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**Exhibit A**  
**Scope of Work**

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**TASK 1      PLANNING AREA DESCRIPTION (HDR)**

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This task is a limited effort [based on TAC 357.7(a)(1)] to update the area description contained in the 2006 Regional Water Plan for inclusion in the 2011 Regional Water Plan.

- 1.1 Update population and demographic data summaries to reflect information available from the Texas State Data Center.
- 1.2 Update agriculture and economic data summaries to reflect most current information readily available.
- 1.3 Summarize status of Groundwater Management Area activities prior to issuance of the Initially Prepared 2011 Regional Water Plan.

**TASK 2      POPULATION AND WATER DEMAND PROJECTIONS (HDR)**

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TWDB staff, in conjunction with the TCEQ, Texas Parks and Wildlife Department (TPWD), Texas Department of Agriculture (TDA), and RWPG representatives prepared population and water demand projections for all water user groups in the 2006 RWP using data from the 2000 Census. Another census will not be conducted until 2010, and, as such, population and water demand projections will not be updated for all Water User Groups (WUGs) during this round of regional planning. However, several WUGs within the South Central Texas Planning Region have conducted studies to re-evaluate their current population and water demand projections. It is anticipated that, with approval from TWDB, these WUGs will have updated population and water demand projections for the 2011 RWP. Population projections will be revised by the TWDB to incorporate these changes and provided to the SCTRWPG.

- 2.0 Prepare for and participate in up to three (3 of 24) meetings during the development of the 2011 Regional Water Plan and the 2012 State Water Plan. *[Estimated total number of meetings is based on nine (9) quarterly meetings of the SCTRWPG, nine (9) quarterly meetings of the South Central Texas Staff Workgroup, three (3) public hearings on the Initially Prepared 2011 Regional Water Plan, and three (3) other workshops or special meetings focused on inter-regional cooperation/conflicts, internal conflict resolution, plan adoption, and/or other matters of importance to the SCTRWPG and the TWDB.]*
- 2.1 Assist the SCTRWPG in evaluation of requests for revision of population and/or water demand projections, processing such requests subject to TWDB guidance, and integration of revised projections approved by the TWDB into the 2011

Regional Water Plan. Estimated budget is based on twenty-two (22) requests for revision. Local entities are to provide required documentation and justification of requested revisions.

- 2.2 Revise population and water demand projection summaries for WUGs demonstrating changed conditions using new projections to be provided by the TWDB. Modify water demand project summaries for Wholesale Water Providers (WWPs) accordingly.
- 2.3 Include projections of population and water demands for new WUGs to be provided by the TWDB and develop water demand projections for WWPs.
- 2.4 Update WWP contractual obligations to supply water and report along with projected demands.
- 2.5 Update decadal projections of population and water demand by Water User Group, Wholesale Water Provider, county, river basin, and planning region, in response to changed conditions, as considered above, with specific attention to updated steam-electric water demand projections to be provided by the TWDB.
- 2.6 Complete and update required data elements for TWDB Regional Water Planning Data Web Interface.

### **TASK 3 WATER SUPPLY ANALYSES (HDR)**

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This task involves updating water supply availability estimates included in the 2006 Regional Water Plan, in accordance with methodology described in Section 3 of the *General Guidelines for Regional Water Plan Development* for estimating surface water, groundwater, systems, and reuse supplies during drought of record conditions.

- 1.0 Prepare for and participate in up to three (3 of 24) meetings during the development of the 2011 Regional Water Plan and the 2012 State Water Plan. *[Estimated total number of meetings is based on nine (9) quarterly meetings of the SCTRWPG, nine (9) quarterly meetings of the South Central Texas Staff Workgroup, three (3) public hearings on the Initially Prepared 2011 Regional Water Plan, and three (3) other workshops or special meetings focused on inter-regional cooperation/conflicts, internal conflict resolution, plan adoption, and/or other matters of importance to the SCTRWPG and the TWDB.]*

#### **Surface Water Supply (a)**

- a.1 Provide technical support to the SCTRWPG in the selection of hydrologic assumptions and operational procedures for modeling the Guadalupe – San Antonio and Nueces River Basins in a manner appropriate for assessment of

current surface water supply and regional water planning purposes. Assist the SCTRWPG in obtaining Executive Administrator approval of such assumptions.

- a.2 Review relative performance of available Guadalupe – San Antonio River Basin Water Availability Models (GSA WAMs) maintained by Region L and the Texas Commission on Environmental Quality (TCEQ) in terms of calculated water available to key water rights under identical hydrologic assumptions. If necessary, assist the SCTRWPG in obtaining Executive Administrator approval of use of the Region L GSA WAM for planning purposes.
- a.3 Modify the GSA WAM and Nueces River Basin Water Availability Model (Nueces WAM) as necessary to simulate recent changes to Edwards Aquifer pumping permits, transfer, and Critical Period Rules (SB3), new water rights, and/or specified operational requirements.
- a.4 Apply the GSA and Nueces WAMs and/or other appropriate models in order to quantify firm yield for major reservoirs and firm diversion for run-of-river water rights, as determined on a monthly timestep basis. Reservoir firm yield will be quantified based on the most recent measured capacity and estimated capacity in year 2060.
- a.5 Compile TCEQ Water System Data Reports for municipal Water User Groups using surface water and identify any physical constraints limiting supplies.
- a.6 Compile firm yield and diversion information by Source, Water User Group, Wholesale Water Provider, county, river basin, and planning region as necessary to obtain decadal estimates of surface water supply throughout the planning period. Water supplies based on contractual agreements will be assumed to renew at the contract termination date, if the contract provides for renewal or extensions.
- a.7 Complete and update required data elements for TWDB Regional Water Planning Data Web Interface.

#### Groundwater Supply (b)

- b.1 Obtain and review the latest Groundwater Availability Models (GAMs) and/or other groundwater models for any revisions or updates since the 2006 RWP. GAMs to be applied in Region L may include:
  - 1. Trinity (Hill Country) GAM
  - 2. Edwards (Balcones Fault Zone) GAMs (GWSIM-IV and/or MODFLOW)
  - 3. Queen City/Sparta GAM (including the Southern Carrizo-Wilcox)
  - 4. South Central Carrizo System (SCCS) Model
  - 5. Gulf Coast (central part) GAMProvide technical support to the SCTRWPG in the consideration of which groundwater models should be applied for planning purposes.

- b.2 Provide technical support to the SCTRWPG in the consideration of groundwater availability from the 2006 RWP, updated groundwater conservation district management plans, and/or Desired Future Conditions (DFC) and Managed Available Groundwater (MAG) timely provided by Groundwater Management Areas (GMAs).
- b.3 Compile TCEQ Water System Data Reports for municipal Water User Groups using groundwater and identify any physical constraints limiting supplies.
- b.4 Research permanent acquisitions of Edwards Aquifer irrigation rights for transfer to municipal use and account for same in the assessment of water supply from the Edwards Aquifer.
- b.5 Given the ongoing Edwards Aquifer Recovery Implementation Program (EARIP), groundwater availability from the Edwards Aquifer will be based on pro-ration of permits to a total consistent with critical period Stage IV as described in SB3 of the 80th Texas Legislature.
- b.6 Compile groundwater availability information by Source, Water User Group, Wholesale Water Provider, county, river basin, and planning region as necessary to obtain decadal estimates of supply throughout the planning period.
- b.7 Complete and update required data elements for TWDB Regional Water Planning Data Web Interface.

#### Systems and Reuse Water Supplies (c)

- c.1 Integrate firm water supplies for WUGs using a system of supply sources (e.g., surface water, storage, and groundwater).
- c.2 Research and quantify existing supplies and commitments of treated effluent through direct and indirect reuse.
- c.3 Compile systems and reuse availability information by Source, Water User Group, Wholesale Water Provider, county, river basin, and planning region as necessary to obtain decadal estimates of supply throughout the planning period.
- c.4 Complete and update required data elements for TWDB Regional Water Planning Data Web Interface.

### ***TASK 4 IDENTIFICATION, EVALUATION, AND SELECTION OF WATER MANAGEMENT STRATEGIES***

Task 4 involves the quantification of projected needs for additional water supply; identification, technical evaluation, and selection of recommended and alternative water management strategies to meet projected needs; and assessment of the cumulative effects of implementation of the 2011 Regional Water Plan. Technical evaluations of water management strategies and the 2011 Regional Water Plan will include assessment of: quantity, reliability, and cost of water; environmental factors; impacts on water resources; threats to agricultural and natural resources; interbasin transfer provisions; third party effects; and other relevant factors.

#### **TASK 4.I FACILITATION (XIMENES)**

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**The role of the Facilitation Consultant in the achievement of Task 4 includes the following:**

1.0 To monitor and participate in the development and evaluation of existing WMSs in preparation for any disputes, conflicts, or other issues that may develop. Task accomplished by working closely with technical consultant as WMS information becomes available and anticipating SCTRWPG member's positions as they relate to the information.

2.0 To monitor, identify, and facilitate resolution of issues regarding existing, as well as any newly proposed, WMSs between and among RWPG members and stakeholders as the group progresses toward the development of the Initially Prepared and Final Plans, e.g., Lower Guadalupe Water Supply Project, Drought Management, and Brackish Edwards Groundwater Desalination. Task will be ongoing as RWPG members form positions about which WMSs to include in IPP.

#### **TASK 4.II.A PROJECTED WATER NEEDS (HDR)**

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- a.1 Based upon updated projections of supply and demand, revise and update computations of needs (shortages) for Water User Groups.
- a.2 Based upon updated projections of supply and demand, revise and update computations of needs (shortages) for Wholesale Water Providers.
- a.3 Update decadal estimates of needs (shortages) by Water User Group, Wholesale Water Provider, county, river basin, and planning region.
- a.4 Complete and update required data elements for TWDB Regional Water Planning Data Web Interface.

- a.5 Using technical information to be provided by the TWDB, update and summarize potential social and economic effects of not meeting projected water needs.

#### **TASK 4.II.B.1**

##### **WATER MANAGEMENT STRATEGIES (HDR)**

- b.1 Revise and update documentation of the process by which water management strategies that are potentially feasible for meeting a need were identified and selected for inclusion in the Regional Water Plan and receive public comment.
- b.2 Rely upon the Water Conservation water management strategy in the 2006 RWP as the “highest practicable level” of conservation for WUGs and/or WWP’s dependent upon water management strategies involving interbasin transfer.
- b.3 Based on responses to a solicitation on behalf of the SCTRWPG by SARA, update summary information regarding water supply plans for local and regional entities.
- b.4 Revise and evaluate water management strategies for WUGs and/or WWP’s to be identified as a result of changed conditions relative to the 2006 RWP. Budget is based on a maximum of five (5) water management strategy evaluations in addition to those specified below.
- b.5 Identify and evaluate water management strategies to meet needs (shortages) during drought of record, as calculated for new retail utility WUGs and WWP’s aggregated in County-Other in the 2006 RWP. Budget is based on a maximum of ten (10) such new retail utilities providing more than 280 acft/yr and having projected needs.
- b.6 Provide limited documentation of any significant changes in water management strategies described as being in the implementation phase in the 2006 RWP as well as any new projects in the implementation phase prior to adoption of the Initially Prepared 2011 Regional Water Plan.

#### **TASK 4.II.B.2**

##### **TECHNICAL EVALUATIONS OF POTENTIALLY FEASIBLE WMSS(HDR)**

Perform technical evaluations of the following water management strategies specifically identified by the SCTRWPG as potentially feasible water management strategies to meet projected needs. Water management strategy documentation will include description and discussion of planned facilities, dependable supply,

environmental factors, engineering & costing considerations, and implementation issues.

- b.7.1 Storage above Canyon Reservoir (Surface or ASR) – Assess up to three (3) potential surface water storage sites in the watershed above Canyon Reservoir. Evaluate the firm supply of using surface storage to firm-up run-of-river water available under a new appropriation. Assess capability of Trinity Aquifer to store surface water available under a new appropriation in Comal, Kendall, and/or Kerr Counties in up to two (2) areas. Evaluate the firm supply available.
- b.7.2 GBRA-Exelon – Evaluate water supply available from GBRA water rights via the Calhoun Canal System for delivery to storage on the proposed Exelon site and existing or future GBRA customers. Evaluate off-channel storage facilities needed to firm-up supply from GBRA water rights for both Exelon and GBRA customer needs. Layout facilities (pump stations, transmission pipelines, etc) necessary to deliver water to Exelon site and GBRA customers.
- b.7.3 Lower Guadalupe Water Supply Project for GBRA Needs at Reduced Capacity – Evaluate an alternative Lower Guadalupe Water Supply Project for GBRA Needs with firm supply limited to approximately 35,000 acft/yr. Potential sources of water limited to GBRA lower basin rights and off-channel storage facilities.
- b.7.4 Medina Lake Firm-Up (Surface or ASR) – Research previous studies completed by consultants for BMWD. In consultation with BMA, identify and evaluate up to three (3) potential surface water storage sites in the BMA Canal System. Evaluate the firm supply of using surface storage and water available under Medina Lake System water rights and contracts. Assess capability of Carrizo Aquifer to store surface water available under the Medina Lake water right in Atascosa County in up to two (2) areas. Evaluate the firm supply available from a Medina Lake System – ASR project. Strategy identified to serve members of South Texas Regional Water Alliance (STRWA), which is comprised of WUGs in Atascosa, Bexar, Frio, and Medina Counties.
- b.7.5 Brackish Wilcox Groundwater – Evaluate the potential for a Brackish Wilcox desalination project to meet needs in Bexar, Guadalupe, and Wilson Counties. Layout facilities (wells, well field collection system, pump stations, transmission pipelines, WTP, etc) necessary to deliver water to interested Regional Water Alliance (RWA) members, comprised of WUGs in Bexar, Guadalupe, and Wilson Counties.
- b.7.6 Drought Management – Using available information from TWDB and methodology consistent with work completed during first biennium (Study 3), evaluate drought management as a water management strategy for WUGs with projected needs by 2020.



### **TASK 4.II.B.3**

#### **UPDATE TECHNICAL EVALUATIONS OF WMS (HDR)**

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Update technical evaluations and documentation of the following water management strategies, based on new information from on-going studies outside of regional planning by project sponsors. Such updated technical evaluations and documentation will include relevant refinement of text, tables, and graphics as necessary to present current project description, water availability / firm supply, environmental issues, engineering and costing, and implementation issues in accordance with TWDB rules and guidance.

- b.8.1 LCRA-SAWS Project – Update the evaluation to include water supply available (including source composition), facilities necessary in the Colorado River Basin for firming up the water supply, and transmission, treatment, and integration facilities for delivery to SAWS/Bexar County. Work effort will include research and coordination with representatives of Region K, Lower Colorado River Authority (LCRA), and San Antonio Water System (SAWS) as necessary to identify changed conditions (e.g., firm yield, off-channel storage capacity, groundwater development, diversion location, transmission corridor, instream flows & freshwater inflows to Matagorda Bay, etc.) and will include documentation of project components and configuration current at a time reasonably in advance of delivery of the initially prepared 2011 Regional Water Plan.
- b.8.2 Regional Carrizo for Bexar County (Gonzales & Wilson Counties) – Update evaluation to include water supply potentially available from sources in Gonzales and Wilson Counties and transmission, treatment, and integration facilities necessary for delivery to SAWS/Bexar County. Work effort will include research and coordination with representatives of SAWS and Gonzales County and Evergreen Underground Water Conservation Districts as necessary to identify changed conditions (e.g., managed available groundwater, firm yield, well field locations, transmission corridor, surface water / groundwater interactions, etc.) and will include documentation of project components and configuration current at a time reasonably in advance of delivery of the initially prepared 2011 Regional Water Plan.
- b.8.3 Brackish Wilcox Groundwater for SAWS Needs – Update the evaluation to include brackish water supply potentially available from sources in Atascosa County and transmission, treatment, and integration facilities necessary for delivery to SAWS/Bexar County. Work effort will include research and coordination with representatives of SAWS and Evergreen Underground Water Conservation District as necessary to identify changed conditions (e.g., managed available groundwater, firm yield, well field locations, transmission corridor, surface water / groundwater interactions, etc.) and will include documentation of project components and configuration current at a time

reasonably in advance of delivery of the initially prepared 2011 Regional Water Plan.

b.8.4 Hays/Caldwell Carrizo Project – Consistent with on-going work by Hays and Caldwell County entities, update the project to include water supply potentially available from the area around the intersection of Caldwell, Gonzales, Fayette, and Bastrop Counties and transmission, treatment, and integration facilities necessary for delivery to interested entities in Hays and Caldwell Counties, including CRWA. Work effort will include research and coordination with representatives of San Marcos, Kyle, Buda, Canyon Regional Water Authority, Gonzales County Underground Water Conservation District, Plum Creek Conservation District, Region K, and Lost Pines and Fayette County Groundwater Conservation Districts as necessary to identify changed conditions (e.g., managed available groundwater, firm yield, well field locations, transmission corridor, surface water / groundwater interactions, etc.) and will include documentation of project components and configuration current at a time reasonably in advance of delivery of the initially prepared 2011 Regional Water Plan.

b.8.5 Seawater Desalination – Research latest industry information regarding the desalination of seawater as a water supply. If appropriate, update facilities (intake and brine disposal locations, pump stations, transmission pipelines, water treatment plant processes/locations, etc) necessary to deliver water to interested WWPs with needs. Work effort will include coordination with representatives of SAWS, Guadalupe-Blanco River Authority, Bexar Metropolitan Water District, TWDB, and/or others with expressed interest in seawater desalination project development, as well as coordination with environmental interests having relevant concerns.

b.9 Update cost estimates and documentation of the following water management strategies to be consistent with TWDB rules and guidance. Work effort involves coordination with sponsoring water user groups, wholesale water providers, and/or other resource agencies regarding any changed conditions in terms of projected needs, strategy modifications, planned facilities, market costs of water supply, endangered or threatened species, etc. Work effort includes research and revision of cost estimation procedures and supporting documentation to reflect September 2008, rather than second quarter 2002, cost basis pursuant to TWDB guidance transmitted September 12, 2008.

b.9.1 Water Conservation

b.9.2 Edwards Transfers

b.9.3 Recycled Water Program Expansion

b.9.4 Canyon Reservoir Supplies

- b.9.5 Wimberley-Woodcreek Project
- b.9.6 Local Groundwater
- b.9.7 Regional Carrizo for SSLGC Project Expansion
- b.9.8 Wells Ranch Project
- b.9.9 Edwards Recharge Projects
- b.9.10 CRWA – Dunlap Project
- b.9.11 CRWA – Siesta Project
- b.9.12 Surface Water Rights
- b.9.13 Purchase from WWP
- b.10 At SCTRWPG discretion, integrate the following WMS (currently funded and evaluated during the first biennium) into the 2011 RWP.
  1. Lower Guadalupe Water Supply Project for GBRA Needs
  2. Brackish Groundwater Desalination – Edwards Aquifer
  3. Brackish Groundwater Desalination – Wilcox Aquifer
  4. Brackish Groundwater Desalination – Gulf Coast Aquifer
  5. Drought Management as a Water Management Strategy
  6. Condensate Collection Systems

Work effort includes assignment of such strategies to meet projected needs, consideration of alternative strategies, and integration into TWDB database as well as summary text, tables, and graphics in sections 4b, 4c, 5, and 7, Volume 1 appendices, and the Executive Summary of the 2011 SCTRWP. Work effort also includes revision of cost estimates to reflect September 2008, rather than second quarter 2007, cost basis pursuant to TWDB guidance transmitted September 12, 2008
- b.11 Review and document technical evaluations of Edwards Aquifer Recharge and Recirculation Systems to be submitted by the Edwards Aquifer Authority by end of calendar year 2008. Budget estimate is based on the assumption that such technical evaluations will be completed in accordance with TWDB rules and guidance for regional water planning and that technical evaluations will include quantification of effects on water management strategies in the 2006 Regional Water Plan.
- b.12 Revise and/or update the water supply plans for each WUG and WWP.

- b.13 Complete and update required data elements for TWDB Regional Water Planning Data Web Interface.

#### **TASK 4.II.C**

#### **CUMULATIVE EFFECTS OF REGIONAL WATER PLAN (HDR)**

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- c.1 Provide technical support to the SCTRWPG in the selection of appropriate baselines for the assessment of cumulative effects of implementation of the 2011 RWP on surface water and groundwater.
- c.2 Apply surface water and groundwater availability models (WAMs and GAMs) to simulate hydrologic conditions representative of full implementation of the 2011 RWP. Work will be consistent with applicable recommendations of the SCTRWPG Environmental Assessment Committee as developed in Study 5 during the first biennium. A portion of the Additional Funding Request (Optional) is associated with limited revisions to the IPP resulting from public comment.
- c.3 Illustrate expected changes in spring discharge, instream flows, estuarine inflows, and groundwater levels.
- c.4 Perform supplemental, ecologically-based assessments of freshwater inflows to the Guadalupe Estuary and instream flows in the Guadalupe and San Antonio Rivers at Victoria and Goliad, respectively, subject to full implementation of the 2011 RWP. Work will be consistent with analysis performed for the 2006 SCTRWP and as part of Study 4 during the first biennium.
- c.5 Document technical evaluation of the 2011 RWP in the context of previous state and regional water plans. Work will include a matrix-based environmental assessment similar to that in the 2006 SCTRWP and considering: endangered and threatened species; vegetation and wildlife habitat; water quality and aquatic habitats; and cultural resources.
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#### ***BRUSH MANAGEMENT AS A WATER MANAGEMENT STRATEGY (HDR AND TAMU)***

Brush Management – In accordance with the detailed scope of work (Tasks 4.III.A and 4.III.B below), perform geospatial analyses to select lands most suitable for brush management within the contributing and outcrop areas of stream watersheds contributing to Canyon Reservoir. Describe specific Brush Management programs for the Edwards Plateau Shrublands. Evaluate the firm water supply increase to Canyon Reservoir as a result of the specific Brush Management programs using an approved GSA-WAM.

## **Brush Management – Detailed Scope of Work**

Both HDR Engineering, Inc. (HDR) and Texas A&M University (TAMU) will be involved in the performance of all tasks to ensure coordination and consistency. The entity with primary responsibility for completion of each task in accordance with TWDB guidance is identified in parentheses below.

### **TASK 4.III.A BRUSH MANAGEMENT AS A WMS (TAMU)**

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#### **SubTask 1 – Spatial Analyses (TAMU)**

- a) Based upon the criteria detailed in the “Land Based Water Conservation & Water Yield Practices in Region L: Influence of Land Based Conservation Practices on Water Yield” report, perform geospatial analysis integrating criteria for selection of lands most suitable for brush management within the contributing and outcrop areas of stream watersheds contributing to the Canyon Reservoir (Edwards Plateau Shrublands). Reference geospatial databases may include aerial imagery, administrative boundaries, geology, soils, vegetative cover (shrub/brush canopy cover >10%), topography (slope >15%), surface hydrology, endangered species habitat (golden-cheeked warbler), parcel size, etc.
- b) Prepare summary documentation of reference databases, selection criteria, and suitable lands identified within the areas listed in SubTask 1.

#### **SubTask 2 – Program Description (TAMU)**

- a) Prepare summary description of brush management program suitable for the Edwards Plateau Shrublands. Elements of program description shall include:
  - 1) Reallocate average interception and transpiration volumes associated with ashe juniper (cedar) to deep percolation (recharge), springflow (baseflow), and/or surface runoff volumes with brush management (cedar removal) and re-establishment of native grasses.
  - 2) Based on results of spatial analyses for each targeted area and information obtained from previous research and the Pestman Project, develop recommendations for the most cost effective brush management programs possible for suitable lands and estimates of the average cost per acre (including initial and follow-up practices) for implementing the recommended practices on suitable lands.
  - 3) Obtain and use relevant research regarding landowner participation in brush control/off-site water enhancement programs and results of spatial analyses for the three target areas to develop estimates for each target area of:

- i. number of acres expected to be enrolled in a brush control program by amount of cost-share provided to landowners (e.g., 50%, 70%, etc.) and
  - ii. number of individual landowners expected to enroll in a brush control program by amount of cost-share provided to landowners
- 4) Use results from item 2 & 3 above to develop estimates of the cost to the State of Texas for providing various levels of cost share to implement the brush control programs for each of the targeted areas
- 5) Obtain and use information from TSSWCB, NRCS, and other agencies with experience in implementing and managing cost-share conservation programs and information from items 2 & 3 above to estimate costs to the State of Texas for implementation and maintenance of a brush control/off-site water enhancement program for each of the targeted areas
- 6) Expected percentages of suitable acreages with landowners willing to participate in brush management program. Percentages shall be specified for initial (term) participation and long-term renewal of participation. Obtain and use relevant research regarding landowner participation in brush control/off-site water enhancement programs, information from TSSWCB, NRCS, and other agencies with experience in implementing and managing cost-share conservation programs and other research on rates of land sales/conversion to “non-open-air” uses to develop estimates of maintaining the brush managed areas in brush free condition over periods of 5, 10, 15, and 20 years from the date of implementation for each targeted area
- 7) Equipment, methods, and administrative protocols for long-term monitoring and reporting of enhanced recharge and/or surface runoff volumes resulting from brush management program. Obtain and use information from Deliverable 3 of the “Land Based Water Conservation & Water Yield Practices in Region L: Influence of Land Based Conservation Practices on Water Yield” report and relevant research experience to develop estimates of costs to the State of Texas for implementing, maintaining, analyzing and reporting the results of recommended monitoring programs for the brush control/off-site water enhancement program for each of the targeted areas
- 8) Costs per acre for initial treatment, maintenance, program administration, and long-term monitoring.
- 9) Use information from items above, plus Information from the Water Quantity-Modeling component to estimate costs per acre foot of added water for the various levels of cost share for each of the targeted areas

**TASK 4.III.B**  
**BRUSH CONTROL AS A WMS (HDR)**

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SubTask 1 – Water Supply Analyses (HDR)

- a) Using information from the spatial analyses (Task 4.III.A Subtask 1) and program description (Task 4.III.A Subtask 2), evaluate firm water supply potentially available as a result of implementation of one (1) example brush management program in the Edwards Plateau Shrublands.
  - 1) Apply Hydrologic Simulation Program – Fortran (HSPF) models for upstream and outcrop subwatersheds contributing to the Edwards Aquifer and the Guadalupe River with and without the defined brush management program to calculate a period of record monthly time series of recharge (deep percolation), baseflow, and surface runoff enhancement volumes associated with program implementation.
  - 2) Apply the Guadalupe – San Antonio River Basin Water Availability Model (GSA WAM) to quantify an increase in Canyon Reservoir firm yield associated with baseflow and surface runoff enhancement volumes calculated using HSPF. Quantify expected changes in Guadalupe River flows at Spring Branch.

#### SubTask 2 – Environmental Issues (HDR)

- a) Prepare summary assessments of potential effects of implementation of the example brush management program specified for the Edwards Plateau Shrublands. Factors to be considered may include endangered & threatened species; vegetation & wildlife habitats; water quality & aquatic habitats; and/or cultural resources.
- b) Subtask 2 is to be performed by HDR integrating relevant technical information provided by TAMU under Task 4.III.A Subtasks 1 and 2.

#### SubTask 3 – Program Cost (HDR)

- a) Develop and summarize capital costs, debt service, and annual operating & maintenance expenses over the planning horizon in accordance with TWDB guidance.
- b) Subtask 3 is to be performed by HDR integrating relevant technical information provided by TAMU under Task 4.III.A Subtask 2.

#### SubTask 4 – Documentation of Technical Evaluation and Implementation Issues (HDR)

- a) Prepare summary documentation of technical evaluations of example brush management programs for the Edwards Plateau in accordance with TWDB guidance and in a format consistent with that used in the 2006 RWP.
- b) Subject to SCTRWPG discretion, integrate recommended or alternative brush management program(s) into the 2011 South Central Texas Regional Water Plan.
- c) Summarize potential regulatory and institutional issues associated with implementation of the example brush management programs.
- d) Subtask 4 is to be performed by HDR integrating documentation of spatial analyses and program descriptions provided by TAMU under Task 4.III.A Subtasks 1 and 2.

**TASK 4.IV**  
**MEETING PARTICIPATION (HDR)**

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Prepare for and participate in up to eighteen (18) meetings during the development of the 2011 Regional Water Plan and the 2012 State Water Plan. *[Estimated total number of meetings is based on nine (9) quarterly meetings of the SCTRWPG, nine (9) quarterly meetings of the South Central Texas Staff Workgroup, three (3) public hearings on the Initially Prepared 2011 Regional Water Plan, and three (3) other workshops or special meetings focused on inter-regional cooperation/conflicts, internal conflict resolution, plan adoption, and/or other matters of importance to the SCTRWPG and the TWDB].*

**TASK 5 - IMPACTS OF SELECTED WATER MANAGEMENT STRATEGIES ON KEY PARAMETERS OF WATER QUALITY AND IMPACTS OF MOVING WATER FROM RURAL AND AGRICULTURAL AREAS**

**TASK 5.I FACILITATION (XIMENES)**

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Monitor and facilitate resolution of issues between and among RWPG members and stakeholders in the event that disagreements arise and threaten successful progress toward adoption of the 2011 RWP. This task will be ongoing throughout the planning cycle.

**TASK 5.II**  
**IMPACTS OF SELECTED WATER MANAGEMENT STRATEGIES ON KEY PARAMETERS OF WATER QUALITY AND IMPACTS OF MOVING WATER FROM RURAL AND AGRICULTURAL AREAS (HDR)**

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- 1.0 Describe the potential effects of implementation of the 2011 RWP on selected key parameters of water quality in the 2006 RWP, in response to changed conditions and new recommended water management strategies. HDR funding requests do not include budget to provide technical support for water quality workshops or to integrate the results of such workshops in the 2011 SCTRWP.
- 2.0 Quantify and report potential social and economic effects of voluntary transfers of water from rural and agricultural areas, in response to changed conditions and new recommended water management strategies. HDR funding requests do not include budget to provide technical support for supplemental or alternative assessments of social and economic effects of voluntary transfers.

**TASK 6**



## **WATER CONSERVATION AND DROUGHT MANAGEMENT RECOMMENDATIONS (HDR)**

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- 1.0 Update the summary of water conservation and drought management recommendations in the 2006 RWP for inclusion in the 2011 RWP, including results of evaluation of drought management as a Water Management Strategy in Phase I studies [TAC 357.7(a)(11)].
- 2.0 Update Water Conservation Water Management Strategy from 2006 Regional Water Plan to account for changed conditions.
- 3.0 Include existing Model Water Conservation and Drought Contingency Plans consistent with TCEQ requirements as appendices of the 2011 RWP.

### **TASK 7**

#### **DESCRIPTION OF HOW THE REGIONAL WATER PLAN IS CONSISTENT WITH LONG-TERM PROTECTION OF THE STATE'S WATER, AGRICULTURAL, AND NATURAL RESOURCES (HDR)**

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Based on the results of Tasks 4.II.C and 5, update documentation of the consistency of the 2011 Regional Water Plan with the goals of long-term protection of water, agricultural, and natural resources. Environmental Subcommittee recommendations will be incorporated, as appropriate. Topics of particular interest with regard to protection of these resources are expected to include conservation, efficient management of supply sources, endangered species, instream flows, freshwater inflows to bays & estuaries, water quality, aquatic and terrestrial habitats, cultural resources, ecologically unique stream segments, third party effects of voluntary transfers of water from rural agricultural areas, and economical development of reliable water supply. Includes limited revision of the IPP documentation resulting from public comment.

### ***TASK 8 - RECOMMENDATIONS REGARDING UNIQUE STREAM SEGMENTS AND/OR RESERVOIR SITES AND LEGISLATIVE & REGIONAL POLICY ISSUES***

#### **TASK 8.I**

##### **FACILITATION (XIMENES)**

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- 1.0 A task force on Unique Stream Segment designation was initiated in 2008. Facilitate the discussions of that task force, summarize recommendations, and prepare a report to the RWPG. Assist with recommendations to the legislature regarding unique stream segment and reservoir site designations within the region.

- 2.0 Assist the RWPG with consideration of regional policy issues; identification and articulation of recommendations for legislative, administrative, and regulatory rule changes; and negotiations toward consensus. This effort will be a continuation of 1.0 and will bring the issues to the entire RWPG for resolution and consensus regarding Unique Stream Segments inclusion in the IPP.

**TASK 8.II**  
**RECOMMENDATIONS REGARDING UNIQUE STREAM SEGMENTS AND/OR**  
**RESERVOIR SITES AND LEGISLATIVE & REGIONAL POLICY ISSUES**  
**(HDR)**

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- 1.0 Assist the SCTRWPG with consideration of regional policy issues and development of recommendations for legislative, administrative, and regulatory rule changes.
- 2.0 Assist the SCTRWPG with limited documentation of any unique stream segments and/or unique reservoir sites ultimately adopted for inclusion in the 2011 RWP.
- 3.0 Provide technical support to the SCTRWPG in the specification of stream segments having unique ecological values, including justification based on TWDB criteria, and assist with preparation of a recommendation package for submittal to the Texas Parks & Wildlife Department (TPWD). Budget is based on four candidate stream segments on the Nueces, Frio, Sabinal, and Comal Rivers and includes limited coordination with the adjacent Plateau Planning Region (J).

**TASK 9**  
**REPORT TO LEGISLATURE ON WATER INFRASTRUCTURE FUNDING**  
**RECOMMENDATIONS (HDR)**

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- 1.0 Assist the SCTRWPG in the performance of an infrastructure funding survey based on the Water Management Strategies included in the 2011 RWP, summarize the responses, and document in accordance with TWDB guidance.
- 2.0 Assist the SCTRWPG with the development of recommendations regarding the proposed role of the State in financing projects identified in the 2011 RWP.

***TASK 10 - PLAN ADOPTION AND RELATED ITEMS***

**TASK 10.I.A**  
**PLAN ADOPTION AND RELATED ITEMS (LRPR)**

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1.0 Laura Raun Public Relations will draft and revise the public participation section of the Initially Prepared Plan, which will include 2 main topics: 1) public comment collection and categorization; and 2) website maintenance. This assumes 80 pages, as in the previous plan, and will support successful adoption of the IPP.

**Deliverables:** IPP public participation section.

### 2.0 Revise IPP

Laura Raun Public Relations will revise the IPP public participation section, which is drafted elsewhere.

**Deliverables:** Revised IPP public participation section.

### 3.0 Maintain website

Maintain the SCTRWPG website by posting information about Group meetings, members and regional plan; ensuring continuity of the web host and domain name; monitoring website traffic and reporting to the Group, if appropriate; and revamping the documents archive for better organization. This will lead to the successful adoption of the IPP. This does not include remaining the contact organization on the website to handle public enquiries.

**Deliverables:** Region L website with timely information

## **TASK 10.I.B**

### **PROCESS PUBLIC COMMENTS (LRPR)**

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Receive formal comments on the IPP and coordinate a formal response, if required, to promote the successful adoption of the IPP. Categorize comments in an electronic database. Report on the public comments to the SCTRWPG twice a year and post them on the SCTRWPG website. This estimate is based on approximately 250 comments on the IPP. Additionally, respond to public queries and comments that are not formal comments.

**Deliverables:**

- Formal comment database
- Public comment reports
- Handling of informal public queries

## **TASK 10.I.C**

### **MEETING PARTICIPATION (LRPR)**

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Prepare for, participate in and support up to 21 meetings during development of the 2011 Regional Water Plan with 1 consultant to promote the successful adoption of the IPP. That estimate is based on approximately 9 quarterly meetings of the SCTRWPG Group; 9 quarterly meetings of the SCTRWPG Staff Workgroup; and 3 public hearings on the IPP. The number of meetings is estimated to allow for responsiveness to the public during Group meetings; preparation of the initially prepared plan; and support in resolving conflicts before adoption.

**Deliverables:** Support for 21 meetings from one 1 consultant.

**TASK 10.I.D**  
**ADDITIONAL MEETINGS (LRPR)**

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Prepare for, attend and support 3 additional workshops, special meetings, or required public hearings/meetings with two staff members to allow for more public outreach. These special meetings would be designed to speed adoption of the plan.  
**Deliverables:** Support for 3 additional meetings from 2 consultants.

**TASK 10.II.A**  
**PLAN ADOPTION AND RELATED ITEMS (XIMENES)**

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- 1.0 Pursuant to TWDB rules and guidance, draft, edit, and provide portions of an Initially Prepared 2011 RWP (IPP) in early 2010 for review and comment by the public, TWDB, and other local, regional, state, and federal interests. This task will ensure the RWPG's desires are accurately reflected in the IPP. The degree to which Ximenes will be involved in guiding, drafting, editing the IPP will depend on the TWDB funding allocations. Ximenes will review the IPP and submit preliminary feedback.
- 2.0 Assist in the timely resolution of any conflicts within the RWPG or with other entities regarding the IPP. This task will be ongoing throughout the planning period to prevent any obstacles to timely submission of the 2011 Regional Water Plan. It may include facilitated sessions with RWPG members and stakeholders, mediation among members and between stakeholders, and any other tasks that relate to working effectively toward a commonly supported plan.
- 3.0 Assist in the revision of the IPP in response to review comments received. The technical consultant has expressed a desire to have Ximenes include a funding request under this subtask in order to facilitate the RWPG's revisions to the IPP. Facilitation of the review will allow the RWPG to evaluate revisions in a manner that outlines differences, allows for meaningful discussion of positions, and promotes consensus to ensure a timely delivery of a universally supported plan. The technical consultant will receive informal results of discussions and decisions.

**TASK 10.II.B**  
**MEETING PARTICIPATION (XIMENES)**

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*Prepare for, participate in, and facilitate scheduled and special meetings during the development of the 2011 RWP and the 2012 State Water Plan, as follows:*

- 1.0 Prepare for, attend, and facilitate nine (9) SCTRWPG quarterly meetings in San Antonio. (No travel expenses are included in funding request.) Base funding allows for one staff member to attend meetings with minimal amount of preparation and follow-up.
- 2.0 Prepare for and attend nine (9) staff work group meetings in San Antonio (no travel expenses are included in funding request) in preparation of each quarterly meeting. Base funding allows for one staff member to attend meetings with minimal amount of preparation and follow-up.

**TASK 10.II.C**  
**ADDITIONAL MEETINGS (XIMENES)**

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Prepare for, attend, and (if necessary) facilitate three (3) SCTRWPG special meetings focused on inter-regional conflicts, internal conflict resolution, plan adoption, and/or other matters of importance as determined by the RWPG and the TWDB. Additional required funding allows for two staff members to execute task.

**TASK 10.III.A**  
**PLAN ADOPTION AND OTHER ITEMS (HDR)**

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- 1.0 Pursuant to TWDB rules and guidance, assemble an Initially Prepared 2011 Regional Water Plan in early 2010 for review and comment by the public, TWDB, and other local, regional, State, and Federal interests.
- 2.0 Coordinate revision of the Initially Prepared 2011 Regional Water Plan in response to review comments received from the TWDB, resource agencies, water purveyors, interested organizations, and the public. Assemble the 2011 Regional Water Plan for SCTRWPG adoption and TWDB approval.
- 3.0 Provide technical information to the Public Participation consultant as needed.
- 4.0 Provide technical information to the Facilitation consultant as needed.
- 5.0 Preparation and participate in up to twenty-four (24) meetings during the development of the 2011 Regional Water Plan and the 2012 State Water Plan. Funding is provided under other tasks.

**TASK 10.III.B**  
**PLAN ADOPTION AND OTHER ITEMS (HDR)**

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Assist the SCTRWPG and TWDB in inter-regional cooperation efforts, timely resolution of any internal or inter-regional conflicts, and/or resolution of

conflicts regarding water management strategies or groundwater availability estimates for the Initially Prepared 2011 Regional Water Plan.

**TASK 10.IV**  
**SCOPE OF WORK DEVELOPMENT**

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Provide support to the SCTRWPG in development, drafting, and refinement of the scope of work for preparation of the 2011 Regional Water Plan (RWP). Such support includes coordination with SCTRWPG members, the Texas Water Development Board (TWDB), the San Antonio River Authority, members of the Staff Workgroup, representatives of various interest groups, and the public in order to specify work elements.

- **LRPR \$1,317**
- **XIMENES & ASSOC \$2,456**
- **HDR \$6,227**