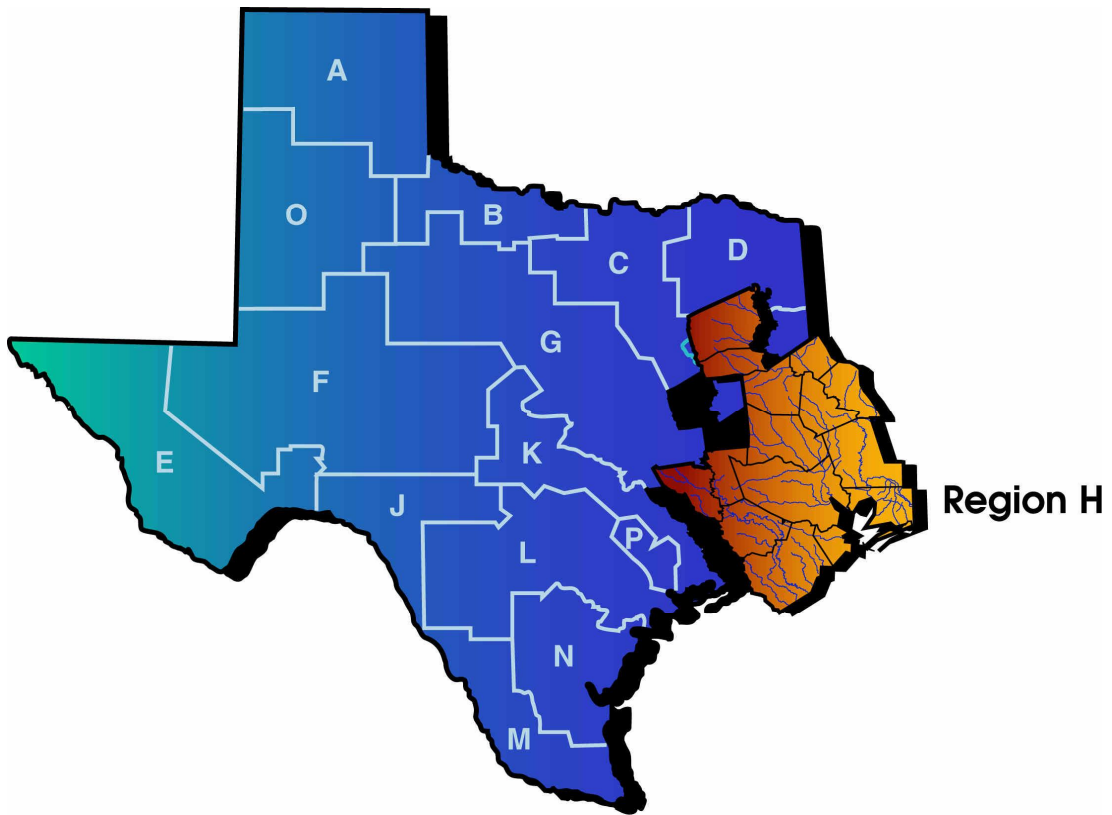


REGION H WATER PLANNING GROUP



**TEXAS WATER DEVELOPMENT BOARD
RESEARCH AND PLANNING FUND
REGIONAL WATER PLANNING**

I. GENERAL INFORMATION

- 1. Legal name of applicant(s).
San Jacinto River Authority
- 2. Regional Water Planning Group:
Region H Water Planning Group
- 3. Authority of law under which the applicant was created.
The San Jacinto River Authority was created in accordance with Texas Revised Civil Statutes Annotated Article 8280-121.
- 4. Applicant's official representative, Name, Title, Mailing address, Phone number, Fax number, if available, E-mail Address, and Vendor ID Number.
Reed Eichelberger, P.E.
General Manager
San Jacinto River Authority
P.O. Box 329
Conroe, Texas 77305-0329
Phone No: (936) 588-7111
Fax No: (936) 588-3043
E-mail: reed@sjra.net
Vendor ID No: TIN 746000561
- 5. Is this application in response to a Request for Proposals published in the Texas Register?
Yes No
- 6. If yes to No. 6 above, list document number and date of publication of the Texas Register.
Texas Register Document No. 200603279, published June 23, 2006
- 7. Type of proposed planning (Check all that apply)
Initial scope of work XX
Development of a regional water plan
Revision of a regional water plan
Special studies approved by TWDB XX
- 8. Total proposed planning cost.
\$1,147,000
- 9. Cash Contribution to the study.
No funds are currently identified to assist with the proposed study.
- 10. List source of cash contribution, explanation of source of local cash contribution.
N/A
- 11. Total grant funds requested from the Texas Water Development Board.
\$1,147,000
- 12. Detailed statement of the purpose for which the money will be used.
Funds are requested to conduct four additional studies as part of the update to the Regional Water Plan for Region H. The proposed studies are: (1) Environmental Flow Investigations, (2) Drought Management, (3) Brazos Saltwater Barrier, (4) Interruptible Water Supplies, and (5) Public Participation and Administration. Each study is explained in detail in **Appendix A**.

- 13. Detailed description of why state funding assistance is needed.

Regional Water Planning Groups are not political subdivisions and therefore have no means of raising funds for the preparation of Regional Water Plans other than accepting contributions. The need for state funding assistance is identified in 31 TAC 255, Subchapter C, relating to Regional Water Planning Groups.
- 14. Identify potential sources and amounts of funding available for implementation of viable solutions resulting from proposed planning.

Twenty-two Wholesale Water Providers were identified in the current Regional Water Plan. Each is pursuing the larger water management strategies within their service areas and will address the funding required for each as they are implemented.

II. PLANNING INFORMATION

- 15. A detailed scope of work for proposed planning. (Not to exceed 6 pages.)

The major scope items proposed for this planning process are listed below. Please see **Appendix A** for a detailed description of these tasks.

 1. Environmental Flows Investigations
 2. Drought Management
 3. Brazos Saltwater Barrier
 4. Interruptible Water Supplies
 5. Public Participation and Administration
- 16. Prioritization of scope of work tasks by the regional planning group.

The scope items presented in **Appendix A** and above are listed in the priority order assigned by the Region H WPG.
- 17. A task budget for detailed scope of work by task.

Please see **Appendix B**.
- 18. An expense budget for detailed scope of work by expense category.

Please see **Appendix C**.
- 19. A time schedule for completing detailed Scope of Work by task.

Please see **Appendix D**.
- 20. Specific deliverables for each task in Scope of Work.

Deliverables for the scope items are presented with each scope item in **Appendix A**.
- 21. Method of monitoring study progress.

Progress reports to the TWDB, Regional Planning Group, and San Jacinto River Authority.
- 22. Qualifications and direct experience of proposed project staff.

Please see **Appendix E**.

III. WRITTEN ASSURANCES

Written assurance of the following items:

- Proposed planning does not duplicate existing projects;
The study items in this scope of work were identified during the last round of Regional planning and discussed during the recent public participation process; subsequently, no projects which would duplicate or be substantially similar to these projects have been identified.
- Implementation of viable solutions identified through the proposed planning will be diligently pursued and identification of potential sources of funding for implementation of viable solutions;
The Wholesale Water Providers identified in the current Regional Water Plan have begun the preliminary studies and implementation steps for the near-term water management strategies and it is expected that the wholesale water providers identified in this next round of water planning will implement those strategies that fall within their service areas. Funding for these strategies will be determined on a case-by-case basis by the appropriate political subdivision.
- If a grant is awarded, written evidence that local matching funds are available for the proposed planning must be provided when the contract is executed.
As stated above, the Region H Water Planning Group requests funds for these studies without local matching funds.

IV. PROOF OF NOTIFICATION

- Proof of notification

Develop or revise regional water plans. Eligible applicants requesting funds to develop or revise regional water plans must, not less than 30 days before board consideration of the application, provide notice that an application for planning assistance is being filed with the executive administrator by:

- (1) publishing notice once in a newspaper of general circulation in each county located in whole or in part in the regional water planning area; and
- (2) mailing notice to each mayor of a municipality with a population of 1,000 or more or which is a county seat and that is located in whole or in part in the regional water planning area, to each county judge of a county located in whole or in part in the regional water planning area, to all districts and authorities created under Texas Constitution, Article III, §52, or Article XVI, §59, located in whole or in part in the regional water planning area based upon lists of such water districts and river authorities obtained from Texas Commission on Environmental Quality, and all regional water planning groups in the state.

The notice must include the following:

- Name and address of applicant and applicant's official representative;
- Brief description of proposed planning area;
- Purpose of the proposed planning;
- Texas Water Development Board Executive Administrator's name and address; and
- Statement that any comments on the proposed planning must be filed with the applicant and the Texas Water Development Board Executive Administrator within 30 days of the date on which the notice was mailed.

The Region H Planning Group has complied with this request. Information regarding the notices can be found in **Appendix F**.

APPENDIX A
PRIORITIZED SCOPE OF WORK

Scope Item No. 1 – Environmental Flows Investigations for Region H

The general goals of this activity are to: 1) Develop additional insight into effect on water supplies of meeting the environmental flow needs in Region H; 2) Create improved planning tools for evaluating and assessing the impacts of water management strategies on instream flows and on freshwater inflows into the Galveston Bay (Trinity-San Jacinto) estuary; 3) Provide support and participate in State initiatives related to development of environmental flow regulations and maintain involvement of the Region H Water Planning Group (WPG) in this process.

Statement of the Problem/Issue

The current science and regulatory position regarding environmental flows in Texas is undergoing evaluation and evolution. Many of the management strategies proposed in the State Water Plan for Region H are impacted by potential future environmental flow requirements and the prospective availability of water supply from these management strategies may be significantly impacted as a result. Better understanding of the environmental flow needs within Region H and better understanding of the regulatory framework in which future projects and permits will be assessed is required to allow future financing, planning and implementation of water management strategies.

In order to better define the impacts of the proposed water management strategies on required environmental flow requirements, additional refinement and definition of the activities associated with each strategy will likely be required. Additionally, there have been numerous requests by environmental interest groups to more fully identify the potential impacts of the selected strategies in order to better define the reasonableness of these impacts and the consistency of the strategies with the long-term goals of the region to protect sensitive wildlife habitats, public lands, and agricultural resources, and meet overall environmental standards.

Support of TWDB Objectives

This proposed study supports three categories of need established by the TWDB including:

- No. 2, Studies that will further implementation of recommended water management strategies - by further refining estimates of the potential environmental impacts and any mitigation that may be required.
- No. 3, Refinement of water supply information or water management strategies – by further refining estimates of water availability for each strategy; and
- No. 4, Activities that will help overcome problems from the last round of planning – by reducing uncertainty and better defining the activities associated with the various strategies, especially proposed wastewater reuse.

Scope of Work

A. Impacts of Recommended Water Management Strategies on Galveston Bay Estuary:

Analysis of the potential impacts of recommended water management strategies on the amount and timing of freshwater inflows into the Galveston Bay estuary system remains a significant issue for the region. This task will develop additional detailed water availability modeling on a management strategy by management strategy basis to further establish those impacts. Additionally, the potential for mitigation of identified impacts will be considered under various alternative scenarios.

A.1. Water Availability Modeling

- A.1.1. Establish base conditions for Water Availability Models (WAMs) to be used to demonstrate and compare the potential impacts of proposed future water management strategies using the agreed monthly targets for the estuary. Anticipated base conditions for five scenarios including: a) naturalized, b) existing with return flows, c) full authorized diversions with return flows, d) future 2060 conditions with existing

permits only and full return flows (no new reuse permits), and e) future 2060 conditions with return flows and all recommended additional water management strategies including reuse projects as proposed in 2007 Plan.

- A.1.2. Develop WAM runs for each individual water management strategy (17 total) showing the impact of the individual strategy on the compliance frequency and shortage amount for meeting monthly targets for freshwater inflow as compared to the base conditions.
- A.1.3. Develop summary tables and graphs to demonstrate the impacts of each individual water management strategy and the cumulative impact of all proposed strategies shown as a group.

A.2. Management Scenarios

- A.2.1. Identify possible alternative methods to provide potential mitigation of identified shortages in desired freshwater inflows, including: a) potential for future revisions to existing reservoir operating guidelines to require “pass-through” flows for new and expanded permits; b) potential creation of additional freshwater marsh habitat to replace theoretical loss from increased stress due to loss of freshwater inflows; and c) potential demand reduction measures to be implemented during drought periods to allow natural flows to offset the identified theoretical shortages projected in the WAM runs.
- A.2.2. Compare the effectiveness of the various mitigation methods using the WAMs or other suitable analysis techniques.
- A.2.3. Prepare preliminary planning information to qualitatively define cost and benefits of the various alternative methods.

A.3. Presentations of Results and Preparation of Summary Report

- A.3.1. Meet with the Stakeholder group and discuss scope of work and interim results at appropriate intervals.
- A.3.2. Develop interim data to share with stakeholders and RHWPG at major milestones.
- A.3.3. Summarize all findings in a suitable draft and final report and submit for stakeholder and RHWPG review.

B. Evaluation of Instream Flow Requirements for Future Water Management Strategies: The “default method”, also called the Lyons Method, for evaluating the instream flow requirements in Texas is under consideration at TCEQ for potential change to some other “desk-top methodology”. This task will demonstrate the potential impact of alternative methodologies on specific water management strategies within Region H.

B.1. Lyons Method

- B.1.1. For each future water management strategy within the Region H Plan, identify the likely critical stream segment for instream flow considerations and obtain/compute the most appropriate and representative flow data for that reach.
- B.1.2. Determine the allowable diversions under the default Lyons Methodology and compare that value to the proposed diversions.
- B.1.3. Conduct field windshield/walking survey of the stream segment to compare the instream flow results to actual field conditions.

B.2. Other Desk-Top Methodologies

- B.2.1. Collect other readily available information on each critical stream reach such as TPWD surveys, USGS or other agency studies, aerial photography and land use data, information from NPDES stormwater databases, or other hydrologic, ecologic, or

habitat information. Compile a matrix listing information available for each critical stream segment.

- B.2.2. Evaluate other potential desk-top approaches which might be considered for each specific stream segment in the future, depending on the type of stream segment and availability of data for each segment.
- B.2.3. Select at least one of the other methodologies and use it to compute the alternative resulting stream flow.
- B.2.4. Compare and contrast the results of the alternative methodology in terms of ease of computation, potential for application in the region, and perceived validity.

B.3. Presentations of Results and Preparation of Summary Report

- B.3.1. Meet with the Stakeholder group and discuss scope of work and interim results at appropriate intervals.
- B.3.2. Develop interim data to share with stakeholders and RHWPG at major milestones.
- B.3.3. Summarize all findings in a suitable draft and final report and submit for stakeholder and RHWPG review.

C. Support of and Participation with Stakeholder Groups: Statewide and local initiatives are underway to involve stakeholders in the evaluation of the scientific studies and to participate in the development of policy related to environmental flows. The Region H WPG desires to support and participate in these new stakeholder activities, and to continue the progress and activities begun under the SB1 program, including:

- providing organization and facilitation of meetings,
- preparing and distributing appropriate materials to stakeholders,
- developing and providing technical support for the stakeholder groups,
- recording and summarizing results of stakeholder activities, and
- coordination of the stakeholder activities with the Region H WPG.

Specific tasks will include the following.

C.1. Galveston Bay Freshwater Inflows Group (GBFIG)

- C.1.1. Sponsor up to 6 GBFIG meetings, including planning and organizing the meeting logistics, announcements, agendas, and meeting facilities.
- C.1.2. Arrange for professional facilitation of the meetings and implementation of the meeting requirements.
- C.1.3. Present technical information developed under this work task and other related Region H studies at the meetings.
- C.1.4. Record, post and distribute the summary notes, relevant results and supporting materials of all meetings.
- C.1.5. Prepare a summary report of the GBFIG activities and of any consensus agreements of GBFIG participants for distribution to Region H WPG, TWDB, and other participating agencies (TCEQ-GBEP and TPWD).

C.2. Instream Flows

- C.2.1. Develop list of stakeholders potentially interested in development of methodology relating to instream flows and invite participation in the Region H Instream Flow stakeholders group.
- C.2.2. Sponsor up to 6 Instream Flow meetings, including planning and organizing the meeting logistics, announcements, agendas, and meeting facilities.

- C.2.3. Arrange for professional facilitation of the meetings and implementation of the meeting requirements. Present technical information developed under this work task and other related Region H studies at the meetings.
- C.2.4. Record, post and distribute the summary notes, relevant results and supporting materials of all meetings.
- C.2.5. Prepare a summary report of the Instream Flow activities and of any consensus agreements of participants for distribution to Region H WPG, TWDB, and other participating agencies.

C.3. RHWPG

- C.3.1. Periodically update the RHWPG on the activities of the GBFIG and Instream Flow stakeholder groups.
- C.3.2. Summarize and report on findings of the Environmental Flows task at suitable milestones in the conduct of the program.
- C.3.3. On behalf of the RHWPG, meet with interest groups such as the Galveston Bay Foundation or river-oriented groups, State environmental flow workgroups, or other state and federal agencies to review the results and discussions of the two stakeholder groups.

Scope Item Number 2 – Drought Management

Statement of the Problem/ Issue

Drought management is not currently included as an identified water management strategy in the adopted 2006 Region H Regional Water Plan. Several comments were received during the last round of planning requesting that drought management be specifically considered during the planning process as a tool to reduce demands. Drought management has the potential, when plans are successfully implemented and enforced, for reducing overall water demands during periods of drought and therefore have the potential to stretch existing and future water supplies during these periods with the result of reducing or eliminating the need for additional water management strategies.

Allowable Board Category

This activity supports two categories of need established by the Texas Water Development Board (TWDB): No. 3, Refinement of water supply information or water management strategies; and No. 4, Activities that will help overcome problems from the last round of planning.

In order to better define the impacts of drought management on overall water demand and required water management strategies, additional study and refinement of regional water planning activities is required. Additionally, there were numerous requests by environmental and conservation interest groups to more fully consider the use of drought management as a water management strategy and to identify how drought management may reduce or eliminate other water management strategies currently included in the regional water plan.

Scope of Work

- A. Summarize and evaluate existing drought management plans in Region H.
 - A.1. Review drought management plans currently on file by Region H.
 - A.2. Research Texas Commission on Environmental Quality (TCEQ) files and databases to identify, obtain, and review drought management plans for other entities within Region H.
 - A.3. Summarize the goals, measures, and enforcement abilities for drought management plans in Region H.
- B. Perform a literature search on drought management planning in Texas and other areas and evaluate their applicability to Region H.
 - B.1. Develop performance measures (i.e., demand reduction estimates, etc.) for various drought management strategies obtained from the literature search.
 - B.2. Develop estimates of costs for implementing various drought management strategies in Region H.
- C. Research and compare the performance of drought management measures versus water conservation measures in impacting the annual average usage of communities in which these measures were used.
- D. Evaluate the impact of implementing drought management planning and strategies as it relates to the Region H Regional Water Plan.
 - D.1. Evaluate expected water demand savings based on drought management plans in Region H.
 - D.2. Evaluate expected costs associated and associated economic impacts resulting from initiating drought management plans in Region H.
- E. Evaluate and summarize institutional and legislative barriers to implementing and enforcing drought management strategies in Region H. Identify institutional and legislative initiatives needed to further advance the implementation of drought management strategies in Region H.
- F. Evaluate the relative impact of drought management strategies to existing and future water supplies in Region H.
 - F.1. Using the Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAM), evaluate the impact of drought conditions on existing and future water supplies in the absence of drought management measures.

- F.1.1. Develop graphs summarizing lake level and/or capacity under various hydrologic conditions and demands.
- F.1.2. Develop summary tables calculating the frequency, extent, and duration of low lake level and/or capacity under various hydrologic conditions and demands.
- F.1.3. Assess impacts on water supplies as a result of drought conditions extending beyond the current drought of record.
- F.2. Using the (TCEQ) WAM, evaluate the impact of drought conditions on existing and future water supplies with the presence of drought management measures.
 - F.2.1. Develop graphs summarizing lake level and/or capacity under various hydrologic conditions, demands, and drought management strategies and triggers.
 - F.2.2. Develop summary tables calculating the frequency, extent, and duration of low lake level and/or capacity under various hydrologic conditions, demands, and drought management strategies and triggers.
 - F.2.3. Assess impacts on water supplies as a result of drought conditions extending beyond the current drought of record.
- G. Evaluate the impacts of drought management on the size and timing of other water management strategies in Region H.
- H. Prepare a summary technical report documenting the results of the Drought Management task and present to the Region H RWG.
- I. Prepare estimates of scope and budget, where applicable, to revise Chapters 4, 5, 6, and 7 of the 2006 Region H Regional Water plan based on results obtained from the above scope of work.

Work Product

Work products for this task will include a report including tables, figures, charts, etc. summarizing the results of drought management strategies on regional water supplies and demands in Region H.

Scope Item No. 3 – Brazos Saltwater Barrier

Statement of the Problem/ Issue

The migration of saltwater into the lower reaches of the Brazos River during low flow conditions threatens many existing and future surface water users in the lower Brazos River Basin. Saltwater intrusion has the potential to significantly reduce the availability and reliability of freshwater supplies in Region H. Based on the 2006 Region H Regional Water Plan for Region H, this project is needed by 2030 and is projected to become an economically viable project in the 2020 decade. Due to the long lead time required for construction permitting, as well as the size and sensitivity of this project, a conceptual design and permitting strategy should be developed so that the project can be constructed when needed and so that financing can be appropriately arranged.

Allowable Board Category

This activity supports two categories of need established by the Texas Water Development Board (TWDB): No. 2, Studies that will further implementation of recommended water management strategies; and No. 3, Refinement of water supply information or water management strategies.

Scope of Work

This study will advance our understanding of key technical and economic issues that will affect the implementation of this water management strategy to protect the quality of surface water supplies in the Lower Brazos River Basin.

- A. Identify project stakeholders that would benefit from and/or be affected by the addition of a salt water barrier in the lower Brazos River and organize the group for continuing dialogue and activity to support the permitting and design development in an environmentally sensitive manner.
 - A.1. Hold two initial organizational meetings to determine overall group interest and better define local concerns and objectives related to project.
 - A.2. Create database of organizations, agencies, and individuals who want to stay involved in later stages of the project development.
 - A.3. Identify appropriate project sponsors to assume leadership roles in further development of the project.
 - A.4. Facilitate six additional organizational meetings to share results of study activities.
- B. Conduct a preliminary investigation of the Brazos River below the Harris Reservoir diversion point to determine the most feasible location for a salt water barrier.
 - B.1. Identify and obtain copies of any historical bathymetric data potentially available through USGS, FEMA, TNRIS, or other previous investigations of the lower basin.
 - B.2. Obtain recent aerial photography, county tax maps, FEMA floodplain maps, or other available maps of the study reach.
 - B.3. Obtain other relevant environmental, geologic, soils, and infrastructure database information for organization into a GIS for the potential sites.
 - B.4. Define up to three specific locations for preliminary bathymetric surveys to be obtained using appropriate sounding equipment.
- C. Prepare a hydraulic flood model of the study reach using HEC-RAS.
 - C.1. Collect existing floodplain data from previous studies
 - C.2. Update the floodplain delineation in the project site area based on this study's supplemental data, especially the channel bathymetry.
 - C.3. Prepare potential floodplain mitigation alternatives for the alternative sites.
- D. Prepare conceptual design alternatives for the proposed salt water barrier.
 - D.1. Investigate various design options including: a concrete structure with mechanical gate(s), an inflatable structure with fixed abutments, and a full or partial check dam.
 - D.2. Prepare cost estimates for each conceptual design, including construction cost and annual operations and maintenance costs.

- D.3. Update costs for other options presented in the management strategy in lieu of construction of the saltwater barrier in order to and compare costs and feasibility.
- D.4. Outline other important selection criteria and analysis considerations to be evaluated, including property acquisition, environmental considerations, and operational reliability.
- D.5. Perform an initial preliminary assessment of the potential environmental impacts associated with construction and operation of a salt water barrier.
- E. Prepare preliminary operational assessment of the proposed salt water barrier.
 - E.1. Perform preliminary sediment transport analysis using HEC-RAS and available USGS water quality data. Propose mitigation methods if necessary.
 - E.2. Update TWDB's TXBLEND3D salinity model to reflect the additional bathymetry data and run with and without the proposed barrier. Coordinate work with TWDB.
 - E.3. Extend the TXBLEND3D model to point beyond the Harris Reservoir diversion point, with model runs using actual daily flows during low periods to better determine the relationship between these sites and analyze actual risk of salt intrusion.
 - E.4. Develop estimates of the amount of water supply currently allocated for use in the region that is "at risk" due to saltwater intrusion.
 - E.5. Perform an initial assessment of stream navigability and impact associated with construction and operation of a saltwater barrier.
- F. Establish potential project benefits for proposed design.
 - F.1. Investigate other options for entities using "at risk" water if saltwater intrusion occurs and identify the costs of those options.
 - F.2. Identify the water currently contracted and/or permitted that is in reserve for use in flushing saltwater to reduce intrusion.
 - F.3. Identify any positive impacts, either technically or politically, as related to either the proposed Allens Creek or the BRA Systems Operation Permit.
- G. Develop a project implementation plan.
 - G.1. Identify implementation issues and potential alternatives to allow resolution.
 - G.2. Estimate the environmental permitting and project design and construction timeline.
 - G.3. Identify the project sponsorship and contract vehicles for project participation by various agencies.
 - G.4. Identify project financing alternatives.
- H. Prepare a summary technical report documenting the results of the Brazos Saltwater Barrier study.

Work Product

Work products for this task will include a separate technical memorandum including

- additional tables, charts and graphs outlining the quantified impacts of a salt water barrier in greater detail
- comparisons of environmental conditions anticipated throughout the planning period both with and without the selected water management strategies.
- a cost estimate and conceptual design of the salt water barrier
- a plan of implementation, including permitting requirements.
- a summary of analysis and conclusions.

Scope Item No. 4 – Interruptible Water Supplies

Statement of the Problem/ Issue

Under current Texas Water Development Board (TWDB) guidance for regional water planning, only “firm yield” water supplies are to be considered “available” to meet future needs for all types of water uses. While this is a sound policy for most municipal and industrial uses, which typically require supplies with a high degree of reliability, some water users, including agricultural users, may be able to use supplies that are less dependable. Future demands, combined with limited supplies of surface water in Region H, will result in significant increases in the cost of water in the future. Costly water management strategies to develop additional firm water supplies may result in costs that are too great for some end users, such as agricultural irrigators. This study will evaluate the availability and use of “interruptible” water supplies for agricultural and recreational water demands and will provide a refinement of water supply information in the 2006 Region H Regional Water Plan. In general, “interruptible” water supplies represent supplies that are available except during moderate drought conditions.

A water policy will be developed for this strategy to describe the conflicts in the demands for water, and how to best meet the competing demands. The management plan will describe how interruptible water supplies will be curtailed so that firm water demands can be fully met. This water management plan will be patterned similar to that of the Lower Colorado River Authority (LCRA). LCRA has a Texas Commission on Environmental Quality (TCEQ) approved water management plan for supply from the Highland Lakes that allows LCRA to manage the yield for the reservoir system to provide interruptible supply to rice farmers.

Allowable Board Category

This activity supports two categories of need established by TWDB: No. 3, Refinement of water supply information or water management strategies; and No. 5, further evaluation of water management strategies, especially regional solutions, to meet needs in small and rural areas.

Scope of Work

This task will evaluate the availability and the feasibility of using interruptible water supplies to meet some water demands so that users (e.g., agriculture) not requiring firm supply may have access to economical water supply sources in the future.

- A. Evaluate and quantify the availability and dependability of existing permitted interruptible supplies in Region H using a “75-75” rule, that is, 75% of the water supply should be available 75% of the time when distributed on a monthly basis and based upon the historic stream flow record.
 - A.1. Perform an analysis of the “75-75” rule described above to all permitted or contracted water rights in Region H with agricultural, recreational, or other uses which might be amenable to use as interruptible supplies.
 - A.2. Calculate the amount of interruptible supply available for each water right as the amount above the firm yield amount and up to the permitted annual diversion volume.
- B. Evaluate and quantify the availability and dependability of existing permitted interruptible supplies in Region H using the Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAM) to assess interruptible supplies under various long-term conditions (i.e., return flows, diversions, etc.).
 - B.1. Perform an analysis of the “75-75” rule using the WAM under various conditions including WAM Run 1, Run 3, and Run 8 for all permitted and contracted water rights in Region H which might be amenable to use as interruptible supplies.
 - B.2. Calculate the amount of interruptible supply available for each water right as the amount up to the permitted annual diversion volume.
- C. Evaluate and quantify the availability and dependability of new un-permitted interruptible supplies in Region H using the TCEQ WAM.

- C.1. Perform analysis of the “75-75” rule at specific points in the WAM near irrigation demands in Region H under various conditions including WAM Run 1, Run 3, and Run 8 to identify and quantify new un-permitted interruptible supplies.
- C.2. Evaluate the new un-permitted interruptible supplies identified above using various environmental flow conditions expected (i.e., Lyons method) as a result of applying for new permits.
- D. Evaluate and quantify potential uses for interruptible water supplies within Region H.
 - D.1. Evaluate predominant regional crop types and seasonal irrigation requirements and patterns for those crop types.
 - D.2. Survey agricultural users in the region to assess the acceptability and feasibility of using interruptible supplies as a mechanism for maintaining affordable water for agricultural users.
- E. Compare amounts and locations of interruptible supplies compared to amounts and locations of demand to evaluate the feasibility and potential extent of interruptible supply use.
- F. Identify and assess regulatory and institutional issues and constraints associated with this strategy.
- G. Evaluate and quantify additional firm yield supplies made available for municipal and industrial purposes as a result of implementing this strategy.
- H. Evaluate the impacts of the use of interruptible supplies on the size and timing of other water management strategies in Region H.
- I. 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.
- J. Evaluate and quantify the economic impacts of this strategy.
 - J.1. Based on literature and data obtained from the Texas Agricultural Extension Service, Texas Agriculture Department, universities, and other available sources, assess and evaluate the economic impacts of lost agricultural opportunities for predominant crop types in Region H.
 - J.2. Using the results from the TCEQ WAM analysis conducted as part of this study, assess and evaluate the frequency and duration that interruptible supplies would not be available for use over the period of record for the WAM.
 - J.3. Based on the frequency and duration that interruptible supply would not be available as well as the economic impacts associated with lost agricultural opportunities, evaluate the long-term economic impacts associated with this strategy.
 - J.4. Assess and evaluate the projected costs associated with providing firm yield supplies to agricultural users over the planning period.
 - J.5. Compare and evaluate the estimated economic impacts associated with the use of interruptible supplies to the long-term projected costs associated with providing firm yield supplies to agricultural users.
- K. Identify the important elements and the potential for creation of a water policy for resolving conflicting water demands and the fundamental drought management plan elements required to curtail interruptible supplies during periods of severe drought so that firm water demands can be fully met.
- L. Prepare a summary report of the potential use of interruptible supplies in Region H including additional tables, charts and graphs outlining the quantified impacts in more detail throughout the planning cycle for interruptible supply strategies in Region H. Identify additional activities and groups which must be included in order to implement such a strategy.

Work Product

Work products for this task will include a summary report of the potential use of interruptible supplies in Region H including additional tables, charts and graphs outlining the quantified impacts in more detail throughout the planning cycle for interruptible supply strategies in Region H. Identify additional activities and groups which must be included in order to implement such a strategy.

Scope Item No. 5 –Public Participation and Administration

Statement of the Problem/ Issue

The success of regional water planning in Texas lies in part with the continuing grass-roots-level participation that has been accomplished. The Region H Water Planning Group (RHWPG) has actively encouraged participation from voting and non-voting members of the RHWPG by meeting on a regular basis at a location that is central to the large region. Additionally, the RHWPG has held multiple public meetings in non-central areas that are more convenient to residents of those areas. Providing information and support to those meetings through announcements, publications and presentations is essential to their effectiveness. These efforts need to continue, and in fact, to increase, if the full potential of regional water planning in Region H is to be realized.

Maintaining communication with a large and diverse population is costly. The RHWPG has sought to maximize available opportunities for providing information to and gaining input from the residents of Region H, while meeting state public notification requirements. During the second round of planning, because of resource limitations, RHWPG relied on the Texas Water Development Board (TWDB) website to provide internet access to information about the Region H planning process. As the world becomes more reliant on information transmitted through internet connection, the RHWPG has been interested in using an internet website, in addition to the TWDB website, for document distribution and for providing public information about RHWPG activities.

Allowable Board Category

This activity directly supports Board identified category Number 8, Administrative and public participation activities – by providing administrative support to the regional planning process and by providing for public participation and outreach. If funded as proposed, this activity also will address category Number 4, Activities that will help overcome problems from the last round of planning – by allowing the establishment of a RHWPG website for posting and distribution of materials.

Scope of Work

This task will support the meetings of the RHWPG through December 2007. In addition, it will provide for required public notices related to application for state funding and developing the scope of work for the planning process, and any additional announcements of public meetings.

- A. Develop scopes of work and budgets for the first biennium regional planning. Coordinate and participate in Scoping Committee meetings. Coordinate, schedule, and participate in a public meeting of the Region H WPG on the next round of planning and proposed scoping items. Prepare and submit public notifications for public meeting.
- B. Prepare materials for and attend up to 4 meetings of the RHWPG.
- C. Prepare materials for and attend up to 4 subcommittee meetings of the RHWPG.
- D. Provide logistics, public announcements, prepare materials for and attend up to 6 public meetings.
- E. Prepare and place public notices of meetings/hearings in newspapers of general circulation in each of the counties in the region when applying for public funds, preparing scopes of work, or soliciting public review and comment.
- F. Provide direct mail notices of meetings/hearings to elected officials, water rights holders and public utilities, as required.
- G. Provide for copying and/or publication of reports as needed for RHWPG and public review and comment.
- H. Establish a Region H Website for posting of Region H documents and information for access by the RHWPG, stakeholders and the public.
- I. Prepare a Work Plan for the third round of planning including scopes, schedules, and budgets for grant activities to be conducted during the first and second biennium.

- J. Prepare recommendations for items which should be amended in the Region H Water Plan during the third round of regional planning based on potential changed conditions, requests from local agencies, or new information made available during this study period.

Work Product

Work products for this task will include:

- A section of Chapter 10 describing the public participation and outreach effort of the RHWPG. It will identify issues suggested by the public that affect water management strategies in the Region H Water Plan and issues that may need to be addressed in future rounds of planning.
- Attendance and technical supporting materials for RHWPG meetings, subcommittee meetings, and public meetings.
- Materials for newspapers and direct mail notices.
- Up to 75 copies of report materials for distribution to RHWPG, stakeholders, resource agencies and public libraries.
- Region H website with capability for:
 - using multiple security levels to allow variable access to draft documents,
 - FTP downloading of large documents,
 - frequent updating of RHWPG materials,
 - timely posting of agendas and meeting materials.
- Draft and final Work Plan for the third-round study activities to be conducted during the first biennium.
- Recommended scope items for third-round amendments to the Region H Water Plan.

APPENDIX B
TASK BUDGET

Task	Task Description	Amount
1	Environmental Flows Investigations	\$398,000
A	Impacts of Future Water Management Strategy on Galveston Estuary	\$122,830
A.1.1	Establish base conditions for WAMs	\$6,550
A.1.2	Develop WAM runs for each individual future water management strategy	\$12,970
A.1.3	Develop summary tables and graphs to demonstrate the impacts of each individual water management strategy	\$10,570
A.2.1	Identify possible alternative methods to provide potential mitigation of identified shortages in desired freshwater inflows	\$18,590
A.2.2	Compare the effectiveness of the various mitigation methods using the WAMs	\$13,770
A.2.3	Prepare preliminary planning information to qualitatively define cost and benefits of the various alternative methods	\$9,770
A.3.1	Meet with the Stakeholder group and discuss scope of work and interim results	\$10,570
A.3.2	Develop interim data to share with stakeholders and RHRWPG	\$13,770
A.3.3	Summarize all findings in a suitable draft and final report and submit for stakeholder and RHRWPG review	\$26,270
B	Evaluation of Instream Flow Requirements for Future Water Management Strategies	\$108,420
B.1.1	Identify the likely critical stream segment for instream flow considerations	\$7,750
B.1.2	Determine the allowable diversions under the default Lyons Methodology	\$8,150
B.1.3	Conduct a field windshield/walking survey of the stream segment	\$15,270
B.2.1	Collect available information on each critical stream reach such as TPWD surveys, aerial photography, etc.	\$5,710
B.2.2	Evaluate other potential desk-top approaches which might be considered for each specific stream segment in the future	\$5,730
B.2.3	Determine the alternative resulting stream flow using another methodology	\$9,470
B.2.4	Compare and contrast the results of the alternative methodology	\$6,330
B.3.1	Meet with the Stakeholder group and discuss scope of work and interim results	\$9,970
B.3.2	Develop interim data to share with stakeholders and RHRWPG	\$13,770
B.3.3	Summarize all findings in a suitable draft and final report and submit for stakeholder and RHRWPG review	\$26,270
C	Support of and Participation with Stakeholder Groups	\$166,750
C.1.1	Sponsor up to 6 GBFIG meetings	\$6,350
C.1.2	Arrange for professional facilitation of the meetings	\$8,210
C.1.3	Present technical information developed under this work task and other related Region H studies at the meetings	\$27,250
C.1.4	Record, post and distribute the summary notes, relevant results and supporting materials of all meetings	\$12,790
C.1.5	Prepare a summary report of the GBFIG activities	\$9,470
C.2.1	Develop list of potential stakeholders	\$4,230
C.2.2	Sponsor up to 6 Instream Flow meetings	\$4,970
C.2.3	Arrange for professional facilitation of the meetings and implementation of the meeting requirements	\$17,570
C.2.4	Record, post and distribute the summary notes, relevant results and supporting materials	\$12,790
C.2.5	Prepare a summary report of the Instream Flow activities	\$12,970
C.3.1	Periodically update the RHRWPG on the activities of the GBFIG	\$7,610
C.3.2	Summarize and report on findings of the Environmental Flows task at suitable milestones	\$23,110
C.3.3	Meet with other interest groups on behalf of the RHRWPG	\$19,430
2	Drought Management	\$150,000
A	Summarize and evaluate drought management plans in Region H	\$20,950
A.1	Review drought management plans currently on file	\$4,510
A.2	Research TCEQ files on drought management plans for other entities within Region H	\$6,790
A.3	Summarize the goals, measures, and enforcement abilities for drought management plans in Region H	\$9,650
B	Perform a comprehensive literature search on drought management planning in Texas and other areas	\$16,660
B.1	Develop performance measures for various drought management strategies	\$8,330
B.2	Develop estimates of costs for implementing various drought management strategies	\$8,330
C	Compare performance of drought management measures vs. water conservation measures	\$5,450
D	Evaluate the impact of implementing drought management planning and strategies	\$14,580
D.1	Evaluate expected water demand savings based on drought management plans	\$7,290
D.2	Evaluate expected associated costs and economic impacts resulting from drought management plans	\$7,290
E	Evaluate institutional and legislative barriers to drought management strategies	\$7,490
F	Evaluate the relative impact of drought management strategies to existing and future water supplies	\$48,060
F.1	Evaluate the impact of drought conditions on water supplies in the absence of drought management measures	
F.1.1	Develop graphs summarizing lake level under various hydrologic conditions and demands	\$14,850
F.1.2	Develop summary tables of the frequency, extent, and duration of low lake levels	\$3,810
F.1.3	Assess impacts on water supplies resulting from drought conditions extending beyond the current drought of record	\$6,170
F.2	Evaluate the impact of drought conditions on water supplies with drought management measures	
F.2.1	Develop graphs summarizing lake level under various conditions and drought management strategies	\$14,850
F.2.2	Develop summary tables of the frequency, extent, and duration of low lake levels	\$3,810
F.1.3	Assess impacts on water supplies resulting from drought conditions extending beyond the current drought of record	\$4,570
G	Evaluate the impacts of drought management on the size and timing of other water management strategies	\$4,810
H	Prepare a summary technical report documenting the results of the task and present to the Region H RWG	\$23,380
I	Prepare estimates of scope and budget, where applicable, to revise the 2006 Region H Regional Water plan	\$8,620
3	Brazos Saltwater Barrier	\$291,610
A	Identify project stakeholders that would be affected and/or benefit by a salt water barrier in the lower Brazos River	\$33,160
A.1	Hold two initial organizational meetings	\$9,930
A.2	Create database of organizations, agencies, and individuals who want to stay involved	\$3,370
A.3	Identify appropriate project sponsors to assume leadership roles	\$3,080
A.4	Facilitate 6 additional organizational meetings to share results of study activities	\$16,780

Task	Task Description	Amount
B	Perform a bathymetric survey of the Brazos River below the Harris Reservoir diversion point	\$35,800
B.1	Identify and obtain copies of any historical bathymetric data potentially available through USGS, FEMA, TNRRS, etc.	\$2,430
B.2	Obtain recent aerial photography, county tax maps, FEMA floodplain maps, etc.	\$2,830
B.3	Obtain other relevant environmental, geologic, soils, and infrastructure database information	\$2,430
B.4	Define up to three specific locations for preliminary bathymetric surveys	\$28,110
C	Prepare a hydraulic model of the Brazos River using HEC-RAS	\$28,700
C.1	Collect existing floodplain data from previous studies	\$4,940
C.2	Update the floodplain delineation in the project site area	\$11,480
C.3	Prepare potential floodplain mitigation alternatives for the alternative sites	\$12,280
D	Prepare a conceptual design for a salt water barrier	\$64,640
D.1	Investigate various design options	\$26,060
D.2	Prepare cost estimates for each conceptual design	\$11,160
D.3	Update costs for other options presented in the management strategy	\$6,860
D.4	Outline other important selection criteria and analysis considerations to be evaluated	\$7,480
D.5	Perform a preliminary assessment of the potential environmental impacts of a salt water barrier	\$13,080
E	Prepare preliminary operational assessment of the proposed salt water barrier	\$60,800
E.1	Perform preliminary sediment transport analysis using HEC-RAS and available USGS water quality data	\$17,230
E.2	Update TWDB's salinity model to reflect the additional bathymetry data and run with and without the proposed barrier	\$12,780
E.3	Extend the TWDB's salinity model model to point beyond the Harris Reservoir diversion point	\$12,780
E.4	Develop estimates of the amount of water supply currently allocated for use in the region that is "at risk"	\$5,930
E.5	Perform an initial assessment of stream navigability and impact	\$12,080
F	Establish potential project benefits for proposed design	\$15,950
F.1	Investigate other options for entities using "at risk" water if saltwater intrusion occurs	\$8,340
F.2	Identify the water currently contracted and/or permitted that is in reserve for use in flushing saltwater	\$2,690
F.3	Identify any positive impacts as related to either the proposed Allens Creek or the BRA Systems Operation Permit	\$4,920
G	Develop a project implementation plan	\$25,140
G.1	Identify implementation issues and potential alternatives to allow resolution	\$5,830
G.2	Estimate the environmental permitting and project design and construction timeline	\$8,040
G.3	Identify the project sponsorship and contract vehicles for project participation by various agencies	\$7,900
G.4	Identify project financing alternatives	\$3,370
H	Prepare a summary technical report documenting the results of the Brazos Saltwater Barrier study	\$27,420
4	Interruptible Water Supplies	\$174,990
A	Evaluate and quantify the availability and dependability of existing permitted interruptible supplies in Region H	\$13,380
A.1	Perform an analysis of the "75-75" rule to all permitted water rights in Region H with agricultural uses	\$6,690
A.2	Calculate the amount of interruptible supply available for each water right	\$6,690
B	Evaluate and quantify the availability and dependability of existing permitted interruptible supplies in Region H	\$23,580
B.1	Perform an analysis of the "75-75" rule using the WAM to all permitted water rights in Region H	\$11,790
B.2	Calculate the amount of interruptible supply available for each water right	\$11,790
C	Evaluate and quantify the availability and dependability of new unpermitted interruptible supplies in Region H	\$13,380
C.1	Perform analysis of the "75-75" rule at specific points in the WAM near irrigation demands in Region H	\$6,690
C.2	Evaluate the new un-permitted interruptible supplies	\$6,690
D	Evaluate and quantify potential uses for interruptible water supplies within Region H	\$27,220
D.1	Evaluate predominant regional crop types and seasonal irrigation requirements and patterns	\$11,150
D.2	Survey agricultural users in the region	\$16,070
E	Compare amounts and locations of interruptible supplies to amounts and locations of demands	\$7,650
F	Assess regulatory and institutional issues and constraints associated with this strategy	\$7,240
G	Evaluate and quantify additional firm yield supplies made available	\$7,440
H	Evaluate the impacts of the use of interruptible supplies on other water management strategies	\$6,340
I	Determine if the impacts are reasonable and consistent with protection of environmental flows	\$8,840
J	Evaluate and quantify the economic impacts of this strategy	\$32,380
J.1	Assess and evaluate the economic impacts of lost agricultural opportunities for predominant crop types in Region H	\$5,340
J.2	Assess and evaluate the frequency and duration that interruptible supplies would not be available for use	\$4,590
J.3	Evaluate the long-term economic impacts associated with this strategy	\$6,290
J.4	Asses and evaluate the projected costs associated with providing firm yield supplies to agricultural users	\$8,080
J.5	Compare and evaluate the estimated economic impacts associated with the use of interruptible supplies	\$8,080
K	Develop a water policy for resolving conflicting water demands and drought management plan	\$13,170
L	Prepare a summary report of the potential use of interruptible supplies in Region H	\$14,370
5	Public Participation and Administration	\$132,400
A	Develop scopes of work and budgets for the first biennium regional planning	\$23,790
B	Prepare materials for and attend up to 4 meetings of the RHWPG	\$16,880
C	Prepare materials for and attend up to 4 subcommittee meetings of the RHWPG	\$14,420
D	Provide logistics, public announcements, prepare materials for and attend up to 6 public meetings	\$14,600
E	Prepare public notices of meetings/hearings in newspapers of general circulation in each of the counties in the region	\$7,270
F	Provide direct mail notices of meetings/hearings to elected officials, water rights holders and public utilities	\$4,680
G	Provide for copying and/or publication of reports as needed for RHWPG and public review and comment	\$4,080
H	Establish a Region H Website for posting of Region H documents and information	\$16,600
I	Prepare a Work Plan for the third round of planning including scopes, schedules, and budgets	\$15,760
J	Prepare recommendations for items which should be amended in the Region H Water Plan	\$14,320
Total Funds		\$1,147,000

APPENDIX C
EXPENSE BUDGET

Task 1 – Environmental Flows Investigations

Category	Total Amount
Salaries & Wages ¹	\$ 85,212
Fringe ²	\$ 44,651
Travel	\$ 1,200
Other Expenses ³	\$ 16,500
Subcontract Services	\$ 99,100
Voting Planning Member Travel ⁵	\$ -
Overhead ⁴	\$ 95,182
Profit	\$ 56,155
Total	\$ 398,000

Task 2 – Drought Management

Category	Total Amount
Salaries & Wages ¹	\$ 35,273
Fringe ²	\$ 18,483
Travel	\$ 200
Other Expenses ³	\$ 1,300
Subcontract Services	\$ 32,100
Voting Planning Member Travel ⁵	\$ -
Overhead ⁴	\$ 39,400
Profit	\$ 23,245
Total	\$ 150,000

Task 3 – Brazos Saltwater Barrier

Category	Total Amount
Salaries & Wages ¹	\$ 15,498
Fringe ²	\$ 8,121
Travel	\$ -
Other Expenses ³	\$ 30,500
Subcontract Services	\$ 209,968
Voting Planning Member Travel ⁵	\$ -
Overhead ⁴	\$ 17,311
Profit	\$ 10,213
Total	\$ 291,610

Task 4 – Interruptible Water Supplies

Category	Total Amount
Salaries & Wages ¹	\$ 10,575
Fringe ²	\$ 5,541
Travel	\$ -
Other Expenses ³	\$ 500
Subcontract Services	\$ 139,592
Voting Planning Member Travel ⁵	\$ -
Overhead ⁴	\$ 11,812
Profit	\$ 6,969
Total	\$ 174,990

Task 5 – Public Participation and Administration

Category	Total Amount
Salaries & Wages ¹	\$ 17,433
Fringe ²	\$ 9,135
Travel	\$ 1,500
Other Expenses ³	\$ 13,190
Subcontract Services	\$ 58,182
Voting Planning Member Travel ⁵	\$ 2,000
Overhead ⁴	\$ 19,472
Profit	\$ 11,488
Total	\$ 132,400

¹ Salaries and Wages is defined as the cost of salaries of engineers, draftsmen, stenographers, surveyors, clerks, laborers, etc., for time directly chargeable to this contract.

² Fringe is defined as the cost of social security contributions, unemployment, excise, and payroll taxes, employment compensation insurance, retirement benefits, medical and insurance benefits, sick leave, vacation, and holiday pay applicable thereto.

³ Other Expenses is defined to include expendable supplies, communications, reproduction, postage, and costs of public meetings.

⁴ Overhead is defined as the costs incurred in maintaining a place of business and performing professional services similar to those specified in this contract. These costs shall include the following:

- Indirect salaries, including that portion of the salary of principals and executives that is allocable to general supervision;
- Indirect salary fringe benefits;
- Accounting and legal services related to normal management and business operations;
- Travel costs incurred in the normal course of overall administration of the business;
- Equipment rental;
- Depreciation of furniture, fixtures, equipment, and vehicles;
- Dues, subscriptions, and fees associated with trade, business, technical, and professional organizations;
- Other insurance;
- Rent and utilities; and
- Repairs and maintenance of furniture, fixtures, and equipment.

⁵ Voting Planning Member Travel Expenses is defined as eligible travel expenses incurred by regional water planning members that cannot be reimbursed by any other entity, political subdivision, etc.

APPENDIX D
TIME SCHEDULE

Region H Task Timeline		2007				2008			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
1	Environmental Flows Investigations								
A	Impacts of Future Water Management Strategy on Galveston Estuary								
A.1.1	Establish base conditions for WAM's	X							
A.1.2	Develop WAM runs for each individual future water management strategy		X	X					
A.1.3	Develop summary tables and graphs to demonstrate the impacts of each individual water management strategy			X					
A.2.1	Identify possible alternative methods to provide potential mitigation of identified shortages in desired freshwater inflows			X					
A.2.2	Compare the effectiveness of the various mitigation methods using the WAMs			X					
A.2.3	Prepare preliminary planning information to qualitatively define cost and benefits of the various alternative methods			X	X				
A.3.1	Meet with the Stakeholder group and discuss scope of work and interim results				X	X			
A.3.2	Develop interim data to share with stakeholders and RHRWPG					X			
A.3.3	Summarize all findings in a suitable draft and final report and submit for stakeholder and RHRWPG review					X	X		
B	Evaluation of Instream Flow Requirements for Future Water Management Strategies								
B.1.1	Identify the likely critical stream segment for instream flow considerations	X	X						
B.1.2	Determine the allowable diversions under the default Lyons Methodology		X						
B.1.3	Conduct a field windshield/walking survey of the stream segment		X						
B.2.1	Collect available information on each critical stream reach such as TPWD surveys, aerial photography, etc.		X	X					
B.2.2	Evaluate other potential desk-top approaches which might be considered for each specific stream segment in the future		X	X	X				
B.2.3	Determine the alternative resulting stream flow using another methodology					X			
B.2.4	Compare and contrast the results of the alternative methodology					X			
B.3.1	Meet with the Stakeholder group and discuss scope of work and interim results						X		
B.3.2	Develop interim data to share with stakeholders and RHRWPG						X		
B.3.3	Summarize all findings in a suitable draft and final report and submit for stakeholder and RHRWPG review							X	X
C	Support of and Participation with Stakeholder Groups								
C.1.1	Sponsor up to 6 GBFIG meetings		X	X	X	X	X	X	
C.1.2	Arrange for professional facilitation of the meetings		X	X	X	X	X	X	
C.1.3	Present technical information developed under this work task and other related Region H studies at the meetings		X	X	X	X	X	X	
C.1.4	Record, post and distribute the summary notes, relevant results and supporting materials of all meetings		X	X	X	X	X	X	
C.1.5	Prepare a summary report of the GBFIG activities		X	X	X	X	X	X	
C.2.1	Develop list of potential stakeholders	X	X	X					
C.2.2	Sponsor up to 6 Instream Flow meetings		X	X	X	X	X	X	
C.2.3	Arrange for professional facilitation of the meetings and implementation of the meeting requirements		X	X	X	X	X	X	
C.2.4	Record, post and distribute the summary notes, relevant results and supporting materials		X	X	X	X	X	X	
C.2.5	Prepare a summary report of the Instream Flow activities						X	X	
C.3.1	Periodically update the RHRWPG on the activities of the GBFIG		X	X	X	X	X	X	
C.3.2	Summarize and report on findings of the Environmental Flows task at suitable milestones				X			X	
C.3.3	Meet with other interest groups on behalf of the RHRWPG	X	X	X	X	X	X	X	X
2	Drought Management								
A	Summarize and evaluate drought management plans in Region H								
A.1	Review drought management plans currently on file	X							
A.2	Research TCEQ files on drought management plans for other entities within Region H	X	X						
A.3	Summarize the goals, measures, and enforcement abilities for drought management plans in Region H	X	X						
B	Perform a comprehensive literature search on drought management planning in Texas and other areas								
B.1	Develop performance measures for various drought management strategies		X						
B.2	Develop estimates of costs for implementing various drought management strategies		X	X					
C	Compare performance of drought management measures vs. water conservation measures		X	X	X				
D	Evaluate the impact of implementing drought management planning and strategies								
D.1	Evaluate expected water demand savings based on drought management plans				X				
D.2	Evaluate expected associated costs and economic impacts resulting from drought management plans				X				
E	Evaluate institutional and legislative barriers to drought management strategies				X	X			
F	Evaluate the relative impact of drought management strategies to existing and future water supplies								
F.1	Evaluate the impact of drought conditions on water supplies in the absence of drought management measures								
F.1.1	Develop graphs summarizing lake level under various hydrologic conditions and demands					X	X		
F.1.2	Develop summary tables of the frequency, extent, and duration of low lake levels					X	X		
F.1.3	Assess impacts on water supplies resulting from drought conditions extending beyond the current drought of record					X	X		
F.2	Evaluate the impact of drought conditions on water supplies with drought management measures								
F.2.1	Develop graphs summarizing lake level under various conditions and drought management strategies					X	X		
F.2.2	Develop summary tables of the frequency, extent, and duration of low lake levels					X	X		
F.1.3	Assess impacts on water supplies resulting from drought conditions extending beyond the current drought of record					X	X		
G	Evaluate the impacts of drought management on the size and timing of other water management strategies						X	X	
H	Prepare a summary technical report documenting the results of the Drought Management task and present to the Region H RWG							X	X
I	plan								X
3	Brazos Saltwater Barrier								
A	Identify project stakeholders that would be affected and/or benefit by a salt water barrier in the lower Brazos River								
A.1	Hold two initial organizational meetings	X							
A.2	Create database of organizations, agencies, and individuals who want to stay involved	X							
A.3	Identify appropriate project sponsors to assume leadership roles	X							
A.4	Facilitate 6 additional organizational meetings to share results of study activities		X	X	X	X	X	X	

Region H Task Timeline		2007				2008			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
B	Perform a bathymetric survey of the Brazos River below the Harris Reservoir diversion point								
B.1	Identify and obtain copies of any historical bathymetric data potentially available through USGS, FEMA, TNRI, etc.	X	X						
B.2	Obtain recent aerial photography, county tax maps, FEMA floodplain maps, etc.	X	X						
B.3	Obtain other relevant environmental, geologic, soils, and infrastructure database information	X	X						
B.4	Define up to three specific locations for preliminary bathymetric surveys		X	X					
C	Prepare a hydraulic model of the Brazos River using HEC-RAS								
C.1	Collect existing floodplain data from previous studies	X	X						
C.2	Update the floodplain delineation in the project site area		X	X					
C.3	Prepare potential floodplain mitigation alternatives for the alternative sites			X	X	X			
D	Prepare a conceptual design for a salt water barrier								
D.1	Investigate various design options	X	X	X					
D.2	Prepare cost estimates for each conceptual design		X	X	X				
D.3	Update costs for other options presented in the management strategy		X	X	X				
D.4	Outline other important selection criteria and analysis considerations to be evaluated		X	X	X	X			
D.5	Perform a preliminary environmental assessment of the potential environmental impacts of a salt water barrier					X	X	X	
E	Prepare preliminary operational assessment of the proposed salt water barrier								
E.1	Perform preliminary sediment transport analysis using HEC-RAS and available USGS water quality data			X	X	X			
E.2	Update TWDB's salinity model to reflect the additional bathymetry data and run with and without the proposed barrier			X	X	X			
E.3	Extend the TWDB's salinity model model to point beyond the Harris Reservoir diversion point			X	X	X			
E.4	Develop estimates of the amount of water supply currently allocated for use in the region that is "at risk"				X	X			
E.5	Perform an initial assessment of stream navigability and impact				X	X			
F	Establish potential project benefits for proposed design								
F.1	Investigate other options for entities using "at risk" water if saltwater intrusion occurs					X	X		
F.2	Identify the water currently contracted and/or permitted that is in reserve for use in flushing saltwater					X	X		
F.3	Identify any positive impacts as related to either the proposed Allens Creek or the BRA Systems Operation Permit						X		
G	Develop a project implementation plan								
G.1	Identify implementation issues and potential alternatives to allow resolution				X	X	X		
G.2	Estimate the environmental permitting and project design and construction timeline						X	X	
G.3	Identify the project sponsorship and contract vehicles for project participation by various agencies					X	X	X	X
G.4	Identify project financing alternatives					X	X	X	X
H	Prepare a summary technical report documenting the results of the Brazos Saltwater Barrier study							X	X
4	Interruptible Water Supplies								
A	Evaluate and quantify the availability and dependability of existing permitted interruptible supplies in Region H								
A.1	Perform an analysis of the "75-75" rule to all permitted water rights in Region H with agricultural uses	X	X						
A.2	Calculate the amount of interruptible supply available for each water right		X						
B	Evaluate and quantify the availability and dependability of existing permitted interruptible supplies in Region H								
B.1	Perform an analysis of the "75-75" rule using the WAM to all permitted water rights in Region H		X	X					
B.2	Calculate the amount of interruptible supply available for each water right			X					
C	Evaluate and quantify the availability and dependability of new unpermitted interruptible supplies in Region H								
C.1	Perform analysis of the "75-75" rule at specific points in the WAM near irrigation demands in Region H			X	X				
C.2	Evaluate the new un-permitted interruptible supplies				X				
D	Evaluate and quantify potential uses for interruptible water supplies within Region H								
D.1	Evaluate predominant regional crop types and seasonal irrigation requirements and patterns		X	X					
D.2	Survey agricultural users in the region			X	X				
E	Compare amounts and locations of interruptible supplies to amounts and locations of demands						X	X	
F	Assess regulatory and institutional issues and constraints associated with this strategy						X	X	
G	Evaluate and quantify additional firm yield supplies made available						X	X	X
H	Evaluate the impacts of the use of interruptible supplies on other water management strategies						X	X	
I	Determine if the impacts are reasonable and consistent with protection of environmental flows						X	X	
J	Evaluate and quantify the economic impacts of this strategy								
J.1	Assess and evaluate the economic impacts of lost agricultural opportunities for predominant crop types in Region H						X	X	X
J.2	Assess and evaluate the frequency and duration that interruptible supplies would not be available for use						X	X	X
J.3	Evaluate the long-term economic impacts associated with this strategy							X	X
J.4	Asses and evaluate the projected costs associated with providing firm yield supplies to agricultural users							X	X
J.5	Compare and evaluate the estimated economic impacts associated with the use of interruptible supplies								X
K	Develop a water policy for resolving conflicting water demands and drought management plan							X	X
L	Prepare a summary report of the potential use of interruptible supplies in Region H								X
5	Public Participation and Administration								
A	Develop scopes of work and budgets for the first biennium regional planning								
B	Prepare materials for and attend up to 4 meetings of the RHWPG	X	X	X	X				
C	Prepare materials for and attend up to 4 subcommittee meetings of the RHWPG	X	X	X	X				
D	Provide logistics, public announcements, prepare materials for and attend up to 6 public meetings	X	X	X	X				
E	Prepare public notices of meetings/hearings in newspapers of general circulation in each of the counties in the region	X	X	X	X				
F	Provide direct mail notices of meetings/hearings to elected officials, water rights holders and public utilities	X	X	X	X				
G	Provide for copying and/or publication of reports as needed for RHWPG and public review and comment	X	X	X	X				
H	Establish a Region H Website for posting of Region H documents and information	X	X	X	X				
I	Prepare a Work Plan for the third round of planning including scopes, schedules, and budgets			X	X	X	X	X	X
J	Prepare recommendations for items which should be amended in the Region H Water Plan			X	X	X	X	X	X

APPENDIX E
QUALIFICATIONS AND DIRECT EXPERIENCE OF
PROPOSED PROJECT STAFF

REED EICHELBERGER, P.E.

Education: BSCE, 1967, University of Houston, Graduate Studies, Engineering Management, 1981, University of Houston.

Registration: Registered Professional Engineer, State of Texas No. 34665.

Qualifications: Over 35 years extensive civil engineering experience, including water resources, structure & foundation design, subdivision, hydraulics, wastewater collection and treatment, roadway design & construction management. Responsible for all aspects of project development including conceptual design, final design, production of drawings, bidding & construction phase services.

Project management and construction management experience. Includes supervision of up to 30 personnel with total responsibility for project performance. Experience in cost development & contract negotiations with owner & subconsultant.

Experience: **2006-Current: San Jacinto River Authority, General Manager**

Manages all operations of Authority.

1997 - 2006: San Jacinto River Authority, Deputy General Manager.

Answers to and assists General Manager in managing operations of Authority. Oversees operation of Lake Conroe & Highlands Divisions, including selection & supervision of consultant design services.

1992 – 1997 Steffek & Van De Wiele, Inc., Director of Marketing & Senior Project Engineer.

Reported to president of company for project development & marketing. Also active in management of design projects. Projects of note include:

* Walden Road – Developed cost & negotiated contract with Montgomery County & TXDOT for 3 mile ISTEAs roadway improvement project. Senior Engineer for project design that included environmental assessment, drainage, alignment & bridges for 4 lane roadway.

* Sawdust Road – Similar to Walden Road – one mile section in Montgomery.

* Telge Road – Sr. Project Engineer for design phase of one mile section of roadway in Harris County, including reconstructing existing two lane roadway to 4 lanes, with all associated drainage, traffic control, signalization & utility relocations.

* Saums Road – Similar to Telge Road – 1 mile section in Harris County.

1974 – 1992: Binkley & Holmes, Inc./Binkley & Barfield, Inc. Wide range of responsibilities from Project Manager to Director of Marketing, including:

69th Street Wastewater Treatment Complex. Resident project manager for construction management team. At the time of construction, this was the largest wastewater treatment facility in the southern United States.

Spencer Highway. Fifteen mile section. Coordinated project with TXDOT & four separate municipalities that the project affected.

Various other projects for City of Houston, University of Houston, Harris & Montgomery Counties & private developers, including pump stations, roadways & treatment facilities.

APPENDIX F
PROOF OF NOTIFICATION

Public Notice and Public Participation

Public notice was given in June 2006 for two purposes: to advise the public that the Region H Water Planning Group was applying for state support for its planning and that public comments were being accepted, and (2) to announce a public hearing to be held on August 2, 2006 for the purpose of receiving input to the scope for the third round of regional planning.

Notice was published in a newspaper of general circulation in each county located in whole or in part in the region, as well as one additional newspaper deemed necessary to provide complete coverage of the region, or a total of sixteen newspapers. (See attached summary of published newspaper legal ads for the dates of publication.) Publishers Affidavits and tearsheets providing proof of publication were received.

Notice was mailed to each mayor of a municipality with a population of 1,000 or more or which is a county seat that is located in whole or in part in the regional water planning area; to each county judge of a county located in whole or in part in the regional water planning area; to each special or general law district or river authority with responsibility to manage or supply water in the regional water planning area based upon lists of such water districts and river authorities obtained from Texas Commission on Environmental Quality as posted on the Texas Water Development Board website; to each retail public utility, defined as a community water system, that serves any part of the regional water planning area or receives water from the regional water planning area based upon lists of such entities obtained from Texas Commission on Environmental Quality and posted on the Texas Water Development Board website; and each holder of record of a water right for the use of surface water the diversion of which occurs in the regional water planning area based upon lists of such water rights holders obtained from Texas Commission on Environmental Quality and posted on the Texas Water Development Board website. Notices also were mailed to the chairs of the sixteen planning regions.

Notices included the date, time, and location of the public meeting or hearing; a summary of the proposed action to be taken; the name, telephone number and address of the RHWPG Chairman and the TWDB Administrator to whom questions or requests for additional information could be submitted, and information on the duration of the comment period. (See attached copies of mailed and published notices.)

**Notice of Public Meeting and
Notice of Application
to the Texas Water Development Board for
State Financial Assistance to Update the
Region H Regional Water Plan**

June 30, 2006

Region H is a 15-county area including Austin, Brazoria, Chambers, Fort Bend, Galveston, Harris, Leon, Liberty, Madison, Montgomery, Polk (part), San Jacinto, Trinity (part), Walker and Waller counties.

(1) Notice is hereby given that the Region H Water Planning Group (RHWPG) is applying for a grant from the Texas Water Development Board (TWDB) in response to a request for proposals issued pursuant to 31 TAC §355.92, to implement special studies to address changed conditions affecting the Regional Water Plan and to aid in preparing the 2011 Regional Water Plan in accordance with Texas Water Code §16.053. The proposed grant application will be submitted on September 14, 2006, and will be considered by the Texas Water Development Board (TWDB) at its meeting in November 2006. Region H has designated the San Jacinto River Authority (SJRA) to submit the application to the TWDB.

(2) Notice is hereby given that the RHWPG is requesting public input on activities that should be included in the application and in the scope of work for the 2011 Regional Water Plan.

As required by 31 TAC Chapter 357.12(a)(1), public comment will be received at a **Public Meeting** to be held:

August 2, 2006, 10 a.m.
San Jacinto River Authority Office
1577 Damsite Road
Conroe, Texas 77305

The RHWPG will meet to consider the public comment and the draft application immediately following the public meeting. Written comments on the proposed scope of work should be submitted to Jim Adams, P.E., at the address shown below, within 30 days of the date of this notice.

Written comments on the application for funding must be filed with the Executive Administrator of the TWDB (see the address below) and the San Jacinto River Authority by 5:00 p.m. September 1, 2006.

Copies of the grant application may be obtained from the SJRA at the address below when it becomes available. The current Region H Water Plan and the TWDB Request for Proposals with a list of activities eligible for funding are available for review on the TWDB website at www.twdb.state.tx.us, and at the SJRA offices during regular business hours.

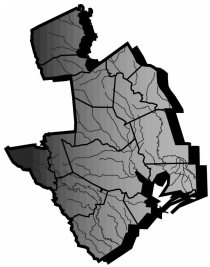
Jim Adams, PE
General Manager
San Jacinto River Authority
P.O. Box 329
Conroe, Texas 77305-0329

J. Kevin Ward
Executive Administrator
Texas Water Development Board
P.O. Box 13231
Austin, Texas 78711-3231

Questions or requests for additional information may be submitted to: Jim Adams, telephone number 936-588-7111, SJRA, P.O. Box 329, Conroe, TX 77305-0329. SJRA is the Administrator for the RHWPG.

NEWSPAPERS FOR PUBLICATION OF PAID NOTICES—REGION H—AUGUST 2006

<u>Newspaper</u>	<u>Publication Date</u>
Anahuac Progress	Wednesday, June 28
Brazosport Facts	Friday, June 30
Bryan-College Station Eagle	Friday, June 30
Centerville News	Wednesday, June 28
Conroe Courier	Friday, June 30
Fort Bend Herald Coaster	Friday, June 30
Galveston County Daily News	Friday, June 30
Houston Chronicle	Friday, June 30
Huntsville Item	Friday, June 30
Liberty Vindicator	Wednesday, June 28
Madisonville Meteor	Wednesday, June 28
Polk County Enterprise	Thursday, June 29
San Jacinto New Time	Thursday, June 29
Sealy News	Friday, June 30
Trinity Standard	Thursday, June 29
Waller County News Citizen	Thursday, June 29



REGION H WATER PLANNING GROUP

Senate Bill 1 - Texas Water Development Board

c/o San Jacinto River Authority

P. O. Box 329, Conroe, Texas 77305

Telephone 936-588-7111 Facsimile 936-588-3043

TO ALL INTERESTED PARTIES:

Notice of Public Meeting and Notice of Application to the Texas Water Development Board for State Financial Assistance to Update the Region H Regional Water Plan

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