STATE OF TEXAS

COUNTY OF TRAVIS

TWDB Contract No. 1148301318

Research and Planning Fund
Regional Water Planning

THIS Contract, (hereinafter "CONTRACT"), between the Texas Water Development Board (hereinafter "TWDB") and CONTRACTOR, the political subdivision designated by the REGIONAL WATER PLANNING GROUP as its representative, is composed of two parts: Section I. Specific Conditions and Exceptions to the Standard Agreement and Section II. Standard Agreement. In the event of any conflict, the terms and conditions set forth in Section I will prevail over terms and conditions in Section II.

SECTION I. SPECIFIC CONDITIONS AND EXCEPTIONS TO STANDARD AGREEMENT

ARTICLE 1. DEFINITIONS: For the purposes of this CONTRACT, the following terms or phrases shall have the meaning ascribed herein:

A. TWDB - the Texas Water Development Board, or its designated representative.

B. TWDB APPROVAL DATE – June 22, 2011

C. COMMITTED FUNDS – $432,413.00 is currently available to the CONTRACTOR pursuant to the terms of this CONTRACT for the development of the TECHNICAL MEMORANDUM and the REGIONAL WATER PLAN. The COMMITTED FUNDS include necessary and direct costs incurred on or after June 22, 2011, and certain eligible costs related to Task 10 incurred on or after February 5, 2011, and prior to June 22, 2011.

D. CONTRACT INITIATION DATE – June 22, 2011

E. CONTRACTOR – Brazos River Authority

F. DEADLINE FOR CONTRACT EXECUTION – August 31, 2011

G. EXECUTIVE ADMINISTRATOR - the Executive Administrator of the TWDB or their designated representative.
H. TECHNICAL MEMORANDUM – the technical memorandum to be prepared by the CONTRACTOR and submitted to the EXECUTIVE ADMINISTRATOR will summarize the findings and all work performed under the initial Scope of Work (i.e., through the identification of the region’s water needs and identification of potentially feasible water management strategies.)

I. TECHNICAL MEMORANDUM DEADLINE – February 28, 2013

J. INITIALLY PREPARED REGIONAL WATER PLAN - the Regional Water Plan to be initially prepared by the CONTRACTOR and submitted to the EXECUTIVE ADMINISTRATOR for comments pursuant to the CONTRACT.

K. INITIALLY PREPARED REGIONAL WATER PLAN DEADLINE – March 1, 2015.

L. REGIONAL WATER PLAN - a plan including amendments thereto that has been adopted by the REGIONAL WATER PLANNING GROUP that meets the requirements contained in the Texas Water Code §16.053 and 31 Texas Administrative Code Chapters 357 and 358 and submitted to the TWDB for approval.

M. REGIONAL WATER PLAN DEADLINE – September 1, 2015.

N. FIRST REIMBURSEABLE EXPENSE DATE – The first day that work performed under this CONTRACT is eligible for reimbursement will be February 5, 2011 for limited administrative costs associated with public notices. TWDB will not reimburse expenses associated with Exhibit A, Scope of Work until after June 22, 2011 and the date that the required public meeting to receive preplanning input from the public is held by the Regional Water Planning Group.

O. FINAL REIMBURSEABLE EXPENSE DATE - The last day that work performed under this CONTRACT is eligible for reimbursement will be January 31, 2016.

P. FINAL PAYMENT REQUEST DEADLINE – The latest day that the final payment request may be submitted for reimbursement will be February 29, 2016.

Q. CONTRACT EXPIRATION DATE - Contract expires on March 31, 2016. The last day that any budget amendment requests may be submitted under the CONTRACT will be March 31, 2016.

S. REGIONAL WATER PLANNING GROUP – Region G Regional Water Planning Group, designated under and in compliance with Texas Water Code §16.053 and 31 Texas Administrative Code §357.4 to develop regional water plans.

T. PAYMENT REQUEST SUBMISSION SCHEDULE – A MINIMUM OF QUARTERLY

ARTICLE II. OTHER SPECIAL CONDITIONS AND EXCEPTIONS TO STANDARD AGREEMENT OF THIS CONTRACT.

A. At the time of the execution of this CONTRACT, the TWDB was not appropriated sufficient funds for the CONTRACTOR to complete the REGIONAL WATER PLAN. The TWDB hereby makes available to the CONTRACTOR pursuant to the terms of this CONTRACT an amount sufficient to complete the initial Scope of Work and complete and submit the TECHNICAL MEMORANDUM. If additional funds are appropriated to the TWDB for the purpose of making grants for preparation of regional water plans, the TWDB will solicit proposals from eligible applicants to complete the REGIONAL WATER PLAN. If the CONTRACTOR’s proposal is selected for additional funding, the EXECUTIVE ADMINISTRATOR and the CONTRACTOR may amend this CONTRACT to provide additional COMMITTED FUNDS and an additional scope of work to complete preparation of the REGIONAL WATER PLAN.

The TWDB shall not be liable for any expenses incurred in excess of COMMITTED FUNDS.

If at any time the EXECUTIVE ADMINISTRATOR determines that there will not be sufficient additional appropriated funds to complete the REGIONAL WATER PLAN, the EXECUTIVE ADMINISTRATOR shall either issue an order to terminate this CONTRACT pursuant to the terms of Section II, Article VII or negotiate amendments to the scope of work. The CONTRACTOR agrees to use all best efforts to timely negotiate any required amendments.

This CONTRACT does not require the CONTRACTOR to incur costs beyond those that can be paid with COMMITTED FUNDS. However, this provision does not impact the duties of the REGIONAL WATER PLANNING GROUP under Texas Water Code §16.053 to prepare a regional water plan.

B. Other provisions specific to each region. None.
C. Tasks identified as Task 4D are contingent budget items that require a written "Notice to Proceed" from the EXECUTIVE ADMINISTRATOR prior to commencement of work by the CONTRACTOR. Upon receipt of the written "Notice to Proceed" from the EXECUTIVE ADMINISTRATOR, the CONTRACTOR may commence work under the related Scope of Work item. Expenses for work performed related to these tasks prior to receipt of the written “Notice to Proceed” may be ineligible for reimbursement, at the EXECUTIVE ADMINISTRATOR’S discretion. The budget flexibility described under Section II, Article IV, Paragraph E does not apply to these task budgets unless reimbursement of the associated task budget is authorized by a written Notice to Proceed.

D. Exhibit D – Guidelines for Regional Water Planning Data Deliverables are currently being updated and will be replaced once the final document is developed by TWDB.

IN WITNESS WHEREOF, the parties have caused this CONTRACT to be duly executed in multiple originals.

TEXAS WATER DEVELOPMENT BOARD

Melanie Callahan
Interim Executive Administrator

Date: 9/27/11

BRAZOS RIVER AUTHORITY

Phil Ford
General Manager / CEO

Date: 17 Aug 2011
SECTION II. STANDARD AGREEMENT

ARTICLE I. RECITALS

Whereas, the CONTRACTOR has been designated by the REGIONAL WATER PLANNING GROUP as its representative to enter into contracts with the TWDB for financial assistance to develop a REGIONAL WATER PLAN for the REGIONAL WATER PLANNING AREA;

Whereas, the CONTRACTOR applied to the TWDB for a planning grant to develop a REGIONAL WATER PLAN;

Whereas, the CONTRACTOR is the entity which will act as administrator of the TWDB’s planning grant and will be responsible for the execution of this CONTRACT; and

Whereas, on the TWDB APPROVAL DATE, the TWDB approved the CONTRACTOR’s application for financial assistance.

Now, therefore, the TWDB and the CONTRACTOR, agree as follows:

ARTICLE II. PROJECT DESCRIPTION AND SERVICES TO BE PERFORMED

A. The CONTRACTOR will develop a TECHNICAL MEMORANDUM and REGIONAL WATER PLAN for the REGIONAL WATER PLANNING AREA according to:
   • Exhibit A – Scope of Work
   • Exhibit B – Task and Expense Budgets
   • Exhibit C – General Guidelines for Regional Water Plan Development
   • Exhibit D – Guidelines for Regional Water Planning Data Deliverables
   • Exhibit E – Original Application (cover pages as a reference to the full, original grant application)
   • Exhibit F - Certification of Procurement of Professional Services and in accordance with the requirements of Texas Water Code Chapters 15 and 16, and with 31 Texas Administrative Code Chapter 355, Subchapter C, Chapter 357 and Chapter 358, including specifically §§357.5(a), 357.5(c)-(f), 357.5(h), (i), (k), and (l), 357.7(a), (b), (c) and (d), 357.10, 357.12(a)(3), 357.12(b), and 358.3(b)(10). These Exhibits, Texas Water Code chapters, and Texas Administrative Code rules are incorporated by reference into and made a part of this CONTRACT for all purposes.

B. The EXECUTIVE ADMINISTRATOR shall provide technical assistance within available resources to the CONTRACTOR requesting such assistance in performing regional water planning activities and, as necessary, will facilitate resolution of conflicts within the REGIONAL WATER PLANNING AREA or between regions.
C. The CONTRACTOR shall provide for public participation in the planning process as specified in Texas Water Code §16.053 and 31 Texas Administrative Code §357.12.

D. The CONTRACTOR shall provide its best efforts as determined by the EXECUTIVE ADMINISTRATOR to produce a REGIONAL WATER PLAN that has been adopted by the REGIONAL WATER PLANNING GROUP and that was developed in accordance with the statutory and rule requirements identified in this CONTRACT.

E. The CONTRACTOR shall obtain the prior approval of the REGIONAL WATER PLANNING GROUP for all potentially feasible water management strategies to be evaluated as part of the REGIONAL WATER PLAN development.

ARTICLE III. SCHEDULE, REPORTS, AND OTHER PRODUCTS

A. The CONTRACTOR shall, on or before the DEADLINE FOR CONTRACT EXECUTION, execute this CONTRACT or the TWDB’s commitment to pay COMMITTED FUNDS will be rescinded.

B. The term of this CONTRACT shall commence on the CONTRACT INITIATION DATE and shall expire on the CONTRACT EXPIRATION DATE.

C. The CONTRACTOR shall provide written progress reports according to the PAYMENT REQUEST SUBMISSION SCHEDULE with each payment reimbursement request or release of advance funds. The progress reports shall include:
   (1) a brief statement of the overall progress made since the last progress report for each task budget item;
   (2) a brief description of any problems that have been encountered during the previous reporting period that may affect the study, delay the timely completion of any portion of this CONTRACT, or inhibit the completion of or cause a change in any of the study’s products or objects; and
   (3) a description of any action the CONTRACTOR plans to take to correct any problems that have been encountered or identified.
D. The CONTRACTOR will complete the TECHNICAL MEMORANDUM according to Article II, Paragraph A of this Section. The CONTRACTOR shall submit the TECHNICAL MEMORANDUM to the REGIONAL WATER PLANNING GROUP for approval at a regular REGIONAL WATER PLANNING GROUP meeting. After such approval, the CONTRACTOR shall submit the TECHNICAL MEMORANDUM to the EXECUTIVE ADMINISTRATOR, if the REGIONAL WATER PLANNING GROUP authorizes such submittal. CONTRACTOR will deliver ten (10) double-sided copies and two electronic copies, one (1) in searchable Portable Document Format (PDF) and one (1) in Microsoft Word (MSWord) Format, of a TECHNICAL MEMORANDUM to the EXECUTIVE ADMINISTRATOR no later than the TECHNICAL MEMORANDUM DEADLINE.

The CONTRACTOR will populate the TWDB’S regional water planning database (DB17) with associated data, prior to submission of the TECHNICAL MEMORANDUM in accordance with Exhibit D to this CONTRACT.

The TECHNICAL MEMORANDUM DEADLINE may be extended at the discretion of the EXECUTIVE ADMINISTRATOR either on the EXECUTIVE ADMINISTRATOR’S initiative or upon a written request received from the CONTRACTOR, at least thirty (30) days prior to the deadline, stating good cause for the extension.

The TWDB will not accept a TECHNICAL MEMORANDUM or consider it administratively complete until the associated data in the TWDB’S regional water planning database (DB17) is complete and accurate, and the required online planning database reports from DB17 are included in the TECHNICAL MEMORANDUM in accordance with Exhibit A.

After a 30-day review period, the EXECUTIVE ADMINISTRATOR will either accept or reject the TECHNICAL MEMORANDUM based on administrative completeness. If the TECHNICAL MEMO is rejected, the rejection letter sent to the CONTRACTOR shall state the reasons for rejection and the steps the CONTRACTOR need to take to have the TECHNICAL MEMORANDUM accepted.

In the event the CONTRACTOR has produced a TECHNICAL MEMORANDUM, that despite the CONTRACTOR’S best efforts has not been authorized for submittal by the REGIONAL WATER PLANNING GROUP, the CONTRACTOR shall provide to the TWDB all data, material, reports, and work accomplished under the CONTRACT.

E. The CONTRACTOR or CONTRACTOR’S representative (e.g., subcontractor) shall attend at least one DB17 training session provided by TWDB staff at times and locations to be determined by TWDB.
F. The CONTRACTOR will complete the INITIALLY PREPARED REGIONAL WATER PLAN according to Article II, Paragraph A of this Section. The CONTRACTOR shall submit the INITIALLY PREPARED REGIONAL WATER PLAN to the REGIONAL WATER PLANNING GROUP to allow the REGIONAL WATER PLANNING GROUP to conduct a public hearing to receive and consider comments on the INITIALLY PREPARED REGIONAL WATER PLAN. After such hearing the CONTRACTOR shall submit the INITIALLY PREPARED REGIONAL WATER PLAN to the EXECUTIVE ADMINISTRATOR, if the REGIONAL WATER PLANNING GROUP authorizes such submittal. CONTRACTOR will deliver twelve (12) double-sided copies and two electronic copies, one (1) in searchable Portable Document Format (PDF) and one (1) in Microsoft Word (MSWord) Format, of an INITIALLY PREPARED REGIONAL WATER PLAN to the EXECUTIVE ADMINISTRATOR no later than the INITIALLY PREPARED REGIONAL WATER PLAN DEADLINE. The EXECUTIVE ADMINISTRATOR will provide any written comments to the CONTRACTOR within 120 calendar days.

The CONTRACTOR will populate the TWDB'S regional water planning database (DB17), prior to submission of the INITIALLY PREPARED REGIONAL WATER PLAN DEADLINE in accordance with Exhibit D to this CONTRACT. CONTRACTOR will incorporate the required online planning database reports from DB17 within the submitted INITIALLY PREPARED REGIONAL WATER PLAN in accordance with Exhibit A to this CONTRACT.

The INITIALLY PREPARED REGIONAL WATER PLAN DEADLINE may be extended at the discretion of the EXECUTIVE ADMINISTRATOR either on their own initiative or upon a written request received from the CONTRACTOR, at least thirty (30) days prior to the deadline, stating good cause for the extension.

G. The CONTRACTOR will include in the adopted REGIONAL WATER PLAN a copy of the EXECUTIVE ADMINISTRATOR'S comments on the INITIALLY PREPARED REGIONAL WATER PLAN and a summary of all other comments received on the INITIALLY PREPARED REGIONAL WATER PLAN, including written explanations of how the REGIONAL WATER PLAN was revised in response to comments or why changes recommended in a comment were not warranted.

The CONTRACTOR will submit:
- one (1) electronic copy of all files on which the plan is based (e.g. spreadsheets, maps);
• two (2) electronic copies of the entire REGIONAL WATER PLAN, one (1) in searchable Portable Document Format (PDF) and one (1) in Microsoft Word (MSWord) Format. In compliance with Texas Administrative Code, Title 1, Part 10, Chapters 206 and 213 (related to Accessibility and Usability of State Web Sites), the electronic copy of the REGIONAL WATER PLAN will comply with the requirements and standards specified in statute.; and,
• nine (9) bound, double-sided copies of the REGIONAL WATER PLAN to the EXECUTIVE ADMINISTRATOR no later than the REGIONAL WATER PLAN DEADLINE.

H. CONTRACTOR will make corrections, updates, or modifications, to the TWDB regional water planning database (DB17), as necessary, prior to REGIONAL WATER PLAN DEADLINE in accordance with Exhibit D to this CONTRACT. The TWDB will not accept a REGIONAL WATER PLAN or consider it administratively complete until the associated data in the TWDB’S regional water planning database (DB17) is complete and accurate and the required online planning database reports from DB17 are included in the REGIONAL WATER PLAN in accordance with Exhibit A to this CONTRACT. The CONTRACTOR also will transfer copies of all data and reports generated by the planning process and used in developing the REGIONAL WATER PLAN to the EXECUTIVE ADMINISTRATOR no later than the REGIONAL WATER PLAN DEADLINE. The REGIONAL WATER PLAN and the data collected and transmitted for the REGIONAL WATER PLAN will be prepared in the format and according to specifications prescribed in Exhibits C and D to this CONTRACT. In the event the CONTRACTOR has produced a REGIONAL WATER PLAN, that despite the CONTRACTOR’S best efforts has not been adopted by the REGIONAL WATER PLANNING GROUP, the CONTRACTOR shall provide to the TWDB all data, material, reports, and work accomplished under the CONTRACT.

I. Delivery of a REGIONAL WATER PLAN that meets statutory and rule requirements as determined by the EXECUTIVE ADMINISTRATOR on or before the REGIONAL WATER PLAN DEADLINE shall constitute completion of the terms of this CONTRACT by CONTRACTOR.

J. After a 90-day review period, the EXECUTIVE ADMINISTRATOR will either accept or reject the REGIONAL WATER PLAN. If the final plan is rejected, the rejection letter sent to the CONTRACTOR shall state the reasons for rejection and the steps the CONTRACTOR needs to take to have the REGIONAL WATER PLAN accepted and the retainage released.

ARTICLE IV. COMPENSATION AND REIMBURSEMENT

A. The TWDB agrees to compensate and reimburse the CONTRACTOR in a total amount not to exceed the COMMITTED FUNDS for costs incurred and paid by the CONTRACTOR pursuant to performance of this CONTRACT as specified in Section I.
B. Eligible expenses incurred by the CONTRACTOR from the FIRST REIMBURSEABLE EXPENSE DATE through FINAL REIMBURSEABLE EXPENSE DATE will be reimbursed by TWDB.

C. Requests for Advance or Reimbursement for Subcontractor Expenses. Requests for advance or reimbursement for subcontractor expenses will only be considered where such subcontracts or agreements have been determined by the EXECUTIVE ADMINISTRATOR to be consistent with the terms of this CONTRACT. The purpose of this review is SOLELY to ensure that the subcontracts and agreements are consistent with this CONTRACT and that the rights of the TWDB, particularly in regard to ownership of data, are protected. CONTRACTOR understands that CONTRACTOR should obtain its own legal review of subcontracts and agreements that CONTRACTOR enters into. CONTRACTOR agrees that the TWDB assumes no legal obligations under its subcontracts or agreements and is merely a third-party beneficiary of the same. The CONTRACTOR is fully responsible for paying all charges by subcontractors prior to reimbursement by the TWDB.

Each subcontract or agreement shall include a task and expense budget estimate in a format similar to Exhibit B to this CONTRACT with specific cost details for each task or specific item of work to be performed by the subcontractor and for each category of reimbursable expenses. The subcontracts and agreements shall conform to the terms of the CONTRACT and include provisions which require subcontractor compliance with TWDB rules. The subcontracts and agreements shall provide that in the event of any conflict with the provisions of this CONTRACT the provisions of the CONTRACT will prevail. In addition, each subcontract or agreement that in any manner involves the collection or manipulation of data, shall include the following provisions in Paragraph D of this Article below.

D. The CONTRACTOR must adhere to all requirements in state law and TWDB rules pertaining to the procurement of professional services, including 31 TAC §355.93(e). Prior to associated reimbursements, the CONTRACTOR must submit a Certification of Procurement of Professional Services in accordance with Exhibit F to this CONTRACT, evidencing that the Region's subcontractors were properly and competitively procured after the submission of the Region's 2011 Regional Water Plan to the TWDB. Expenses incurred under subcontracts or agreements that have not been approved by the EXECUTIVE ADMINISTRATOR or do not otherwise comply with the terms of this CONTRACT are not eligible for reimbursement.
E. At the sole discretion of the EXECUTIVE ADMINISTRATOR, the CONTRACTOR may modify task and expense budget categories to the extent that the resulting change in amount in any one task or expense category does not exceed 35% of the total authorized amount by this CONTRACT for that task or category. Larger deviations shall require submission of a written request that is approved by the Regional Water Planning Group and approved by the EXECUTIVE ADMINISTRATOR or designee which will be documented through an Approved Budget Memorandum to the TWDB contract file. The CONTRACTOR will be required to provide written explanation for the overage and reallocation of the task and expense amount. Associated shifts in amounts between budget task and expense categories authorized under this paragraph shall not change the COMMITTED FUNDS amount.

F. The CONTRACTOR and its subcontractors shall maintain satisfactory financial accounting documents and records, including copies of invoices, receipts, time and attendance records, supporting salaries and wages, in accordance with generally accepted accounting principles for a term of three years after completion of this CONTRACT and shall make them available for examination and audit by the TWDB at any time upon 24 hours notice by the EXECUTIVE ADMINISTRATOR or the EXECUTIVE ADMINISTRATOR’s designee. Accounting by the CONTRACTOR and its subcontractors shall be in a manner consistent with generally accepted accounting principles.

G. The CONTRACTOR will provide information to an entity or person who is independent of the CONTRACTOR and who is selected by the REGIONAL WATER PLANNING GROUP sufficient to allow that person or entity to routinely provide reports of expenses and use of planning funds to the REGIONAL WATER PLANNING GROUP. The person to whom the information is provided may be a member of the REGIONAL WATER PLANNING GROUP. The CONTRACTOR shall allow such person or entity full access to all records relating to this CONTRACT, including all financial records.

H. The TWDB agrees to compensate and reimburse the CONTRACTOR in a total amount not to exceed the COMMITTED FUNDS available for costs incurred and paid by the CONTRACTOR pursuant to performance of this CONTRACT. The TWDB shall reimburse the CONTRACTOR for ninety five percent of each invoice pending the CONTRACTOR’s performance. The five percent retainage will be held until the CONTRACTOR submits a REGIONAL WATER PLAN, as described in Article III, Paragraphs G and H of this section. If the EXECUTIVE ADMINISTRATOR determines that CONTRACTOR has utilized its best efforts to have an INITIALLY PREPARED REGIONAL WATER PLAN adopted by the REGIONAL WATER PLANNING GROUP for submittal to the TWDB, but has been unable, despite those best efforts, to do so, the EXECUTIVE ADMINISTRATOR may release the five percent retainage solely within the EXECUTIVE ADMINISTRATOR’s discretion.
I. The five percent retainage is to encourage completion of the REGIONAL WATER PLAN. In lieu of the five percent retainage, the TWDB will accept a performance bond or letter of credit from the CONTRACTOR with the TWDB as the beneficiary if the EXECUTIVE ADMINISTRATOR determines that such action would accomplish the same purpose as holding retainage. Performance bond or letter of credit from a subcontractor is unacceptable.

J. The CONTRACTOR shall submit payment requests and documentation for reimbursement in accordance with the approved task and expense budgets contained in Exhibit B to this Contract. For all reimbursement billings, including any subcontractor's expenses, the EXECUTIVE ADMINISTRATOR must have provided written approval of all contracts or agreements between the CONTRACTOR and the subcontractor. The CONTRACTOR is fully responsible for paying all charges by subcontractors prior to reimbursement by the TWDB.

K. The written progress report required by Article III, Paragraph C of this Section, and the following documentation which documents the COMMITTED FUNDS shall be submitted by the CONTRACTOR to the EXECUTIVE ADMINISTRATOR in support of its requests for advances. The CONTRACTOR shall submit a progress report and the following documentation which documents the COMMITTED FUNDS for the reporting period even if the COMMITTED FUNDS is ZERO.

1. Completed and Signed Payment Request Checklist which includes the following:
   (a) TWDB CONTRACT Number;
   (b) Total expenses for the billing period; beginning (date) to ending (date);
   (c) Total Services for this billing period;
   (d) Total In-kind services;
   (e) Less Local Share of the COMMITTED FUNDS for the billing period;
   (f) Total of TWDB's share of the COMMITTED FUNDS for the billing period;
   (g) Amount of retainage to be withheld for the billing period;
   (h) Total costs to be reimbursed by the TWDB for the billing period; and
   (i) Certification, signed by the CONTRACTOR's authorized representative, that the expenses submitted for the billing period are a true and correct representation of amounts paid for work performed directly related to this CONTRACT.

2. For direct expenses incurred by the CONTRACTOR other than subcontracted work:
   (a) A spreadsheet showing the tasks that were performed; the percent and cost of each task completed; a total cost figure for each direct expense category including labor, fringe, overhead, travel, and other expenses such as communication and postage, technical and computer services, expendable supplies, printing and reproduction; and
   (b) Copies of invoices for other expenses

3. For direct expenses incurred by the CONTRACTOR for subcontracted work:
   (a) Copies of invoices from the subcontractors to the CONTRACTOR
(b) A spreadsheet showing the tasks that were performed; the percent and cost of each task completed; a total cost figure for each direct expense category including labor, fringe, overhead, travel, and other expenses such as communication and postage, technical and computer services, expendable supplies, printing and reproduction; and the total dollar amount due to the Subcontractor; and
(c) Copies of invoices for other expenses

4. For travel expenses for the CONTRACTOR and/or subcontractor(s) –
   (a) Names, dates, work locations, time periods at work locations, itemization of subsistence expenses of each employee, which will be reimbursed at rates authorized for state employees by the General Appropriations Act, Tex. Leg. Regular Session, 2009, Article IX, Part 5, as amended or superceded. Receipts required for lodging. Any eligible travel expenses related to a subcontract may be reimbursed at the current rate for State of Texas employees which can be found at: https://fmx.cpa.state.tx.us/fmx/travel/exptravel/trans/personal.php
   (b) Copies of invoices or tickets for transportation costs or, if not available, names, dates, and points of travel of individuals; and
   (c) All other reimbursable travel expenses -- invoices or purchase vouchers showing reason for expense with receipts to evidence the amount incurred.

5. Incomplete requests will be returned to the CONTRACTOR if deficiencies are not resolved within ten (10) business days.

6. If for some reason the reimbursement request cannot be processed due to the need for an amendment to the CONTRACT, the CONTRACTOR will be required to resubmit the Payment Request Checklist dated after the execution of the amendment.

L. In accordance with Section I, Article I, the CONTRACTOR will provide a final reconciliation of expended amounts under the CONTRACT. Within thirty (30) days of the EXECUTIVE ADMINISTRATOR'S final accounting of the amounts expended by the CONTRACTOR and the amounts reimbursed by the TWDB to the CONTRACTOR, the CONTRACTOR will refund to the TWDB any advances not used for expenses approved by the EXECUTIVE ADMINISTRATOR, and any interest earned but not expended on such approved expenses. If the amounts expended by the CONTRACTOR exceed the amounts advanced by the TWDB, the EXECUTIVE ADMINISTRATOR will reimburse the difference provided the reimbursement does not exceed the COMMITTED FUNDS.

ARTICLE V. INTELLECTUAL PROPERTY: OWNERSHIP, PUBLICATION, AND ACKNOWLEDGEMENT

A. “Use” of a work product, whether a CONTRACTOR Work, a Subcontractor Work or otherwise, shall mean and include, without limitation, any lawful use, copying or dissemination of the work product, or any lawful development, use, copying or dissemination of derivative works of the work product, in any media or forms, whether now known or later existing.
B. “No Compensation Obligation” shall mean there is no obligation on the part of one co-owner or licensee of a work, whether a CONTRACTOR Work, a Subcontractor Work or otherwise, to compensate other co-owners, licensees or licensors of the work for any use of the work by the using co-owner or licensee, including but not limited to compensation for or in the form of: royalties; co-owner or licensee accounting; sharing of revenues or profits among co-owners, licensees or licensors; or any other form of compensation to the other co-owners, licensees or licensors on account of any use of the work.

C. “Dissemination” shall include, without limitation, any and all manner of: physical distribution; publication; broadcast; electronic transmission; Internet streaming; posting on the Internet or world wide-web; or any other form of communication, transmission, distribution, sending or providing, in any forms or formats, and in or using any media, whether now known or later existing.

D. The TWDB shall have an unlimited, unrestricted, perpetual, irrevocable, non-exclusive royalty-free right to access and receive in usable form and format, and to use all technical or other data or information developed by CONTRACTOR and SUBCONTRACTOR in, or otherwise resulting from, the performance of services under this CONTRACT.

E. For purposes of this Article, “CONTRACTOR Works” are work products developed by CONTRACTOR and Subcontractor using funds provided under this CONTRACT or otherwise rendered in or related to the performance in whole or in part of this CONTRACT, including but not limited to reports, drafts of reports, or other material, data, drawings, studies, analyses, notes, plans, computer programs and codes, or other work products, whether final or intermediate.

1. It is agreed that all CONTRACTOR Works shall be the joint property of the TWDB and CONTRACTOR.

2. The parties hereby agree that, if recognized as such by applicable law, the CONTRACTOR Works are intended to and shall be works-made-for-hire with joint ownership between the TWDB and CONTRACTOR as such works are created in whole or in part.

3. If the CONTRACTOR Works do not qualify as works-made-for-hire under applicable law, CONTRACTOR hereby conveys co-ownership interest in such works to the TWDB as they are created in whole or in part. If present conveyance is ineffective under applicable law, CONTRACTOR agrees to convey a co-ownership interest in the CONTRACTOR Works to the TWDB after creation in whole or in part of such works, and to provide written documentation of such conveyance upon request by the TWDB.
4. The TWDB and CONTRACTOR acknowledge that the copyright in and to a copyrightable CONTRACTOR Work exists upon creation of the CONTRACTOR Work and its fixing in any tangible medium. CONTRACTOR or the TWDB may register the copyrights to such Works jointly in the names of the CONTRACTOR and the TWDB.

5. The TWDB and CONTRACTOR each shall have full and unrestricted rights to use a CONTRACTOR Work with No Compensation Obligation.

F. For purposes of this Article, “Subcontractor Works” include all work product developed in whole or in part by or on behalf of Subcontractors engaged by CONTRACTOR to perform work for or on behalf of CONTRACTOR under this CONTRACT (or by the Subcontractors’ Subcontractors hereunder, and so on). CONTRACTOR shall secure in writing from any Subcontractors so engaged:

1. unlimited, unrestricted, perpetual, irrevocable, royalty-free rights of the TWDB (and, if desired, of CONTRACTOR) to access and receive, and to use, any and all technical or other data or information developed in or resulting from the performance of services under such engagement, with No Compensation Obligation; and either:

2. assignment by the Subcontractor to the TWDB (and, if desired by them, jointly to the CONTRACTOR) of ownership (or joint ownership with the CONTRACTOR) of all Subcontractor Works, with No Compensation Obligation; or

3. grant by Subcontractor of a non-exclusive, unrestricted, unlimited, perpetual, irrevocable, world-wide, royalty-free license to the TWDB (and, if desired by them, the CONTRACTOR) to use any and all Subcontractor Works, including the right to sublicense use to third parties, with No Compensation Obligation.

G. No unauthorized patents. CONTRACTOR Works and Subcontractor Works or other work product developed or created in the performance of this CONTRACT or otherwise using funds provided hereunder shall not be patented by CONTRACTOR or their Subcontractor unless the Executive Administrator consents in writing to submission of an application for patent on such works; and provided that, unless otherwise agreed in writing:

1. any application made for patent shall include and name the TWDB (and, as applicable and desired by them, both the CONTRACTOR and the Subcontractor) as co-owners of the patented work;

2. no patent granted shall in any way limit, or be used by CONTRACTOR or Subcontractor to limit or bar the TWDB’s rights hereunder to access and receive in useable form and format, and right to use, any and all technical or other data or information developed in or resulting from performance pursuant to this CONTRACT or Subcontract or the use of funds provided hereunder; and

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3. the TWDB (and, if applicable, the CONTRACTOR) shall have No Compensation Obligation to any other co-owners or licensees of any such patented work.

H. CONTRACTOR shall include terms and conditions in all contracts or other engagement agreements with any Subcontractors as are necessary to secure these rights and protections for the TWDB; and shall require that their Subcontractors include similar such terms and conditions in any contracts or other engagements with their Subcontractors. For the purposes of this section, "Subcontractors" includes independent contractors (including consultants) and also employees working outside the course and scope of employment.

I. Any work products subject to a TWDB copyright or joint copyright and produced or developed by the CONTRACTOR or their Subcontractor pursuant to this CONTRACT or Subcontract or using any funding provided by the TWDB may be reproduced in any media, forms or formats by the TWDB or CONTRACTOR at their own cost, and be disseminated in any medium, format or form by any party at its sole cost and in its sole discretion. CONTRACTOR may utilize such work products as they may deem appropriate, including Dissemination of such work products or parts thereof under their own name, provided that any TWDB copyright is noted on the materials.

J. The CONTRACTOR agrees to acknowledge the TWDB in any news releases or other publications relating to the work performed under this CONTRACT.

ARTICLE VI. SUBCONTRACTS

Each Subcontract entered into to perform required work under this CONTRACT shall contain the following information and provisions:

A. Contract Dates – there should be a starting date and ending date for your agreement.

B. Contract Amount – your agreement should list the total value of the subcontract.

C. Terms of Reimbursement - Subcontracts must be cost reimbursable. Lump sum agreements are not permitted for services. Please also note that the TWDB does not reimburse “handling costs” (mark-ups) on any expenses. Any eligible travel expenses related to a subcontract may be reimbursed at the current rate for State of Texas employees which can be found at: https://fmx.cpa.state.tx.us/fmx/travel/txtravel/trans/personal.php

D. Scope of Work – the terms of the scope of work must be consistent with the scope of the CONTRACT.

E. Task Budget – as appropriate. The task budget must be consistent with the task budget specified in the TWDB CONTRACT.

F. Expense Budget – as appropriate. The expense budget must be consistent with the expense budget specified in the TWDB CONTRACT.

G. Signatures – each subcontract must be executed appropriately by signature, by each party to the agreement.
H. **State Auditor:** “By executing this Contract, the SUBCONTRACTOR accepts the authority of the State Auditor's Office, under direction of the legislative audit committee, to conduct audits and investigations in connection with any and all state funds received pursuant to this contract. The SUBCONTRACTOR shall comply with and cooperate in any such investigation or audit. The SUBCONTRACTOR agrees to provide the State Auditor with access to any information the State Auditor considers relevant to the investigation or audit. The SUBCONTRACTOR also agrees to include a provision in any subcontract related to this contract that requires the SUBCONTRACTOR to submit to audits and investigation by the State Auditor's Office in connection with any and all state funds received pursuant to the subcontract.”

I. **Financial Records:** “The SUBCONTRACTOR(S) and its contracted parties shall maintain satisfactory financial accounting documents and records, including copies of invoices and receipts, and shall make them available for examination and audit by the EXECUTIVE ADMINISTRATOR of the TWDB. Accounting by the SUBCONTRACTOR (S) and its contracted parties shall be in a manner consistent with generally accepted accounting principles.”

J. **No Debt Against the State:** “This SUBCONTRACT and Agreement shall not be construed as creating any debt by or on behalf of the State of Texas and the TWDB, and all obligations of the State of Texas are subject to the availability of funds. To the extent the performance of this SUBCONTRACT transcends the biennium in which this SUBCONTRACT is entered into, this SUBCONTRACT is specifically contingent upon the continued authority of the TWDB and appropriations therefore.”

K. **License, Permits, and Insurance:** “For the purpose of this CONTRACT, the SUBCONTRACTOR(S) will be considered an independent CONTRACTOR and therefore solely responsible for liability resulting from negligent acts or omissions. The SUBCONTRACTOR(S) shall obtain all necessary insurance, in the judgment of the SUBCONTRACTOR(S), to protect itself, the CONTRACTOR, the TWDB, and employees and officials of the TWDB from liability arising out of this CONTRACT. The SUBCONTRACTOR(S) shall indemnify and hold the TWDB and the State of Texas harmless, to the extent the SUBCONTRACTOR(S) may do so in accordance with state law, from any and all losses, damages, liability, or claims therefore, on account of personal injury, death, or property damage of any nature whatsoever caused by the SUBCONTRACTOR(S), arising out of the activities under this CONTRACT. The SUBCONTRACTOR(S) shall be solely and entirely responsible for procuring all necessary licenses and permits which may be required for the SUBCONTRACTOR(S) to perform the subject work.”
L. **Ownership:** "It is agreed that all reports, drafts of reports, or other material, data, drawings, computer programs and codes associated with this CONTRACT and developed by the (Name of SUBCONTRACTOR) pursuant to this CONTRACT shall become the joint property of the REGIONAL WATER PLANNING GROUP, (Name of CONTRACTOR), (Name of SUBCONTRACTOR), and the Texas Water Development Board. These materials shall not be copyrighted or patented by the (Name of SUBCONTRACTOR). (Name of SUBCONTRACTOR) agrees that neither the Regional Water Planning Group nor the Texas Water Development Board are parties to this CONTRACT and agrees that that these entities have no liability under the terms of this CONTRACT. The Texas Water Development Board is solely a third-party beneficiary under this CONTRACT."

M. **Compliance with TWDB rules and state law:** The SUB-CONTRACTOR(S) shall comply with TWDB rules and adhere to all requirements in state law pertaining to the procurement of professional services.

**ARTICLE VII. AMENDMENT, TERMINATION, AND STOP ORDERS**

A. This CONTRACT may be altered or amended by mutual written consent or terminated by the EXECUTIVE ADMINISTRATOR at any time by written notice to the CONTRACTOR. The EXECUTIVE ADMINISTRATOR shall terminate this CONTRACT if the REGIONAL WATER PLANNING GROUP withdraws its designation of the CONTRACTOR as the CONTRACT representative of the REGIONAL WATER PLANNING GROUP. Upon receipt of such termination notice, the CONTRACTOR shall, unless the notice directs otherwise, immediately discontinue all work in connection with the performance of this CONTRACT and shall proceed to cancel promptly all existing orders insofar as such orders are chargeable to this CONTRACT. The CONTRACTOR shall submit a statement showing in detail the work performed under this CONTRACT up to the date of termination. The TWDB, in its discretion, shall then pay the CONTRACTOR that proportion of the prescribed fee, which applies to the work, actually performed under this CONTRACT, less all payments that have been previously made and any approved by the EXECUTIVE ADMINISTRATOR to conclude the CONTRACT. Thereupon, copies of all work accomplished under this CONTRACT shall be delivered promptly to the TWDB.

B. Any request to amend the CONTRACT Scope of Work (Exhibit A) must be submitted in writing by the CONTRACTOR to the TWDB following approval by the REGIONAL WATER PLANNING GROUP [31 TAC Section 357.6(4)].
C. The EXECUTIVE ADMINISTRATOR may issue a Stop Work Order to the CONTRACTOR at any time. Upon receipt of such order, the CONTRACTOR shall discontinue all work under this CONTRACT and cancel all orders pursuant to this CONTRACT, unless the Stop Work Order directs otherwise. If the EXECUTIVE ADMINISTRATOR does not issue a Restart Order within 60 days after receipt by the CONTRACTOR of the Stop Work Order, the CONTRACTOR shall regard this CONTRACT terminated in accordance with the foregoing provisions.

ARTICLE VIII. NO DEBT AGAINST THE STATE

This CONTRACT and Agreement shall not be construed as creating any debt by or on behalf of the State of Texas and the TWDB, and all obligations of the State of Texas are subject to the availability of funds. To the extent the performance of this CONTRACT transcends the biennium in which this CONTRACT is entered into, this CONTRACT is specifically contingent upon the continued authority of the TWDB and appropriations therefore. The TWDB and CONTRACTOR acknowledge that the completion of the terms of this CONTRACT, including the payment of COMMITTED FUNDS by the TWDB and submission of a REGIONAL WATER PLAN by the CONTRACTOR, will require funds that have not yet been appropriated.

ARTICLE IX. LICENSES, PERMIT, AND INSURANCE

A. For the purpose of this CONTRACT, the CONTRACTOR will be considered an independent contractor and therefore solely responsible for liability resulting from negligent acts or omissions.

B. The CONTRACTOR shall be solely and entirely responsible for procuring all necessary licenses and permits which may be required for the CONTRACTOR to perform the subject work.

C. Indemnification. The CONTRACTOR shall indemnify and hold the TWDB and the State of Texas harmless, to the extent the CONTRACTOR may do so in accordance with state law, from any and all losses, damages, liability, or claims therefore, on account of personal injury, death, or property damage of any nature whatsoever caused by the CONTRACTOR, arising out of the activities and work conducted pursuant to this CONTRACT. The CONTRACTOR is solely responsible for liability arising out of its negligent acts or omissions during the performance of this CONTRACT.
ARTICLE X. SEVERANCE PROVISION

Should any one or more provisions of this CONTRACT be held to be null, void, voidable, or for any reason whatsoever of no force and effect, such provision(s) shall be construed as severable from the remainder of this CONTRACT and shall not affect the validity of all other provisions of this CONTRACT, which shall remain of full force and effect.

ARTICLE XI. GENERAL TERMS AND CONDITIONS

A. GENERAL TERMS

1. No Debt Against the State. This CONTRACT does not create any debt by or on behalf of the State of Texas and the TWDB. The TWDB’S obligations under this CONTRACT are contingent upon the availability of appropriated funds and the continued legal authority of the TWDB to enter into this CONTRACT.

2. Independent Contractor. Both parties hereto, in the performance of this contract, shall act in an individual capacity and not as agents, employees, partners, joint ventures or associates of one another. The employees or agents of one party shall not be deemed or construed to be the employees or agents of the other party for any purposes whatsoever.

3. Procurement Laws. The CONTRACTOR shall comply with applicable State of Texas procurement laws, rules and policies, including but not limited to competitive bidding and the Professional Services Procurement Act, Government Code, Chapter 2254, relating to contracting with persons whose services are within the scope of practice of: accountants, architects, landscape architects, land surveyors, medical doctors, optometrists, professional engineers, professional geoscientists, real estate appraisers, professional nurses, and certified public accountants.
4. **Right to Audit.** The CONTRACTOR and its Subcontractors shall maintain all financial accounting documents and records, including copies of all invoices and receipts for expenditures, relating to the work under this CONTRACT. CONTRACTOR shall make such documents and records available for examination and audit by the Executive Administrator or any other authorized entity of the State of Texas. CONTRACTOR'S financial accounting documents and records shall be kept and maintained in accordance with generally accepted accounting principles. By executing this CONTRACT, the CONTRACTOR accepts the authority of the Texas State Auditor's Office to conduct audits and investigations in connection with all state funds received pursuant to this CONTRACT. The CONTRACTOR shall comply with directives from the Texas State Auditor and shall cooperate in any such investigation or audit. The CONTRACTOR agrees to provide the Texas State Auditor with access to any information the Texas State Auditor considers relevant to the investigation or audit. The CONTRACTOR also agrees to include a provision in any Subcontract related to this CONTRACT that requires the Subcontractor to submit to audits and investigation by the State Auditor's Office in connection with all state funds received pursuant to the Subcontract.

5. **Force Majeure.** Unless otherwise provided, neither CONTRACTOR nor the TWDB nor any agency of the State of Texas, shall be liable to the other for any delay in, or failure of performance of, a requirement contained in this CONTRACT caused by force majeure. The existence of such causes of delay or failure shall extend the period of performance until after the causes of delay or failure have been removed provided the non-performing party exercises all reasonable due diligence to perform. Force majeure is defined as acts of God, war, strike, fires, explosions, or other causes that are beyond the reasonable control of either party and that by exercise of due foresight such party could not reasonably have been expected to avoid, and which, by the exercise of all reasonable due diligence, such party is unable to overcome. Each party must inform the other in writing with proof of receipt within five (5) business days of the existence of such force majeure or otherwise waive this right as a defense.

B. **STANDARDS OF PERFORMANCE.**

1. **Personnel.** CONTRACTOR shall assign only qualified personnel to perform the services required under this CONTRACT. CONTRACTOR shall be responsible for ensuring that any Subcontractor utilized shall also assign only qualified personnel. Qualified personnel are persons who are properly licensed to perform the work and who have sufficient knowledge, skills and ability to perform the tasks and services required herein according to the standards of performance and care for their trade or profession.
2. Professional Standards. CONTRACTOR shall provide the services and deliverables in accordance with applicable professional standards. CONTRACTOR represents and warrants that it is authorized to acquire Subcontractors with the requisite qualifications, experience, personnel and other resources to perform in the manner required by this CONTRACT.

3. Antitrust. CONTRACTOR represents and warrants that neither CONTRACTOR nor any firm, corporation, partnership, or institution represented by, or affiliated with CONTRACTOR, or anyone acting for such firm, corporation, partnership, or institution has (1) violated the antitrust laws of the State of Texas under the Texas Business & Commerce Code, 15 United States Code Sections 1-7 of the federal antitrust laws; or (2) communicated directly or indirectly CONTRACTOR’s proposal which has resulted in this CONTRACT to any competitor or other person engaged in such line of business during the procurement process for this CONTRACT.

4. Conflict of Interest. CONTRACTOR represents and warrants that CONTRACTOR has no actual or potential conflicts of interest in providing the deliverables required by this CONTRACT to the State of Texas and the TWDB. CONTRACTOR represents that the provision of services under this CONTRACT will not create an appearance of impropriety. CONTRACTOR also represents and warrants that, during the term of this CONTRACT, CONTRACTOR will immediately notify the TWDB, in writing, of any potential conflict of interest that could adversely affect the TWDB by creating a conflict or the appearance of a conflict of interest.

5. CONTRACTOR represents and warrants that neither CONTRACTOR nor any person or entity that will participate financially in this CONTRACT has received compensation from the TWDB or any agency of the State of Texas for participation in the preparation of specifications for this CONTRACT. CONTRACTOR represents and warrants that it has not given, offered to give, and does not intend to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to any public servant in connection with this CONTRACT.

6. Proprietary and Confidential Information. CONTRACTOR warrants and represents that any information that is proprietary or confidential, and is received by CONTRACTOR from the TWDB or any governmental entity, shall not be disclosed to third parties without the written consent of the TWDB or applicable governmental entity, whose consent shall not be unreasonably withheld.
7. Public Information Act. CONTRACTOR acknowledges and agrees that all documents, in any media, generated in the performance of work conducted under this CONTRACT are subject to public disclosure under the Public Information Act, Government Code, Chapter 552. CONTRACTOR shall produce all documents upon request of the TWDB within two (2) business days when the documents are required to comply with a request for information under the Public Information Act.

8. Accurate and Timely Record Keeping. CONTRACTOR warrants and represents that it will keep timely, accurate and honest books and records relating to the work performed and the payments received under this CONTRACT according to generally accepted accounting standards. Further, CONTRACTOR agrees that it will create such books and records at or about the time the transaction reflected in the books and records occurs.

9. Dispute Resolution. The CONTRACTOR and the TWDB agree to make a good faith effort to resolve any dispute relating to the work required under this CONTRACT through negotiation and mediation as provided by Government Code, Chapter 2260 relating to resolution of certain contract claims against the state. The CONTRACTOR and the TWDB further agree that they shall attempt to use any method of alternative dispute resolution mutually agreed upon to resolve any dispute arising under this CONTRACT if this CONTRACT is not subject to Chapter 2260.

10. Contract Administration. The TWDB shall designate a project manager for this CONTRACT. The project manager will serve as the point of contact between the TWDB and CONTRACTOR. The TWDB’s project manager shall supervise the TWDB’s review of CONTRACTOR’S technical work, deliverables, draft reports, the final report, payment requests, schedules, financial and budget administration, and similar matters. The project manager does not have any express or implied authority to vary the terms of the CONTRACT, amend the CONTRACT in any way or waive strict performance of the terms or conditions of the CONTRACT.
ARTICLE XII. CORRESPONDENCE

All correspondence between the parties shall be made to the following addresses:

For the **TWDB:**

Contract Issues:  
Texas Water Development Board  
Attention: Contract Administration  
P.O. Box 13231  
Austin, Texas 78711-3231  
Email: contracts@twdb.state.tx.us

Payment Request Submission:  
Texas Water Development Board  
Attention: Accounts Payable  
P.O. Box 13231  
Austin, Texas 78711-3231  
Email: invoice@twdb.state.tx.us

Physical Address:  
Stephen F. Austin State Office Building  
1700 N. Congress Avenue  
Austin, Texas  78701

For the **CONTRACTOR:**

Contract Issues:  
Trey Buzbee  
Brazos River Authority  
4600 Cobbs Drive  
Waco, Texas 76714  
Email: t buzbee@Brazos.org
Exhibit A
Scope of Work

Note that there is no separate task or associated budget for the preparation of scope of work for the initial phase of the planning activities.

TASK 1 - PLANNING AREA DESCRIPTION
(to be scoped, budgeted and incorporated by amendment into the contract at later date)

TASK 2A - NON-POPULATION RELATED WATER DEMAND PROJECTIONS

Texas Water Development Board (TWDB) staff, in conjunction with the Texas Commission on Environmental Quality (TCEQ), Texas Parks and Wildlife Department (TPWD), and Texas Department of Agriculture (TDA) will prepare draft water demand projections for all water demands unrelated to population (e.g. mining, manufacturing, irrigation, steam-electric power, and livestock) with specific attention to updated mining water demand projections to be provided by the TWDB. TWDB staff will update water demand projections for all associated Water User Groups (WUGs) and provide them to RWPGs for their review and input. All projections will be extended through 2070.

RWPGs will then review the draft projections and may provide input to TWDB or request specific changes to the projections from TWDB. If adequate justification is provided by the RWPGs to TWDB, water demand projections may be adjusted by the TWDB. Once RWPG input and revision requests are considered, final water demand projections will be adopted by the TWDB’s governing Board (Board). The adopted projections will then be provided to RWPGs. RWPGs must use the Board-adopted projections when preparing their regional water plans.

TWDB will directly populate the online planning database (DB17) with all WUG-level projections and make related changes to the online planning database (DB17) based on Board-adopted projections.

This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:

1. Receive and make publicly available the draft water demand projections provided by TWDB.

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1 Additional guidance included in the General Guidelines for Regional Water Plan Development document.
2 All requests to adjust draft population or water demand projections must be submitted along with associated data in an electronic format determined by TWDB (e.g., fixed format spreadsheets)
2. Evaluate draft water demand projections provided by TWDB.

3. Review comments received from local entities and the public for compliance with TWDB requirements.

4. Provide detailed feedback to TWDB on water demand projections, as necessary, including justification and documentation supporting suggested changes.

5. Prepare and submit numerical requests for revisions, in table format in accordance with TWDB guidance, of draft water demand projections and process such requests based on, for example, requests from local entities within the region. The RWPG and/or local entities should provide required documentation and justification of requested revisions.

6. Communicate and/or meet with TWDB staff and/or local entities requesting revisions, as necessary.

7. Assist TWDB, as necessary, in resolving final allocations of water demands to water user groups to conform with any control totals defined by TWDB, for example, by county and/or region.

8. Prepare water demand projection summaries for WUGs using final, Board-adopted projections to be provided by the TWDB, as necessary.

9. Modify any associated water demand projections for Wholesale Water Providers (WWPs), as necessary based on final, Board-adopted projections.

10. Review the *TWDB DB17 Non-Population Related* Water Demand report from the online planning database (DB17) and incorporate this planning database report into the Technical Memorandum and Initially Prepared Plan (IPP) and adopted regional water plans (labeled as such and with source reference).

11. Modify any aggregated water demand summaries, for example, for Wholesale Water Providers (WWPs) or irrigation districts, accordingly incorporate this planning database report into the Technical Memorandum and IPP and adopted regional water plans (labeled as such and with source reference).

12. Update WWP contractual obligations and WUG ‘seller’ obligations to supply water to other entities and report this information along with projected demands including within the online planning database (DB17) and within any planning memorandums or reports, as appropriate.

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3 All ‘*TWDB DB17...*’ reports will be provided by TWDB through the online planning database web interface as a customizable report that can be downloaded by RWPGs and must be included as part of the Technical Memorandum and water plan.
TASK 2B - POPULATION AND POPULATION-RELATED WATER DEMAND PROJECTIONS

TWDB staff, in conjunction with the TCEQ, TPWD, and TDA will prepare draft population and associated water demand projections for all population-related water user groups using data from the recent 2010 Census. TWDB staff will update population and associated water demand projections for all Water User Groups (WUGs) and provide them to RWPGs for their review and input. All projections will be extended through 2070.

RWPGs will then review the draft projections and may provide input to TWDB or request specific changes to the projections from TWDB. If adequate justification is provided by the RWPGs to TWDB, population and/or water demand projections may be adjusted by the TWDB, TDA, TCEQ, and TPWD. Once RWPG input and revision requests are considered, final population and associated water demand projections will be adopted by the Board. The adopted projections will then be provided to RWPGs. RWPGs must use the Board-adopted projections when preparing their regional water plans.

TWDB will directly populate the online planning database (DB17) with all WUG-level projections and make related changes to the online planning database (DB17) if revisions are made.

This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:

1. Receive and make publicly available the draft population and associated water demand projections provided by TWDB.

2. Evaluate draft population and associated water demand projections provided by TWDB.

3. Review comments received from local entities and the public for compliance with TWDB requirements.

4. Provide detailed feedback to TWDB on both population and associated water demand projections, as necessary, including justification and documentation supporting suggested changes.

5. Prepare and submit numerical requests, in table format in accordance with TWDB guidance, for revisions of draft population and/or water demand projections and process such requests based on, for example, requests from local entities within the region. The RWPG and/or local entities should provide required documentation and justification of requested revisions.

6. Communicate and/or meet with TWDB staff and/or local entities requesting revisions, as necessary.

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Additional guidance included in the General Guidelines for Regional Water Plan Development document.

Exhibit A, Page 3
7. Assist TWDB, as necessary, in resolving final allocations of population and water demands to water user groups to conform with any control totals defined by TWDB, for example, by county and/or region.

8. Prepare population and water demand projection summaries for WUGs using final, adopted projections to be provided by the TWDB, as necessary for presentation in documents.

9. Consider and include in all appropriate planning documents the projections of population and associated water demands for any new WUGs to be provided by the TWDB.

10. Modify any associated water demand projections for WWPs, as necessary based on final, adopted projections.

11. Review the TWDB DB17 Population and associated TWDB DB17 Population-Related Water Demand reports from the online planning database (DB17) and incorporate these planning database reports into the Technical Memorandum and IPP and final regional water plans (labeled as such and with source reference).

12. Modify any aggregated water demand summaries, for example, for Wholesale Water Providers (WWPs), accordingly and present in planning documents.

13. Update WWP contractual obligations and WUG ‘seller’ obligations to supply water to other entities and report this information along with projected demands including within the online planning database (DB17) and within any planning memorandums or reports, as appropriate.

**TASK 3  WATER SUPPLY ANALYSES**

This Task involves updating or adding: a) groundwater, surface water, reuse, and other water source availability estimates, and b) existing WUG and WWP water supplies that were included in the 2011 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, reuse, and other supplies during drought of record conditions. All water availability and water supply estimates will be extended through 2070.

This Task includes performing all work in accordance with TWDB rules and guidance required to:

1) **Estimate a) Surface Water Availability and b) Existing WUG and WWP Surface Water Supplies:**
   1. Select hydrologic assumptions, models, and operational procedures for modeling the region’s river basins and reservoirs using Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAMs) in a manner appropriate for assessment of

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5 RWPG technical consultants must attend mandatory training on the online planning database.
6 Additional guidance included in the General Guidelines for Regional Water Plan Development document.
existing surface water supply and regional water planning purposes. Reservoir systems\(^7\) and their yields will be modeled in accordance with the *General Guidelines for Regional Water Plan Development*.

2. Obtain TWDB Executive Administrator approval of hydrologic assumptions or models and for any variations from modeling requirements in the *General Guidelines for Regional Water Plan Development*.

3. As necessary and appropriate, modify or update associated WAMs or other models to reflect recent changes to permits, transfers, legal requirements, new water rights, and/or specified operational requirements.

4. Assign available water supplies, as appropriate, to WUGs and WWPs including conducting supply analyses for WWPs.

5. Apply the TCEQ WAMs, as modified and approved by TWDB, and/or other appropriate models to quantify firm yield for major reservoirs, reservoir systems, and firm diversion for run-of-river water rights, as determined on at least a monthly time-step basis. Reservoir firm yield will be quantified based on the most recent measured capacity and estimated capacity in year 2070.

6. Compile TCEQ Water System Data Reports\(^8\) for municipal WUGs that use surface water and identify any physical constraints limiting existing water supplies to WUGs and/or WWPs. Limitations to be considered based on delivering treated water to WUGs. Other information that the RWPGs collect, for example, survey results, may be included in the evaluation of infrastructure capacity or limitations in delivering treated water to WUGs.

Update information on WWP contractual obligations and WUG 'seller' obligations to supply water to other entities including within the online planning database.\(^9\),\(^12\) Unless the RWPG considers it unlikely that a specific contract will be renewed, water supplies based on contractual agreements will be assumed to renew at the contract termination date, for example, if the contract provides for renewal or extensions. Report this information within any planning memorandums or reports, as appropriate.

7. Based on the water availability, existing infrastructure, and associated physical and legal limitations, determine the existing surface water supply available from each surface water source to each WUG and WWP (including newly identified WUGs and WWPs) during a drought of record based on source water availability, infrastructure capacity, legal constraints, and/or operational limitations.

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\(^7\) Reservoir systems must be approved by TWDB and identified as such in DB17

\(^8\) Available from TCEQ

\(^9\) Some WUGs have 'seller' obligations even though they are not classified as a WWP.
8. Complete and update all required data elements for TWDB online planning database DB17 through the web interface.\(^{10}\)

9. Compile firm yield and diversion information by Source, WUG, WWP, county, river basin, and planning region as necessary to obtain decadal estimates of existing surface water supply throughout the planning period. This will be facilitated by \textit{TWDB DB17 Water Source Availability} and associated \textit{TWDB DB17 WUG and WWP Existing Water Supply} reports using data provided by RWPGs and made available to all RWPGs through the online planning database interface.

10. Review, confirm the accuracy of, and incorporate the required associated planning database reports directly into the Technical Memorandum and IPP and adopted regional water plans under Task 4C (labeled as such and with source reference).

II) \textbf{Estimate a) Groundwater Availability and b) Existing WUG and WWP Groundwater Supplies:}

Obtain and review the \textbf{Total Pumping}\(^{11}\) annual volumes that are developed by TWDB based on the Desired Future Conditions adopted by Groundwater Management Areas (GMAs). Total Pumping annual volumes for each aquifer will be available from TWDB through the online planning database interface, split into discrete geographic-aquifer units by: Aquifer; County; River Basin; Region; and, where applicable, by Groundwater Conservation District (GCD).

1. In areas that were not considered in the DFC process and therefore do not have Total Pumping annual volumes but have groundwater supplies, develop availability estimates according to the General Guidelines for Regional Water Plan Development.

2. Consider the impacts of the available Total Pumping annual volumes on the regional water plan including how it impacts existing water supplies.

3. In areas with Groundwater Conservation District (GCDs), obtain GCD Management Plans and GCD information to be considered when estimating existing supplies and water management strategies under future tasks.

4. Assign available water supplies, as appropriate, to WUGs and WWPs including conducting supply analyses for WWPs.

5. Select hydrologic and other assumptions for distribution of available groundwater for potential future use by WUGs (e.g. via a pro-rationing policy) as existing supply based on models and operational procedures appropriate for assessment of water supply and regional water planning purposes.

\(^{10}\) In accordance with the Guidelines for Regional Water Plan Data Deliverables. RWPG technical consultants must attend mandatory training on the online planning database.

\(^{11}\) \textbf{Total Pumping} = [Managed Available Groundwater + exempt uses]. The estimated total pumping from the aquifer that achieves the desired future condition adopted by members of the associated Groundwater Management Area. Total pumping data to be entered into DB17 by TWDB (see guidance document).
6. Compile TCEQ Water System Data Reports\textsuperscript{12} for municipal Water User Groups using groundwater and identify any physical constraints limiting existing water supplies to WUGs and/or WWPs. Limitations to be considered based on delivering treated water to WUGs. Other information that the RWPGs collect, for example, survey results, may be included in the evaluation of infrastructure capacity or limitations in delivering treated water to WUGs.

7. Update information on WWP contractual obligations and WUG ‘seller’ obligations to supply water to other entities including within the online planning database. Unless the RWPG considers it unlikely that a specific contract will be renewed, water supplies based on contractual agreements will be assumed to renew at the contract termination date, for example, if the contract provides for renewal or extensions. Report this information within any planning memorandums or reports, as appropriate.

8. Compile and/or update information regarding acquisitions of groundwater rights, for example, for transfer to municipal use, and account for same in the assessment of both availability and existing groundwater supplies.

9. Based on the water availability, existing infrastructure, and associated physical and legal limitations, determine the existing groundwater supply available from each water source to each WUG and WWP (including newly identified WUGs and WWPs) during a drought of record based on water availability, infrastructure capacity, legal constraints, and/or operational limitations.

10. Complete and update all required data elements for TWDB online planning database DB17 through the web interface.\textsuperscript{13}

11. 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. This will be facilitated by \textit{TWDB DB17 Water Source Availability} and associated \textit{TWDB DB17 WUG and WWP Existing Water Supply} reports using data provided by RWPGs and made available to all RWPGs.

\section*{III) Estimate System, Reuse, and Other Types of Existing Supplies}

\textbf{Systems, Reuse, and Other Water Supplies}

1. Integrate firm water supplies for WUGs using a system of supply sources (e.g., surface water, storage, and groundwater).

2. Research and quantify existing supplies and commitments of treated effluent through direct and indirect reuse.

\textsuperscript{12} Available from TCEQ

\textsuperscript{13} In accordance with the Guidelines for Regional Water Plan Data Deliverables. RWPG technical consultants must attend mandatory training on the online planning database.
3. Compile systems, reuse, and other 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.

4. Assign available water supplies, as appropriate, to WUGs and WWPs including conducting demand analyses for WWPs.

5. Identify and sub-categorize existing sources in the online planning database to extract unique sources. In addition to surface water, groundwater, and reuse, for example, further clarify the source types in the online planning database to subcategorize other specific water sources such as desalinated groundwater or desalinated surface water, and seawater desalination, and any other supply types that are connected supplies.

6. Review and confirm the accuracy of the TWDB DB17 Availability and associated TWDB DB17 Existing Water Supply reports from the online planning database (DB17) and incorporate these planning database reports directly into the Technical Memorandum and other planning documents (labeled as such and with source reference).

7. Identify any physical constraints limiting these existing water supplies to WUGs and/or WWPs including based on TCEQ Water System Data Reports. Limitations to be considered based on delivering treated water to WUGs. Other information that the RWPGs collect, for example, survey results, may be included in the evaluation of infrastructure capacity or limitations in delivering treated water to WUGs.

8. Update information on WWP contractual obligations and WUG ‘seller’ obligations to supply water to other entities including within the online planning database. Unless the RWPG considers it unlikely that a specific contract will be renewed, water supplies based on contractual agreements will be assumed to renew at the contract termination date, for example, if the contract provides for renewal or extensions. Report this information within any planning memorandums or reports, as appropriate.

9. Based on the water availability, existing infrastructure, and associated physical and legal limitations, determine the existing system, reuse, and other water supplies available from each water source to each WUG and WWP (including newly identified WUGs and WWPs) during a drought of record based on source water availability, infrastructure capacity, legal constraints, and/or operational limitations.

10. Complete and update all required data elements for TWDB online planning database DB17 through the web interface.

11. Compile these supplies by source, water user group, wholesale water provider, county, river basin, and planning region as necessary to obtain decadal estimates of existing surface water supply throughout the planning period. This will be facilitated by TWDB DB17 Water Source Availability and associated TWDB DB17 WUG and WWP Existing

---

14 Available from TCEQ
Water Supply reports using data provided by RWPGs and made available to all RWPGs through the online planning database interface.

12. Review, confirm the accuracy of, and incorporate the required associated planning database reports directly into the Technical Memorandum and IPP and adopted regional water plans under Task 4C (labeled as such and with source reference).

Includes all work required to coordinate with other planning regions to develop and allocate estimates of water availability and existing water supplies.

**TASK 4A - IDENTIFICATION OF WATER NEEDS**\(^{15}\) (ANALYSIS TO BE PERFORMED BY TWDB)

1. Based upon updated projections of existing water supply and projected water demands under Tasks 2 and 3, and the associated data entered into the online planning database, TWDB will update computations of identified water needs (potential shortages) by:
   - WUGs
   - WWP

As decadal estimates of needs (potential shortages) as well as by, county, river basin, and planning region.

2. The results of this computation will be provided by TWDB via the online planning database to RWPGs in a customizable format that is in accordance with TWDB rules as the TWDB DB17 Identified Water Needs report.

3. Regions may also request additional, unique needs analysis (e.g., for a WWP) that the RWPG considers warranted. Such reports will be provided by TWDB, if feasible based on the online database constraints and TWDB resources. The RWPG will need to enter or provide any additional data into the online planning database, that may be necessary to develop these evaluations.

4. The online planning database needs reports will be incorporated by the RWPG into the Technical Memorandum and IPP and adopted regional water plans (labeled as such and with source reference).

5. Upon request, TWDB will perform a socioeconomic analysis of the economic effects of not meeting the identified water needs and update and summarize potential social and economic effects under this Task. This report will be provided to RWPGs as part of this Task and incorporated into the adopted regional water plans.

6. If the RWPG chooses to develop its own socioeconomic analysis, the resulting socioeconomic report will be incorporated into the IPP and adopted regional water plan by the RWPG.

\(^{15}\) Additional guidance included in the General Guidelines for Regional Water Plan Development document.
TASK 4B
IDENTIFICATION OF POTENTIALLY FEASIBLE WATER MANAGEMENT STRATEGIES

This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:

1. Receive public comment on a proposed process to be used by the RWPG to identify and select water management strategies for the 2016 regional water plan. 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 evaluation in the 2016 regional water plan. Include a description of the process selected by the RWPG in the Technical Memorandum and the IPP and adopted regional water plans.

2. Consider the TWDB Water Loss Audit Report and drought management when considering potentially feasible water management strategies as required by rules.

3. Update relevant portions of the regional water plan summary of existing water supply plans for local and regional entities. This Task requires obtaining and considering existing water supply plans. Updated summary to be included in the IPP and adopted regional water plans.

4. If no potentially feasible strategy can be identified for a WUG or WWP, document the reason for this in the Technical Memorandum and the IPP and adopted regional water plans.

5. Consider recent studies and describe any significant changes in water management strategies described as being in the implementation phase in the 2011 RWP as well as any new projects in the implementation phase prior to adoption of the Initially Prepared 2016 Regional Water Plan.

6. Identify potential water management strategies to meet needs for all WUGs and WWPs with identified needs, including any new retail utility WUGs and WWPS that may have been previously aggregated under County-other in the 2011 regional water plan but which are being treated as unique entities for the 2016 regional water plan.

7. Present a list of the potentially feasible water management strategies, in table format, within the Technical Memorandum and the IPP and adopted regional water plans.

TASK 4C PREPARE AND SUBMIT TECHNICAL MEMORANDUM

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16 Additional guidance included in the General Guidelines for Regional Water Plan Development document.
17 Additional guidance included in the General Guidelines for Regional Water Plan Development document.
This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:

1. Prepare a concise Technical Memorandum that summarizes the work completed under Tasks 2, 3, 4A, 4B, and 4C and the general findings. To be considered administratively complete, the Technical Memorandum submitted must include:
   a) an executive summary that shall be no longer than 2 pages.
   b) each of the ‘TWDB DB17’ online planning database reports described under Tasks 2, 3, 4A, and 4B within the body of the memorandum.
   c) a summary section for each Task performed to date (Tasks 2 - 4C)

2. Include in the Technical Memorandum sections that:
   a) Explain reasons for significant changes in existing supplies of WUGs and WWP.
   b) Explain reasons for significant changes in identified water needs of WUGs and WWP.
   c) Specifically describe the impacts of the Total Pumping volumes on the existing supplies and needs of WUG and WWP in comparison to the 2011 regional water plan.

3. A list of the potentially feasible water management strategies that were identified by the RWPG including information on what past evaluations have been performed for the potentially feasible water management strategy by the RWPG and/or others.

4. Approve submittal of the Technical Memorandum to TWDB at a regular regional water planning group meeting. The Technical Memorandum must be submitted to TWDB in accordance with Section I Article I of the contract.

TASK 4D EVALUATE AND RECOMMEND WATER MANAGEMENT STRATEGIES

Contract to be amended based on scope of work to be developed and negotiated with TWDB. Work under this Task to be performed only after submission of scope of work and written notice-to-proceed.

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18 Also per the General Guidelines for Regional Water Plan Development document.
19 Additional guidance included in the General Guidelines for Regional Water Plan Development document.
20 It is anticipated that TWDB agency rules will be revised prior to RWPGs beginning evaluations of WMSs under Task 4D; contract to be amended at a future date to incorporate additional funding (or reallocate remaining funding) to complete planning tasks and to incorporate any agency rule and guidance document updates.
TASKS 5, 6, 7, 8, AND 9

(to be scoped, budgeted and incorporated by amendment into the contract at later date)

TASK 10 PUBLIC PARTICIPATION AND PLAN ADOPTION\textsuperscript{21}

This Task includes all work and eligible expenses required to hold meetings and include public input and participation through Task 4C and a portion of 4D in accordance with TWDB rules and guidance:

Including, but not limited to:
1. holding regular RWPG meetings;
2. posting public notices;
3. holding public input meetings;
4. holding special meetings;
5. collect and disseminate public input;
6. costs of technical and other consultants, as needed, to prepare for and participate in RWPG meetings, workshops, hearings, and any other special meetings during the development of the 2016 Regional Water Plan;
7. costs of performing any surveys of water suppliers or water user groups;
8. coordination with and collection of information from groundwater conservation districts, water users, wholesale water providers, and any other entity involved with water planning in the region;
9. assemble the Technical Memorandum document for submission to TWDB.
10. revise relevant portions of the 2011 regional water plan for inclusion in the IPP and adopted 2016 regional water plan; and,
11. interregional cooperation and interregional conflict resolution efforts.

\textsuperscript{21} Additional guidance included in the General Guidelines for Regional Water Plan Development document.
## CONTRACTOR TASK BUDGET

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<th>Accounting Item No.</th>
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<td>4C</td>
<td>Technical Memorandum (Summary of Tasks 2 - 4B) of Regional Water Plan</td>
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*Indicates contingent Task requiring a written ‘Notice to Proceed’ prior to commencing reimbursable work per Section I, Article II, Paragraph C.

† The budget flexibility described under Section II, Article IV, Paragraph E does not apply to this task budget until after reimbursement of the task’s budget is authorized by a Notice to Proceed.
# CONTRACTOR EXPENSE BUDGET

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1. **Eligible Other Expenses** associated with administration activities are defined to include expendable supplies, communications, reproduction, postage, and costs of public meetings. Administrative Costs (associated with Political Subdivisions) for Regional Water Plan development that will be reimbursable under the contract are limited to direct, non-labor costs including:
   - Newspaper and other public notice posting costs;
   - Postage for mailed notification of application;
   - Communications;
   - Postage for mailed notification of meetings;
   - Reproduction costs associated with notification or plan activities (currently 10¢ per copy or the actual non-labor direct costs as documented by the Contractor);
   - Limited direct costs/fees of maintaining RWPG website domain, website hosting, and/ or web site - not to exceed $250.00 per calendar year.

2. **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., (currently 51¢ per mile (as of Jan. 1, 2011) See: https://fnx.cpa.state.tx.us/fn/travel/travelrates.php for updates).

3. **Ineligible Expenses** include, but are not limited to:
   - Costs of generating or distributing newsletters;
   - Direct costs greater than $250.00 per year for domain fees, website hosting, and/ or web site maintenance costs;
   - Direct or indirect labor costs associated with obtaining, developing, and/or maintaining websites including costs to track website use or post materials on websites;
   - Food and Lodging for Regional Water Planning Group members;
   - Purchase of equipment (e.g. computers); and,
   - Costs associated with social events or tours.
**Subcontractor EXPENSE BUDGET**

- **Template** -

*(to be submitted by Subcontractors)*

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<td><strong>TOTAL COSTS</strong>(^5)</td>
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</table>

\(^1\) **Salaries and Wages** is defined as the cost of salaries of engineers, draftsmen, stenographers, surveymen, 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, and postage.

\(^4\) **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.

\(^5\) **Ineligible expenses** include, but are not limited to:

- Food and Lodging for Regional Water Planning Group members;
- Tips;
- Costs associated with social events and tours;
- Costs of generating or distributing newsletters;
- Direct costs greater than $250.00 per year for domain fees, website hosting, and/or website maintenance costs;
- Direct or indirect labor costs associated with obtaining, developing, and/or maintaining websites including costs to track website use or post materials on websites.
General Guidelines for Regional Water Plan Development
(2011-2016)

The Texas Water Development Board

- June 2011 -

Fourth Cycle of Regional Water Planning
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Background and Purpose

The fourth cycle of regional and state water planning as defined by Senate Bill 1 of the 75th Texas Legislature commenced in 2011 and will extend through 2016. Regional Water Planning Groups (RWPGs) must prepare the 2016 Regional Water Plans that, once approved, will become the basis for the 2017 State Water Plan.

For the fourth cycle of regional water planning, the 2010 U.S. Census data will become available in the summer of 2011 and will be used as the basis for conducting a full-scale revision of regional water plans including the associated population and municipal water demand projections for these 2016 Regional Water Plans, including the extension of the planning horizon and projection period out to the year 2070.

The following document summarizes guidelines for developing and/or reevaluating regional water plans for the current planning cycle. Provisions of Title 31 of the Texas Administrative Code (TAC) Chapters 357 and 358 serve as the foundation for information in this document and are not superseded by anything within this guidance document. Other referenced sources throughout this document provide additional guidance and clarification including the TWDB document entitled “Guidelines for Regional Water Planning Data Deliverables” available at the TWDB’s website, which contains important supplementary information regarding estimating and reporting water supply availability and other data. Any future revisions to 31 TAC 357 and 358 adopted by the TWDB may result in changes to these planning guidelines.

Included in this document are sections covering the following tasks as specified in statute and agency rules:

1) planning area description [31 TAC §357.7(a)(1)];
2) population and water demand projections [31 TAC §357.7(a)(2)];
3) water supply analysis [31 TAC §357.7(a)(3)];
4) identification, evaluation, and selection of water management strategies based on needs [31 TAC §357.7(a)(4-9)]
5) impacts of water management strategies on key water quality parameters of the state [31 TAC §357.7(a)(12)], and impacts of voluntary redistributions of water [31 TAC §357.7(a)(8)(G)];
6) consolidated water conservation, water loss, and drought management strategy recommendations [31 TAC §357.7(a)(11), 31 TAC §357.7(a)(7), and 31 TAC §357.7(c),(d)];
7) description of how regional water plans are consistent with the long-term protection of the state’s water, agricultural, and natural resources [31 TAC §357.7(a)(13), §357.14(2)(C), and 31 TAC §358.3];
8) unique stream segments, reservoir sites, and policy recommendations [31 TAC §357.7 (a)(10); 31 TAC §357.8; 31 TAC §357.9];
9) reporting of water infrastructure financing mechanisms [31 TAC §357.7(a)(14)];
10) adoption of regional water plans and public participation [31 TAC §357.11-12]; and
11) data reporting requirements and written reports deliverable to the TWDB [31 TAC §357.10].

1.0 Planning Area Description

For the fourth cycle of regional planning, Task 1 is an update to the planning area descriptions reported in the 2011 regional water plans. Planning groups should document substantial changes in any of the following areas:

- wholesale water providers, current water use, and identified water quality problems;
- sources of groundwater and surface water including major springs that are important for water supplies or natural resource protection;
- socioeconomic aspects including information on current population, major water demand centers, agricultural and natural resources, and primary economic activities including businesses dependent on water resources;
- assessment of current preparations for drought within the regional water planning area;
- summaries of existing regional water plans, recommendations in the state water plan, and local water plans;
- identified threats to agricultural and natural resources resulting from water quantity or quality problems related to water supply; and
- information compiled by the TWDB from water loss audits performed by retail public utilities pursuant to [31 TAC §358.6].

Any other significant changes that are considered relevant to the plan update.

2.0 Population and Water Demand Projections

For the fourth cycle of regional water planning, the 2010 U.S. Census data for county-level population projections will become generally available in late 2011. Draft Water User Group level (WUG) projections are anticipated to be provided by TWDB to RWPGs in 2012. These draft WUG-level projections will be used as the basis for conducting a full-scale revision of regional water plans including the associated population and municipal water demand projections for these 2016 regional water plans, including the extension of the planning horizon and projection period out from 2020 to the year 2070.

Draft non-population related water demand projections (e.g. mining, manufacturing, irrigation, steam-electric power, and livestock) are anticipated to start becoming available for review and comment by RWPGs in late 2011. The TWDB will rely on a recent study with the Bureau of Economic Geology at the University of Texas at Austin to prepare draft mining water demand projections for each planning region.

TWDB staff, in conjunction with the Texas Commission on Environmental Quality (TCEQ), Texas Parks and Wildlife Department (TPWD), and Texas Department of Agriculture (TDA) will prepare draft population and water demand projections for all water demands including: municipal, county-other, mining, manufacturing, irrigation, steam-electric power, and livestock. TWDB staff will update
population and water demand projections for all associated Water User Groups (WUGs) and provide
these draft projections to RWPGs for their review and input. The new population projections to be used in
the 2016 regional water plans will increase population projections in some locations while decreasing
population projections in other locations, relative to the population projections in the 2011 regional water
plans. TWDB will directly populate the online planning database with all WUG-level draft projections
and make related changes to the online planning database if adjustments are approved by the TWDB.

The TWDB will consider requests for changes to draft population and draft water demand
projections if warranted. Entities wishing to adjust draft projections should address their requests through
their respective planning group. If the RWPG concurs, it will submit a request to the executive
administrator of the TWDB for consideration. Requests for adjustments should be accompanied by
supporting data, analyses, and documentation. TWDB staff will coordinate reviews of each request with
the TCEQ, TPWD, and the TDA. All requests to adjust draft population or water demand projections
must be submitted along with associated data in an electronic format determined by TWDB (e.g., fixed
format spreadsheets). TWDB staff will make adjustments considered justified by the supporting data
submitted prior to Board consideration of adoption.

Population and water demand projections are expected to be formally adopted by the TWDB
during the summer of 2012 after receiving input from the planning groups and the TCEQ, TPWD, and
TDA. The adopted projections will then be provided to RWPGs. RWPGs must use the Board-adopted
projections when preparing their 2016 regional water plans.

2.1 Population Projections

County-Level Population
TWDB staff will project population by decade for each county in the State and then sum the county
populations to a regional total. Any adjustments to a county-level population must involve a justifiable
redistribution of projected county populations within the region so that the summed regional total remains
the same.

Criteria for Adjustment: One or more of the following criteria must be verified by the Planning Group
and the Executive Administrator for consideration of revising the county population projections:
   a) A possible Census undercount took place in the county and action is currently being pursued to
      request a Census Bureau correction.
   b) If there is evidence that the 2010-2020 net migration rate will be significantly different than the
      net migration rate used for the original projection.
   c) There are statistically significant birth and survival rate differences (by appropriate cohorts)
      between the county and the State.

Data Requirements: The Planning Group must provide the following data associated with the identified
criteria to the Executive Administrator for justifying any adjustments to the county-level population
projections:
   1. Documentation of an action requesting the Census Bureau correct an undercount of population
      within a county.
   2. Projected in-migration and out-migration of a county, indicating that the net migration of a
      county will be significantly different than the net migration rates previously used.
   3. Birth and/or survival rates for a county population between 2000-2010 by gender, race/ethnicity
      and single-year age cohorts.
   4. Other data that the Planning Group believes is important to justify any changes to the population
      projections.
Water User Group Population
The projected population growth throughout the planning period for the cities, utilities and rural area (county-other) within a county is a function of a number of factors, including the entity’s share of the county’s growth between 2000 and 2010, as well as local information provided by Planning Groups. The total county population, as projected by TWDB will act as a control total for the populations within the county. Any adjustments to a city, utility or remaining county-other population must involve a justifiable redistribution of projected populations within the county so that the county total remains the same.

Criteria: One or more of the following criteria must be verified by the Planning Group and the Executive Administrator for consideration of adjusting the WUG population projections:

a. Official adjustment to the census population for a city or an adjustment to the population estimate for non-city municipal WUGs (utilities or collective reporting units)
b. The population growth rate for a city, utility or county-other over the most recent five years is substantially greater than the growth rate between 2000 and 2010.
c. Identification of areas that have been annexed by a city since the 2010 Census.
d. Identification of the expansion of a utility’s CCN or service area since April 2010
e. Identification of growth limitations or build-out conditions in a city or utility that would result in maximum population that is less than was originally projected.

Data Requirements: The Planning Group must provide the following data associated with the identified criteria to the Executive Administrator for justifying any adjustment to the Water User Group population projections:

1. Population estimates for cities developed and published by the State Data Center or by a regional council of governments will be used to verify criteria (b) for cities.
2. The verified number of residential connections and permanent population served will be used to verify criteria (a or b) for utilities.
3. The estimated population of an area that has been annexed by a city (for criteria c) or has become part of a CCN or service area for a water utility (for criteria d). In addition, the geographical boundary of the area must be presented in an acceptable map or ArcView shapefile.
4. Documentation from an official of a city or utility describing the conditions expected to limit population growth and estimating the maximum expected population will be used to verify criteria (d).
5. Other data that the Planning Group believes is important to justify any changes to the population projections.

2.2 Municipal Water Demand Projections

Dry Year Designation
Water demand projections are to be based upon dry-year conditions, so the base year for the projections is intended to be the driest year in the last five. Based upon quarterly drought indices from the National Drought Mitigation Center, staff have determined that 2006 or 2009 will be used as the dry-year base for the water demand projections. The 2009 water use data will be available in August 2011 for analysis and review.

Municipal Water Use
Municipal water use is defined as residential and commercial water use. Residential use includes single and multi-family residential household water use. Commercial use includes water used by business establishments, public offices, and institutions, but does not include industrial water use. Residential and commercial water uses are categorized together because they are similar types of uses, i.e., each category uses water primarily for drinking, cleaning, sanitation, cooling, and landscape watering. Reported municipal water use data through the TWDB Water Use Survey for the designated dry year will be used
to calculate the base per capita water use for each city. The municipal water demand projections shall incorporate anticipated future water savings due to the natural installation of plumbing fixtures to more water-efficient fixtures, as detailed in the 1991 State Water-Efficient Plumbing Act and subsequent relevant legislation. All other future water savings due to conservation programs undertaken by cities, utilities or county-other will be classified as WMSs by the Planning Group.

**Criteria:** One or more of the following criteria must be verified by the Planning Group and the Executive Administrator for consideration of revising the municipal water demand projections:

1. Errors identified in the reporting of municipal water use for an entity.
2. Evidence that the dry year water use was abnormal due to temporary infrastructure constraints.
3. Evidence that per capita water use from a different year between 2005-2009 would be more appropriate because that year was more representative of below-normal rainfall conditions.
4. Trends indicating that per capita water use for a city, utility or rural area of a county have increased over the latest period of analysis, beginning in 2000, and evidence that these trends will continue to rise in the short-term future.
5. Evidence that the number of fixture installations to water-efficient fixtures between 2000 and 2010 is different than the TWDB schedule.

An adjustment of the dry year population estimate will require adjustment of the city's annual per capita water use. Any changes to the population projections for an entity will require adjustments to the municipal water demand projections.

**Data Requirements:** The Planning Group must provide the following data associated with the identified criteria to the Executive Administrator of the TWDB for justifying any adjustments to the municipal water demand projections:

1. Annual municipal water production (total surface water diversions and/or groundwater pumpage and water purchased from other entities) for an entity measured in acre-feet.
2. The volume of water sales by an entity to other water users (cities, industries, water districts, water supply corporations, etc.) measured in acre-feet.
3. Net annual municipal water use, defined as total water production less sales to other water users (cities, industries, water districts, water supply corporations, etc.) measured in acre feet.
5. Drought index or growing season rainfall data to document a year different than the designated dry year as a more appropriate base year for projections.
7. In order to verify increasing per capita water use trends for a city or rural area of a county and therefore revising projections of per capita water use to reflect this increasing trend, the following data must be provided with the request from the Planning Group:
   a) Historical per capita water use estimates based on net annual municipal water use for the city, utility or rural area of a county, beginning in 2000.
   b) A trend analysis which must take into account the variation in annual rainfall.
   c) Revised projections of per capita water use for a city, utility or rural area of a county will be submitted by the Planning Group, where an increasing trend in per capita water use has been verified for a city or rural area of a county.
   d) Growth data in the residential, commercial and/or public sectors that would justify an increase in per capita water use.
8. Other data the Planning Group believes is important to justify any adjustments to the State Water Plan municipal water use projections.
2.3 Industrial (Manufacturing, Steam-Electric, Mining) Water Demand Projections

Industrial Water Use
Industrial water use is defined as water used in the production process of manufactured products, steam-electric power generation, and mining activities, including water used by employees for drinking and sanitation purposes.

Criteria: One or more of the following criteria must be verified by Planning Group and the Executive Administrator for consideration of revising the industrial water use projections:

a. An industrial facility which has recently located in a county and may not have been included in the Board's database. Documentation and analysis must be provided that justify that the new industrial facility will increase the future industrial water use for the county above the industrial water use projections.
b. An industrial facility has recently closed its operation in a county.
c. Plans for the construction of an industrial facility in a county at some future date.

Data Requirements: The Planning Group must provide the following data associated with the identified criteria for justifying any adjustments to the industrial water use projections.

1. The quantity of water used on an annual basis by an industrial facility that has recently located in a county and was not included in the Board's database.
2. The North American Industrial Classification (NAIC) of the industrial facility that has recently located in a county. The NAIC is the numerical code for identifying the classification of establishments by type of activity in which they are engaged as defined by the U.S. Office of Management and Budget and is a successor of the Standard Industrial Classification (SIC).
3. Documentation of plans for an industrial facility to locate in a county at some future date will include the following data:
   a. Confirmation of land purchased for the facility or lease arrangements for the facility.
   b. The quantity of water required by the planned facility on an annual basis.
   c. The proposed construction schedule for the facility including the date the facility will become operational.
   d. The NAIC for the planned facility.

2.4 Irrigation Water Demand Projections

Irrigation Water Use
TWDB annual Irrigation water use estimates are produced by calculating a crop water need based on evapotranspiration and other climatic factors, this need per acre is then applied to irrigated acreage data obtained from the Farm Service Agency (FSA) in order to determine estimated irrigation water use by TWDB crop category. These estimates are then made available to Groundwater Conservation Districts for comment.

Criteria: One or more of the following criteria must be verified by the Planning Group and the Executive Administrator for consideration of revising the irrigation water use projections:

a) Evidence that a different year between 2005-2009 would be more representative of typical irrigated acreage or below-normal rainfall than the designated dry year.
b) Evidence that irrigation water use estimates for a county from another source are more accurate than those used by TWDB.
c) Evidence that the expectation of conditions in the region are such that the projected annual rates of change for irrigation water use in the 2011 State Water Plan are no longer valid.
Data Requirements: The Planning Group must provide the Executive Administrator the following data associated with the identified criteria for justifying any adjustments to the irrigation water demand projections:

1. Acreage and water use data for irrigated crops grown in a region, as published by the Texas Agricultural Statistics Service, the Texas Agricultural Extension Service, or the Farm Service Agency (USDA), for the designated dry year and/or a different year that the Planning Group wishes to present for consideration.
2. Any economic, technical, and/or water supply-related evidence that may show cause for adjustment in the future rate of change in irrigation water use.

2.5 Livestock Water Demand Projections

Livestock Water Use
Livestock water use will be defined as water used in the production of livestock, both for drinking and for cleaning or environmental purposes.

Criteria: One or more of the following criteria must be verified by the Planning Group and the Executive Administrator of the TWDB for consideration of revising the livestock water use projections:

a) Plans for the construction of a confined livestock feeding operation in a county at some future date.

b) Other evidence of change in livestock inventory or water requirements that would justify an adjustment in the projected future rate of change in livestock water use.

Data Requirements: The Planning Group must provide the following data associated with the identified criteria for justifying any adjustments to the livestock water demand projections:

1. Documentation of plans for the construction of a confined livestock feeding facility in a county at some future date will include the following:
   a) Confirmation of land purchase or lease arrangements for the facility.
   b) The construction schedule including the date the livestock feeding facility will become operational.
   c) The daily water requirements of the planned livestock feeding facility.

2. Other evidence that would document an expected increase or decrease in the livestock inventory in the county.

3.0 Water Availability and Existing Water Supplies

Planning groups will reevaluate “existing” water supplies for entities including water user groups (WUG) and wholesale water providers (WWP) as defined in statute and administrative rules [31 TAC §357.7(a)(3)]. An existing water supply is the volume of water supply that can be used by water user groups and wholesale water providers under drought of record conditions taking into account:

- the water ‘availability’ – water at the source that is available during drought of record.

In general, the basis for availability is as follows:

1 availability: maximum amount of water available during the drought of record, regardless of whether the supply is physically or legally available to a water user group. This is mostly a source-based analysis.

2 existing water supply: maximum amount of water available from existing sources for use during drought of record conditions that is physically and legally available for use by water user groups. This is mostly a water user group-based analysis.

In addition to material regarding water supplies in this document, regional water planning groups should refer to the TWDB’s “Guidelines for Regional Water Planning Data Deliverables” for additional information for estimating existing water supplies.
- **Groundwater**: Total Pumping\(^4\) (i.e., not based on permitted groundwater).
- **Surface Water**: permitted reservoir firm yield at the source or other permitted firm yield at the source (e.g., permitted run-of-river firm yield that can be produced by the surface water intake).

- any physical constraints such as transmission or treatment facilities that would limit delivery of treated supplies to WUGs; and
- any legal or policy constraints.

An existing supply must be connected to the water user group or wholesale water provider, meaning that it currently has infrastructure for conveying water to water users or it is anticipated that it will be accessible and connected by the conclusion of the current planning cycle. An example of supplies that are "non-connected" would include reservoirs without connecting pipelines.

**Existing Water Supplies should be based on:**

- Evaluations of Total Pumping volumes for groundwater based on TWDB Groundwater Availability Models (GAMs) and surface water availability based on TCEQ Surface Water Availability Models (WAMs). All water supplies must be firm and available in every year throughout a drought of record (e.g., a TCEQ 75%-75% permitting criteria for interruptible permits does not qualify as a supply that is firm and available during a drought of record and therefore may not be included in a regional water plan as the basis for an existing supply).

- Consideration of data from the 2011 regional water plans.

- Data regarding existing water rights, storage rights, contracts and option agreements, and/or other planning and water supply studies.

- Contracted agreements based on the terms of a contract, which should be assumed to renew upon a contract’s termination date if contract holders contemplate renewals or extension or if the contract provides for renewal or extensions.

- Net water that a water user group has to meet its own WUG demands (gross volume of water minus water it has to provide to other WUGs).

- Existing supplies in future decades assuming that current infrastructure for existing water supplies does not change through time (but existing infrastructure is maintained adequately).

- The current infrastructure associated with existing supplies - excluding internal water distribution systems – should be researched to determine how much water a system can transport, pump, and distribute.

- Sources for existing water supplies may include surface waters such as reservoirs and rivers, groundwater, water reuse, and/or a combination of several different sources including desalination.

\(^4\) **Total Pumping** = [Managed Available Groundwater + exempt uses] The estimated total pumping from the aquifer that achieves the Desired Future Condition (DFC) adopted by members of the associated Groundwater Management Area. Regions are to use draft Total Pumping values until final Total Pumping values are available from TWDB. Note that per Senate Bill 737 (82nd Texas Legislature) after September 1, 2011, the term **Modeled Available Groundwater** (MAG) will replace the previous term ‘Managed Available Groundwater.’ Modeled Available Groundwater is equivalent to Total Pumping (i.e., includes exempt use).
• Assuming the ability to make minor operational changes that are not strictly precluded by a physical or legal constraint (e.g., the supply associated with a decision to turn on a groundwater pump, for example, should be considered as part of an existing supply, not a water management strategy, if the pump and groundwater is already installed and accessible to the user).

• Functional, existing infrastructure and associated water supply regardless of whether it is currently being used. An identified water need cannot be based on an assumption or expectation that a current existing water supply, either at the WWP or WUG level, is simply not used even though it would be used as part of a recommended strategy in the event of drought.

• The assumption that all existing water supply and treatment infrastructure will be adequately maintained, rehabilitated, or replaced as a part of regular operation and maintenance into the future to maintain existing water supplies. An identified water need cannot be based on the assumption or expectation that existing infrastructure not continue in service and that associated water supplies will no longer be available in the future as a result of neglect or lack of maintenance.

• Consideration of the current and future water quality of the source.

In addition to reporting existing water supply volumes, planning groups must also identify all water sources in a planning region even if such sources are not connected, but are potentially available for use in the future (see the "Guidelines for Regional Water Planning Data Deliverables" for further information).

For calculating existing supplies for water user groups from surface water, groundwater, reuse, or other sources, planning groups must calculate the greatest annual amount of water available from the source without violating the most restrictive physical and/or regulatory conditions, including infrastructure, and limiting withdrawals under drought of record conditions.

3.1 Surface Water

Planning groups should analyze permitted surface water availability based on firm yield for both reservoirs and surface water diversions. For reservoirs, firm yield is the maximum amount of water a reservoir can provide every year throughout a drought of record using reasonable sedimentation rates, and under the assumption that senior water rights holders have their full allotments of water. Planning groups may analyze existing water availability from reservoirs on operational procedures other than firm yield and may use other methods of determining existing supplies in addition to firm yield with written approval from the TWDB’s executive administrator. However, existing water availability data submitted to the TWDB for incorporation into the state water plan must include firm yield. Unless the TWDB’s executive administrator has approved other models, planning groups should use “Run 3” of Water Availability Models maintained by the Texas Commission on Environmental Quality to estimate firm yields for surface water supplies. The TWDB’s executive administrator must approve, in writing, any modifications to data files used in Water Availability Models for permitted return flows and changed conditions.

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5 An exception would be that it should not be assumed that reservoirs would be dredged to remove silt.
When using Water Availability Models for firm yield analyses, the TWDB recommends using an "adding-in" approach (as is done with the WAM Run 3 firm yield analysis) where each water right is added into the model one by one beginning with the most senior right. After a water right is added into the model, simulated water supply shortages are evaluated. If a supply shortage exists, the diversion amount of the newly added water right should be reduced until the supply shortage disappears. The next right is added in only when all senior rights have their maximum diversions without supply shortages (capped by their permitted amounts). The process terminates when no further diversions can be added in. If all water rights have been fully satisfied and a given reservoir still has surplus supply, a hypothetical junior water right should be added, using a uniform monthly distribution that reduces the supply source to zero. The firm yield is the sum of model specified diversions, including extended diversions, of added-in water rights. If applicable, environmental flow requirements including bay and estuary and instream flow requirements should be fully satisfied when modeling “add-in” water rights.

When simulating firm yields for reservoirs, the following criteria must be met if applicable:

1. inflows to reservoirs are the remainder of naturalized stream flows after upstream senior water rights are met;

2. downstream senior water rights must be met; however, this does not require releases of water from storage unless specifically stated in existing water rights;

3. all special conditions of water rights must be considered in existing water rights and diversions and simulations of future water rights or diversions, when applicable, including:
   - bay and estuary and instream flow requirements;
   - other limitations described in Section 4.2 (e.g., pass-throughs required by the 1997 Consensus Criteria for Environmental Flow Needs); and/or
   - Senate Bill 3 environmental flow process recommendations and associated TCEQ rules (e.g. flow set-asides).

4. minimum allowable reservoir levels are the top of dead storage;

5. maximum allowable reservoir levels are the top of water supply storage volume for reservoirs with existing water rights, and special conditions of water rights should be honored (this may result in a different minimum and/or maximum allowable reservoir level);

6. evaporative losses are based on evaporation rate data that best coincide with the location of the reservoir and the period of record and time steps for inflows;

7. annual water supply demands are constant values in all years; the distribution of annual demands within a given year are constant in all years; and should reflect the different types of water use expected; and

8. model run time steps should not be longer than one month.

Planning groups may modify input data sets for Water Availability Models to reflect return flows specified in water rights permits and other changed conditions; however, planning groups must provide documentation to the TWDB justifying such changes.

For surface water diversions, planning groups should use “firm diversions,” which are the maximum annual diversions in a given year assuming drought of record conditions using reasonable diversion distribution patterns and assuming that senior water rights are met. These amounts should not
exceed the infrastructure’s diversion capacity and permit amounts. As is the case with reservoirs, planning
groups should use Water Availability Models (Run 3) for surface water diversions unless the TWDB
approves other methods. In addition, the TWDB suggests using the same “adding-in” approach for water
rights. Firm diversions are the sum of model specified diversions, including extended diversions, of all
“added-in” water rights. Parameters of Water Availability Models should not be altered, and
environmental flow requirements, if applicable, should be fully satisfied when modeling hypothetical
“added-in” water rights.

If relevant, when simulating firm diversions the following criteria must be met:

inflows to diversion sites are the remainder of naturalized stream flows assuming upstream and
downstream senior water rights are met (during times of drought it is possible that senior water
rights will be withdrawn to legal limits either for use, sale, and/or transfer; nevertheless, if
planning groups can provide documentation to the TWDB showing a lower demand than legal
maximums, they can modify inputs accordingly);

all special conditions of water rights must be considered in existing water rights and diversions and
simulations of future water rights or diversions, when applicable, including:
• bay and estuary and instream flow requirements;
• other limitations described in Section 4.2 (e.g., pass-throughs required by the 1997 Consensus
Criteria for Environmental Flow Needs); and/or
• Senate Bill 3 environmental flow process recommendations and associated TCEQ rules (e.g.,
flow set-asides).

annual diversion amounts are constant values in all years; the distribution of diversions within a given
year are constant; and reflect the different types of water use expected; and

model time steps should not be longer than one month.

For run-of-river diversions, drought periods begin with unappropriated flows in rivers declining
significantly from their normal levels, or above and before their full recovery to normal levels or greater.
The drought of record is a period that includes record minimum river channel unappropriated monthly
flow rates and begins and ends with unappropriated flows at or above normal levels. For run-of-river
diversions, firm diversions are the maximum annual diversion assuming drought of record conditions
using reasonable diversion distribution patterns and assuming senior water rights are met.

For surface waters bordering neighboring states or countries, planning groups should analyze and
report available water supplies taking into account existing legal agreements; and for surface water
withdrawals that do not require permits, such as domestic and livestock uses, estimate water available
under drought of record conditions based on available information.

Each planning group should also provide both a list of water rights associated with existing
surface water supplies and the association between these water rights, the sources and the water user
groups, and the associated water volumes. All water used by a water user group must be attributed to one
or more existing water supplies and all surface water supplies must be associated with applicable water
rights. When water rights are consolidated into one existing surface water supply per basin for planning
purposes, a water right included in the consolidation should not also be listed as a right for another
existing water supply source. Water volumes associated with a water right cannot be counted more than
once as a source for an existing supply.

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Data to be entered and/or updated in the online planning database DB17

Exhibit C, Page 13
Existing supplies from run-of-river diversions are based on the diversion point or on an aggregate of diversions. List the county-basin of the source diversion point. Run-of-river diversions may be aggregated into a ‘combined run-of-river diversion’ source type if the aggregated water rights are individually less than 10,000 acre-feet for irrigation or individually less than 1,000 acre-feet for other use categories. Do not list water rights within aggregated run-of-river diversion source types individually. List run-of-river diversions as individual water rights for each irrigation permit equal to or greater than 10,000 acre-feet. For all other water uses list the individual water rights if the permit is equal to or greater than 1,000 acre-feet. All other run-of-river diversions may be listed as individual water rights.

Unnamed ‘Local Supplies’ must be firm supplies during drought of record and may be included with a description of the source; these may not be associated with municipal users. The regional water plan must include a single table that lists each Local Supply with a) an explanation for the basis of the supply itself, and b) the basis for the volume of supply. For unpermitted supplies, list the source as the sum of unpermitted surface water by county-basin split. Any unpermitted local supplies must be listed individually as well with explanation and may be aggregated at the county-basin level when appropriate.

3.2 Groundwater

Groundwater availability must be based on the Total Pumping annual volumes that are based on Managed Available Groundwater and exempt use volumes developed by TWDB based on the Desired Future Conditions adopted by Groundwater Management Areas (GMAs). Total Pumping annual volumes for each aquifer will be available from TWDB through the online planning database interface, split into discrete geographic-aquifer units by: aquifer; county; river basin; region; and, where applicable, by Groundwater Conservation District (GCD).

The groundwater availability for any given discrete geographic-aquifer unit in the regional water plans cannot exceed the Total Pumping value as provided in the online planning database. Any reallocation of Total Pumping amounts between discrete geographic-aquifer units must be consistent with the relevant Managed Available Groundwater and requires written pre-approval from the TWDB Executive Administrator. Requests to reallocate Total Pumping amounts between discrete geographic-aquifer units must be in writing from the RWPG and include a table with the proposed changes for each geographic-aquifer unit, for each decade, along with an explanation of:

- the basis for the reallocation request;
- how Desired Future Conditions (DFCs) at that location as well as the DFCs in any surrounding areas will be achieved under the reallocation;
- how the reallocation is consistent with the relevant Managed Available Groundwater and GCD management plan(s); and,
- the long-term impact that pumping based on the reallocation would impact the DFC at that location.

If approved, the reallocation of Total Pumping between discrete geographic-aquifer units will be performed, by TWDB staff only, within the online planning database.

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7 Local Supplies are limited, unnamed individual surface water supplies that, separately, are available only to particular non-municipal water user groups.

8 Total Pumping = [Managed Available Groundwater + exempt uses] The estimated total pumping from the aquifer that achieves the Desired Future Condition (DFC) adopted by members of the associated Groundwater Management Area as provided by TWDB. Regions are to use draft Total Pumping values until final Total Pumping values are available from TWDB.
Most areas with groundwater availability volumes occur within a recognized major or minor aquifer or other aquifer (i.e., not major or minor) that have associated DFCs and will therefore have an associated Total Pumping volume. In limited locations, there will be some groundwater availability volumes that are not associated with DFCs as follows:

1. areas of major or minor aquifers that do not have a DFC or associated Total Pumping volume; and,
2. areas not associated with major or minor aquifers (e.g., ‘local’ groundwater) and that do not have a DFC or associated Total Pumping volume.

In areas that were not considered in the DFC process and therefore do not have Total Pumping\(^9\) annual volumes but have groundwater supplies, use the availability as determined in the local Groundwater Conservation District (GCD) management plan. If no GCD exists, use TWDB GAM models, if available, or other means to develop estimates of groundwater availability (e.g. based on previous regional water plan estimates). Planning groups must document and justify the method(s) used.

For existing supplies from groundwater for water user groups, planning groups should calculate the greatest annual amount of water available from an aquifer without violating the most restrictive physical and/or regulatory conditions, including infrastructure, limiting withdrawals under drought of record conditions. Regulatory conditions refer to limits on water withdrawals imposed by groundwater conservation districts.

Existing groundwater supplies should not be set equal to demands for convenience. If an existing groundwater supply (and underlying availability) is sufficient to meet a growing demand through 2070, the 2020 existing groundwater supply should reflect the full 2070 supply if the infrastructure and rights to the water already exist in 2020.

**Overdrafting\(^10\)**

During its review of the regional water plans, TWDB staff will be looking for Total Pumping annual volumes (groundwater availability) to not be exceeded in the plans during any decade or for any discrete geographic-aquifer unit for existing supplies or water management strategy supplies. Water management strategies that require overdrafting may not be included in a regional water plan.

**Permitting Uncertainty**

In instances where more than a single WUG and/or WWP seek to include recommended groundwater management strategies that, combined, would exceed the Total Pumping and therefore will likely not both be permitted by a GCD based on the Total Pumping volume, regional water plans may not include these recommended water management strategies simultaneously in the plan(s).\(^11\)

\(^{10}\)The term ‘overdraft’, as used in the regional water planning process, is a planning term, not a hydrologic term. It simply indicates that a project would rely on more water than was designated as ‘available’ for use by the Regional Water Planning Groups in the water plans; in this case, more than the annual Total Pumping volumes. Availability is subject to change.

\(^{11}\)Applies both intra-regionally and inter-regionally.
3.3 Systems

Water supplies can be categorized as systems if they meet one or more of the following criteria: 1) a source includes groundwater and surface water; 2) several reservoirs operate together, but supplies from a specific reservoir cannot be tracked directly to an end user; and/or 3) two or more reservoirs operate as a system resulting in a system gain in firm yield. System gain is the amount of water a system creates that would otherwise be unavailable if the reservoirs were operated independently and must be reported separately. For multi-reservoir systems, the minimum system gain during drought of record conditions can be considered additional water available. Total existing water from a system should not exceed the sum of the system gain plus the firm yields of individual reservoirs in a system. Planning groups must adequately describe methods used to calculate system gains. Where special conditions exist, such as in the Rio Grande Project, planning groups may base existing water supplies on operational procedures rather than firm yield. Planning groups must adequately describe special conditions other than the Rio Grande Project in submitted requests for modifications to standard hydrologic model requirements. For interstate and international reservoirs, planning groups should report water amounts available to Texas according to existing legal agreements.

3.4 Reuse

Planning groups will quantify existing water supplies from reuse as either direct or indirect. Indirect reuse is process water that reenters rivers or stream systems and is diverted and used again downstream. For indirect reuse, planning groups will use currently permitted reuse projects with infrastructure in place needed to divert and use water in accordance with permits issued by the Texas Commission on Environmental Quality. Potential sources for indirect reuse in the future will require new permits and additional infrastructure. As such, planning groups should consider these as water management strategies, and should explain methods used to estimate the amount of water that such strategies would generate in the future.

Direct reuse is process water recirculated within a given system. For direct reuse, planning groups should use the amount of water from direct reuse sources that they expect will be available during drought of record conditions from currently installed wastewater reclamation infrastructure. These amounts should not exceed the amounts of water available to utilities generating the wastewater. Planning groups should treat potential future sources of direct reuse as water management strategies, and should provide adequate justification to explain methods for estimating the amount of reused water available from such sources.

4.0 Water Needs and Water Management Strategies

4.1 Identification of Water Needs

TWDB will perform an initial numerical calculation of water needs for each WUG based on projected demands and existing water supplies without implementation of any Water Management Strategies (WMSs). The resulting TWDB online database (DB17) report must be included in the initially prepared plan and adopted regional water plan.

Once conservation WMSs are identified and recommended by the RWPG, a second-tier water needs analysis will be performed by TWDB to determine remaining water needs after implementation of recommended conservation strategies in each region. This second-tier needs analysis will provide additional information that RWPGs may consider when identifying and recommending water supply
projects. These second-tier needs estimates should be considered when performing technical evaluations of water management strategies including anticipated unit costs of water (see Section 4.2.1).

The resulting TWDB online database (DB17) report for the second-tier needs analysis must be included in the initially prepared plan and adopted regional water plan.

4.2 Water Management Strategies

Planning groups will reevaluate water management strategies identified in the 2011 regional water plans for each WUG and WWP as defined in statute and administrative rules where future water supply needs exist [31 TAC §357.7 (a) 4-5]. A need for water is present when existing water supplies are less than projected water demands. In addition, each group may recommend new management strategies due to changed physical or socioeconomic conditions or for newly identified WUGs or WWPs or needs. Existing water rights, water contracts, and option agreements should be protected, although amendments to these may be recommended realizing that consent of owners would be needed for implementation. RWPGs must also consider water loss audit information provided by TWDB [31 TAC §357.7 (a)(7)(A)(iv)].

Planning groups will reevaluate and/or evaluate new and existing water management strategies based on criteria specified in [31 TAC §357.7(a) 7-9, 12] including water quantities generated by strategies, the reliability of strategies, financial costs, and environmental impacts. Planning groups should indicate if recommended water management strategies have been implemented to any degree based upon naming conventions and configurations of recommended water management strategies in previous regional water plans.

For all strategies identified in the 2016 regional water plans, planning groups must update financial costs. For remaining criteria, each planning group will determine if physical and/or socioeconomic conditions have changed enough to warrant a reassessment. For any new strategy recommended, all evaluation criteria must also be met.

4.2.1 Quantity, Reliability and Costs

4.2.1.1 Quantity and Reliability

Water quantities produced by recommended surface water management strategies will be based on firm yield as defined in Section 3.1; and water quantities generated by groundwater should be based on groundwater availability as defined in Section 3.2. Groundwater desalination project supply volumes will be counted against the associated Total Pumping volumes available in the project location.

Water management strategy yields must take into account:
- Senate Bill 3 environmental flow process recommendations and associated TCEQ rules (e.g. flow set-asides) or other limitations described in Section 4.2 (e.g. pass-throughs required by the 1997 Consensus Criteria for Environmental Flow Needs).
- Limitations associated with Total Pumping groundwater volumes resulting from adopted Desired Future Conditions (DFCs).
• Other recommended water management strategies\textsuperscript{12} (e.g., two recommended water management strategies cannot rely on the same water availability volume thereby becoming mutually exclusive with regard to their source water).

• Anticipated water losses associated with each strategy. Technical evaluations of water management strategies must present: a) total intake volumes at the supply source, and b) total net volume delivered to the WUG with the difference being water losses (e.g., due to conveyance losses), including the percent losses. Calculated unit costs must be calculated based on the net volume of water delivered at the WUG.

A water management strategy that is not associated with a firm water supply during a drought of record shall not be included as a recommended or alternative water management strategy.

4.2.1.2 Financial Costs\textsuperscript{13}

Cost evaluations for new and existing water management strategies will include capital costs, debt service, and annual operating and maintenance expenses over the planning horizon. Reported costs will only include expenses associated with infrastructure needed to convey water from sources and treat water for end user requirements; however, reported costs should not include expenses associated with internal distribution networks (e.g., beyond treatment plants and major transmission/conveyance facilities). Planning groups must report capital costs and average annual operation and maintenance costs as separate items in the Regional Water Planning Data Web Interface (see the TWDB’s “Guidelines for Regional Water Planning Data Deliverables” for further information).

Capital Costs

Capital costs consist of construction funds and other capital outlays including, but not limited to, costs for engineering, contingencies, financial, legal, administration, environmental permitting and mitigation, land, and interest during construction, including but not limited to:

• Construction costs, if applicable, should include expected construction bid prices for the following types of infrastructure:
  o pump stations,
  o pipelines,
  o water intakes,
  o water treatment and storage facilities,
  o well fields;
  o relocation of existing infrastructure such as roads and utilities; and
  o any other significant construction costs identified by each planning group.

• Note that construction cost estimates for some water management strategies may be based on prior cost estimates and adjusted based on the September 2013 price indices for commodities such as cement and steel as reported in the “Engineering News Record (ENR) Construction Cost Index.”

• Interest during construction is based on total project costs drawn down at a constant rate per month during a construction period. Interest is the total interest accrued at the end of a

\textsuperscript{12} Does not necessarily apply to ‘alternative’ water management strategies since these would replace certain ‘recommended’ water management strategies.

\textsuperscript{13} To be amended prior to development of WMSs cost estimates. TWDB currently supporting research into the development of a costing tool that may be used by regional water planning groups.
construction period using a 4.0 percent annual interest rate less a 1.0 percent rate of return on investment of unspent funds.

If applicable, other capital costs include:

- engineering and feasibility studies, legal assistance, financing, bond counsel, and contingencies (engineering, contingencies, financial, and legal services should be lumped together and estimated as 30 percent of total construction costs for pipeline projects and 35 percent for other facilities unless more detailed project and/or site specific information is available);

- permitting and mitigation activities including, but not limited to, those associated with:
  - Archeological/historic resources
  - Environmental analyses and biological assessments
  - Mitigation activities including: evaluation, land acquisition, implementation, monitoring, financial assurances, and adaptive management
  - Other permitting and mitigation costs

- land purchase costs not associated with mitigation;

- easements costs (easement costs for pipelines should include a permanent easement plus a temporary construction easement as well as rights to enter easements for maintenance); and,

- purchases of water rights.

Note that costs and land areas associated with development of reservoirs, in particular, must be broken out within the aforementioned costing items to show separate lines items for:

- the land area of the reservoir footprint (conservation pool only) alongside the estimated land purchase cost;
- mitigation land area and associated estimate of purchase cost; and,
- construction costs of embankment/dam facilities (separate from transmission facilities).

Debt Service

For water management strategies other than reservoirs the length of debt service is 20 years unless otherwise justified. For reservoirs, the period is 40 years. Level debt service applies to all projects, and the annual interest rate for project financing is 5.5 percent. Terms of debt service will be reported in the TWDB's Regional Water Planning Data Interface.

Annual Operating and Maintenance Costs

Operations and maintenance costs should be based on the quantity of water supplied. Unless project specific data are accessible, planning groups will calculate annual operating and maintenance costs as 1.0 percent of total estimated construction cost for pipelines, 2.5 percent of estimated construction costs for pump stations, and 1.5 percent of estimated construction costs for dams. Costs include labor and materials required to maintain projects such as regular repair and/or replacement of equipment. Power costs are calculated on an annual basis using calculated horsepower input and a power purchase cost of $0.09 per kilowatt hour; however, each planning group may adjust this figure based on local and regional conditions if they specify and document their reasons. Planning groups should include
costs of water if water management strategies involve purchases of raw or treated water on an annual basis (e.g. leases of water rights).

**Unit Costs of Water**

Unit costs of net delivered water (after water losses) must be analyzed and presented in dollars per acre-foot.

**4.2.1.3 Infrastructure Costs to Include in Regional Water Plans**

The water management strategy components that are included in regional water plans should be limited to the infrastructure and costs that are required to develop and convey increased water supplies from water supply sources and to treat the water for end water user group requirements.\(^\text{14}\) This may include treatment facilities at the WUG delivery point or treatment facilities at a point prior to transmission to the WUG, for example, at a wholesale water provider location. Costs may also include conservation water management strategies that have associated infrastructure or other costs (e.g. to address water loss, plumbing retrofits) or water management strategies needed to address infrastructure bottlenecks in an existing water supply conveyance system; the removal of which will increase the water supply volume available to a water user group.

The types of facilities and associated capital or other costs that *should* be included in a regional water plan\(^\text{15}\) are directly associated with development of new water sources, ‘supplies’ resulting from more efficient use of existing supplies (i.e., conservation), or volumetric increases to existing water supplies delivered to WUGs. Such strategies include but are not limited to:

- Facilities associated with a new water supply (e.g., new reservoir, new well field, intakes, pump stations).
- Facilities required to increase water supply from an existing water supply source (e.g., a new water transmission pipeline from an existing reservoir).
- Expansion of existing facilities to accommodate increased supply capacity to treat increased water supply for wholesale providers or water user groups (e.g. water treatment plant capacity expansion).
- Facilities associated with increasing overall water supply yields, for example, by blending new sources of water with existing water sources (e.g., conjunctive use).
- Expanded infrastructure required to fully utilize existing water rights/supplies (e.g. expansion of an undersized raw water intake or expansion of a water treatment plan).
- New facilities required to obtain water from an existing water source that may be changing (e.g., replacement of groundwater wells to obtain water from an existing groundwater supply in an aquifer that is being drawn down below existing wells).
- Infrastructure associated with water (raw or treated) supply transmission lines from wholesale water suppliers to water user groups.
- Water supply storage facilities associated with increasing water supply source yields (e.g., reservoirs, some ASR facilities).

\(^{14}\) See Section 4.1.2. and 31 TAC §357.7(a)(5)

\(^{15}\) Planning groups must report capital and O&M costs in the Regional Water Planning Data Web Interface (see the TWDB’s “Guidelines for Regional Water Planning Data Deliverables” for further information).
• Costs associated with conservation water management strategies that have capital or other costs. This may include costs of plumbing retrofits or replacement of portions of an existing water transmission or supply distribution network that is the source of major water loss based on significant, measurable water losses. Replacement of such pipelines, however, must provide an immediate, quantifiable increase in water supply.
• Costs associated with the increased wastewater treatment requirements needed to provide additional reuse water supplies.
• Costs of drought management strategies.  

Infrastructure and Costs That Should Not be Included in Regional Water Plans

If an infrastructure component is not required to increase the treated water supply volume to a WUG either as new supply or through conservation, the component and its costs should not be included in the regional water plan. Types of items and associated cost that should not be incorporated into a regional water plan included, but are not limited to:
• New facilities associated with internal distribution networks. (e.g., retail distribution within a water user group’s system) and that do not convey additional water supply volumes to a WUG.
• Internal distribution facilities associated with reuse water.
• Wastewater collection systems associated with a direct reuse project.
• Water system improvements to address compliance issues related to water quality or water pressure.
• New wells that are not required other than to replace aging wells (e.g., maintenance).
• Maintenance of, or upgrades to, existing equipment or facilities that do not directly increase volumetric water supply (e.g., for improving water treatment processes at existing water treatment plants; replacement of electrical systems; replacement of pumps; or installation of cathodic protection on existing facilities).
• Preventative measures to protect or maintain infrastructure against future water loss.
• Water storage facilities directly associated with retail water distribution networks.

4.2.2 Environmental Impacts and Limitations on WMSs

Planning groups will evaluate and provide a quantitative reporting of how water management strategies could affect environmental and cultural resources including impacts to environmental water needs, wildlife habitats, cultural resources, and the effects of upstream development on the bays, estuaries, and arms of the Gulf of Mexico. Planning groups are free to develop and document an overall methodology for evaluating impacts; however, for environmental flows, and incorporating appropriate limitations on water management strategy yields, planning groups must, in the following order:
• follow TCEQ rules and other applicable requirements resulting from the Senate Bill 3 environmental flows process;
• use site specific studies when available; and/or
• apply the 1997 “Consensus Criteria for Environmental Flow Needs”

to evaluate water management strategies involving surface water development and those requiring permits from the Texas Commission on Environmental Quality, including associated limitations to firm yield associated with releases or pass-throughs based on these criteria.

16 Estimated costs of probable economic impacts due drought management strategy implementation may be presented for WMS evaluation and comparison purposes within technical analyses but should not be included in water plans as a financial cost of the plan.
The 1997 criteria were developed through extensive collaboration among scientists and engineers from the state’s natural resource agencies including TWDB, the Texas Parks and Wildlife Department, and the Texas Commission on Environmental Quality, as well as academic professionals, engineering consultants, and informed members of the public. More specifically, the criteria are multi-stage rules for environmentally safe operation of impoundments and diversions during above normal flow conditions, below normal flow conditions, and during drought of record conditions. Documentation describing the methodology and its application is available at the TWDB’s website: http://www.twdb.state.tx.us/RWPG/twdb-docs/env-criteria.htm.

### 4.2.3 Alternative Water Management Strategies

Regional water plans will include in the executive summary the **TWDB DB17 Alternative Water Management Strategy** report which will list evaluated alternative water management strategies that are included in the initially prepared plan and adopted regional water plan. The TWDB-generated report will be included in a single table within the regional water plan. It will include each strategy’s name, an expected implementation date, the total yield of the strategy on a decadal basis, and the capital costs of the water management strategy. All alternative water management strategies must be evaluated based on criteria specified in [31 TAC §357.7(a)(7-9, 12)]. Technical evaluations of each alternative management strategies must have a generally defined delivery point for the water.

After plan adoption, planning groups may substitute an evaluated alternative water management strategy for a strategy previously recommended, if the previously recommended strategy is no longer feasible. Proposed alternatives should not result in water supplies that exceed 125 percent of identified water needs for a given water user group for which an alternative is recommended, taking into account other strategies already recommended for the same water user group. Planning groups must submit proposed alternative strategies to the TWDB for approval by the executive administrator. If a planning group can demonstrate that there is good cause for a requested alternative to exceed the 125 percent limit, then the executive administrator may issue a written waiver, [31 TAC §357.7(a)(7)(H)].

### 4.2.4 Planning Safety Factor

To address uncertainty in the planning and project implementation process over the current planning horizon and/or to address potential water needs beyond the planning horizon, RWPGs may incorporate a water supply safety factor (beyond just meeting identified water needs) for WUGs and WWPWs when developing the regional water plan.

Safety factors may take into account uncertainties associated with:
- projections of populations;
- projections of water demands;
- climate variability;
- yield of recommended water management strategies;
- permitting of projects; and/or

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17 All ‘TWDB DB17...’ reports are based on data entered by RWPGs into the database. These reports will be provided by TWDB through the online planning database web interface as a customizable report that can be downloaded by RWPGs and must be included as part of every Technical Memorandum, initially prepared regional water plan and adopted regional water plan.

18 See *Guidelines for Regional Water Planning Data Deliverables*
other uncertainties.

The regional water planning group must determine appropriate safety factors as the basis for recommending water management strategies that, together, provide water volumes in excess of the identified water needs. RWPGs must provide an explanation for the safety factors and present the factors based, for example, on sizes of water users, types of water uses, types of water management strategies, or any other factors the RWPG considers relevant at the project or water user level.

The initially prepared plan and adopted regional water plan must include a table that presents decimal safety factors for each decade and for each WUG and WWP as follows:

\[
\text{[total volume of: existing water supply + recommended water management strategies supply associated with WUG or WWP] / [total identified water demand to be met by both the existing supply + recommended water management strategies for WUG or WWP]}
\]

For example, all existing water supplies + all supplies from recommended WMSs to be provided to a WUG are divided by the WUG water demand that will be met with these supplies. If existing water supplies + all recommended WMSs supplies would provide 11,000 acre-ft/yr of supply to a WUG with 10,000 acre-ft/yr in water demands, the factor would be ‘1.1’ (i.e., 11,000/10,000).

Safety factors of all WWPs must be presented individually, by decade. WUGs may be grouped by category and similar safety factors in a summary format when appropriate. The underlying basis for providing the safety factor must be explained in the plan and may be summarized within the safety factor table.

5.0 Impacts of Water Management Strategies on Key Water Quality Parameters in the State and Impacts of Moving Water from Agricultural and Rural Areas

Each planning group must describe how implementing recommended and alternative water management strategies could affect key parameters of water quality in Texas. Planning groups should base water quality impacts on parameters important to water uses in each region. Planning groups will also discuss how water management strategies could have a long-term affects on: 1) agricultural resources including analyses of third-party impacts of moving water from rural and agricultural areas; 2) water resources of the state including groundwater and surface water inter-relationships; and 3) other factors deemed relevant by planning groups such as recreational impacts. Furthermore, planning groups should consider statutory provisions regarding interbasin transfers of surface water [TWC §11.085]. At minimum, considerations should include a summation of water needs in basins of origin and receiving basins based on water needs in approved regional plans.

6.0 Water Conservation, Water Loss, and Drought Management Recommendations

When evaluating and recommending water management strategies, each planning group will consider “active” water conservation as potentially feasible water management strategies for water user groups for which [TWC §11.1271] applies and must consider active water conservation strategies for water user groups with needs. Active water conservation strategies are those that conserve water over and beyond what would happen anyway as result of “passive” water conservation measures that stem from federal and state legislation requiring more efficient plumbing fixtures in new building construction. If a planning group does not adopt active water conservation strategies to meet needs, they must document
their reasons. In addition, planning groups should include active water conservation strategies for water user groups or wholesale water providers that will obtain water from new interbasin transfers.

Planning groups must consider water management strategies to address any issues identified in the information compiled by TWDB from the water loss audits performed by retail public utilities pursuant to 31 TAC §357.7(a)(7)(A)(iv).

Planning groups must also consider drought management strategies for identified water needs, and whenever applicable, drought management strategies should be consistent with guidance provided by the Texas Commission on Environmental Quality [TWC §11.1272]. Drought management strategies decrease short-term peak water requirements. Strategies for drought management are similar to those for water conservation, although there are some basic differences. For example, water conservation and drought management strategies differ in their longevity. Water conservation strategies are generally implemented on a permanent basis, whereas drought management practices are implemented during times of severe drought or other emergencies that can limit water supplies. If a planning group does not select drought management as a water management strategy, they must document the reason.

The regional water plan must contain a table that identifies, for each source of water supply that is legally and physically available to the regional water planning area for use during drought of record, specific factors associated with drought response triggers and specific actions to be taken as part of the response in accordance with 31 TAC §357.5(e)(7). Drought triggers and responses for multiple minor water supplies (e.g. small run-of-river water rights) may be summarized as a group based on their association with a common water source, if appropriate.

7.0 Descriptions of how Regional Water Plans are Consistent with the Long-term Protection of the State’s Water, Agricultural, and Natural Resources

Planning groups should describe how regional water plans are consistent with the long-term protection of Texas’ water, agricultural, and natural resources including the requirement that planning analyses and recommendations honor all existing water rights and contracts. Although much of the analysis pertaining to this requirement will be developed for other tasks, including tasks associated with estimating the environmental and water quality impacts of water management strategies, planning groups are encouraged to identify the specific resources important to their planning areas and describe how these resources are protected through the regional water planning process.

8.0 Unique Stream Segments and Reservoir Sites and Other Legislative Recommendations

8.1 Unique Stream Segments

Planning groups may recommend all or parts of river and stream segments in their respective regions as having “unique ecological values.” To recommend a designation, planning groups must justify it based on the following criteria:

- biological function measured as stream segments displaying significant habitat value including both quantity and quality considering degrees of biodiversity, age, and uniqueness including terrestrial, wetland, aquatic, or estuarine habitats;
- hydrologic function measured as stream segments fringed by habitats that perform valuable hydrologic functions relating to water quality, flood attenuation, flow stabilization, or groundwater recharge and discharge;

- riparian conservation areas measured as stream segments fringed by significant areas in public ownership including state and federal refuges, wildlife management areas, preserves, parks, mitigation areas, or other areas held by governmental organizations for conservation purposes, or stream segments fringed by other areas managed for conservation purposes under governmentally approved conservation plans;

- high water quality, exceptional aquatic life, high aesthetic value and spring resources that are significant due to unique or critical habitats and exceptional aquatic life uses dependent on or associated with high water quality; or

- threatened or endangered species and unique communities defined as sites along streams where water development projects would have significant detrimental effects on state or federally listed threatened and endangered species, and sites along streams significant due to the presence of unique, exemplary, or unusually extensive natural communities.

Planning groups seeking a designation should forward a recommendation package to the Texas Parks and Wildlife Department, who will in turn provide a written evaluation of the proposal within 30 days. Packages should contain a description of a site’s location along with maps, photographs, and documentation with supporting literature and data that characterizes a site’s unique ecological value. Adopted regional water plans should include, if available, the Texas Parks and Wildlife Department’s written evaluation.

If the Texas Legislature designates a stream or river segment as unique; or if a planning group recommends that a stream or river segment be classified as unique, each planning group must quantitatively assess how recommended water management strategies in a regional plan would affect flows deemed important (by planning groups) to the stream or river segment in question. Furthermore, assessments should describe how a regional plan would affect the unique features and criteria cited by a region as the impetus for a legislative designation.

8.2 Unique Reservoir Sites

Planning groups may recommend sites for reservoir construction that have “unique value” by including a description of the site, reasons for the unique designation and expected beneficiaries of water supplies developed at a given site. The following criteria should be used to determine if a site is unique:

- site specific reservoir development is recommended as a specific water management strategy or as an alternative water management strategy in an adopted regional water plan; or

- factors such as location, hydrologic, geologic, topographic, water availability, water quality, environmental, cultural, and current development characteristics make a site uniquely suited for either reservoir development to provide water supply for the current planning period; or where it might reasonably be needed to meet water needs beyond the 50-year planning period.
8.3 Other Legislative Recommendations

Planning groups may compile regulatory, administrative, or legislative recommendations that will facilitate the orderly development, management, and conservation of water resources in Texas, and will help the state prepare for and respond to droughts. In addition, they may develop information regarding the potential impacts of recommendations enacted into law once proposed changes are in effect.

9.0 Reporting of Financing Mechanisms for Water Management Strategies

Planning groups will assess how local governments, regional authorities, and other political subdivisions would finance the implementation of water management strategies via a formal survey administered by TWDB and executed by each planning group. TWDB will develop a survey instrument and methodology. Each planning group will conduct a survey and report findings to TWDB. TWDB will provide additional instructions and documentation describing the survey methodology and formats for reporting resultant data.

10.0 Adoption of Plan and Public Participation

Planning groups will adopt regional water plans and allow for public participation in the plan adoption process in accordance with administrative rules and statute and allow for public participation.

11.0 Deliverables

11.1 Written Reports

To be considered administratively complete, the Technical Memorandum must include:

- the TWDB DB17 Population Projection and Water Demand reports (presenting population and water demand projections by WUG, county, and river basin).
- the TWDB DB17 Water Availability and Existing Water Supplies reports (presenting water supplies by WUG, county, and river basin).
- the TWDB DB17 Identified Water Need report (presenting identified water needs by WUG, county, and river basin).
- a single tabular list of all potentially feasible water management strategies identified by the region;

Planning groups will update and augment the contents of 2011 regional water plans with new information and analyses conducted as part of the current planning cycle and in response to changed conditions and in accordance with planning rules and guidance.

To be considered administratively complete, both the Initially Prepared Plans (IPPs) and adopted regional water plans must include:

- an executive summary documenting key findings and recommendations that a) does not exceed 30 pages and b) includes the TWDB DB17 Recommended Water Management Strategy Summary\(^\text{19}\) report presenting a summary table with all recommended water management strategies.

\(^{19}\) Should also be included in Chapter 4.
strategies including the strategy names, total yield of the water management strategy\textsuperscript{20} for all decades, total capital costs, and the estimated unit water costs in the initial and last planning decade of implementation;

- a technical report containing chapters presenting the work and results of each task summarized in this document and according to the planning rules;
- a single tabular list of all potentially feasible water management strategies identified by the region;
- the TWDB DB17 Population Projection and Water Demand reports (presenting population and water demand projections by WUG, county, and river basin);
- the TWDB DB17 Water Availability and Existing Water Supplies reports (presenting water supplies by WUG, county, and river basin);
- the TWDB DB17 Identified Water Need report (presenting identified water needs by WUG, county, and river basin);
- the TWDB DB17 Second-Tier Identified Water Need report (presenting identified water needs by WUG, county, and river basin after implementation of conservation strategies);
- the TWDB DB17 Recommended Water Management Strategy WUG report presenting a table with all recommended water management strategies for each WUG; including the strategy names, total yield of the water management strategy\textsuperscript{21} for all decades and total capital costs;
- the TWDB DB17 Recommended Water Management Strategy WWP report presenting a table with all recommended water management strategies for each WUG; including the strategy names, total yield of the water management strategy\textsuperscript{22} for all decades and total capital costs;
- planning safety factor table per Section 4.2.4.
- the TWDB DB17 Alternative Water Management Strategy report presenting a table with all alternative water management strategies (as described in Section 4.2.3 of this document) considered for substitution listing the same data as for recommended strategies;
- other documentation should include: 1) model water conservation plans pursuant to [TWC §11.1271]; 2) model drought contingency plans pursuant to [TWC §11.1272]; 3) water loss audit summary; and 4) summaries of written and oral comments from the public during the plan adoption process with responses by planning groups explaining how plans were revised or why changes were not warranted;
- drought response trigger table per Section 6.0;
- appendices deemed appropriate by planning groups may also be included; and
- if sufficient agency resources are available during this cycle, TWDB may provide a schematic map of each region's recommended WMSs for illustrative purposes. The map will be developed based on the data provided by the RWPG through the online planning database, DB17. If provided by TWDB, RWPGs will be required to review and confirm the map contents and include a fold-out, 11x17 color version of this map as part of the final, adopted regional water plans.

Amendments to adopted and approved regional water plans must contain these same elements to the extent that they apply to the scope of the plan amendment.

\textsuperscript{20} See Guidelines for Regional Water Planning Data Deliverables
\textsuperscript{21} See Guidelines for Regional Water Planning Data Deliverables
\textsuperscript{22} See Guidelines for Regional Water Planning Data Deliverables
11.2 Regional Water Planning Data Provision and Data Reporting

The TWDB online planning database will become more integral to this upcoming regional planning cycle by synthesizing regions’ data and providing summary reports that will be required to be incorporated within each regional water plan.

Regional Water Planning Groups must complete and submit via the online planning database interface all data generated or updated during the current round of planning to TWDB in accordance with TWDB specifications prior to submitting initially prepared regional water plans. **Deadlines for the entry of categories of data (e.g. existing water supplies) by RWPGs are to be determined by TWDB as part of the contract documentation. These deadlines are necessary to allow sufficient time for TWDB to vet data and to then generate the TWDB DB17 reports that must be included in RWPG deliverable reports.** Data must be entered through the TWDB’s Regional Water Planning Data Web Interface at [http://www.twdb.state.tx.us/apps/db17](http://www.twdb.state.tx.us/apps/db17). Specifications regarding data requirements, format, calculation, and composition are available on TWDB’s website.

Data entered by RWPGs into the online planning database and regional water plans should be rounded to the nearest whole number to avoid cumulative data errors. In any and all instances where numbers in the regional water plan text and tables do not match the online planning database, the data in the online planning database (DB17) shall take precedence for the purpose of summarizing regional water plans and preparation of the state water plan.

In compliance with Texas Administrative Code Chapters 206 and 213 (related to Accessibility and Usability of State Web Sites), the digital copy of the final report will comply with the requirements and standards specified in statute.

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23 See *Guidelines for Regional Water Planning Data Deliverables*
UNDER DEVELOPMENT - to be modified for DB17

Exhibit D
Guidelines for Regional Water Planning Data Deliverables
Draft (in development)

- UNDER DEVELOPMENT -

Guidelines for Regional Water Planning Data Deliverables
(EXAMPLE to be modified during fourth cycle of regional water planning for DB17 and development of the 2016 regional water plans)

The Texas Water Development Board

June, 2011
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Introduction

The Texas Legislature directed the Texas Water Development Board (TWDB) to establish standards for reports and data presented in regional water plans. Section 16.053(d) of the Texas Water Code states: "The board shall provide guidelines for the format in which information shall be presented in the Regional Water Plans." This document, along with 31 Texas Administrative Code (TAC) §357.7 and 357.10, provides data reporting and formatting specifications for planning groups to follow when calculating and submitting electronic data into the Regional Water Planning Data Web Interface, and serves as an addendum to the "General Guidelines for Regional Water Plan Development" available at: http://www.twdb.state.tx.us/tbd

The remainder of this document provides more detailed guidance as to how each planning group should calculate and report data in the TWDB's Regional Water Planning Data Web Interface, which will be available at a later date. Section 1 discusses general data requirements and expectations; Section 2 details the general format for reporting electronic data, including file and software types; Section 3 discusses required data for the Sources module; Section 4 outlines required data for the Water User Group module; Section 5 discusses required data for the Wholesale Water Providers module; and Section 6 outlines required data for the Water Management Strategies module.

Please be aware that database and application development for the 2017 Regional Water Planning Interface has just begun. There will be significant changes to the application and database. One of the major changes is that WUGs and WWPs will no longer be in separate modules. All WUGs and WWPs will be grouped together in a master list of entities. Each entity will have WUG attributes, WWP attributes or both. In addition, sources will be associated with entities in a different manner. All direct users of a source will relate directly to the source. However, entities that purchase water will be able to relate to the seller instead of having to relate to the source. Finally, there will be significant changes to the method which strategies, strategy sources and entities relate. As a whole, these changes will simplify the data entry process; however, all the details have not been identified at this time. Therefore, this document provides an example of the extent of work that will be associated with the online planning database and will change significantly as the new database and application is developed and will be provided as a developing part of the contract documents.

Because of the changes to the database and application, it will be necessary for the Regions and their hired consultants to reestablish the relationships between entities (including buyers and sellers), sources and water management strategies in the database through the application. This work will be similar to what was necessary in the 2007 Regional Water Planning Data Web Interface.

*All subsequent sections to be modified for new DB17 architecture*
1.0 General Data Requirements

Data should conform and comply with all 31 TAC Chapter 357 rules that require planning groups to evaluate the adequacy of water supplies in each region during drought of record conditions. Evaluations should consider surface water and groundwater data from the state water plan, existing water rights, contracts and option agreements, and any other relevant planning and water supply studies available. In addition:

1) submitted information must be accurate and based on the best data and science available;
2) potential interregional conflicts should be identified and resolved prior to final data entry;
3) planning groups must enter all fields in the database application unless otherwise stated;
4) any data fields, programming, and formatting within the database application must not be changed by planning groups or consultants;
5) spelling, word order, and proper names must be used consistently and correctly when entering data into the database application;
6) planning groups must use the same reporting conventions for data shared by more than one region; and
7) only whole numbers should be entered into the database application.

2.0 Formats for Electronic Data

2.1 Files and Software

Electronic files may be shipped using CD or DVD. Planning groups should deliver one copy of electronic files - on CD or DVD - and a copy each of electronic file lists and file description printouts including metadata file printouts. Files and data transferred to the TWDB should be in a ready-to-use format. Formats of all computer files provided to the TWDB should be compatible with widely distributed versions of the following software:

- word processor files - Microsoft Word (MS Office 97 or newer versions);
- GIS coverages - ArcInfo (7.21 or newer);
- GIS shape files – ArcView (3.1 or newer);
- database files - Microsoft Access (MS Office 97 or newer) for general database files (however, each region will have access to the TWDB’s web-enabled database application via the internet and will not need to have any particular database software to use the internet application);
internet browsers – Internet Explorer (x or newer) or Firefox (x or newer);

- spreadsheets files - Microsoft Excel (Office 97 or newer);

- graphs, bar-charts, pie-charts - Microsoft Excel (Office 97 or newer).

Planning groups should receive approval from the TWDB’s executive administrator as to the compatibility of any alternative software.

Metadata and a printed file/disc description should accompany all electronic files. Planning groups need to provide an electronic plot file and an EOO coverage file for all GIS materials. File description documentation must explain file naming conventions and contents of each disc and file. File naming conventions should follow a recognizable pattern. Files submitted must be 100 percent compatible with Microsoft Excel. If using software other than Microsoft Excel, planning groups should receive prior approval from the TWDB as to its compatibility. All drawings and graphs included in reports should be provided to the TWDB in Encapsulated PostScript (EPS) formats with a TIFF preview using Pantone Process Colors (Pantone Matching System Colors – PMS colors) capable of being separated into four colors – cyan, yellow, magenta, and black.

2.2 Data Units

The following units of measurement apply to all submitted data presentations:

- land area - square miles (mi²),
- water area – acres (ac),
- water volume – acre-feet (ac-ft),
- water supply and demand – acre-feet per year (ac-ft/yr),
- treatment plant capacities – million gallons per day (mgd),
- water use per capita – gallons per capita per day (gpcd),
- stream flows and reservoir releases – cubic feet per second (cfs),
- pumping rates – gallons per minute (gpm) or million gallons per day (mgd), and
- costs – constant September 2013 U.S. dollars (per Engineering News Record Construction Cost Index).

2.3 Maps

Planning groups should provide maps illustrating important features of each planning area including regional boundaries, political subdivisions, major water demand centers such as cities, major providers of municipal and manufacturing water, major water supplies, mapped aquifers, and any other important and relevant features of a planning area. Maps shown in regional water plans should also be submitted in electronic file form.

The TWDB will provide each planning group access to a set of standard base maps for preparing regional water plans. When available, planning groups should use TWDB StratMap
products. If StratMap products are not available, and the TWDB has other acceptable coverages, the TWDB will make these base maps available. If the TWDB does not have StratMap or other products available, planning groups may use other types of coverages, but should coordinate with TWDB project managers to ensure compatibility. Access to TWDB digital map products will be provided through the regional water planning web page maintained by the TWDB. Planning groups may modify StratMap and/or TWDB source maps for their own purposes; however, planning groups must maintain the original color/line schemes and spatial integrity of these maps (e.g. projections, scales, etc). A master list of StratMap and TWDB source maps is available at the TWDB Web site on a regional basis at http://www.tnris.state.tx.us/datacatalog.aspx. Planning groups should use the same source base maps, which are also available at the TWDB’s website, and should strictly adhere to standardized map layers/coverage, and color template/schemes provided in original map sources.

Minimum map requirements include:

- to the extent possible figures should be designed so that black and white photocopies of originals are readable (if originals are in color, various colors should be discernable as shades of gray if the number of colors used and the requirements of clear presentation in color allow);

- a title, border, and a title box to include the planning group letter name, map name and number, and date prepared;

- if lengths or areas are accurate enough for one to measure directly from the map, scales should be clearly shown and labeled including scale bars;

- reference sources of both base maps and any substantial additions to base maps; and

- where possible, all maps should be developed from source base maps available from the TWDB.

2.4 Graphs

Various types of graphs may be used. Presentations of data using bar graphs, pie charts, and line graphs may be appropriate for various time and combinations of demand and supply categories

2.5 Data Time Frame and Time Steps

Data regarding population, water demands, water supplies etc. are reported in the state and regional water planning process in decadal increments starting with the 2020 and extending through 2070.
3.0 Data for Water Supply Sources

In addition to reporting existing water supplies volumes, planning groups must identify all water sources even if such sources are not connected and available for use as existing supplies. Data within the “Sources” module contains data fields for water sources in the planning region. Water sources can be either groundwater, surface water, or reuse. Pending further database and application development, additional source types, such as desalination, may be added to the various existing currently available source types. Sources should not be reported more than once. The Sources module includes volumes of water from water sources located in or available to each region under drought-of-record and current development conditions even if such sources are not connected and available for use. Include all water sources—except for the exception of reservoirs and surface water components of water systems (see “System” field in section 3.1 for definition)—located physically within or outside of a region. For groundwater sources, report groundwater volumes as annual values under drought-of-record conditions for each aquifer at the appropriate county-basin level. Managed available groundwater numbers for approved desired conditions for Groundwater Management Areas will be populated in the database by the TWDB and will not be editable by the planning areas. The TWDB will provide a list of codes for all identified aquifers. Lakes and reservoirs can include the individual reservoir as a whole, or a system’s surface water component (where reservoirs are operated in combination), or the non-system portion of a reservoir. List all lakes and reservoirs as reservoirs or systems, but do not list any as run-of-river diversions. Supply values for whole reservoirs as well must be reported. Report reservoirs and the surface water part of a system at the basin level.

Planning groups should not over allocate existing water supply sources on a permanent basis, meaning that the sum of existing water supplies and water management strategy supplies assigned to entities (water user groups and wholesale water providers) cannot exceed the amount of water from a particular water supply in a county or river basin. For instance, if an existing water supply in a particular county or basin can provide 1,000 acre-feet per year, and 500 acre-feet per year has been apportioned to entities, then no more than the remaining 500 acre-feet per year can be used to meet other water needs.

3.1 Data Fields for Water Supply Sources

This section describes the existing fields in the Sources module of the Regional Water Planning Data Web Interface including those that planning groups must populate. Descriptions include possible entry codes or methods on how to develop required information.

- “Source or System Name” – This is the source or system’s name. The TWDB will provide a list of sources and source IDs. Planning groups and the TWDB must identify any new sources not included in the list. The TWDB will add new sources to the list upon request by a region, as necessary. Source or system names will be utilized consistently on all forms throughout the database application.

- “Source ID” – Identification code for a water source. The TWDB will provide a list of sources and source IDs. The TWDB will add new sources and source IDs to the list upon
request by the region, as necessary. Source IDs will be utilized consistently on all forms throughout the database application.

- **"Source Region"** – Identifying letter of region (A through P) where source is located.

  - A = Panhandle Region
  - B = Region B
  - C = Region C
  - D = North East Texas Region
  - E = Far West Texas Region
  - F = Region F
  - G = Brazos Region
  - H = Region H
  - I = East Texas Region
  - J = Plateau Region
  - K = Lower Colorado Region
  - L = South Central Texas Region
  - M = Rio Grande Region
  - N = Coastal Bend Region
  - O = Llano Estacado Region
  - P = Lavaca Region

- **"Source Type ID"** – Groundwater, surface water, or reuse identification code.

  - 00 = surface water
  - 01 = groundwater
  - 02 = reuse

- **"System"** – Indicates if a source is from a system.

  - Y = source is from a system
  - N = source is not from a system

When reservoirs that make up the surface water component of a system can be tracked to an end user, planning groups should report existing water supplies separately and any system gain should be shown as an additional entry. For systems composed of groundwater and surface water, planning groups should identify both components and track them separately. Existing water supplies from systems must be reported as annual values for each system component. If any system component is shared between different regions or is part of the total volume for an existing supply, total water volumes should be reported. Planning groups must describe how a system operates and must estimate the portion of existing supply for each system component, which may include a portion for the gain achieved via system operation. If more than one planning region uses components of water systems, then a system’s existing supply figures must be consistent among sharing regions. For example, if Region X is using a reservoir located within Region Y, both Region X and Region Y should agree on the amount of water available from the reservoir in question. In addition, both regions should report the same water
volumes in the same. If the amount of water available from a system’s reservoirs cannot be tracked directly to end users, planning groups should list the total combined system yield including system gains if they exist. If a reservoir is part of a system also has a non-system portion, the system portion may be part of the combined system yield or listed as a separate entry. List the total non-system portion of the reservoir as well. For surface water components of a system, list the total supply of each reservoir if each reservoir can be identified directly with an end user, along with an additional entry for a system gain, if any exists.

- “Source County Name” County name where a source (or portion of one) is located. This field is required for all sources except lakes/reservoirs and surface water components of systems. The TWDB will provide a list of all county names.

- “Source county ID” – Three-digit county identification number assigned by the TWDB. The TWDB will provide a list of county IDs. Required for all sources except lakes/reservoirs and the surface water components of systems.

- “Source Basin Name” – Name of the river basin where a source (or portion) is located. The TWDB will provide a list of all river basins.

- “Source Basin ID” – Two-digit basin identification number assigned by the TWDB. The TWDB will provide a list of basin identification numbers.

- “Water Right Permit Number” – An editable field that lists the identifying code for TCEQ water rights permit numbers for sources with associated water rights. Coding must conform to the syntax: TBBWWWWW, where T is the type of water right, B is the two-digit basin code with leading zeros, and W is the five-digit water right permit number with leading zeros assigned by the TCEQ. All water rights associated with a source must be entered into this field.

- “Total Availability (2020-2070)” – An editable field that lists the value for total annual amounts of water available from sources for years 2020, 2030, 2040, 2050, 2060 and 2070. Managed available groundwater numbers for approved desired conditions for Groundwater Management Areas will be populated in the database by the TWDB and will not be editable by the planning areas. If a source is a lake or reservoir, the value will be the total firm yield or total operational supply. If the value entered is based on an operational procedure, it should not exceed the firm yield of the lake or reservoir under drought-of-record conditions, except when documented system operations yield system gains. When a source is shared among regions, list the mutually agreed upon total source supply. The basis for the supply value entered must be noted in the methodology field. The regional planning groups must have prior approval from the TWDB to list total availability numbers not based on firm yield. In addition, if total availability is not based on the firm yield of the source, the “Is Total Availability Based on Firm Yield?” and “Firm Availability (2020-2070)” fields must be completed.
“Is Total Availability Based on Firm Yield?” – An editable field that details if the “Total Availability (2020-2070)” fields are based on firm yield. If the numbers entered into the “Total Availability (2020-2070)” fields are not based on firm yield, the firm yield of the source must be entered into the “Firm Availability (2020-2070)” field.

- Y = total availability is based on firm yield
- N = total availability is not based on firm yield

“Firm Availability (2020-2070)” – This is an editable field that lists the value for the total firm annual amounts of water available from sources for years 2020, 2030, 2040, 2050, 2060 and 2070. If a source is a lake or reservoir, the value will be the total firm yield or total operational supply. If the value entered is based on an operational procedure, it should not exceed the firm yield of the lake or reservoir under drought-of-record conditions, except when documented system operations yield system gains. Managed available groundwater numbers for approved desired conditions for Groundwater Management Areas will be populated in the database by the TWDB and will not be editable by the planning areas.

“Total Availability Reduced due to Water Quality Considerations?” – An editable field that indicates if water quality constraints were considered when developing total water availability estimates and total availability was reduced accordingly.

- Y = total availability was reduced due to water quality considerations
- N = total availability was not reduced due to water quality considerations

“Methodology” – An editable field that is to be completed to define the methodology utilized to determine availability volumes.

“Regional Comments” – An editable field that is optional for additional comments about sources. If total supply values are from a system with a combined firm yield, the individual availability volumes for each reservoir comprising the combined system yields along with any system gains should be listed in this field. If the source is “Other Aquifer” the name of the aquifer should be listed in this field. [these will become separate fields in DB17]

4.0 Data for Water User Groups

The new data web interface for DB17 will combine the Water User Group and Wholesale Water Provider modules into one data entry component. The new single module will contain all entities. Planning groups will be responsible for providing the Water User Group and Wholesale Water Provider attributes of each entity as necessary. In addition, the Water Management Strategy module will be revised to incorporate the new entity concept. Application development is still in the planning phase and a detailed descriptive of the new combined Water User Group and Wholesale Water Provider module and the Water Management Strategy module cannot be provided at this time. The following Water User Group, Wholesale Water Provider and Water Management Strategy sections are
based on the 2012 database and application (DB12). As the application development moves through the planning phase a more detailed descriptive of the new entity module will be provided to replace the Water User Group and Wholesale Water Provider sections in this document.

4.1 General Information for Calculating and Reporting Data for Water User Groups

The Water User Groups module includes information for water user groups such as: 1) population and water demand projections, 2) existing water supply sources apportioned to water user groups, 3) water needs and water surpluses, and 4) descriptions of water management strategies.

4.2 Data Fields for Water User Groups

4.2.1 Descriptive Data for Water User Groups

The Water User Groups module includes descriptive data for water user groups over the 50-year planning horizon. Water user groups include:

- cities with population 500 or more;
- utilities providing more than 280 acre-feet per year of water for municipal use for counties having four or less of these utilities;
- Collective Reporting Units consisting of grouped utilities having common association;
- rural and unincorporated areas with municipal water use (referred to as "county-other" and aggregated on a county basis);
- manufacturing (aggregated on a county basis);
- steam electric power generation (aggregated on a county basis);
- mining (aggregated on a county basis);
- irrigation (aggregated on a county basis), and
- livestock (aggregated on a county basis).

Water user group are represented at county and basin unit levels, and if a water user group exists in one or more regions, counties, or basins, then that group will be reported in a divided fashion for each divided combination.

- "WUG Name" – Water user group name. The TWDB will provide a list of known names. Planning groups should contact the TWDB to add names not included in the list.
- "WUG Detail" – Lists additional descriptive information about the WUG. The planning group may request that the TWDB populate this field with provided information.
- "WUG ID" – Identification code for the water user group. The TWDB will provide a list of known water user group IDs.
UNDER DEVELOPMENT - to be modified for DB17

- "City ID" – Four-digit identification codes for cities. The TWDB will provide a list of all known city IDs.

- "Data Category" – Three-character identifier provided by the TWDB, for different categories of water user groups:
  - MUN = municipal
  - MFG = manufacturing
  - PWR = steam electric power generation
  - MIN = mining
  - IRR = irrigation
  - STK = livestock

- "WUG Region" – Identifying letter for region (A through P) where the water user group (or portion) is located.

- "WUG Split?" - Indicates if water user group is divided by counties, river basins, or regional boundaries. The TWDB will provide this information for identified water user groups:
  - Y = Water user group is split by county, basin, or regional boundary
  - N = Water user group is not split by county, basin, or regional boundary

- "Utility?" – Indicates if a water user group is reported as an individual utility per TWDB Chapter 357 rules. Planning groups are required to report and analyze individual utilities that provide more than 280 acre-feet per year. Utilities may be reported individually if counties in which they reside have four or fewer utilities providing more than 280 acre-feet per year each. Utilities should not be reported within a Collective Reporting Unit if they are reported individually. Cities served by utilities must be reported as a city, not as a utility. If a portion of a city is served by a utility, that portion of the city’s demand will remain with the city:
  - Y = water user group is an individual utility
  - N = water user group is not an individual utility

- "CRU?" – Indicates if water user groups are Collective Reporting Units. Planning groups are allowed, but not required, to group and assign utilities serving more than 280 acre-feet per year to a Collective Reporting Unit rather than report and analyze them individually. Utilities composing a Collective Reporting Unit must be located in counties having five or more utilities, each providing more than 280 acre-feet per year. Utilities within a Collective Reporting Unit must have a logical relationship, such as being served by common wholesale water providers, having common sources; or other appropriate associations.
  - Y = water user group is a Collective Reporting Unit
  - N = water user group is not a Collective Reporting Unit

Exhibit D, Page 12
- "CRU Utilities" – An editable field to be used to list utilities that comprise a Collective Reporting Unit if water user group is categorized as such.

- "WUG County Name" – Name of county in which the water user group (or portion) is located. The TWDB will provide a list of county names.

- "WUG County ID" – Three-digit county identification number. The TWDB will provide a reference table listing county identification numbers.

- "WUG Basin Name" – Name river basin in which water user group (or portion) is located. The TWDB provides a list of river basin names.

- "WUG Basin ID" – Two-digit basin identification number. The TWDB will provide a list of basin identification numbers.

- "Regional Comments" – An editable field that is optional to provide additional comments regarding a water user group's attributes, population values, daily values in gallons per capita per day (gpcd), water demand values, or other information related to the water user group section of the form.

- "Population (2020-2070)" – Water user group population values for 2020, 2030, 2040, 2050, 2060 and 2070. Population data is only entered for municipal water user groups. The TWDB will upload all population data after the regional review process for population and water demands is complete and the Board has approved population estimates.

- "WUG GPCD (2020-2070)" – Water user group gallons per capita per day values for 2020, 2030, 2040, 2050, 2060 and 2070, for water user groups with municipal demands. The TWDB will upload this data after the regional review process for population and water demands is complete and the Board has approved all estimates.

- "Total Demand (2020-2070)" - Total county-basin water demand values for water user groups for 2020, 2030, 2040, 2050, 2060 and 2070. Total demand includes calculated plumbing code replacement savings amount per decade. The database application will generate these values automatically.

- "Plumbing Code Replacement Savings (2020–2070)" – Estimated water use reduction due to normal plumbing fixture replacement for 2020, 2030, 2040, 2050, 2060 and 2070. The TWDB will upload this data after the regional review process for population and water demands is complete and the Board has approved all estimates.

- "Net Demand (2020-2070)" – Water user group water demand values for years 2020, 2030, 2040, 2050, 2060 and 2070. Net demand equals total demand minus plumbing code replacement values per decade for municipal data categories and is the demand value on which to base water needs for municipal water user groups. For other water use categories, net demand equals total demand. The TWDB will upload this data after the
regional review process for population and water demands is complete and the Board has approved all estimates.

4.2.2 Data for Existing Water Supplies for Water User Groups

In the following fields, planning groups should report water supply amounts from sources that currently exist, are connected, and accessible to water user groups, under drought-of-record conditions, and limited to the most restrictive factor (see field description for a list of restrictive factors). Planning groups will select from a list, a supply or supplies of water for each water user group. This list will be populated by the TWDB with sources of supply identified in the Sources module (described in Section 3.0 of this document). When reporting supplies for water user groups planning groups should also:

1) separate source supply values into county-basin units for all sources except lakes/reservoirs and surface water components of systems;

2) develop supply quantities at the basin level for reservoirs and surface water components of systems;

3) distribute source supply values to each water user group (or portion);

4) identify sources of current and future water use for water user groups (for example, if a user receives water from a provider who uses four sources, then there must be at least four records for that user; if it is known that a user does not receive water from all four sources, then list sources used);

5) not list source volumes more than once as a supply; therefore, if a portion of a supply accessible to a water user group is sold directly or indirectly to another water user group, the supply amounts allocated to each group should reflect this (for example, if water user group A owns a water right from a source for 1,000 acre-feet, and sells 500 acre-feet of this amount to water user group B, planning groups should divide the 1,000 acre-feet evenly between the two water user groups); [will change in DB17]

6) supplies based on contractual agreements should extend past the existing term of a contract if a contract is renewable;

7) water supply amounts reported by multiple users of a shared source must not exceed the total source availability; and

8) if a water user group lack reliable supply sources during a drought of record conditions, enter the source’s information and show supplies as zero (every demand should have at least one corresponding source even if a supply is unreliable during drought of record).

When a supply is added to a water user group the following fields will be listed automatically by the database application (a description of these fields can be found in Section 3.0 of this document):
• “Source or System Name”
• “Source ID”
• “Source Region”
• “Source Type ID”
• “System?”
• “Source County Name”
• “Source County ID”
• “Source Basin Name”
• “Source Basin ID”

Additional fields to be completed by the planning group include:

• “Water Right Permit Numbers” – An editable field used to list the identifying code for water rights permit numbers for sources with water rights. Coding should conform to the following syntax: TBBWWWWW, where T is the type of water right, B is the two-digit basin code, with leading zeros, and W is a five-digit permit number assigned by the Texas Commission on Environmental Quality. Planning groups should list all water rights associated with a source used by a water user group.

  ➢ Y = Is an IBT
  ➢ N = Is not an IBT

• “Regional Comments” – An editable field that is optional to list additional comments about a water user group’s supply values, source attributes, or other information related to the “Current Supplies” form. If option “J: Other” is entered as a limiting factor in any decade the limiting factor must be listed in this field. [will be a separate field in DB17]

• “Contract?” – An editable field that indicates if a supply is under contract.

  ➢ Y = supply is contracted
  ➢ N = supply is not contracted

• “Contract Expiration” – If “Y” is selected for the “Contract?” field this field must be completed. This is an editable field that lists the date (mm/dd/yyyy) when a contract expires, assuming a supply is based on a contract, and the contract has an expiration date. Planning groups should include this date even if a contract is assumed to be renewable (supplies based on contractual agreements may extend past the existing term of the contract if contractual agreements include contract renewal or extension).

• “Seller’s Name” – Name of seller providing water directly to the water user group.
“WWP ID” – Identification code for wholesale water providers who sell water directly to water user groups. Planning groups should contact the TWDB for wholesale water providers not included in the list.

“Supply Volume (2020-2070)” – An editable field that lists the supply volume for the water user group for years 2020, 2030, 2040, 2050, 2060 and 2070. Specific volumes of water from a source should not be reported twice. Therefore, if a portion of a source connected to a water user group is sold to another water user group, either directly or indirectly, supply amounts apportioned to each water user group should reflect this. Distribute source supply values to each water user group, or portions of one as applicable. Supplies based on contractual agreements must extend past the existing term of a contract if contract holders expect renewals or extensions. Increases requiring new infrastructure should be attributed to recommended water management strategies.

“Limiting Factor” – Water supplies for water user groups should be limited to the most restrictive of the following criteria:

- A: Supplies or fractions of supplies available from reservoirs or surface water components of systems.
- B: Current well field capacities.
- C: Hydrogeologic properties of aquifers.
- D: Water quality.
- E: Current water rights, permits or other applicable regulatory restrictions.
- F: Current contracts and/or option agreements.
- G: Existing conveyance infrastructure.
- H: At a planning group’s discretion, and if information is readily available, water treatment plant capacity (this is optional).
- I: Obligations that water user groups may have in terms of contracts or direct and indirect water sales to other water user groups.
- J: Other. If supply is limited by none of the above or a combination of the above, explicitly state the most restrictive limitation(s) in the “Regional Comments” field.

Please note that internal water distribution networks should not be considered a restrictive condition when determining amounts of available water.

4.2.3 Supply Summaries for Water User Groups

The “Supply Summary” section of the Water User Groups module identifies the total sum of supplies connected to water user groups.

- “Supply Sum (2020-2070)” – Sum of source water supply amounts connected to water user groups for the years 2020, 2030, 2040, 2050, 2060 and 2070. The database application will generate values automatically.
4.2.4 Water Needs and Surpluses for Water User Groups

The "Needs and Surplus" section of the Water User Group module identifies water needs and surpluses for water user groups by comparing the sum of existing water supplies with future water demands.

- "Need and Surplus (2020–2070)" – Equals supply summaries values per water user group minus net demand values per water user group for counties and river basins. Negative values indicate water shortages/needs. Positive values indicate water surpluses. Needs (negative values) require that each planning groups develop water management strategies to meet needs. The database application will generate these values automatically once supplies and demands are entered.

4.2.5 Water Management Strategies for Water User Groups

Planning groups will select from a list, a water management strategy or strategies to be used to meet the needs of the water user group. This list will be populated by the TWDB with strategies identified in the Water Management Strategies module (described in Section 6.0 of this document).

When a water management strategy is added to a water user group the following fields will be listed automatically by the database application (a description of these fields can be found in Section 6.0 of this document):

- "Sponsor Region"
- "WMS Unique Project ID"
- "WMS Project Name"
- "Source or System Name"
- "Source ID"
- "Source Type ID"
- "Source County Name"
- "Source County ID"
- "Source Basin Name"
- "Source Basin ID"
- "Water Quality Improvements"
- "WMS Online Date"

Additional fields to be completed by the planning group include:

- "Include WUG WMS Supply numbers in WMS Source Total Yield Rollup?" – An editable field that details whether a WUG WMS Supply should be included in the WMS Source Total Yield calculation.
  
  ➢ Y = include the WUG WMS Supply numbers in the WMS Source Total Yield rollup.
  ➢ N = do not include the WUG WMS Supply numbers in the WMS Source Total Yield rollup.
"Total Strategy Supply Volume (2020-2070)" – An editable field that lists total water supplies from each strategy that could feasibly be made available from current or potential water supply sources to each water user group with future needs. Current water rights, water contracts, and option agreements should be protected, although amendments to these may be recommended realizing that owner consent would be needed for implementation. Values are reported for the decade beginning with 2010. If a strategy redistributes or reallocates supplies, the entity providing the supply must be noted in the strategy’s name. Reallocations and redistributions require original source and supplier information. If a portion of a water user group has a need, even if the group as a whole appears to have adequate water supplies, then planning groups should include a strategy for that portion of the water user group with a need. For example, if a water user group is split between two counties and data show that one part of the group has a need while the other part of the does not, then planning groups should identify a strategy that satisfies the part of the water user group with need.

"Recommendation Type?" – An editable field that indicates if a planning group recommended a given strategy, recommended the strategy as an alternate, or evaluated, but did not recommend the strategy at all. If the strategy is recommended as an alternate, all data required for a recommended strategy must be completed.

- S = strategy was evaluated and recommended
- A = strategy was evaluated and recommended as an alternative
- C = strategy was evaluated but not recommended

"Is Used to Meet Need?" – A computed field that indicates whether a strategy meets water needs.

- Y = strategy meets a need
- N = strategy does meet a need

"IBT?" – An editable field that indicates if a source is an interbasin transfer from a strategy’s supply source basin of origin to a water user group basin of use (surface water only).

- Y = is an interbasin transfer
- N = is not an interbasin transfer

"Seller’s Name" – If a supply is sold directly to water user group lists the seller’s name.

"WWP ID" – Identification code for wholesale water provider supplying a strategy’s water supply. Contact the TWDB to add new wholesale water providers to the list.

"Seller’s WUG ID" - Lists the “WUG ID” of a seller if a strategy’s supply is from another water user group.
- "Recursive WMS Supply?" - An editable field that indicates if a strategy’s supply redistributes water from another listed strategy. This is necessary to prevent double counting strategy supply volumes. For example, if strategy A1 conserves a certain volume of water and another strategy B1 allocates all or part of that conserved volume, this field would be marked “Y” for strategy B1.

- "Recursive WMS Project ID" - List “WMS Unique Project ID” from where a strategy’s supply is derived. For example, if strategy A1 conserves a certain volume of water and another strategy B1 allocates all or part of that conserved volume, enter the “WMS Project ID “A1” here when listing strategy B1.

- "Exception Code” – Identifies why a strategy was not developed for a water user group with needs.
  - A = strategy was not feasible
  - B = a political subdivision providing water supply (other than water supply corporations, counties, or river authorities) chose not to participate in regional water planning efforts for needs located within its boundaries or extraterritorial jurisdiction

- "Include WUG WMS Cost numbers in WMS Source Cost Rollup?" – An editable field that details whether a WUG WMS Cost numbers should be included in the WMS Source cost calculations.
  - Y = include the WUG WMS cost numbers in the WMS Source cost rollup.
  - N = do not include the WUG WMS cost numbers in the WMS Source cost rollup.

- "WMS Capital Costs" – An editable field that specifies total capital costs needed to implement a given strategy. Note that total capital cost of implementing a strategy should equal the sum of all capital costs associated with a particular strategy’s “Unique Project ID” (i.e., several water user groups or wholesale water providers may each have expected capital costs associated with a single strategy). To further ensure that capital costs are not redundant, capital costs are to be entered into the database application only once for each water management strategy and should be associated only with the expected borrower(s) of these funds. For example, capital costs for strategies funded by wholesale water providers should be associated with borrowing wholesalers only, not with any retail water users using the water even though they may be affected indirectly through water rates.

- "Term of Debt Service”– An editable field that specifies the estimated length or term of the debt service.

- "WMS Annual Operating Costs (2020-2070)” – Enter operating and maintenance costs based on water quantities supplied by a strategy as defined in the TWDB document “General Guidelines for Regional Water Plan Development.”
For year 2020, list the average annual total of operation and maintenance 2020-2029.
For year 2030, list the average annual total of operation and maintenance 2030-2039.
For year 2040, list the average annual total of operation and maintenance 2040-2049.
For year 2050, list the average annual total of operation and maintenance 2050-2059.
For year 2060, list the average annual total of operation and maintenance 2060-2069.
For year 2070, list the annual total of operation and maintenance for the year 2070.

- "WMS Annual Cost per Acre-Foot (2020-2070)" – The TWDB will calculate the average annual cost per acre-foot by dividing total average annual costs by the volume of water generated by a given strategy.

- "WMS Discounted Annual Cost (2020-2070)" – The TWDB will estimate discounted costs.

- "Total WMS Cost per Acre-Foot" – The TWDB will calculate total strategy costs over the entire planning period divided by the total acre-feet of a strategy’s supply over the planning period.

- "Total Discounted Present Value Cost" – For each water user group, the total discounted present value of each strategy will be calculated as the sum of the discounted annual costs over the planning period. Discounted values will be automatically calculated by the database application and based on annual costs for each strategy.

- "Total Discounted Present Value per Acre-Foot" – The TWDB will calculate the total discounted present value of a strategy over the planning period divided by the total acre-feet of strategy supply over the planning period.

- "Regional Comments" – An editable field that is optional for additional comments from a planning group pertaining to a strategy’s attributes, supplies or other information.

- "Sum of WMS Supplies for WUG" – A field that lists the total sum of supplies provided by all water management strategies for a given water user group. The database will generate values automatically. Compare these values to need values, if any exist, to ensure that water user group’s needs are satisfied.
5.0 Data for Wholesale Water Providers

5.1 General Information for Calculating and Reporting Data for Wholesale Water Providers

The Wholesale Water Providers module reports data for wholesale water providers within each regional water planning area that meet the following definition:

any person or entity, including river authorities and irrigation districts, that has contracts to sell more than 1000 acre-feet of water wholesale in any one year during the five years immediately preceding the adoption of the last regional water plan.

However, planning groups may include other persons and entities that are expected to meet the above definition during the period covered by the plan.

The form includes data fields regarding:

- all obligations, contracts or non-contracts of wholesale water providers through the 50-year planning horizon;
- water sources and existing water supply amounts in future decades assuming current infrastructure does not change through time;
- the amount of water existing water supplies that wholesale water providers and their customers can depend on and use during a drought of record;
- water supply needs or water surplus data for each recipient as well as the wholesale water provider as a whole; and
- water management strategies pertaining to recipients with needs;

Some fields within this form will not require input from planning groups, but will contain data automatically generated by database application. Additionally, some data represented on this form may be provided and pre-loaded by the TWDB.

There are key differences between the Wholesale Water Providers and Water User Groups modules and data. Specifically, water user groups are analyzed from a user's perspective, whereas wholesale water providers are analyzed from a provider's perspective. Also, analyses for water user groups are based on projections of one type of water use, whereas analyses for wholesale water providers are based primarily on existing water contracts. For example, a water user group's demand is based on only one of the six categories of water use (i.e., municipal, manufacturing, steam electric power, mining, irrigation, or livestock). Conversely, "demands" for wholesale water providers include contracts with recipients that they serve, and among the recipients of water from a wholesale water provider, all six categories of TWDB water use may be represented. Additionally, in analyses of water user group needs, demands are based on
projected water demand. Conversely, wholesale water providers are analyzed by first identifying a provider’s current contract obligations including how much water each contract provides. Then, other current non-contract obligations are incorporated. Demands for wholesale water providers, therefore, are based on current contract and non-contract commitments. This provides two separate but complementary scenarios.

Since data for wholesale water providers require tabulating contract information external to TWDB data sets, planning groups must develop contract and demand data for wholesale water providers. Wholesale water providers do not require population projections beyond those already provided by the TWDB for water user groups.

Demand obligations, either contract or non-contract, for entities supplied by wholesale water providers, whether located within or outside of a planning region, should be included when developing total demands assigned to wholesale water providers. Providers could conceivably supply water to entities located within neighboring regions. If two or more regions list a common provider, then planning groups should communicate with each other when developing provider demands to ensure accuracy.

5.2 Data Fields for Wholesale Water Providers

5.2.1 Descriptive Information for Wholesale Water Providers

The “WWP” section of the Wholesale Water Providers module identifies providers meeting specified criteria.

- “WWP Sponsor Region” – Identifying letter of region (A through P) of the regional water planning group “sponsoring” the wholesale water provider.

- “WWP Name” – Wholesale Water Provider name. The TWDB will provide a list of known names. Planning groups should contact the TWDB to add names not included in the list.

- “WWP Alpha Number” – Identification code for providers assigned by TWDB. The TWDB will provide a list of alpha numbers. If a TWDB alpha number is not listed, please contact TWDB staff for assignment.

- “WWP ID” – Unique identification code for providers assigned by the TWDB.

5.2.2 Customers of Wholesale Water Providers

The customers section of the Wholesale Water Providers module identifies provider customers, referred to as “recipients” on the form. In addition, this form identifies data categories for a recipient’s type of water use, data regarding contract and non-contract water demand obligations, and general attributes of each recipient.
“Recipient Name” – An editable field that lists the name of the recipient with which the wholesale water provider has contract or non-contract obligations.

“Recipient Alpha” – TWDB identification code for recipients.

The planning group will be required to associate all wholesale water provider customers with a water user group. The TWDB will provide a list a water user groups. Once a water user group is selected, the following fields will be listed automatically by the database application (a description of these fields can be found in Section 4.0 of this document):

- “WUG Name”
- “WUG ID”
- “City ID”
- “Data Category”
- “WUG County Name”
- “WUG County ID”
- “WUG Basin Name”
- “WUG Basin ID”
- “WUG Region”

Additional editable fields include:

- “Regional Comments” – An editable field that is optional for providing additional comments from planning groups pertaining to recipient attributes, water user group attributes, wholesale water provider demand values, or other information related to the customers section of the form.

- “Current Demand (2020-2070)” – An editable field that lists wholesale water provider demand obligation values per recipient for years 2020, 2030, 2040, 2050, 2060 and 2070 for all data categories. If an obligation is based on a contract, list the contract amount.

- “Contract or Non-Contract Demand” – An editable field that indicates whether a demand obligation is contract or non-contract based.
  
  ➢ C = demand is based on a contract
  ➢ NC = demand is not based on a contract

- “Contract Expiration” – Date of contract expiration assuming demands are based on a contract and a contract has an expiration date. A contract expiration date should be included even if a contract is assumed to be renewable. This field is required if “C” is selected from the “Contract or Non-Contract Demand” field.

5.2.3 Wholesale Water Provider Obligations Summary

The “WWP Obligations Summary” section of the Wholesale Water Providers module identifies the total sum of obligations for each provider.
"Sum (2020-2040)" – Sum of contract and non-contract obligation for wholesale water providers for years 2020, 2030, 2040, 2050, 2060 and 2070. Values are generated by the database application.

5.2.4 Existing Water Supplies for Wholesale Water Providers

The "Current Supplies" section of the Wholesale Water Providers module identifies water sources, source attributes, and existing supply values connected to each recipient from wholesale water provider sources. Planning groups will select from a list a supply or supplies of water for each wholesale water provider customer. This list will be populated with sources identified in the Sources module (described in Section 3.0 of this document). Supplies based on contractual agreements will extend past the existing term of the contract if a contract contemplates renewal or extension. Only provider sources and supplies connected to each recipient should be listed. Planning groups should separate source supply values into county and basin units for sources except lakes/reservoirs and surface water components of systems. For reservoirs and surface water components of systems, supply quantities should be developed at basin levels, and source supply values should be distributed to each recipient basin or portion of one as applicable.

When a supply is added to a wholesale water provider customer, the following fields will be listed automatically by the database application (a description of these fields can be found in Section 3.0 of this document):

- "Source or System Name"
- "Source ID"
- "Source Region"
- "Source Type ID"
- "System?"
- "Source County Name"
- "Source County ID"
- "Source Basin Name"
- "Source Basin ID"

Additional editable fields include:

- "Water Right Permit Numbers" – An editable field that lists the code for TCEQ water rights permit numbers for source supplies and associated water rights. Coding should conform to the syntax: TBBWWWWW, where T is the type of water right, B is a two-digit basin code with leading zeros, and W is the five-digit water right permit number with leading zeros. All water rights associated with a source of supply must be listed in this subsection.

- "IBT?" – An editable field that indicates if a source is an interbasin transfer from a supply source basin of origin to a wholesale water provider customer basin of use (surface water only).
Y = is an IBT
N = is not an IBT

- “Regional Comments” – An optional, editable field for providing additional comments pertaining to wholesale water provider recipient source supplies, source values, source attributes, or other information related to the current supplies section of the form.

- “Supply Volume (2020-2070)” – Supply amounts for years 2020, 2030, 2040, 2050, 2060 and 2070 from sources currently available through a wholesale water provider to recipients. If contracts are renewable, then supplies based on contractual agreements may extend past the existing term of a contract. Supply amounts should not increase in later years.

5.2.5 Supply Summary for Wholesale Water Providers

The “Supply Summary” section of the Wholesale Water Providers module identifies the total sum of supplies available to each wholesale water provider.

- “Supply Sum (2020-2070)” – Sum of source supply amounts available to each wholesale water provider. The database application will generate these values.

5.2.6 Recipient Needs and Surplus

The “Recipient Needs and Surplus” section of the Wholesale Water Providers module identifies water needs and/or surpluses for each recipient of water from a wholesale water provider.

- “Recipient Needs and Surplus (2020-2070)” – Sum of total supplies per recipient minus total recipient demand obligations, contract or non-contract, for wholesale water providers. Negative values indicate water needs for recipients, while positive values indicate water surpluses. The database application will generate these values.

5.2.7 Wholesale Water Provider Needs and Surpluses

The “Wholesale Water Provider Needs and Surpluses” section of the Wholesale Water Providers module identifies water needs and surpluses for providers. For providers with unassigned surpluses (i.e. a provider has a surplus for which they do not have a recipient), enter recipients as “unassigned” along with county and/or basin names where surpluses exist if known. Also, sources corresponding to that surplus must be listed.

- “WWP Needs and Surpluses (2020-2070)” – Sum of total supplies per provider minus total demand obligations, contract and non-contract, for providers. Negative values indicate water needs, while positive values indicate water surpluses.
5.2.8 Water Management Strategies for Wholesale Water Providers

Planning groups should develop potentially feasible water management strategies when future water supply needs exist for individuals that receive water from wholesale providers. The “Water Management Strategies” section of the Wholesale Water Providers module provides a list of potentially feasible water management strategies and their costs for each wholesale water provider and their respective customers. The planning group will select from a list a water management strategy or strategies to meet the needs of the wholesale water provider and its customers. This list will be populated by the TWDB with water management strategies identified in the Water Management Strategies module (described in Section 6.0). Data for strategies listed should include amounts of water supply from current or potential water sources along with lists of recipients with future needs. If a recipient (or portion of one) shows a need, even if the wholesale water provider as a whole appears to have adequate supplies, include a water management strategy to address recipient’s need.

When a water management strategy is added to a wholesale water provider customer, the following fields will be listed by the database application (refer to Section 6.0 for a description of these fields):

- “Sponsor Region”
- “WMS Unique Project ID”
- “WMS Name”
- “Source Region”
- “Source Name”
- “Source County Name”
- “Source County ID”
- “Source Basin Name”
- “Source Basin ID”
- “Source ID”
- “Source Type”

Additional editable fields include:

- “Recommendation Type?”– An editable field that indicates if a planning group recommended a given strategy, recommended the strategy as an alternate, or evaluated, but did not recommend the strategy at all.
  - S = strategy was evaluated and recommended
  - A = strategy was evaluated and recommended as an alternative
  - C = strategy was evaluated but not recommended

- “Is Used to Meet Need?” – A computed field that indicates whether a strategy meets water needs.
  - Y = strategy meets a need
  - N = strategy does meet a need

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• “Exception Code” – Identifies why a strategy was not developed for a wholesale water provider recipient with needs.
  - A = the strategy was not feasible
  - B = a political subdivision providing water supply (other than water supply corporations, counties, or river authorities) chose not to participate in regional water planning efforts for needs located within its boundaries or extraterritorial jurisdiction

• “IBT?” – An editable field that indicates if a source is an interbasin transfer from a strategy’s supply source basin of origin to a wholesale water provider customer basin of use (applies to surface water only).
  - Y = Is an interbasin transfer
  - N = Is not an interbasin transfer

• “Regional Comments” – An editable field for additional comments from a planning group pertaining to a strategy’s attributes, supplies, or other information.

• “Include WWP WMS Supply numbers in WMS Source Total Yield Rollup?” – An editable field that details whether a WWP WMS Supply should be included in the WMS Source Total Yield calculation.
  - Y = include the WWP WMS Supply numbers in the WMS Source Total Yield rollup.
  - N = do not include the WWP WMS Supply numbers in the WMS Source Total Yield rollup.

• “WMS Supply (2020-2070)” – Shows total water supplies from each strategy that could feasibly be made available from current or potential water supply sources to wholesale water provider customers with future needs. Current water rights, water contracts, and option agreements should be protected, although amendments to these may be recommended realizing owner consent would be needed for implementation. Values are reported for each decade beginning with 2020. If a strategy redistributes or reallocates supplies, the entity providing the supply must be noted in the strategy’s name. Reallocations and redistributions require original source and supplier information. If a wholesale water provider customer (or portion of one) has a need, even if the wholesale water provider as a whole appears to have adequate water supplies, then the planning groups should include a strategy for that wholesale water provider customer with a need.

• “Include WWP WMS Cost numbers in WMS Source Cost Rollup?” – An editable field that details whether a WWP WMS Cost numbers should be included in the WMS Source cost calculations.
  - Y = include the WWP WMS cost numbers in the WMS Source cost rollup.
  - N = do not include the WWP WMS cost numbers in the WMS Source cost rollup.
- "WMS Capital Costs"—An editable field that specifies total capital costs needed to implement a given strategy. Note that total capital cost of implementing a strategy should equal the sum of all capital costs associated with a particular strategy's "Unique Project ID" (i.e., several water user groups or wholesale water providers may each have expected capital costs associated with a single strategy). **To further ensure that capital costs are not redundant, capital costs are to be entered into the database application only once for each water management strategy and should be associated only with the expected borrower(s) of these funds.** For example, capital costs for strategies funded by wholesale water providers should be associated with borrowing wholesalers only, not with any retail water users using the water even though they may be affected indirectly through water rates.

- "Term of Debt Service"—An editable field that specifies the estimated length or term of the debt service.

- "WMS Annual Operating Costs (2020-2070)"—Enter operating and maintenance costs based on water quantities supplied by a strategy as defined in the TWDB document "General Guidelines for Regional Water Plan Development.

  - For year 2020, list the average annual total of operation and maintenance 2020-2029.
  - For year 2030, list the average annual total of operation and maintenance 2030-2039.
  - For year 2040, list the average annual total of operation and maintenance 2040-2049.
  - For year 2050, list the average annual total of operation and maintenance 2050-2059.
  - For year 2060, list the average annual total of operation and maintenance 2060-2069.
  - For year 2070, list the annual total of operation and maintenance for the year 2070.

- "WMS Annual Cost per Acre-Foot (2020-2070)"—The TWDB will calculate the average annual cost per acre-foot by dividing total average annual costs by the volume of water generated by a given strategy.

- "WMS Discounted Annual Cost (2020-2070)"—The TWDB will estimate discounted costs by calculating the present value of each decade's costs. For 2010 through 2050, the discounting procedure assumes that average annual costs for each decade occur in each year of the decade and discounted to a base year from that year.

- "Total WMS Cost per Acre-Foot"—The TWDB will calculate total strategy costs over the entire planning period divided by the total acre-feet of a strategy's supply over the planning period.
“Total Discounted Present Value Cost” – For each wholesale water provider, the total discounted present value of each strategy will be calculated as the sum of the discounted annual costs over the planning period. Discounted values will be automatically calculated on database forms and based on annual costs for each strategy.

“Total Discounted Present Value per Acre-Foot” – The TWDB will calculate the total discounted present value of a strategy over the planning period divided by the total acre-feet of strategy supply over the planning period.

5.2.9 Recipient Supplies Summary for Water Management Strategies

“Sum of WMS Supplies for Recipient” – Total sum of supplies available from all water management strategies for recipients. Values will be generated automatically by the database application. Compare these values to the need values, if any exist, to ensure that recipient needs are satisfied.

5.2.10 Wholesale Water Provider Summary for Water Management Strategies

“Sum of WMS Supplies for WWP” – Total sum of supplies provided by water management strategies for wholesale water providers. Values will be generated automatically by the database application. Compare these values to the need values, if any exist, to ensure that needs are satisfied.

6.0 Data for Water Management Strategies

6.1 General Information for Calculating and Reporting Data for Water Management Strategies

The Water Management Strategies module reports data for water management strategies evaluated by each regional water planning area to meet the needs of water user groups or wholesale water providers and their customers. This section includes information about the water management strategy; the sources included in the project and water user group and wholesale water provider water management strategy supply and cost information.

6.2 Data Fields for Water Management Strategies

6.2.1 Descriptive Information for Water Management Strategies

The “WMS” section of the Water Management Strategies module lists water management strategies evaluated by the regional water planning groups to meet the needs of water user groups or wholesale water providers and their customers.

“WMS Sponsor Region” – Identifying letter of region (A through P) of the regional water planning group “sponsoring” the project.
"WMS Unique Project ID" – Specifies unique identification numbers for water management strategies created and assigned by each planning group. Planning groups will designate each “Unique Project ID” with a region’s letter (i.e., A through P) followed by a numerical tag. For example, water management strategy Project A1 is the first strategy listed for Region A that serves two water user groups with one new well field (water management strategies may serve multiple users). If a water management strategy supplies multiple water user groups, or is used by both a water user group and a wholesale water provider (or multiple water user groups and multiple wholesale water providers), the “Unique Project ID” must be consistent among all users of a strategy in question. Furthermore, if a strategy is multi-regional, all regions using it should cooperate to assign a “Unique Project ID,” and regions using the strategy should list the same “Unique Project ID” when referring to the strategy. “Unique Project IDs” should be assigned to facilitate easy identification of distinct strategies as well as strategies used by more than one entity.

"WMS Name" – Strategy name including pertinent information needed to concisely and accurately describe a strategy. If necessary, use the “WMS Description” field in this section of the form to add additional information. If a strategy is used by more than one water user groups or wholesale water provider, the strategy’s name must be consistent for all entities using the strategy.

"WMS Description" – An editable field to be utilized by the planning group or TWDB staff to provide additional descriptive information related to the water management strategy.

"WMS Type" – letters specifying different types of water management strategies

- A = aquifer storage and recovery
- B = brush control
- C = conservation
- D = drought management
- E = existing source or expanded use of an existing source
- N = new source (for example new reservoir or new wells)
- P = precipitation harvesting
- R = reuse
- W = weather modification

Planning groups are not restricted to using only the WMS types listed above, however, all unique strategies, should be listed separately and discussed in written reports.

"WMS Infrastructure" – Indicates if a strategy includes pipelines or water treatment plants.

- P = pipeline
- W = water treatment plant
- PW = pipeline and water treatment plant
• “Additional RWPGs that will use this project?” – An editable field containing the identifying letter of all planning groups, including the “WMS Sponsor Region”, using the water management strategy.

• “Include in State Water Plan?” – A computed field based on the “Include in State Water Plan?” field entered in the WMS Source section. If any water management strategy source is included in the State Water Plan, the project will be included in the State Water Plan.

• “Calculate Total Yield of WMS based on Total Yield of Sources chosen for rollup?” - If selected, the “Total Yield of WMS” field will be calculated by the application. The calculation will sum up the “Total Yield of WMS Source” field of any sources where the “Include Source Total Yield numbers in WMS Project Rollup?” field in the WMS Source section is set to “Y”.

• “Calculate Total Yield of WMS based on all Sources?” - If selected, the “Total Yield of WMS” field will be calculated by the application. The calculation will sum up the “Total Yield of WMS Source” field for all WMS Sources related to the WMS Project.

• “Total Yield of WMS (2020 – 2070)” – If the “Calculate Total Yield of WMS based on Total Yield of Sources chosen for rollup?” or the “Calculate Total Yield of WMS based on all Sources?” fields are not selected this is an editable field. It identifies the total yield of a water management strategy for 2020, 2030, 2040, 2050, 2060 and 2070. This field should include all potential yield from a water management strategy project, not just supplies allocated to water user groups and/or wholesale water providers. For example, if the water management strategy is to develop a new reservoir and only a portion of the firm yield has been allocated to water user groups and/or wholesale water providers and their customers, the firm yield of the new reservoir would be listed in this field. The number listed in this scenario would be greater than what was listed in the Water User Groups and/or Wholesale Water Providers modules. The number listed in this field will be used to calculate totals for the 2017 State Water Plan.

• “Calculate Total Cost of WMS based on Total Cost of Sources chosen for rollup?” - If selected, the “Total WMS Capital Costs” and the “Total WMS Annual Operating Costs” fields will be calculated by the application. The calculation will sum up the “Total WMS Capital Costs”, “Total WMS Debt Service”, and the “Total WMS Annual Operating Costs” fields of any sources where the “Include Source Total Cost numbers in WMS Project Rollup?” field in the WMS Source section is set to “Y”.

• “Calculate Total Cost of WMS based on all Sources?” - If selected, the “Total WMS Capital Costs” and the “Total WMS Annual Operating Costs” fields will be calculated by the application. The calculation will sum up the “Total WMS Capital Costs”, “Total WMS Debt Service”, and the “Total WMS Annual Operating Costs” fields for all WMS Sources related to the WMS Project.
“Total WMS Capital Costs” – If the “Calculate Total Cost of WMS based on Total Cost of Sources chosen for rollup?” or the “Calculate Total Cost of WMS based on all Sources?” fields are not selected this is an editable field. It specifies total capital costs needed to implement a given strategy. Note that total capital cost of implementing a strategy should equal the sum of all capital costs associated with a particular strategy’s “Unique Project ID” (i.e. several water user groups or wholesale water providers may each have expected capital costs associated with a single strategy). To further ensure that capital costs are not redundant, capital costs are to be entered into the database application only once for each water management strategy and should be associated only with the expected borrower(s) of these funds. For example, capital costs for strategies funded by wholesale water providers should be associated with borrowing wholesalers only, not with any retail water users using the water even though they may be affected indirectly through water rates. The number listed in this field will be used to calculate totals for the 2017 State Water Plan.

“WMS Term of Debt Service”– If the “Calculate Total Cost of WMS based on Total Cost of Sources chosen for rollup?” or the “Calculate Total Cost of WMS based on all Sources?” fields are not selected this is an editable field. It specifies the estimated length or term of the debt service.

“Total WMS Annual Operating Costs” (2020-2070) – If the “Calculate Total Cost of WMS based on Total Cost of Sources chosen for rollup?” or the “Calculate Total Cost of WMS based on all Sources?” fields are not selected this is an editable field. Enter operating and maintenance costs based on water quantities supplied by a strategy as defined in the TWDB document “General Guidelines for Regional Water Plan Development.” The number listed in this field will be used to calculate totals for the 2017 State Water Plan.

- For year 2020, list the average annual total of operation and maintenance 2020-2029.
- For year 2030, list the average annual total of operation and maintenance 2030-2039.
- For year 2040, list the average annual total of operation and maintenance 2040-2049.
- For year 2050, list the average annual total of operation and maintenance 2050-2059.
- For year 2060, list the average annual total of operation and maintenance 2060-2069.
- For year 2070, list the annual total of operation and maintenance for the year 2070.

“Regional Comments” – An editable field that is optional for providing additional comments from the planning groups pertaining to the water management strategy.
6.2.2 Water Management Strategy Source

The water management strategy source section of the Water Management Strategy module identifies all sources of supply that are part of the water management strategy project. When a source is added to a water management strategy, the following fields will be generated by the database application (these fields are described in section 3.0 of this document):

- “Source or System Name”
- “Source ID”
- “Source Region”
- “Source Type ID”
- “System?”
- “Source County Name”
- “Source County ID”
- “Source Basin Name”
- “Source Basin ID”

Additional editable fields include:

- “Water Quality Improvements” – Indicates if a strategy source requires water quality improvements.
  - D = desalination of Gulf of Mexico water
  - Q = other water quality enhancements

- “WMS Online Date” – An editable field indicating the estimated decade (yyyy) when a strategy source will be operational.

- “WMS Funding Date” – An editable field that details the estimated decade (yyyy) when the needed capital funds would be obtained for construction.

- “Include in State Water Plan?” – An editable field that details whether a WMS source should be included in the State Water Plan.
  - Y = include the WMS Source, including its supply volume and costs, in the State Water Plan.
  - N = do not include the WMS Source, its supply volume or costs, in the State Water Plan.

- “Include WMS Source Total Yield numbers in WMS Project Total Yield Rollup?” – An editable field that details whether a WMS Source should be included in the WMS Project Total Yield calculation.
  - Y = include the WMS Source Total Yield numbers in the WMS Project Total Yield rollup.
N = do not include the WMS Source Total Yield numbers in the WMS Project Total Yield rollup.

- “Calculate Total Yield of Source based on WUG and/or WWP WMS Supply chosen for rollup?” - If selected, the “Total Yield of WMS Source” field will be calculated by the application. The calculation will sum up the “WUG WMS Supply” and/or the “WWP WMS Supply” fields of any WUGs and/or WWPs where the “Include WUG WMS Supply numbers in WMS Source Rollup?” and/or “Include WWP WMS Supply numbers in WMS Source Rollup?” fields in the WUG and WWP sections are set to “Y”.

- “Calculate Total Yield of WMS Source based on all WUGs and WWPs?” - If selected, the “Total Yield of WMS Source” field will be calculated by the application. The calculation will sum up the “WUG WMS Supply” and the “WWP WMS Supply” fields for all recommended WUGs and/or WWPs related to the WMS Source.

- “Total Yield of WMS Source (2020 – 2070)” – If the “Calculate Total Yield of WMS Source based on Total Yield of WUGs and/or WWPs chosen for rollup?” or the “Calculate Total Yield of WMS Source based on all WUGs and WWPs?” fields are not selected this is an editable field. It identifies the total yield of a water management strategy source for 2020, 2030, 2040, 2050, 2060 and 2070. This field should include all potential yield from a water management strategy project, not just supplies allocated to water user groups and/or wholesale water providers. For example, if the water management strategy is to develop a new reservoir and only a portion of the firm yield has been allocated to water user groups and/or wholesale water providers and their customers, the firm yield of the new reservoir would be listed in this field. The number listed in this scenario would be greater than what was listed in the Water User Groups and/or Wholesale Water Providers modules. The number listed in this field will be used to calculate totals for the 2017 State Water Plan.

- “Include WMS Source Cost numbers in WMS Project Cost Rollup?” – An editable field that details whether a WMS Source cost numbers should be included in the WMS Project cost calculations.

  - Y = include the WMS Source cost numbers in the WMS Project cost rollup.
  - N = do not include the WMS Source cost numbers in the WMS Project cost rollup.

- “Calculate Total Cost of WMS Source based on Total Cost of WUGs and/or WWPs chosen for rollup?” - If selected, the “Total WMS Source Capital Costs” and the “Total WMS Source Annual Operating Costs” fields will be calculated by the application. The calculation will sum up the “WMS Capital Costs”, “WMS Debt Service”, and the “WMS Annual Operating Costs” fields of any WUGs and/or WWPs where the “Include WUG WMS Cost numbers in WMS Source Rollup?” and/or “Include WWP WMS Cost numbers in WMS Source Rollup?” fields in the WMS WUG and/or WWP sections are set to “Y”.

- “Calculate Total Cost of WMS Source based on all WUG and/or WWP WMS Costs?” - If selected, the “Total WMS Source Capital Costs” and the “Total WMS Source Annual
Operating Costs” fields will be calculated by the application. The calculation will sum up the “WMS Capital Costs”, “WMS Debt Service”, and “WMS Annual Operating Costs” fields for all recommended WUGs and/or WWPs related to the WMS Source.

- **“Total WMS Source Capital Costs”** – If the “Calculate Total Cost of WMS Source based on Total Cost of WUGs and/or WWPs chosen for rollup?” or the “Calculate Total Cost of WMS Source based on all WUGs and WWPs?” fields are not selected this is an editable field. It specifies total capital costs needed to implement a given strategy. Note that total capital cost of implementing a strategy should equal the sum of all capital costs associated with a particular strategy’s “Unique Project ID” (i.e., several water user groups or wholesale water providers may each have expected capital costs associated with a single strategy). To further ensure that capital costs are not redundant, capital costs are to be entered into the database application only once for each water management strategy and should be associated only with the expected borrower(s) of these funds. For example, capital costs for strategies funded by wholesale water providers should be associated with borrowing wholesalers only, not with any retail water users using the water even though they may be affected indirectly through water rates. The number listed in this field will be used to calculate totals for the 2017 State Water Plan.

- **“WMS Source Term of Debt Service”** – If the “Calculate Total Cost of WMS Source based on Total Cost of WUGs and/or WWPs chosen for rollup?” or the “Calculate Total Cost of WMS Source based on all WUGs and WWPs?” fields are not selected this is an editable field. It specifies the estimated length or term of the debt service.

- **“Total WMS Source Annual Operating Costs (2020-2070)”** – If the “Calculate Total Cost of WMS Source based on Total Cost of WUGs and/or WWPs chosen for rollup?” or the “Calculate Total Cost of WMS Source based on all WUGs and WWPs?” fields are not selected this is an editable field. Enter operating and maintenance costs based on water quantities supplied by a strategy as defined in the TWDB document “General Guidelines for Regional Water Plan Development.” The number listed in this field will be used to calculate totals for the 2017 State Water Plan.

- For year 2020, list the average annual total of operation and maintenance 2020-2029.
- For year 2030, list the average annual total of operation and maintenance 2030-2039.
- For year 2040, list the average annual total of operation and maintenance 2040-2049.
- For year 2050, list the average annual total of operation and maintenance 2050-2059.
- For year 2060, list the average annual total of operation and maintenance 2060-2069.
- For year 2070, list the annual total of operation and maintenance for the year 2070.
• "Regional Comments" – An editable field that is optional for providing additional comments from the planning groups pertaining to the water management strategy source.

6.2.3 Water Management Strategies for Water User Groups

A description of this section of the Water Management Strategy module is included in section 4.0 of this document.

6.2.4 Water Management Strategies for Wholesale Water Providers

A description of this section of the Water Management Strategy module is included in section 5.0 of this document.
April 5, 2011

Mr. David Carter
Texas Water Development Board
Contracts and Purchasing
P.O. Box 13231
1700 North Congress Ave.
Austin, Texas 78711-3231

RE: Grant Application for the Fourth Cycle of Regional Water Plan

Dear Mr. Carter:

Please find enclosed five copies of the grant application and an electronic version to secure funding for the Fourth Cycle of Regional Water Planning. The funding requested will be used to develop the 2016 Brazos G Regional Water Plan.

The Brazos G Regional Water Planning Group (Brazos G) has prepared the attached grant application and scope of work according to the Texas Water Development Board’s (TWDB) prescribed guidelines for the Fourth Cycle of Regional Water Planning.

The funding for tasks required in this scope of work total to $392,646. These funds will be used to complete the planning tasks as outlined in the TWDB guidance documents regarding the 2016 Regional Water Plan.

The Group appreciates the TWDB’s consideration of this application. Please refer any questions you may have regarding the application to Mr. Trey Buzbee of the Brazos River Authority at 254-761-3168 or tbuzbee@brazos.org.

Sincerely,

PHILLIP J. FORD
Secretary/Treasurer

Enclosures

cc: Each RWPG Member - without enclosures
Mr. Lann Bockout, TWDB - without enclosures
Mr. David Dunn, HDR Engineering - without enclosures
Brazos G Regional Water Planning Group
Fourth Round of Regional Water Planning
Application Checklist

I. GENERAL INFORMATION
☐ 1. Legal name of applicant(s).
☐ 2. Regional Water Planning Group:
☐ 3. Authority of law under which the applicant was created.
☐ 4. Applicant’s official representative, Name, Title, Mailing address, Phone number, Fax number, if available, E-mail Address, and Vendor ID Number.
☐ 5. DUNS Number, if you do not have a DUNS number, visit: https://eupdate.dnb.com/requestoptions.asp?cm_re=HomepageB*DUNSNumberTab
☐ 6. Central Contract Registration Number (CCR#). If you do not have a CCR number, visit: https://www.uscontractorregistration.com/
☐ 7. Is this application in response to a Request for Applications published in the Texas Register?
   Yes ☑ No
☐ 8. If yes to No. 6 above, list document number and date of publication of the Texas Register.
☐ 9. Type of proposed planning (Check all that apply)
   | Initial scope of work |   | Development of a regional water plan | X |
   | Revision of a regional water plan |   | Special studies approved by TWDB |   |
☐ 10. Total proposed planning cost (see Guidance for Preparation of Application at http://www.twdb.state.tx.us/wri/rwp/docu.asp for amount)
☐ 11. Total grant funds requested from the Texas Water Development Board.
☐ 12. Detailed statement of the purpose for which the money will be used. (Not to exceed 1 page.)
☐ 13. Detailed description of why state funding assistance is needed. (Not to
14. Identify potential sources and amounts of funding available for implementation of viable solutions resulting from proposed planning.

II. PLANNING INFORMATION


16. A task budget for detailed scope of work by task.

17. An expense budget for detailed scope of work by expense category.

18. A time schedule for completing detailed Scope of Work by task. (see Scope of Work document referenced above)

19. Specific deliverables for each task in Scope of Work. (see Scope of Work document referenced above)

20. Method of monitoring study progress.

21. Qualifications and direct experience of proposed project staff.

III. WRITTEN ASSURANCES

Written assurance of the following items:

- Proposed planning does not duplicate existing projects;

- 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;

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 Interim Executive Administrator's name (Melanie Callahan) and address; and
☑ Statement that any comments on the proposed planning must be filed with the applicant and the Texas Water Development Board Interim Executive Administrator within 30 days of the date on which the notice was mailed.
Brazos G Regional Water Planning Group
Grant Application - Fourth Round of Regional Water Planning

GRANT APPLICATION
FOR THE FOURTH ROUND OF REGIONAL WATER PLANNING
TO FORM THE 2016 BRAZOS G REGIONAL WATER PLAN

TEXAS WATER DEVELOPMENT BOARD
RESEARCH AND PLANNING FUND

Texas Water Development Board
Research and Planning Fund
Regional Water Planning Grant

Application Checklist

I. GENERAL INFORMATION

1. Legal name of applicant(s).
   Brazos River Authority (BRA)

2. Regional Water Planning Group:
   Brazos G Regional Water Planning Group (Brazos G)

3. Authority of law under which the applicant was created.
   The Brazos River Authority was duly created and is lawfully operating under Acts 1929, 41st Leg., 2nd C.S., Spec. L. p. 22, ch.13, as amended. The authority for creation of conservation and reclamation districts such as the Brazos River Authority is Article XVI, Section 59 of the Constitution of Texas.

4. Applicant's official representative, Name, Title, Mailing address, Phone number, Fax number, E-mail Address, and Vendor ID Number.
   The Brazos River Authority's General Manager/CEO, Phillip J. Ford, is the official representative and will execute all contracts involved with this project. Mr. Trey Buzbee, Brazos G Administrative Agent / Central Basin Regional Government & Customer Relations Manager for the Brazos River Authority, will manage day-to-day project activities.

   Phillip J. Ford
   General Manager/CEO
   Brazos River Authority
   P.O. Box 7555
   Waco, Texas 76714-7555
   Phone (254) 761-3194
   Fax (254) 761-3207
   e-mail: phil@brazos.org

   Trey Buzbee
   Central Basin Government & Customer Relations Manager
   Brazos River Authority
   P.O. Box 7555
   Waco, Texas 76714-7555
   Phone (254) 761-3168
   Fax (254) 761-3204
   tbuzbee@brazos.org

   Vendor ID: 74-6026892
5. DUNS Number: 089981125

6. Central Contract Registration Number (CCR#). If you do not have a CCR number, visit: https://www.uscontractorregistration.com/

The Brazos River Authority does not currently have a Central Contract Registration Number (CCR#).

7. Is this application in response to a Request for Applications published in the Texas Register? Yes ☐ No ☐

8. If yes to No. 7 above, list document number and date of publication of the Texas Register.
   Document Number: TRD-201100237
   Date of Publication: February 4, 2011

9. Type of proposed planning (Check all that apply)

   | Initial scope of work |
   | Development of a regional water plan | X |
   | Revision of a regional water plan |
   | Special studies approved by TWDB |

10. Total proposed planning cost.
    The total proposed cost to commence development of the 2016 Brazos G Regional Water Plan is currently estimated at $392,546.

11. Total grant funds requested from the Texas Water Development Board.
    Grant funds requested total to $392,546.

12. Detailed statement of the purpose for which the money will be used. (Not to exceed 1 page.)

    Funding obtained through this application will be used to commence development of the 2016 Brazos G Regional Water Plan. This effort will involve revising population and water demand projections based on the 2010 U.S. census, updating water availability estimates, and performing analyses of water management strategies to meet identified needs, as appropriate. The detailed scope of work specifying proposed use of the funds is provided as Exhibit A.

    The regional water planning grant funds hereby requested will be used for reimbursement of expenses associated with general administrative and public participation activities including, costs associated with public information (meeting notices, planning group member travel, mailings, maintenance of the Brazos G website, etc.), and five (5) required scope of work tasks. These expenses include contractual services of the sub consultant, HDR Engineering, Inc (HDR).

13. Detailed description of why state funding assistance is needed. (Not to exceed 1 page.)

    The Brazos G Regional Water Planning Group has no legal authority to enter into contracts, nor any means to generate revenues. Therefore, Brazos G is relying on grant funds from the State to perform the required task of initiating development the 2016 Brazos G Regional Water Plan.
14. Identify potential sources and amounts of funding available for implementation of viable solutions resulting from proposed planning.

Due to the vast scale of this planning effort, there are a number of potential funding sources that may be used to implement recommended water management strategies for various water user groups. These include but are not limited to private funding sources, state and federal loan/grant programs, and the open market.

II. PLANNING INFORMATION

15. A detailed scope of work for proposed planning.

Provided as Exhibit A.

16. A task budget for detailed scope of work by task.

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Task Name / Report Section</th>
<th>Task Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td>Non-Population Related Water Demand Projections (new projections)</td>
<td>$35,038</td>
</tr>
<tr>
<td>2B</td>
<td>Population &amp; Population-Related Water Demand Projections (new projections)</td>
<td>$30,977</td>
</tr>
<tr>
<td>3</td>
<td>Evaluation of Existing Water Supply</td>
<td>$106,584</td>
</tr>
<tr>
<td>4B</td>
<td>Identification of Potentially Feasible Water Management Strategies</td>
<td>$13,352</td>
</tr>
<tr>
<td>4C</td>
<td>Technical Memorandum (Summary of Tasks 1-4B) of Regional Water Plan</td>
<td>$33,308</td>
</tr>
<tr>
<td>4D</td>
<td>Evaluation and Selection of Water Management Strategies</td>
<td>$66,803</td>
</tr>
<tr>
<td>10</td>
<td>Adoption of Plan (administration &amp; public participation for Tasks 1-4C)</td>
<td>$106,584</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>$392,646</td>
</tr>
</tbody>
</table>

17. An expense budget for detailed scope of work by expense category.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>TOTAL AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Expenses</td>
<td>$15,333</td>
</tr>
<tr>
<td>Voting Planning Member Travel</td>
<td>$13,449</td>
</tr>
<tr>
<td>Subcontract Services (HDR Engineering, Inc.)</td>
<td>$363,864</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$392,646</td>
</tr>
</tbody>
</table>

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

2. 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.
18. A time schedule for completing detailed Scope of Work by task.

**TIME SCHEDULE**

**FOURTH ROUND OF REGIONAL WATER PLANNING**

<table>
<thead>
<tr>
<th>Tasks</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
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<tr>
<td></td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
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<tr>
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</tr>
<tr>
<td>Task 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note that this time schedule is prepared assuming that the TWDB provides population and water demand projections by August 15, 2011 and that the TWDB will provide timely responses to requests to revise the projections following review by the planning group and entities in the planning area.

19. Specific deliverables for each task in Scope of Work.

The results of work of each task will be presented to the Brazos G Regional Water Planning Group at regularly scheduled planning group meetings for review. Draft reports or summary memorandums (as appropriate to the subject will be provided to the Planning Group for review. Appropriate changes and/or corrections will be made, and final report(s) will be submitted to the planning group and the TWDB. Specific deliverables are identified in the individual task scopes.

20. Method of monitoring study progress.

The method used to monitor the study progress will be task completion according to the time schedule referenced above in Item 18. The Primary Sub consultant will provide updates at the RWPG meetings of the work being performed to revise the regional water plan, and will be a part of the monthly requests for reimbursement from TWDB. Draft and final reports will be required of the Primary Sub consultant, and transmitted to TWDB, in accordance with planning contract procedures and requirements.

21. Qualifications and direct experience of proposed project staff.

The Brazos River Authority, the administrative agent for the Brazos G Regional Water Planning Group, will be responsible for management of the project. The Brazos River Authority has served in this same capacity during development of the 2001, 2006, and 2011 Brazos G Regional Water Plans. HDR Engineering, Inc. has been selected by the Brazos G Regional Water Planning Group as the lead technical consultant for developing the 2016 Brazos G Regional Water Plan. HDR served in this same capacity during development of the 2001, 2006, and 2011 Brazos G Plans. HDR was also the lead technical consultant for Regions L, N, and O during development of the 2001, 2006 and 2011 Plans.

Primary project staff for the Brazos River Authority and area of responsibility is:

Trey Buzbee, Brazos G Administrator
Primary project staff for HDR and areas of responsibility are:

David D. Dunn, P.E., Project Manager
Cory Shockley, P.E., Asst. Project Manager, Surface Water Availability Analyses
Peter Newell, P.E., Review of Water Demands and DB17 data entry

Resumes for these individuals are included in Exhibit B.

III. WRITTEN ASSURANCES

Written assurance of the following items:

- Proposed planning does not duplicate existing projects;
  This proposed planning effort of the Brazos G Regional Water Planning Group does not duplicate existing projects.

- 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 Brazos G Regional Water Planning Group anticipates that water management strategies identified in the 2016 Brazos G Regional Water Plan will be pursued by those entities that demonstrate a need for additional water supplies and/or infrastructure. There are a number of potential funding sources available that may be used to implement recommended water management strategies for various water user groups. These include, but are not limited to, private funding sources, state and federal loan/grant programs, and the open market.

IV. PROOF OF NOTIFICATION

Proof of notification

Copies of the notice and newspaper affidavits are provided in Exhibit C, in addition to the mailing list for mayors, judges, districts, and authorities.

Notice was provided that this application for planning assistance is being filed with the executive administrator of the TWDB 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 included 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 or published.
EXHIBIT A

DETAILED SCOPE OF WORK

FOURTH ROUND OF
REGIONAL WATER PLANNING
Exhibit A
Technical Consultant
Scope of Work to Develop the
2011 Brazos G Regional Water Plan

Fourth Regional Water Planning Cycle
August 2011 – MONTH 20XX

Background

On July 21, 2010, the Brazos G Regional Water Planning Group (BGRWPG) adopted the 2011 Brazos G Regional Water Plan (2011 Plan) as part of the third Senate Bill 1 regional water planning cycle established by the 75th Texas Legislature (1997). In 2010, the Texas Water Development Board (TWDB) accepted the 2011 Plan and is incorporating it into the 2012 State Water Plan.

The TWDB has requested grant applications to begin development of the 2016 regional water plans. The BGRWPG proposes the following scope of work, schedule and budget for the technical consulting team1, led by HDR Engineering, Inc. (HDR), to prepare the 2016 Brazos G Regional Water Plan. The scope of work is as provided by the TWDB, and has been incorporated directly into this grant application. It is organized according to the ten major work tasks identified by the TWDB. Funds allocated to each task for the technical consulting team are listed in Table 1. This does not include administrative expenses not related to the technical consultant team, including planning group member travel and public information expenses to be incurred by the Brazos River Authority (BRA), which serves as the administrative agent for the BGRWPG. Those administrative expenses are shown in another section of the grant application.

The following is the scope of work developed by the TWDB, incorporated in its entirety into this grant application. The BGRWPG reserves the right to request clarification and additional specificity to this scope of work pending completion of the final planning grant contract.

\textbf{Note that there is no separate task or associated budget for the preparation of scope of work for the initial phase of the planning activities.}

---

1 The technical consulting team consists of HDR Engineering, Inc. and Freese and Nichols, Inc.
Brazos G Regional Water Planning Group
Grant Application - Fourth Round of Regional Water Planning

TASK 1 - PLANNING AREA DESCRIPTION
(to be scoped, budgeted and incorporated by amendment into the contract at later date)

Table 1:
Estimated Minimum Count of Water User Groups (WUGs) and Wholesale Water Providers (WWPs) that Must be Planned for in the 2016 Regional Water Plans

<table>
<thead>
<tr>
<th>Region</th>
<th>Municipal and County-other WUGs</th>
<th>WWP</th>
<th>Non population-related WUGs</th>
<th>WUGs with needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>71</td>
<td>7</td>
<td>95</td>
<td>28</td>
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<td>D</td>
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<td>E</td>
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<td>G</td>
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</tr>
<tr>
<td>O</td>
<td>87</td>
<td>3</td>
<td>102</td>
<td>71</td>
</tr>
<tr>
<td>P</td>
<td>15</td>
<td>1</td>
<td>23</td>
<td>3</td>
</tr>
</tbody>
</table>

TASK 2A - NON-POPULATION RELATED WATER DEMAND PROJECTIONS (Additional guidance included in the General Guidelines for Regional Water Plan Development document.)

Texas Water Development Board (TWDB) staff, in conjunction with the Texas Commission on Environmental Quality (TCEQ), Texas Parks and Wildlife Department (TPWD), and Texas Department of Agriculture (TDA) will prepare draft water demand projections for all water demands unrelated to population (e.g. mining, manufacturing, irrigation, steam electric power, and livestock) with specific attention to updated mining water demand projections to be provided by the TWDB. TWDB staff will update water demand projections for all associated Water User Groups (WUGs) and provide them to RWPGs for their review and input. All projections will be extended through 2070. RWPGs will then review the draft projections and may provide input to TWDB or request specific changes to the projections from TWDB. If adequate justification is provided by the RWPGs to TWDB, water demand projections may be revised by the TWDB. Once RWPG input and revision requests are considered, final water demand projections will be adopted by the TWDB’s governing board. The adopted projections will then be provided to RWPGs. RWPGs must use the Board-adopted projections when preparing their regional water plans. TWDB will directly populate the online planning database with all WUG-level projections and make related changes to the online planning database if revisions are made. This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:

1. Receive and make publicly available the draft water demand projections provided by TWDB.

2. Evaluate draft water demand projections provided by TWDB.

3. Provide detailed feedback to TWDB on water demand projections, as necessary, including justification and documentation supporting suggested changes.
4. Review comments received by local entities and the public for compliance with TWDB requirements and incorporate changes which meet TWDB conditions for changes into revision requests to TWDB.

5. Prepare and submit numerical requests for revisions, in table format in accordance with TWDB guidance, of draft water demand projections, and process such requests based on, for example, requests from local entities within the region. The RWPG and/or local entities may provide required documentation and justification of requested revisions.

6. Communicate and/or meet with TWDB staff and/or local entities requesting revisions, as necessary.

7. Assist TWDB, as necessary, in resolving final allocations of water demands to water user groups to conform with any control totals defined by TWDB, for example, by county and/or region.

8. Prepare water demand projection summaries for WUGs using final, adopted projections to be provided by the TWDB, as necessary.

9. Modify any associated water demand projections for Wholesale Water Providers (WWPs), as necessary based on final, adopted projections.

10. Review and confirm the accuracy of the TWDB DB17 Non-Population Water Demand Related (All 'TWDB DB17...' reports are based on data entered by RWPGs into the database in accordance with the Guidelines for Regional Water Plan Data Deliverables. These reports will be provided by TWDB through the online planning database web interface as a customizable report that can be downloaded by RWPGs and must be included as part of every Technical Memorandum and water plan) report from the online planning database (DB17) and incorporate this planning database report into the Technical Memorandum and draft and final regional water plans (labeled as such and with source reference).

11. Modify any aggregated water demand summaries, for example, for Wholesale Water Providers (WWPs) or irrigation districts, accordingly incorporate this planning database report into the Technical Memorandum and draft and final regional water plans (labeled as such and with source reference).

12. Update WWP contractual obligations and WUG 'seller' obligations to supply water to other entities and report this information along with projected demands including within the online planning database and within any planning memorandums or reports, as appropriate.

13. Complete and update required data elements within the online planning database (DB17). (RWPG technical consultants must attend mandatory training on the online planning database).

**TASK 28 - POPULATION AND POPULATION-RELATED WATER DEMAND PROJECTIONS**

Additional guidance included in the General Guidelines for Regional Water Plan Development document.

TWDB staff, in conjunction with the TCEQ, TPWD, and TDA will prepare draft population and associated water demand projections for all population-related water user groups in the 2016 Regional Water Plan (2016RWP) using data from the recent 2010 Census. TWDB staff will update population and associated water demand projections for all Water User Groups (WUGs) and provide them to RWPGs for their review and input. All projections will be extended through 2070. RWPGs will then review the draft projections and may provide input to TWDB or request specific changes to the projections from TWDB. If adequate justification is provided by the RWPGs to TWDB, population and/or water demand projections may be revised by the TWDB.
Once RWPG input and revision requests are considered, final population and associated water demand projections will be adopted by the TWDB. The adopted projections will then be provided to RWPGs. RWPGs must use the Board-adopted projections when preparing their regional water plans. TWDB will directly populate the online planning database with all WUG-level projections and make related changes to the online planning database if revisions are made. This Task includes, but is not limited to, performing all work in accordance with TWDB rules and guidance required to:

1. Receive and make publicly available the draft population and associated water demand projections provided by TWDB.
2. Evaluate draft population and associated water demand projections provided by TWDB.
3. Provide detailed feedback to TWDB on both population and associated water demand projections, as necessary, including justification and documentation supporting suggested changes.
4. Review comments received by local entities and the public for compliance with TWDB requirements and incorporate changes which meet TWDB conditions for changes into revision requests to TWDB.
5. Prepare and submit numerical requests, in table format in accordance with TWDB guidance, for revisions of draft population and/or water demand projections, and process such requests based on, for example, requests from local entities within the region. The RWPG may provide documentation and justification of requested revisions.
6. Communicate and/or meet with TWDB staff and/or local entities requesting revisions, as necessary.
7. Assist TWDB, as necessary, in resolving final allocations of population and water demands to water user groups to conform with any control totals defined by TWDB, for example, by county and/or region.
8. Prepare population and water demand projection summaries for WUGs using final, adopted projections to be provided by the TWDB, as necessary for presentation in documents.
9. Consider and include in all appropriate planning documents the projections of population and associated water demands for any new WUGs to be provided by the TWDB.
10. Modify any associated water demand projections for WWPs, as necessary based on final, adopted projections.
11. Review and confirm the accuracy of the TWDB DB17 Population and associated TWDB DB17 Non-population Water Demand reports from the online planning database (DB17) (RWPG technical consultants must attend mandatory training on the online planning database) and incorporate these planning database reports into the Technical Memorandum and draft and final regional water plans (labeled as such and with source reference).
12. Modify any aggregated water demand summaries, for example, for Wholesale Water Providers (WWPs), accordingly and present in planning documents.
13. Update WWP contractual obligations and WUG 'seller' obligations to supply water to other entities and report this information along with projected demands including within the online planning database and within any planning memorandums or reports, as appropriate.
14. Complete and update required data elements within the online planning database (DB17). (In accordance with the Guidelines for Regional Water Plan Data Deliverables, RWPG technical consultants must attend mandatory training on the online planning database).

**TASK 3 WATER SUPPLY ANALYSES**  
(Additional guidance included in the General Guidelines for Regional Water Plan Development document).

This task involves updating or adding: a) groundwater, surface water, reuse, and other water source availability estimates, and b) existing WUG and WWP water supplies that were included in the 2011 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, reuse, and other supplies during drought of record conditions. All water availability and water supply estimates will be extended through 2070.

This Task includes performing all work in accordance with TWDB rules and guidance required to:

1) **Estimate a) Surface Water Availability and b) Existing WUG and WWP Surface Water Supplies:**

1. Select hydrologic assumptions, models, and operational procedures for modeling the region’s river basins and reservoirs using Texas Commission on Environmental Quality (TCEQ) Water Availability Models (WAMs) in a manner appropriate for assessment of current surface water supply and regional water planning purposes. Reservoir systems (Reservoir systems must be approved by TWDB and identified as such in DB17) and their yields will be modeled in accordance with the General Guidelines for Regional Water Plan Development.

2. Obtain TWDB Executive Administrator approval of hydrologic assumptions or models and for any variations from modeling requirements in the General Guidelines for Regional Water Plan Development.

3. As necessary and appropriate, modify or update associated WAMs or other models to reflect recent changes to permits, transfers, legal requirements, new water rights, and/or specified operational requirements.

4. Assign available water supplies, as appropriate, to WUGs and WWPs including conducting demand analyses for WWPs.

5. Take into account Senate Bill 3 (SB3) environmental flow process recommendations and associated TCEQ rules (e.g., flows set-asides) within models and availability and existing water supply estimates; and, in locations without completed SB3 rules, other local studies or the environmental consensus criteria per Section 4.2 of the General Guidelines for Regional Water Plan Development.

6. Apply the TCEQ WAMs, as modified and approved by TWDB, and/or other appropriate models to quantify firm yield for major reservoirs, reservoir systems, and firm diversion for run-of-river water rights, as determined on at least a monthly time-step basis. Reservoir firm yield will be quantified based on the most recent measured capacity and estimated capacity in year 2070.

7. Compile TCEQ Water System Data Reports (Available from TCEQ) for municipal WUGs that use surface water and identify any physical constraints limiting existing water supplies to WUGs and/or WWPs. Limitations to be considered based on delivering treated water to WUGs. Other information that the RWPGs collect, for example, survey results, may be included in the evaluation of infrastructure capacity or limitations in delivering treated water to WUGs.
8. Take into consideration the recommendations of the SB3 environmental flows process and any resulting TCEQ rules or flow set-asides.

9. Update information on WWP contractual obligations and WUG ‘seller’ obligations to supply water to other entities including within the online planning database. (Some WUGs have ‘seller’ obligations even though they are not classified as a WWP. RWPG technical consultants must attend mandatory training on the online planning database). Unless the RWPG considers it unlikely that a specific contract will be renewed, water supplies based on contractual agreements will be assumed to renew at the contract termination date, for example, if the contract provides for renewal or extensions. Report this information within any planning memorandums or reports, as appropriate.

10. Based on the water availability, existing infrastructure, and associated physical and legal limitations, determine the existing surface water supply available from each surface water source to each WUG and WWP (including newly identified WUGs and WWPs) during a drought of record based on source water availability, infrastructure capacity, legal constraints, and/or operational limitations.

11. Complete and update all required data elements for TWDB online planning database DB17 through the web interface. 12 In accordance with the Guidelines for Regional Water Plan Data Deliverables. RWPG technical consultants must attend mandatory training on the online planning database.

12. Compile firm yield and diversion information by Source, WUG, WWP, county, river basin, and planning region as necessary to obtain decadal estimates of existing surface water supply throughout the planning period. This will be facilitated by TWDB DB17 Water Source Availability and associated TWDB DB17 WUG and WWP Existing Water Supply reports using data provided by RWPGs and made available to all RWPGs through the online planning database interface.

13. Review, confirm the accuracy of, and incorporate the required associated planning database reports directly into the Technical Memorandum and draft and final regional water plans under Task 4C (labeled as such and with source reference).

II) Estimate a) Groundwater Availability and b) Existing WUG and WWP Groundwater Supplies:

Obtain and review the Total Pumping (Total Pumping = [Managed Available Groundwater + exempt uses]. The estimated total pumping from the aquifer that achieves the desired future condition adopted by members of the associated Groundwater Management Area) annual volumes that are developed by TWDB based on the Desired Future Conditions adopted by Groundwater Management Areas (GMAs). Total Pumping annual volumes for each aquifer will be available from TWDB through the online planning database interface, split into discrete geographic-aquifer units by: Aquifer; County; River Basin; Region; and, where applicable, additionally by Groundwater Conservation District (GCD).

1. In areas that were not considered in the DFC process and therefore do not have Total Pumping annual volumes but have ‘local’ groundwater supplies or minor aquifers, develop estimates according to the General Guidelines for Regional Water Plan Development.

2. Consider the impacts of the available Total Pumping annual volumes on the regional water plan including how it impacts: existing water supplies; identified water needs; and water management strategies that were recommended in the 2011 regional water plan.
3. In areas with Groundwater Conservation District (GCDs), obtain GCD Management Plans and GCD information to be considered when estimating existing supplies and water management strategies under future tasks.

4. Assign available, water supplies, as appropriate, to WUGs and WWPs including conducting demand analyses for WWPs.

5. Select hydrologic and other assumptions for distribution of available groundwater for potential future use by WUGs (e.g., via a pro-rationing policy) as either existing supply or as part of water management strategies including based on models and operational procedures appropriate for assessment of water supply and regional water planning purposes.

6. Compile TCEQ Water System Data Reports (Available from TCEQ) for municipal Water User Groups using groundwater and identify any physical constraints limiting existing water supplies to WUGs and/or WWPs. Limitations to be considered based on delivering treated water to WUGs. Other information that the RWPGs collect, for example, survey results, may be included in the evaluation of infrastructure capacity or limitations in delivering treated water to WUGs.

7. Update information on WWP contractual obligations and WUG ‘seller’ obligations to supply water to other entities including within the online planning database. Unless the RWPG considers it unlikely that a specific contract will be renewed, water supplies based on contractual agreements will be assumed to renew at the contract termination date, for example, if the contract provides for renewal or extensions. Report this information within any planning memorandums or reports, as appropriate.

8. Compile and/or update information regarding acquisitions of groundwater rights, for example, for transfer to municipal use, and account for same in the assessment of both availability and existing groundwater supplies.

9. Based on the water availability, existing infrastructure, and associated physical and legal limitations, determine the existing groundwater supply available from each water source to each WUG and WWP (including newly identified WUGs and WWPs) during a drought of record based on water availability, infrastructure capacity, legal constraints, and/or operational limitations.

10. Complete and update all required data elements for TWDB online planning database DB17 through the web interface. (In accordance with the Guidelines for Regional Water Plan Deliverables, RWPG technical consultants must attend mandatory training on the online planning database).

11. 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. This will be facilitated by TWDB DB17 Water Source Availability and associated TWDB DB17 WUG and WWP Existing Water Supply reports using data provided by RWPGs and made available to all RWPGs.

III) Estimate System, Reuse, and Other Types of existing supplies Systems, Reuse, and Other Water Supplies

1. Integrate firm water supplies for WUGs using a system of supply sources (e.g., surface water, storage, and groundwater).

2. Research and quantify existing supplies and commitments of treated effluent through direct and indirect reuse.
3. Compile systems, reuse, and other 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.

4. Assign available water supplies, as appropriate, to WUGs and WWPs including conducting demand analyses for WWPs.

5. Identify and re-categorize existing sources in the online planning database to extract unique sources. In addition to surface water, groundwater, and reuse, for example, clarify the source types in the online planning database to separate out and re-label other specific water sources such as desalinated groundwater or desalinated surface water and any other supply types that are connected supplies.

6. Review and confirm the accuracy of the TWDB DB17 Availability and associated TWDB DB17 Existing Water Supply reports from the online planning database (DB17) and incorporate these planning database reports directly into the Technical Memorandum and other planning documents (labeled as such and with source reference).

7. Identify any physical constraints limiting these existing water supplies to WUGs and/or WWPs including based on TCEQ Water System Data Reports (Available from TCEQ). Limitations to be considered based on delivering treated water to WUGs. Other information that the RWPGs collect, for example, survey results, may be included in the evaluation of infrastructure capacity or limitations in delivering treated water to WUGs.

8. Update information on WWP contractual obligations and WUG 'seller' obligations to supply water to other entities including within the online planning database. Unless the RWPG considers it unlikely that a specific contract will be renewed, water supplies based on contractual agreements will be assumed to renew at the contract termination date, for example, if the contract provides for renewal or extensions. Report this information within any planning memorandums or reports, as appropriate.

9. Based on the water availability, existing infrastructure, and associated physical and legal limitations, determine the existing system, reuse, and other water supplies available from each water source to each WUG and WWP (including newly identified WUGs and WWPs) during a drought of record based on source water availability, infrastructure capacity, legal constraints, and/or operational limitations.

10. Complete and update all required data elements for TWDB online planning database DB17 through the web interface.

11. Compile these supplies by Source, Water User Group, Wholesale Water Provider, county, river basin, and planning region as necessary to obtain decadal estimates of existing surface water supply throughout the planning period. This will be facilitated by TWDB DB17 Water Source Availability and associated TWDB DB17 WUG and WWP Existing Water Supply reports using data provided by RWPGs and made available to all RWPGs through the online planning database interface.

12. Review, confirm the accuracy of, and incorporate the required associated planning database reports directly into the Technical Memorandum and draft and final regional water plans under Task 4C (labeled as such and with source reference).

Includes all work required to coordinate with other planning regions to develop and allocate estimates of water availability and existing water supplies.