to changed conditions, develop one or more additional water management strategies for consideration by the RWPG (maximum of ten total additional water management strategies) .
3. Incorporate revisions from modeling done in the first biennium of this planning round, and any associated modified environmental flow needs, into

- the matrix of available alternatives and re-evaluate the adequacy and effectiveness of the additional water management strategies.
4. Prepare comparative rating analysis material for use by the RWPG to select the recommended and/or any alternative water management strategies for each WUG which requires a new strategy.
 5. Revise Chapter 4 of the plan to include the new and alternative management strategies.
 6. Submit updated chapter to LCRWPG members and TWDB for review and approval.
 7. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for revised draft of this chapter.
 8. Incorporate data for the new and alternative water management strategies into the TWDB database.

Subtask C. Identification of new or revised raw and treated water projects including the LCRA/SAWS Water Plan (LSWP) and the LCRA/City of Austin Settlement Agreement

1. Prepare correspondence to all WWPs to request information regarding major water projects to be considered for inclusion in the 2011 RWP, including treatment facility construction and upgrades as well as raw and treated water transmission projects.
2. Incorporate the latest revisions to the LSWP into all strategies which utilize water from that program, including revised availability, costs, and impacts.
3. Incorporate all appropriate revisions to water management strategies impacted by the LCRA/City of Austin Settlement Agreement, especially as related to indirect reuse, including revisions to water availability, costs, and environmental impacts.
4. Meet with WWPs known to be planning extensive projects that may utilize WIF and state participation funding and any WWPs indicating an interest in response to the correspondence described above.
5. Review Plan for consistency with existing projects identified in the 2006 RWP and any known, changed conditions since development of the 2006 Plan.
6. Obtain projected costs from project sponsors for inclusion in Plan per Exhibit C.
7. Update Plan and DB12 to reflect changed condition.

Subtask D. Review and modify Onion Creek recharge strategy

1. In cooperation with Barton Springs/Edwards Aquifer Conservation District and City of Austin, review available information relating to Onion Creek flow / recharge potential. Develop a methodology to evaluate adequacy of strategy.
2. Evaluate strategy and estimate potential yield from the project.
3. Meet with the LCRWPG technical subcommittee to review revised availability results and impacts to proposed water management strategies in the 2006 Plan.
4. Prepare revised technical appendix for inclusion into 2011 Plan and incorporate results into alternative strategies to be evaluated as a part of the base funding

Subtask E. Develop an alternative water management strategy using enhanced recharge in the lower basin

1. Develop an alternative strategy for meeting lower basin irrigation needs by recharging the Gulf Coast aquifer with stormwater that passes the LSWP intake when the off-channel reservoirs are full.
2. Determine the amount of excess water that is available after environmental needs are met.
3. Develop conceptual costs for the required facilities including diversion, surface storage, treatment, enhanced aquifer recharge and subsequent re-pumping.
4. Prepare technical appendix to include in the 2011 Region K Plan and present to the LCRWPG for use in selecting future strategies.

Subtask F. Develop a groundwater strategy for Goldthwaite as a potential replacement for Lake Goldthwaite

1. In cooperation with the Fox Crossing Water District, investigate available freshwater and brackish aquifers in proximity to the Goldthwaite WUG, including the Trinity and Hickory Aquifers in Mills County and the Ellenburger-San Saba Aquifer in Lampasas and Llano Counties.
2. Prepare conceptual plan for required well fields, treatment facilities, and transmission lines to serve Goldthwaite, including brine disposal options for brackish supplies.
3. Prepare a technical appendix that outlines the cost and timing for all required facilities.

Task 5. Impacts of selected water management strategies on key parameters of water quality and impacts of moving water from rural and agricultural areas.

As a result of the potential changes to multiple water management strategies, it is expected that the impacts will need to be generally re-evaluated, especially as related to water quality issues. In particular, this task will address salinity and nutrient impacts of new management strategies developed during this round of planning on the continued suitability of future interruptible surface supplies for irrigation or other uses.

Subtask A. Revise impact analysis for Chapter 5.

1. Review and update information in plan for all strategies which have remained the same
2. Revise wording for Chapter 5 of the plan to include the new management strategies.
3. Submit revised chapter to LCRWPG members and TWDB for review and approval.

4. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for final draft of this chapter.

Subtask B. Revise impact analysis for Chapter 5.

1. Use the revised Water Availability Model to quantify the combined environmental impacts of all new strategies on appropriate environmental flow targets.
2. Provide recommendations for further work to better define the impact of lowered water tables and higher drafts on the aquifers in Region K and the impact on water quality that such conditions may create.

Subtask C. Potential Changes to Aquifer Quality - Address potential changes to groundwater quality which might result from increased use of groundwater aquifers in the region.

1. Review quality information for all of the aquifers and determine which aquifers appear to have formations which include water that has higher dissolved solids concentrations.
2. Determine whether the models have enough information to make any general statements concerning water quality issues.
3. Prepare qualitative discussion of potential water quality impacts resulting from increased drawdown of aquifers in the region.

Task 6. Water conservation and drought management recommendations.

The Lower Colorado Regional Water Planning Group continues to receive information from cities and districts that they have no knowledge of the conservation measures required of them. It is the intent of this scope of work to build on the basin-wide data collection efforts of LCRA and its consultants and to contact each of the individual water user groups to determine whether or not they are implementing conservation measures and to review the drought management plans of each WUG. It is also the intent of the proposed activities for this task to encourage adoption of water conservation programs and meaningful drought contingency planning and highlight the importance of these programs to water supply development throughout the region.

Subtask A. Revise conservation recommendations.

1. Review water conservation plans from each WUG to determine whether the plans are consistent with the projected reductions in demand.
2. Revise wording for Chapter 6 of the plan to include a summary of new information gathered on water conservation.
3. Submit revised chapter to LCRWPG members and TWDB for review and

- approval.
4. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for final draft of this chapter.

Subtask B. Revise drought management recommendations.

1. Review drought contingency plans received from each WUG to determine what measures are most commonly used and whether these measures have been recently implemented in response to drought conditions.
2. Determine whether there is any reliable information on the reduction in demands on individual WUGs caused by their implementation of drought contingency measures.
3. Revise wording for Chapter 6 of the plan to include a summary of new information gathered on drought management.

Task 7. Description of how the regional water plan is consistent with long-term protection of the state's water resources and natural resources.

Subtask A. Revise Chapter 7.

1. Evaluate and update the current descriptions of water management strategies with any new strategies developed during this planning round, as well as any alternate strategies which are developed for specific WUGs with shortages which need additional flexibility.
2. Revise wording for Chapter 7 of the plan to include the new management strategies and characterize the sustainability issues associated with these strategies.
3. Submit revised chapter to LCRWPG members and TWDB for review and approval.
4. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for final draft of this chapter.

Task 8. Unique stream segments/reservoir sites/legislative recommendations

The LCRWPG remains frustrated with the legislative inaction regarding the recommendations related to unique stream segments for the 2001 and 2006 RWPs. Unless and until the legislature chooses to address the previous recommendations and make a decision for or against those recommendations, no further work related to this element of the Plan is proposed. The LCRWPG does wish to review its recommendations related to legislative policies and regulations related to regional water planning in general

during this current round of planning.

Subtask A. Revise Chapter 8.

1. Prepare a brief revised introduction to this chapter.
2. Convene subcommittee of LCRWPG to review recommendations regarding legislative recommendations from last round.
3. Facilitate one additional meeting of the subcommittee to receive input on new legislative recommendations and to determine whether some earlier recommendations are no longer valid.
4. Revise wording for Chapter 8 of the plan to include the new management strategies.
5. Submit revised chapter to LCRWPG members and to TWDB for review and approval.
6. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for final draft of this chapter.

Task 9. Report to Legislature on Water Infrastructure Funding Recommendations.

The use of state programs for water infrastructure funding is considered an important element of the 2011 RWP and the needs for this region will likely show significant increases in this regard.

Subtask A. Revise Chapter 9.

1. Integrate WIF information request into conservation plan letter to individual WUGs.
2. Receive and collate information on infrastructure needs from individual WUGs and develop tables of total funds needed.
3. Revise wording for Chapter 9 of the plan to include the updated WIF funding needs.
4. Submit revised chapter to LCRWPG members and TWDB for review and approval.
5. Incorporate LCRWPG and TWDB comments with associated recommended changes and seek approval for final draft of this chapter.

Task 10a. Adoption of Plan

As a result of the many ongoing changes in this region and of the large number of anticipated changes to water management strategies, there will need to be adequate provision for public participation, and for technical support and participation of the planning consultants during regular and special called meetings of the LCRWPG and subcommittees, and for administrative support throughout the planning process.

Different public meetings are proposed for the following purposes:

- a. One meeting for receiving input regarding the intent to request grant funds from TWDB for the 2011 RWP.
- b. One meeting for receiving input on draft population and water demand calculations for each water user group in the region for which the population changes from the 2006 Plan.
- c. One meeting for receiving input on the selected water management strategies.
- d. Three meetings to be conducted in the upper, central, and lower basin areas for receiving input on the draft 2011 Regional Water Plan.

Subtask A. Periodic Meetings of the LCRWPG and its Subcommittees

1. Participate in approximately twelve regular meetings of the LCRWPG and twelve special or subcommittee meetings.
2. Participate in developing agendas, arranging speakers, and coordinating activities for the LCRWPG.
3. Develop presentations and handout materials for the regular and special meetings to provide technical and explanatory data to the LCRWPG and its subcommittees.

Subtask B. Required Public Meetings

1. Provide notice for the five additional public meetings.
2. Develop presentations and handout materials for the public meetings to provide to the general public.
3. Provide draft responses for RWPG approval to any questions that are asked at the public meetings.

Subtask C. Administrative Support

1. Prepare and submit invoices to the LCRA for work performed for the RWPG and provide consultant's status report for each meeting.
2. Maintain lists of contacts for regional planning information in the region and coordinate with Aqua WSC.
3. Attend and prepare presentation and handout materials for public meetings in various locations of the region to solicit input on the draft LCRWPG Regional Plan.
4. Prepare and transmit correspondence once RWPG approval of draft responses is obtained.
5. Prepare and maintain Region K website to disseminate information as the planning process proceeds.
6. Update information on website on a not less than quarterly basis throughout the three years of this funding cycle.

Subtask D. Public Participation for Planning Grant Process

1. Provide public notification of LCRWPG intent to apply for grant funding for the next three years of the third planning cycle.
2. Make grant applications available to the general public throughout the LCR Regional Planning Area.
3. Make presentations explaining the proposed grant funding for LCRWPG in a public meeting.
4. Incorporate changes requested by LCRWPG as a result of public comments.

Task 10b. Scope of Work Development

Subtask A. Assist LCRWPG in developing grant application.

Meet with Scoping Committee on February 11, 2008 to discuss draft scope item list prepared beforehand and sent to committee members

1. Develop schedule for submittal of draft documents to the Committee, to the RWPG as a whole, and to the TWDB.
2. Coordinate with TWDB on allowable tasks and subtasks to reduce uncertainty as much as possible.
3. Develop draft scoping document narrative for submission to the Scoping Committee for approval of overall tasks prior to beginning cost development.
4. Coordinate with Region F on any modeling tasks that might result in any potential conflict on water availability between the regions.
5. Receive feedback from Scoping Committee and prepare draft scope narrative and estimated "ball park" cost estimates for review by Scoping Committee and RWPG
6. Revise narrative scope document based on feedback from Scoping Committee and RWPG and develop cost estimates for subtasks.
7. Submit task and subtask budgets and narrative scope and completed draft grant application documents to Executive Committee for final approval.
8. Make any final modifications to scope document and prepare for LCRWPG Chairman's approval and submittal to TWDB.