

NOTICE OF OPEN MEETING OF THE  
SOUTH CENTRAL TEXAS REGIONAL  
WATER PLANNING GROUP

TAKE NOTICE that a meeting of the South-Central Texas Regional Water Planning Group (SCTRWPG) as established by the Texas Water Development Board will be held on Thursday, May 2, 2024 at 9:30 AM both in person and virtually. The in-person meeting will be held at the San Antonio Water System's Customer Service Building, Room CR-145, 2800 US Hwy 281 North, San Antonio, TX 78212. You can attend virtually on WebEx at <https://saws.webex.com/saws/j.php?MTID=m3b2a7303c8e91ea193231fd4b81f860f>. The planning group members will consider and may take action regarding:

1. (9:30 AM) Roll-Call
2. Public Comment (Limited to 3 minutes)
3. Approval of the Minutes from the Previous Meeting of the South-Central Texas Regional Water Planning Group (SCTRWPG)
4. Discussion and Appropriate Action Regarding Filling Existing Vacancies and Vacancies to Result from Future Term Expirations or Resignations
5. Election of Officers for the 2024 SCTRWPGE Executive Committee
6. Status Reports and Communications by TWDB
7. Status Reports and Communications Related to Regional Water Planning including reports by the Chair, Regional Liaisons, Groundwater Management Area Representatives, and Members of the Planning Group
8. Consideration and Appropriate Action Regarding Briefings on Workgroup Activities
9. Presentation by Technical Consultant Regarding Schedule and Progress Update
10. Consideration and Appropriate Action for the Technical Consultant to Evaluate the Medina County Regional ASR Project as a New Water Management Strategy
11. Consideration and Appropriate Action Regarding the Proposed Minor Amendment No. 1 to the 2021 South Central Texas (Region L) Regional Water Plan to Update the Guadalupe-Blanco River Authority Lower Basin Storage Project
  - a. Public Comment Regarding the Proposed Minor Amendment No. 1
  - b. Review and Consideration of Comments Received from the Public, TWDB, and Other State or Federal Agencies
  - c. Consideration and Appropriate Action to Adopt the Proposed Minor Amendment No. 1
  - d. Consideration and Appropriate Action to Authorize the Technical Consultant to Submit Proof of Adoption and any Comments to TWDB and to Address Any Requests from TWDB Associated with the Proposed Minor Amendment No. 1 on Behalf of the SCTRWPGE
12. Discussion and Appropriate Action Regarding the Establishment of Additional Subcommittees
13. Schedule and Potential Agenda Items for the Next Meeting of the SCTRWPGE
14. Public Comment (Limited to 3 minutes)
15. Adjourn

As per agenda item 11, 31 TAC §357.21(g)(2) states at a minimum, notice must be provided at least 14 days prior to the meeting, written comment must be accepted for 14 days prior to the meeting and considered by the RWPG members prior to taking the associated action, and meeting materials must be made available on the RWPG website for a minimum of seven days prior to and 14 days following the meeting.

Comments and submissions may be submitted through email to [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org) and include "Region L South Central Texas Water Planning Group Meeting Public Comment" in the subject line of the email. Any written documentation can be sent to Tim Andruss, Chair, South Central Texas Regional Water Planning Group, c/o San Antonio River Authority, Attn: Caye Castillo, 100 E. Guenther Street, San Antonio, TX 78204. Please direct any questions to Caye Castillo at (210) 302-4258, [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org).

AGENDA ITEM NO.3 – APPROVAL OF THE MINUTES FROM THE PREVIOUS MEETING OF THE SOUTH-CENTRAL TEXAS REGIONAL WATER PLANNING GROUP (SCTRWPG)

**Minutes of the South Central Texas Regional Water Planning Group  
February 14, 2024**

Chair Andruss called the hybrid meeting to order at 9:30 a.m., held both in person and through WebEx online platform.

**24 of the 32** voting members, or their alternates, were present.

**Voting Members Present:**

Tim Andruss	Vanessa Puig-Williams
Curt Campbell	Humberto Ramos
Andra Wisian	Weldon Riggs
Debbie Farmer	Roland Ruiz
Steve Metzler for Steve Graham	Darrell Brownlow
Thomas Jungman	Mitchell Sowards
Scooter Mangold	Jonathan Stinson
Andrew McBride	Thomas Taggart
Daniel Meyer	Ryan Kelso
Gary Middleton	Dianne Wassenich
Travis Pruski	Adam Yablonski
Robert Puente	Dan Yoxall

**Voting Members Absent:**

Ryan Bayle  
John Byrum  
Charlie Flatten  
Terrell Graham  
Vic Hilderbran  
Darren Simmons

**Non-Voting Members Present:**

Carly Rotzler, TX Department of Parks and Wildlife  
Michele Foss, Texas Water Development Board (TWDB)  
Jami McCool, TX Dept. of Agriculture  
Tom Hegemier, Region K Liaison

**Non-Voting Members Absent:**

Iliana Delgado, TCEQ  
Don McGhee, Region M Liaison  
Charles Wiedenfeld, Region J Liaison  
Carl Crull, Region N Liaison  
Rusty Ray, Texas Soil & Water Cons. Board

*Beginning with the February 11, 2016, meeting of the South Central Texas Regional Water Planning Group, all recordings are available for the public at [www.regionltexas.org](http://www.regionltexas.org).*



### **AGENDA ITEM NO.1: ROLL CALL**

Ms. Caye Castillo took roll call.

### **AGENDA ITEM NO.2: PUBLIC COMMENT (LIMITED TO 3 MINUTES)**

No public comments.

### **AGENDA ITEM NO.3: APPROVAL OF THE MINUTES FROM THE PREVIOUS MEETING OF THE SOUTH CENTRAL TEXAS REGIONAL WATER PLANNING GROUP (SCTRWPG)**

Mr. Riggs motioned to approve the minutes from the previous meeting. Mr. Middleton seconded, the motion passed.

### **AGENDA ITEM NO.4: DISCUSSION AND APPROPRIATE ACTION REGARDING FILLING EXISTING VACANCIES AND VACANCIES TO RESULT FROM FUTURE TERM EXPIRATIONS OR RESIGNATIONS**

Chair Andruss provided background on the Executive Committee meeting that was held on January 9, 2024 regarding the nominations submitted for interest areas Industries and Water Districts. Chair Andruss stated that there were 2 nomination forms submitted for the Industries interest area and 1 nomination form submitted for the Water Districts interest area. The Executive Committee brought their recommendation to the RWPG to nominate Jason Ammerman to fill the Industries interest area and Aarin Teague to fill the Water Districts interest position. Chair Andruss provided the nominees in attendance to introduce themselves to the RWPG.

Mr. Brownlow motioned to approve the recommendation by the Executive Committee, second by Mr. Middleton, motion approved by consensus.

### **AGENDA ITEM NO.5: ELECTION OF OFFICERS FOR THE 2024 SCTRWPG EXECUTIVE COMMITTEE**

Chair Andruss provided an overview of by-laws regarding the Executive Committee election, background on the committee, as well as who is currently on the committee and will no longer be serving. Discussion ensued on if there was any current interest by planning group members to be elected for Chair, Vice-Chair, or At-Large positions. No planning members expressed interest.

Mr. Puente stated that due to their being multiple open positions on the Executive Committee, it would be beneficial to allow more time for planning members to think about potential interest in participating on the committee and not rush filling positions on short notice.

Mr. Puente motioned to postpone the Election of Officers for the 2024 SCTRWPG Executive Committee to the May 2, 2024 RWPG meeting, second by Mr. Taggart, motion approved by consensus.

#### **AGENDA ITEM NO.6: STATUS REPORTS AND COMMUNICATIONS BY TWDB**

Ms. Foss provided an update from TWDB including upcoming items of note such as deadlines for the Technical Memorandum, surveys regarding Proposition 6/Texas Water Fund, the recent RWPG Chairs Call, and details on the Interregional Planning Council meeting held on February 8, 2024.

Ms. Foss also provided the planning group with upcoming materials TWDB will be sharing for RWPGs:

- County-Specific Water Supply Planning Info & Resource Documents
  - o Includes Rural Entities and At-Risk Suppliers (<7,500, SS, 180 Day)
- Conservation Resources
- Drought/Drought Preparedness Resources
  - o List of Entities Required to Submit Drought Contingency Plans to TCEQ
  - o Drought Preparedness Council Recommendations to RWPGs
  - o Updated Drought Management Costing Information
- Updated Uniform Costing Model

#### **AGENDA ITEM NO.7: STATUS REPORTS AND COMMUNICATIONS RELATED TO REGIONAL WATER PLANNING INCLUDING REPORTS BY THE CHAIR, REGIONAL LIAISONS, GROUNDWATER MANAGEMENT AREA REPRESENTATIVES AND MEMBERS OF THE PLANNING GROUP**

No reports or communication were provided.

#### **AGENDA ITEM NO.8: PRESENTATION BY TECHNICAL CONSULTANT REGARDING SCHEDULE AND PROGRESS UPDATES**

Ms. Gonzalez provided a conceptual schedule for Region L plan development. Her presentation is available online at [www.regionltexas.org](http://www.regionltexas.org).

Ms. Gonzalez included an update on new/ongoing efforts that include continuing Water Supplies and Water Management Strategies Outreach (Task 3), Interregional Coordination Efforts (Task 10), the commencement of drafting Chapter 8 Recommendations Regarding Unique Stream Segments and/or Reservoir Sites and Legislative & Regional Policy Issues (Task 8), and beginning Drought Contingency Plan (DCP) Outreach and Evaluations (Task 7).

Discussion ensued regarding DCP requirements and how the RWPG captures water needs.

**AGENDA ITEM NO.9: PRESENTATION BY TECHNICAL CONSULTANT REGARDING THE 2026 REGIONAL WATER PLANNING TECHNICAL MEMORANDUM**

Ms. Gonzalez provided details on the objective for Task 4C: Technical Memorandum Deliverable and stated that the data within the Technical Memorandum remains in draft form until the submittal of Adopted Regional Water Plans by the Regional Water Planning Groups in October 2025.

**a. Public Comment Regarding the 2026 Regional Water Planning Technical Memorandum**

David Caldwell, General Manager of the Medina County Groundwater Conservation District, provided a comment that the water levels shown for the Leona Gravel Aquifer on the presentation are higher. He included that he would communicate with the technical consultant on this.

**AGENDA ITEM NO.10: CONSIDERATION AND APPROVAL REGARDING THE 2026 REGIONAL WATER PLANNING TECHNICAL MEMORANDUM**

Discussion ensued on timelines for opportunity to address any changes that may be needed to the technical memorandum and on MAG values.

- a. Discussion and Appropriate Action Regarding Approval and Authorization to Submit the Technical Memorandum to TWDB**
- b. Discussion and Appropriate Action for the Technical Consultant to Address 2027 State Water Planning Database (DB27) Updates and Non-substantive Revisions to the Technical Memorandum**
- c. Discussion and Appropriate Action for the Technical Consultant to Address Any Requests from TWDB Associated with Processing the Technical Memorandum**

Ms. Wassenich motioned to approve and authorize to submit the Technical Memorandum to TWDB; approve and authorize for the Technical Consultant to Address 2027 State Water Planning database (DB27) updates and non-substantive revisions to the Technical Memorandum; and approve and authorize the Technical Consultant to address any requests from the TWDB associated with processing the technical memorandum. Second by Mr. Middleton, motion approved by consensus.

**AGENDA ITEM NO.11: Consideration and Approval Regarding Task 5B Scopes of Work**

- a. Discussion and Appropriate Action Regarding Approval and Authorization to Submit the Notice-to-Proceed Scope of Work Request to the TWDB**

Mr. Humberto motioned to approve and authorize the Technical Consultant to submit the Notice-to-Proceed Scope of Work request to TWDB, second by Mr. Middleton, motioned approved by consensus.

**b. Discussion and Appropriate Action to Authorize the Technical Consultant and/or the San Antonio River Authority to Work with the TWDB on Any Follow-Up Information that May be Required**

Mr. Humberto motioned to approve and authorize the Technical Consultant and/or the San Antonio River Authority to Work with the TWDB on Any Follow-Up Information that May Be Required, second by Mr. Middleton, motioned approved by consensus.

**c. Discussion and Appropriate Action to Authorize the San Antonio River Authority to Negotiate and Execute Subsequent TWDB Contract Amendment that will be Issued**

Mr. Humberto motioned to approve and authorize the San Antonio River Authority to Negotiate and Execute Subsequent TWDB Contract Amendment that will be Issued, second by Mr. Middleton, motioned approved by consensus.

**AGENDA ITEM NO.12: Discussion and Appropriate Action Regarding the Establishment of Additional Subcommittees**

Ms. Gonzalez provided background on the role the Policy and Legislative Recommendations Workgroup plays in the RWP process and recommended to the RWPG that it be formed. RWPG members approved this workgroup. Members self-nominated to serve. Members include Ms. Wassenich, Mr. Puente, Mr. Stinson, Mr. Metzler, Mr. Yoxall, and Mr. Andruss.

RWPG members additionally approved the creation of a Groundwater Availabilities Work Group. Members include Ms. Puig-Williams, Mr. McBride, Mr. Andruss, Ms. Teague, and Mr. Ramos.

**AGENDA ITEM NO.13: Presentation Regarding Request for Amendment to 2021 RWP**

Mr. Stinson provided a presentation regarding the Guadalupe-Blanco River Authority's request for amendment to the 2021 Region Water Plan and explanation on a minor amendment determination. His presentation is available online at [www.region1texas.org](http://www.region1texas.org).

Discussion ensued regarding the minor amendment determination process and aquifer storage and recovery (ASR).

**a. Review, Discuss, and Consider Action Regarding Approval to Submit a Minor Amendment Determination Request to TWDB for Modifications to GBRA's Proposed Lower Basin Storage and/or Mid-Basin (Phase 2) WMS Projects as Described in the 2021 South Central Texas Regional Water Plan and 2022 State Water Plan**

Mr. Ramos motioned to approve to Submit a Minor Amendment Determination Request to TWDB for Modifications to GBRA's Proposed Lower Basin Storage and/or Mid-Basin (Phase 2) WMS Projects as Described in the 2021 South Central Texas Regional Water Plan and 2022 State Water Plan, second by Mr. Middleton, motion passed by consensus.

**b. Discussion and Appropriate Action to pursue an Amendment to the 2021 South Central Texas Regional Water Plan for Modifications to GBRA's Proposed Lower Basin Storage and/or Mid-Basin (Phase 2) WMS Projects**

Mr. Ramos motioned to approve pursuing the 2021 South Central Texas Regional Water Plan for Modifications to GBRA's Proposed Lower Basin Storage and/or Mid-Basin (Phase 2) WMS Projects, Mr. McBride seconded, motion passed by consensus.

**AGENDA ITEM NO.14: Discussion and Possible Action Regarding the Consistency Waiver for TWDB Project 21825 - Crystal Clear SUD 2024 Capital Improvements Project**

Ms. Parker provided an overview of the project background, needs for the project, water source and available supply. Her presentation is available online at [www.regionltexas.org](http://www.regionltexas.org).

Discussion ensued on difference between and consistency waiver and a minor amendment and the means of the project.

Mr. Brownlow motioned to authorize the San Antonio River Authority (River Authority) to submit a letter to the TWDB expressing support for the consistency waiver request for TWDB Project 21825 – Crystal Clear SUD 2024 Capital Improvement Project Improvement Project, Ms. Wassenich seconded, motion passed by consensus.

**AGENDA ITEM NO.15: SCHEDULE AND POTENTIAL AGENDA ITEMS FOR THE NEXT MEETING OF THE SCTRWPG**

The next SCTRWPG meeting is scheduled for May 2, 2024, at 9:30 AM.

**AGENDA ITEM NO.16: PUBLIC COMMENT (LIMITED TO 3 MINUTES)**

No public comment.

**AGENDA ITEM NO.17: ADJOURN**

Mr. Middleton motioned to adjourn. Mr. Stinson seconded the motion, motion passed.

The meeting adjourned at 12:44pm.

AGENDA ITEM NO.4 – DISCUSSION AND APPROPRIATE ACTION REGARDING FILLING EXISTING VACANCIES AND VACANCIES TO RESULT FROM FUTURE TERM EXPIRATIONS OR RESIGNATIONS

Includes: Nomination Forms for River Authorities Interest Groups

**FROM: South Central Texas Regional Water Planning Group**

**DATE: February 23, 2024**

**SUBJECT: Solicitation of Nominations to Fill Vacancies of the South Central Texas Regional Water Planning Group Voting Membership**

**NOTICE TO PUBLIC**  
**SOUTH CENTRAL TEXAS REGIONAL WATER PLANNING GROUP (REGION L)**

The South Central Texas Regional Water Planning Group (SCTRWPG), as established by the Texas Water Development Board in accordance with 31 TAC 357, is soliciting nominations to fill a voting member vacancy on the SCTRWPG in the following interest area: **River Authorities.**

For your convenience, the nomination form may be found on the SCTRWPG website at [regionltexas.org](http://regionltexas.org).

Article V. Section 3 of the adopted SCTRWPG Bylaws states that in order to be eligible for voting membership, a person must be capable of adequately representing the interest for which a member is sought, willing to participate in the regional flood planning process, attend meetings, and abide by the adopted Bylaws.

Nomination forms may be submitted through email to [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org), or by printing the nomination form, completing it, and mailing. A nomination form must be completed and submitted for each nominee to be considered. For specific definitions and eligibility requirements in each of the areas of interest, and to obtain a nomination form, please contact Caye Castillo (210) 302-4258 or [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org).

The South Central Texas Regional Water Planning Area consists of Atascosa, Bexar, Caldwell, Calhoun, Comal, DeWitt, Dimmit, Frio, Goliad, Gonzales, Guadalupe, Karnes, Kendall, LaSalle, Medina, Refugio, Uvalde, Victoria, Wilson, Zavala and part of Hays Counties.

Nominations must be received by 5:00 p.m., Monday, March 25, 2024, addressed to Tim Andruss, Chair, South Central Texas Regional Water Planning Group, c/o San Antonio River Authority, Attn: Caye Castillo, 100 East Guenther St., San Antonio, Texas 78204, or emailed to [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org)

**Regional Water Planning Group Voting Membership**

**SOUTH CENTRAL TEXAS REGIONAL WATER PLANNING  
GROUP Nomination for Interest Group (check one):**

**River Authorities**

Pursuant to official Bylaws and Guiding Principles adopted by the South Central Texas Regional Water Planning Group (SCTRWPG), nominators shall provide information regarding the nominee's current employer, and provide a description of the nominee's experience that qualifies him/her for the position in the interest group being sought to represent. Please refer to section 357.11 (e) (see *addendum*) of the Texas Administrative Code for the definitions of the interest categories represented on the SCTRWP.

**NOMINATOR**

**NAME:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**PHONE:** \_\_\_\_\_ **FAX:** \_\_\_\_\_ **EMAIL:** \_\_\_\_\_

**OCCUPATION:** \_\_\_\_\_

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**NOMINEE**

**NAME:** Steven Metzler, PE, PMP, CCM

**ADDRESS:** 1704 Evans Rd, Apt. 5202, San Antonio, Tx, 78258

**PHONE:** (817)253-43004 **FAX:** \_\_\_\_\_ **EMAIL:** smetzler@sariverauthority.org

**INTEREST AREA:** Water Resources development and sustainability

**COUNTY:** Bexar

**OCCUPATION:** Director, Water Resources for San Antonio River Authority



**PLEASE GIVE A BRIEF DESCRIPTION OF THE NOMINEE’S EXPERIENCE THAT WOULD QUALIFY HIM/HER FOR THE POSITION (please use additional pages if needed):**

Over the past 24 years, I've been involved in the planning, design and construction of water-related projects for River Authorities, Flood Control Districts, and Municipal Water wholesalers as a consultant and as an owner. As a professional engineer, I have received formal training in water resources planning. Additionally, my decades of experience have been directly related to water resource planning, development and execution.

I am currently serving as the Director of Water Resources, an executive management position with the San Antonio River Authority.

**PLEASE LIST ANY PERTINENT AFFILIATIONS (please use additional pages if needed):**

- Current member of American Water Works Association serving as a contributing editor and author for valve design, fabrication and installation standards.
- Currently a contributing editor and voting member of the Hydraulic Institute for national and international pump standards
- Current member of the American Society of Civil Engineers

**DATE SUBMITTED:** \_\_\_\_\_

***PLEASE ATTACH ADDITIONAL INFORMATION IF DESIRED***

Nominations must be received by **5:00 p.m., Monday, March 25, 2024**, addressed to Tim Andruss, Chair, South Central Texas RWPG, c/o San Antonio River Authority, Attn: Caye Castillo, 100 East Guenther St., San Antonio, Texas 78204 or email to [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org)

## **Steven E. Metzler, P.E., ENV SP, PMP, CCM**

833 Canyon Creek Lane  
Brock, Texas 76087  
(817) 458-0044 Home  
(817) 253-4304 Mobile  
E-mail: steve@the-metzlers.net

### **EDUCATION & LICENSES**

- Texas A&M University, Bachelor of Science in Civil Engineering (CE), December 1999
- Professional Engineering Licensure (PE), May 2004
- National Incident Management System (NIMS) Training, October 2010
- Institute of Sustainable Infrastructure, Envision Licensure (ENV SP), August 2013
- Project Management Professional (PMP), March 2018
- Certified Construction Manager (CCM), November 2019

### **Committee Member for National and International Standards**

- AWWA C504 Rubber-Seated Butterfly Valves
- AWWA M49 Quarter-Turn Valve Design Manual
- AWWA M79 Pipeline Hydraulics (In development)
- AWWA M86 Large Diameter Valve Installation (In development)
- Hydraulic Institute Centrifugal and Rotodynamic Pumps Standards review committee
- ISO 17769 Liquids handling pumps

### **WORK HISTORY:**

- ***San Antonio River Authority*** January 2024 to Present  
***Director, Water Resources***
  - Regional Planning and Design – Lead a team of engineers and scientists in modeling and planning efforts for water availability, water quality and drainage improvements, habitat restoration and streambank stabilization. Collaborate with local cities to implement nature-based solutions for drainage improvements, water quality improvements and streambank protection.
  - Flood Risk Reduction – Responsible for analyzing and planning watershed management strategies for mitigating flood risks, coordination with FEMA and the local development community on issuing LOMRs and CLOMRs, and provide up-to-date flood monitoring information to the Bexar County EOC during flood events to help guide decision making.
  - Survey and Construction - Responsible for a team of surveyors, engineers, and construction inspectors to collect accurate survey data, analyze the information, and oversee the execution of construction projects to ensure quality of deliverables.
- ***Trinity River Authority of Texas*** January 2020 to January 2024  
***Manager, Construction Services***
  - Construction Management - Team Leader of 4 engineers and contract specialists that work on processing documentation for the progression of construction work.
  - Quality Assurance - Manager of 30 Construction Inspectors and Inspection Supervisors that actively work with construction contractors daily for the implementation of the construction plans and specifications.
  - The CS team provides probable cost analysis and schedule development for projects as they are identified in the planning process with the water and wastewater modeling team to support Capital Improvement Planning.
  - The CS team oversaw immediate repairs of critical infrastructure when unexpected failures occur through a fast-paced, design-build style of project management to restore utility services to customers as fast as possible, effective crisis management leadership.
  - Developed and implemented several internal programs such as construction cost estimating, continuous improvement by gathering lessons learned and updating technical specifications, and training for engineers and construction inspectors.

- ***Tarrant Regional Water District*** July 2012 to January 2020  
***Water Delivery Engineering Manager***
  - Program, Project, and Construction Manager. Team Lead of Project Managers and many projects beginning in the planning phase through the construction phase.
  - Responsible for developing internal continuous improvement processes, creating and maintaining project management procedures, and ensuring proper collection project and product data of assets installed on each project for proper operation and maintenance.
  - Lead team of engineers and scientists during crisis management events including region-wide flooding.
- ***City of Irving*** July 2009 to July 2012
  - Responsible for the design and construction of a variety of infrastructure projects for the City. Negotiated and directed changes to work with contractor. Responsible for keeping Council informed.
- ***Freese and Nichols, Inc.*** October 2002 to July 2009
  - Function as the interim City Engineer for the Cities of Keller and Westworth Village. Responsible for delivery of infrastructure improvement projects and informing the Council of progress.
  - Senior Project Manager for the Water/Wastewater Engineering Group in the Fort Worth Office. Responsible for marketing engineering services and preparing contract scopes, schedules, and budgets.
  - Responsible for developing and maintaining continuous improvement processes and instructing the next generation of engineers blending innovative technologies with sound engineering practices.
- ***City of Irving*** January 2000 to September 2002
  - Responsible for the design and construction of a variety of utility infrastructure projects for the City of Irving. As construction manager, negotiated and directed changes to work with contractor.
- ***U.S. Army Combat Engineer and Medic*** Aug. 1993 to Aug. 1996  
Constructed bridges in emergency situations such flooded areas and combat zones, first US military unit to collaboratively train with former-Soviet military counterparts. Served in numerous locations in the U.S., South Korea, and Bosnia-Croatia. Promoted three times in three years for excellent job performance.

**ACTIVITIES & INTERESTS:**

- Member of Society of American Military Engineers (SAME)
- Member of Hydraulic Institute (HI) – Editing member for 9.6.3 Rotodynamic Pump Standards and the ANSI and ISO equivalents
- Member of the American Water Works Association (AWWA) – Contributing member for C516 and Large Diameter Butterfly Valve Installation Guidelines
- Member of American Society of Civil Engineers (ASCE)
- Member of the Project Management Institute (PMI)
- Member of the Institute for Sustainable Infrastructure (ISI)
- Member of Construction Managers Association of America (CMAA)
- Member of Water Environment Federation (WEF)

**REFERENCES:** Available on request

**FROM: South Central Texas Regional Water Planning Group**

**DATE: February 23, 2024**

**SUBJECT: Solicitation of Nominations to Fill Vacancies of the South Central Texas Regional Water Planning Group Voting Membership**

**NOTICE TO PUBLIC**

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For your convenience, the nomination form may be found on the SCTRWPG website at [regionltexas.org](http://regionltexas.org).

Article V. Section 3 of the adopted SCTRWPG Bylaws states that in order to be eligible for voting membership, a person must be capable of adequately representing the interest for which a member is sought, willing to participate in the regional flood planning process, attend meetings, and abide by the adopted Bylaws.

Nomination forms may be submitted through email to [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org), or by printing the nomination form, completing it, and mailing. A nomination form must be completed and submitted for each nominee to be considered. For specific definitions and eligibility requirements in each of the areas of interest, and to obtain a nomination form, please contact Caye Castillo (210) 302-4258 or [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org).

The South Central Texas Regional Water Planning Area consists of Atascosa, Bexar, Caldwell, Calhoun, Comal, DeWitt, Dimmit, Frio, Goliad, Gonzales, Guadalupe, Karnes, Kendall, LaSalle, Medina, Refugio, Uvalde, Victoria, Wilson, Zavala and part of Hays Counties.

Nominations must be received by 5:00 p.m., Monday, March 25, 2024, addressed to Tim Andruss, Chair, South Central Texas Regional Water Planning Group, c/o San Antonio River Authority, Attn: Caye Castillo, 100 East Guenther St., San Antonio, Texas 78204, or emailed to [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org)

**Regional Water Planning Group Voting Membership**

**SOUTH CENTRAL TEXAS REGIONAL WATER PLANNING  
GROUP Nomination for Interest Group (check one):**

**River Authorities**

Pursuant to official Bylaws and Guiding Principles adopted by the South Central Texas Regional Water Planning Group (SCTRWPG), nominators shall provide information regarding the nominee's current employer, and provide a description of the nominee's experience that qualifies him/her for the position in the interest group being sought to represent. Please refer to section 357.11 (e) (see *addendum*) of the Texas Administrative Code for the definitions of the interest categories represented on the SCTRWPG.

**NOMINATOR**

**NAME:** Eric Burnett  
**ADDRESS:** 539 S. Highway 83: Uvalde, Texas 78801  
**PHONE:** 830-278-6810 **FAX:** \_\_\_\_\_ **EMAIL:** eburnett4330@gmail.com  
**OCCUPATION** President - Nueces River Authority Board of Directors

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**NOMINEE**

**NAME:** John J. Byrum II  
**ADDRESS:** 539 S. Highway 83, Castroville, Texas 78801  
**PHONE:** 830-278-6810 **FAX:** \_\_\_\_\_ **EMAIL:** jbyrum@nueces-ra.org  
**INTEREST AREA:** River Authorities  
**COUNTY:** Uvalde County  
**OCCUPATION:** Executive Director - Nueces River Authority



**PLEASE GIVE A BRIEF DESCRIPTION OF THE NOMINEE'S EXPERIENCE THAT WOULD QUALIFY HIM/HER FOR THE POSITION (please use additional pages if needed):**

John has been Executive Director of the Nueces River Authority for over 4 years and has over 44 years' experience in executive management of municipal governments and private companies doing business with municipal governments. He has work for the San Antonio Water System, the Cities of Victoria, San Angelo, and Corpus Christi. He also served as Vice-President of Water Transmission at Jindal Tubular USA.

John is certified as a Class "A" Water and a Class "A" Wastewater Operator. He earned an associate degree in Environmental Engineering at Texas State Technical College, a Bachelor of Arts and Sciences degree at the University of Houston-Victoria and did graduate work in Public Administration at the University of Texas-San Antonio.

**PLEASE LIST ANY PERTINENT AFFILIATIONS (please use additional pages if needed):**

**Life Member of:**

**American Water Works Association  
Texas Water Utilities Association**

DATE SUBMITTED: 3/20/24 \_\_\_\_\_

*PLEASE ATTACH ADDITIONAL INFORMATION IF DESIRED*

Nominations must be received by **5:00 p.m., Monday, March 25, 2024**, addressed to Tim Andruss, Chair, South Central Texas RWPG, c/o San Antonio River Authority, Attn: Caye Castillo, 100 East Guenther St., San Antonio, Texas 78204 or email to [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org)



# Nueces River Authority

**South Central Texas Regional Water Planning Group  
C/O San Antonio River Authority  
Attn: Caye Castillo  
100 East Guenter Street  
San Antonio, Texas 78204**

**Transmitted Via email to: [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org)**

**Re: Nomination of John J. Byrum II, Executive Director, Nueces River Authority as a Voting Member of  
The South-Central Texas Regional Water Planning Group**

Dear Ms. Castillo,

Please accept this correspondence as the nomination of John J. Byrum II as a voting member of the South-Central Texas Regional Water Planning Group. As you are aware, John has served as a voting member since his employment as Executive Director of the Nueces River Authority on May 1, 2019.

John has a great deal of experience dealing with water supply planning, having served in executive management roles with municipal utilities and private companies doing business with municipal utilities since 1980.

John has worked for the San Antonio Water System, the Cities of Victoria, San Angelo, and Corpus Christi. He also served as Vice-President of Water Transmission at Jindal Tubular USA.

John is certified as a Class "A" Water and a Class "A" Wastewater Operator. He earned an associate degree in Environmental Engineering at Texas State Technical College, a Bachelor of Arts and Sciences degree at the University of Houston-Victoria and did graduate work in Public Administration at the University of Texas-San Antonio.

I recommend John be approved as a voting member of the South-Central Texas Regional Water Planning Group.

Sincerely,

Eric Burnett  
President, Nueces River Authority Board of Directors

**General Office**

539 S. Highway 83, Uvalde, TX 78801  
P 830-278-6810 F 830-278-2025

**Coastal Bend Office**

500 IH 69, Suite 805, Robstown, TX 78380  
P 361-653-2110  
[www.nueces-ra.org](http://www.nueces-ra.org)

**Leakey Water Treatment Site**

350 Stanford Hollow Road, Leakey, TX 78873  
P 830-232-5672



AGENDA ITEM NO.6 – STATUS REPORTS AND COMMUNICATIONS BY TWDB

# Region L Update May 2, 2024

- **Prop 6/Texas Water Fund** - Public input opportunities closed April 30
  - TWDB is reviewing public input and preparing rulemaking items
  - Additional details to be released late summer/early fall
- Texas Water Service Boundary Editor is open until **July 1, 2024**
- **SWIFT** Full Applications due **May 13, 2024 – 4 Projects in Region L**
- 2025 State Revolving Fund Solicitations are now open!
  
- **New Planning Resources**
  - County-Specific Water Supply Planning Info & Resource Documents
    - Includes Rural Entities and At-Risk Suppliers (<7,500, SS, 180 Day)
  - Updated Uniform Costing Model Tool
  - Conservation Resources

# Conservation Resources for Development of the 2026 RWPs

## **Michele Foss**

Regional Water Planner

Water Supply Planning

Texas Water Development Board

[michele.foss@twdb.Texas.gov](mailto:michele.foss@twdb.Texas.gov)

# Resources for RWPGs

The *Conservation Resources Guide for Development of the 2026 Regional Water Plans* details resources available for RWPGs, including

1. Data Reported to TWDB
2. TWDB Conservation Information Dashboard for Water Supply Planning
3. Best Management Practices
4. WCAC Suggestions to RWPGs
5. Example Water Loss Strategies from 2021 RWPs
6. Water Loss Performance Indicators
7. Resources for GPCD Goal Setting

## Conservation Resource Guide for Development of the 2026 Regional Water Plans

This document outlines conservation resources that are available to support regional water planning group (RWPG) development of conservation water use reduction strategies, water loss mitigation strategies, and the conservation subchapter of the 2026 Regional Water Plans (RWP). Information is provided on how to access resources and how they can be used to support RWP development. Available data reported to the Texas Water Development Board (TWDB) by utilities through water use surveys, water loss audits, water conservation plans, and water conservation plan annual reports are summarized in Table 1.

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Table 1. Summary of data reported to the TWDB by utilities through water use surveys, water loss audits, water conservation plans, and water conservation plan annual reports ..... 11

# Data Reported to TWDB

Report	Statute/Rule Reference	Required for	Frequency	Next Due Date	Data Available
<b>Water Use Survey</b>	TWC 16.012(m) 31 TAC §358.5	Public water systems, manufacturers, mining facilities, and electric power generating plants	Annually	3/1/25	Fall of following year
<b>Water Loss Audit</b>	TWC 16.0121 31 TAC §358.6	Utilities with >3,300 connections or a financial obligation to the TWDB	Annually	5/1/24	Fall of following year
		Utilities with <3,300 connections and no financial obligation to the TWDB	Every 5 years	5/1/26	Fall of following year
<b>Water Conservation Plan</b>	31 TAC §363.15	Entities with 3,300 connections or more, loans greater than \$500,000 from the TWDB, or a TCEQ surface water right	Every 5 years	5/1/24	By due date; Copies submitted to RWPG sponsors
<b>Water Conservation Plan Annual Report</b>	31 TAC §363.15(g)	All entities with a Water Conservation Plan	Annually	5/1/24	Fall of following year

# Data Reported to TWDB

Report	Data Reported	Examples of How RWPGs Can Use This Data
<b>Water Use Survey</b>	<ul style="list-style-type: none"> <li>• Monthly volumes of water intake sources</li> <li>• Percentage treated</li> <li>• Annual volumes of water sold</li> <li>• Retail population</li> <li>• Number of retail service connections</li> <li>• Distribution, connection count, and volume sold by customer classification</li> </ul>	<ul style="list-style-type: none"> <li>• Analyze recent trends in water use</li> <li>• Indicate or correct suspect water use for future accuracy of demand projections</li> </ul>
<b>Water Loss Audit</b>	<ul style="list-style-type: none"> <li>• Water utility information</li> <li>• System input volumes by source</li> <li>• Population and connections served</li> <li>• Length of main lines</li> <li>• Volume of water treated for distribution</li> <li>• Meter accuracy</li> <li>• Volume of authorized consumption</li> <li>• Volume of water lost due to breaks and leaks</li> <li>• Retail price of water</li> <li>• Variable production cost of water</li> <li>• Assessment validation for audit components</li> </ul>	<ul style="list-style-type: none"> <li>• Review water loss audit data including regional water loss balance reports</li> <li>• Describe water loss audit information for the region in Chapter 1 of the RWP</li> <li>• Analyze water loss trends and consider strategies to address issues</li> <li>• Compare reported real and/or apparent water loss to performance indicators when evaluating water loss mitigation strategies</li> <li>• Use reported number of connections in meter replacement estimates</li> <li>• Use reported length of main lines in line replacement estimates</li> </ul>

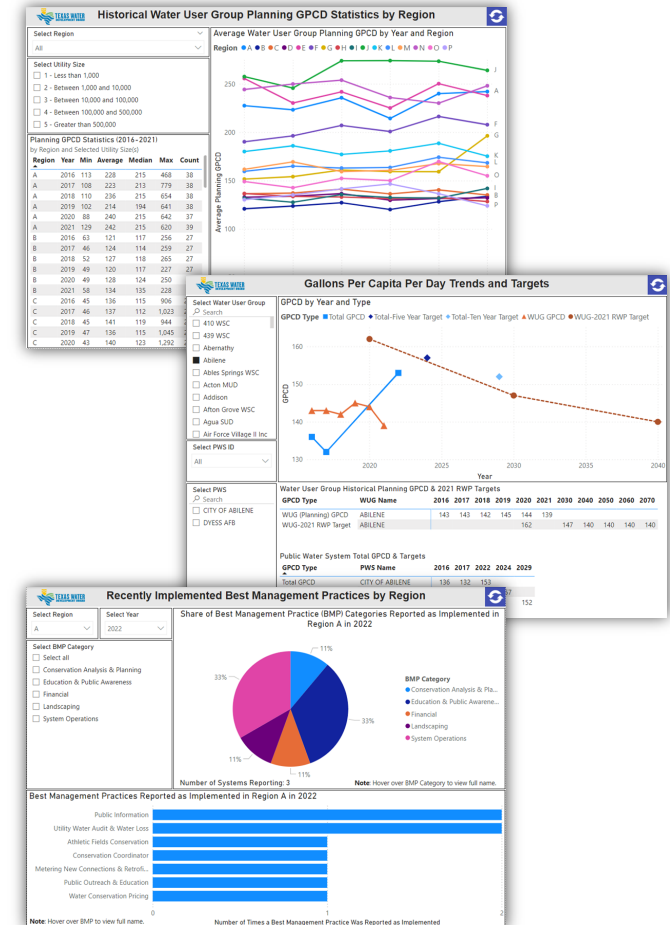
# Data Reported to TWDB

Report	Data Reported	Examples of How RWPGs Can Use This Data
<b>Water Conservation Plan</b>	<ul style="list-style-type: none"> <li>• Utility profile</li> <li>• 5 and 10-year goals in GPCD</li> <li>• Schedule for implementing the plan</li> <li>• Method for tracking targets and goals</li> <li>• Production meter(s)</li> <li>• Specific conservation measures or BMPs included in the conservation program</li> <li>• Documentation of RWPG notification</li> </ul>	<ul style="list-style-type: none"> <li>• Develop WUG-specific conservation strategies based on conservation measures or BMPs included in an associated WCP</li> <li>• Summarize the number and types of measures and BMPs reported in WCPs</li> <li>• Summarize utility 5 and 10-year total GPCD goals and consider when setting RWPG GPCD goals</li> </ul>
<b>Water Conservation Plan Annual Report</b>	<ul style="list-style-type: none"> <li>• System data: number of connections and gallons of metered retail water use by customer category</li> <li>• Water use: input volumes, authorized consumption, and water losses</li> <li>• BMPs implemented &amp; estimated gallons saved</li> <li>• Leaks detected and meter testing/repair</li> <li>• Total, residential, and water loss GPCD and water loss percentage</li> </ul>	<ul style="list-style-type: none"> <li>• Review and consider trends in utility annual total GPCD</li> <li>• Review details of BMPs implemented and estimated gallons saved to inform conservation water use reduction and water loss mitigation strategies</li> <li>• Summarize BMP implementation and results (gallons conserved, gallons reused, meters tested, and leaks repaired) in the RWP</li> </ul>

# TWDB Conservation Information Dashboard for Water Supply Planning

- Historical WUG Planning GPCD Statistics by Region
- Water Use, Loss, and Conservation Reporting Requirements
- GPCD Trends and Targets
- Municipal Conservation BMPs & Recommended Projects
- Recently Implemented BMPs by Region

<https://www.twdb.texas.gov/waterplanning/data/dashboard/conservation.asp>





# RWPG GPCD Goal Setting

- TWDB Conservation Information Dashboard for Water Supply Planning
  - Regional planning GPCD statistics,
  - Historical WUG planning GPCDs,
  - GPCD goals as set by RWPGs in the 2021 RWPs,
  - 5 and 10-year total GPCD targets from utility water conservation plans
- SARA Report ID 102 - WUG Adjusted Planning GPCD with Water Efficiency and Conservation Savings
- Spreadsheet of 2026 RWP Baseline GPCDs and WUG Adjusted GPCD based on WCAC methodology

# Additional Resources for RWPGs

1. Best Management Practices
2. TWDB Municipal Water Conservation Planning Tool
3. WCAC Suggestions to RWPGs
4. Example Water Loss Strategies from 2021 RWPs
5. Water Loss Performance Indicators

# Questions?

Michele Foss

michele.foss@twdb.Texas.gov

Stay connected:



# Interregional Planning Council Report to TWDB

Council adopted their final report on February 8, 2024.

Recommendations address three statutory charges:

1. Improve coordination among the regional water planning groups, and between each regional water planning group and the Board, in meeting the goals of the state water planning process and the water needs of the state as a whole;
2. Facilitate dialogue regarding water management strategies that could affect multiple regional water planning areas; and
3. Share best practices regarding operation of the regional water planning process.

# Interregional Planning Council Report to TWDB

## **Council recommendations to the Legislature:**

1. Appropriate additional funds to the planning process to
  - support RWPGs' task to identify and facilitate interregional coordination;
  - accommodate tasks associated with long-range, visionary planning;
  - fund better methods of disseminating information for the regional water planning process; and
  - accommodate labor costs for administering RWPGs
2. Provide financial incentives for local sponsorship of innovative, visionary, multi-benefit projects
3. Provide initial sponsorship of projects by the State without guarantees from local sponsors
4. Establish a coordination process amongst state agencies for installation of infrastructure during planning and construction of large-scale projects.
5. Strike simplified planning from the statute
6. Authorize the use of one-way conferencing or webinars

# Interregional Planning Council Report to TWDB

## **Council recommendations to the Texas Water Development Board:**

1. Develop protocols to include annual discussions to evaluate and document best practices for regional water planning in Chairs' conference calls.

## **Council recommendations to Future Interregional Planning Councils:**

1. Monitor the effectiveness of efforts to promote interregional coordination and review how best to utilize interregional liaisons in the development or use of shared water resources;
2. Utilize state agencies' expertise to assist regions in developing a vision of planning resources for the state as a whole;
3. Consider holding work sessions as needed to “deep dive” into more complicated topics;
4. Review materials and meeting notes from the TWDB's “lessons learned” technical meetings with RWPG consultants; and
5. Review progress on all recommendations in the 2027 SWP Council's report and submit its assessment to the TWDB.

# Interregional Planning Council Report to TWDB

**Council included several observations on topics not related to its statutory charge:**

1. Water loss
2. Unaccounted water use
3. Long-range and visionary planning

The final report is available online at:

<http://www.twdb.texas.gov/waterplanning/rwp/ipc>

AGENDA ITEM NO.8 – CONSIDERATION AND APPROPRIATE ACTION REGARDING BRIEFINGS ON  
WORKGROUP ACTIVITIES



## Agenda Item 8: Consideration and Appropriate Action Regarding Briefings on Workgroup Activities

## Workgroup Briefings: Overview

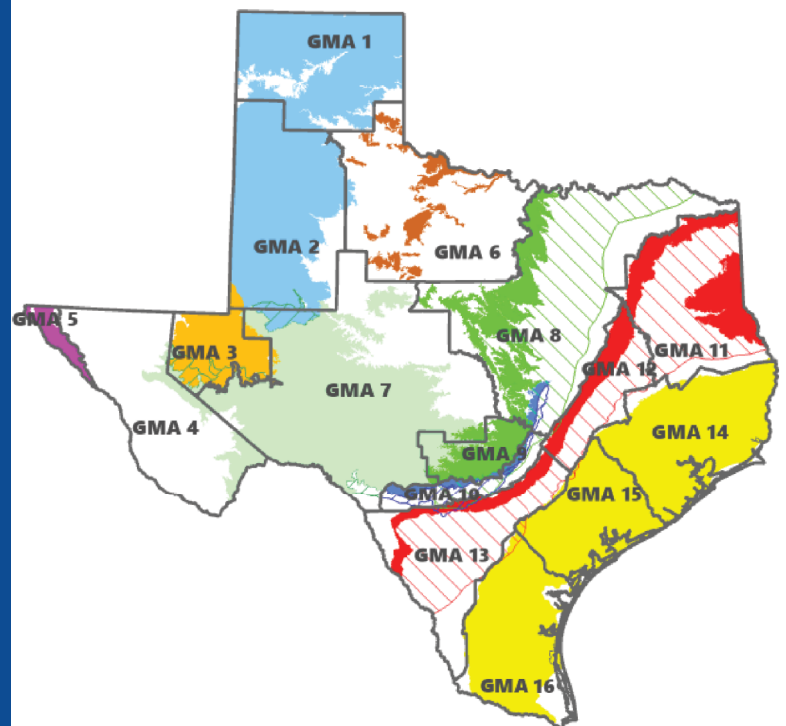
Workgroup	Meeting Date	Next Steps
Groundwater Availabilities Workgroup	April 15	Provide Recommendation to RWPG
Chapter 8 Policy and Legislative Recommendations Workgroup	April 25	Continue developing Chapter 8 language
Rural Community Outreach Workgroup	April 25	Continue outreach and development of Water Management Strategies (WMSs)

# Groundwater Availabilities Workgroup Activities

- First meeting held April 15<sup>th</sup> in-person and virtually
- Established Workgroup Roles:
  - Chair: Andrew McBride
  - Vice-Chair: Tim Andruss
  - Secretary: Aarin Teague
- Established Workgroup Responsibilities: Review Regional Water Planning Group (RWPG)-estimated groundwater availabilities and develop recommendations to the RWPG for inclusion in the 2026 Regional Water Plan.
- Meeting Activities: Discussed Groundwater Availabilities and Developed Recommendations to RWPG (on subsequent slides)
- No additional meetings are currently planned

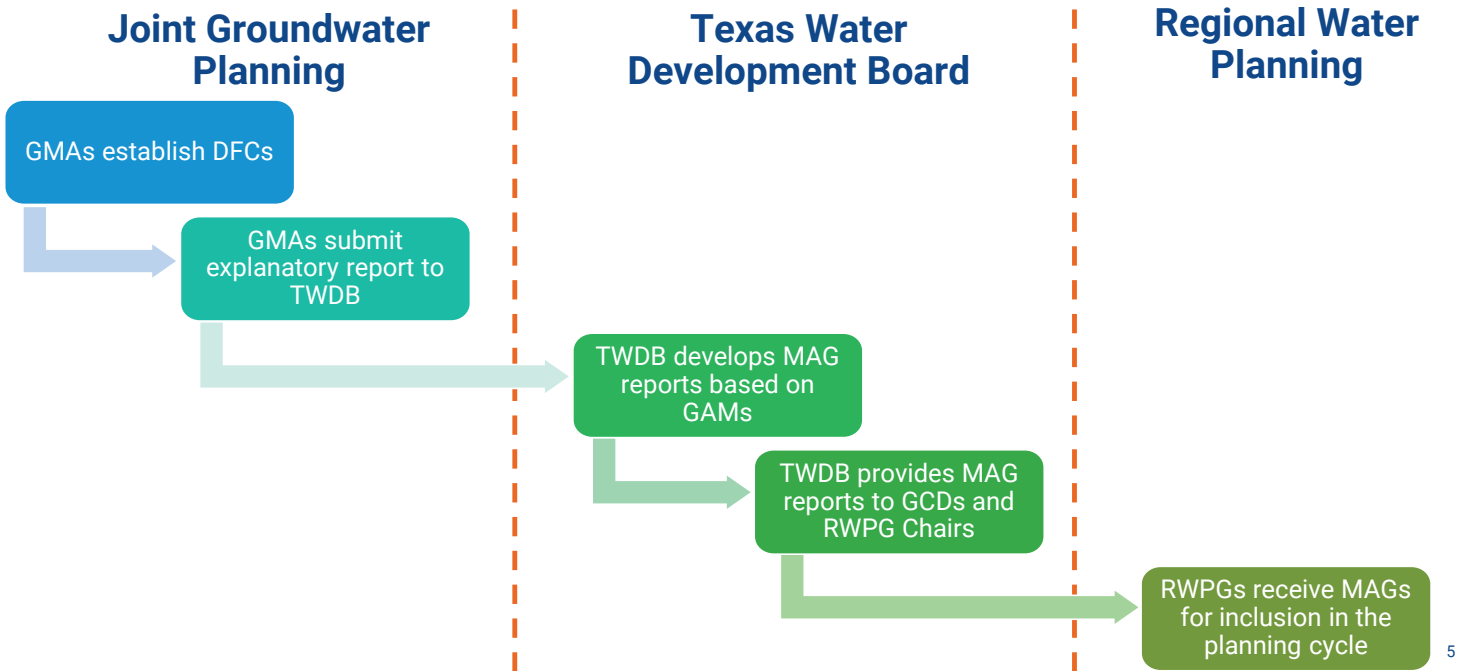
## Joint Groundwater Planning

- Representatives from Groundwater Conservation Districts (GCDs) in a Groundwater Management Area (GMA) conduct Joint Planning, including:
  - Establish Desired Future Conditions (DFCs)
  - Review Management Plans
  - Submit explanatory report to Texas Water Development Board (TWDB)
- TWDB uses DFCs to develop Modeled Available Groundwater (MAG) Estimates using Groundwater Availability Models (GAMs)



Source: TWDB

# Separate Processes, Shared Information



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# How Groundwater Availability is Determined in Regional Water Planning

- MAGs become Groundwater Availabilities for Regional Water Planning unless:
  - The TWDB develops DFC-compatible non-MAG estimates for use in the Regional Water Plan, based on aquifers with DFC-compatible supplies calculated by TWDB using GMA.
  - The RWPG develops estimates for use in the Regional Water Plan.



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# RWPG-Estimated Groundwater Availabilities

Per TWDB’s Exhibit C *General Guidelines for Development of the 2026 Regional Water Plans*:

- RWPGs may determine the groundwater availability for planning purposes.
- These RWPG-estimated groundwater availabilities may be determined by using availability values presented in the local GCD management plan, TWDB GAMs, if available, or other means.
- Planning groups are strongly encouraged to consider the physical compatibility with adjacent or nearby DFCs of the regional aquifers in the development of RWPG-estimated groundwater availability.

The Groundwater Availabilities Workgroup considered the RWPG estimates included in the Region L Technical Memorandum (Tech Memo or TM) and recommended revisions to two of the 18 RWPG estimates.

The two revisions are related to the Leona Gravel Aquifer in Medina County and address the public comment received at the February 14<sup>th</sup> RWPG meeting.

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## Groundwater Availabilities Workgroup Recommendations (1 of 2)

No.	Source Information				2080 Groundwater Availabilities (acft/yr)		
	Name	County	Basin	Methodology Type	TWDB Estimates, DB27	RWPG Estimates, Tech Memo	RWPG Estimates, Workgroup Recommendations*
1	Carrizo-Wilcox Aquifer	Karnes	Guadalupe	Published Reports / Data	0	50	50
2	Carrizo-Wilcox Aquifer	Karnes	Nueces	Published Reports / Data	0	84	84
3	Carrizo-Wilcox Aquifer	Karnes	San Antonio	Published Reports / Data	1,043	1,078	1,078
4	Edwards-BFZ Aquifer	Atascosa	Nueces	Permitted Amount	360	522	522
5	Edwards-BFZ Aquifer	Atascosa	San Antonio	Permitted Amount	100	145	145
6	Edwards-BFZ Aquifer	Bexar	Nueces	Permitted Amount	356	446	446
7	Edwards-BFZ Aquifer	Bexar	San Antonio	Permitted Amount	202,000	211,795	211,795
8	Edwards-BFZ Aquifer	Comal	Guadalupe	Permitted Amount	12,000	13,179	13,179
9	Edwards-BFZ Aquifer	Comal	San Antonio	Permitted Amount	362	549	549
10	Edwards-BFZ Aquifer	Frio	Nueces	Published Reports / Data	23,213	23,213	23,213

**Notes:**

\* Differences between Groundwater Availability Workgroup Recommendations and the Technical Memorandum are denoted in red text.

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# Groundwater Availabilities Workgroup Recommendations (2 of 2)

No.	Source Information				2080 Groundwater Availabilities (acft/yr)		
	Name	County	Basin	Methodology Type	TWDB Estimates, DB27	RWPG Estimates, Tech Memo	RWPG Estimates, Workgroup Recommendations*
11	Edwards-BFZ Aquifer	Guadalupe	Guadalupe	Permitted Amount	221	293	293
12	Edwards-BFZ Aquifer	Hays	Guadalupe	Permitted Amount	942	8,283	8,283
13	Edwards-BFZ Aquifer	Medina	Nueces	Permitted Amount	20,128	25,419	25,419
14	Edwards-BFZ Aquifer	Medina	San Antonio	Permitted Amount	5,550	7,009	7,009
15	Edwards-BFZ Aquifer	Uvalde	Nueces	Permitted Amount	15,367	29,855	29,855
16	Leona Gravel Aquifer	Medina	Nueces	Published Reports / Data	17,955	17,955	5,908
17	Leona Gravel Aquifer	Medina	San Antonio	Published Reports / Data	4,062	4,062	1,337
18	San Marcos River Alluvium	Caldwell	Guadalupe	Published Reports / Data	271	271	271

**Notes:**  
 \* Differences between Groundwater Availability Workgroup Recommendations and the Technical Memorandum are denoted in red text.

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## Recommendation

### Consider Action to:



Approve incorporation of availability recommendations from the Groundwater Availabilities Workgroup into the 2026 Region L Regional Water Plan.

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## Chapter 8 Policy and Legislative Recommendations Workgroup Activities

- First meeting held April 25th in-person and virtually
- Reviewed Background and Previous Cycle's Approach
- Established Workgroup Roles:
  - Chair: Tim Andruss
  - Vice-Chair: Robert Puente
  - Secretary: Jonathon Stinson
- Established Workgroup Responsibilities: Collaboratively draft Chapter 8 recommendations regarding unique stream segments, unique reservoir sites, and other recommendations, including legislative and regional policy recommendations
- Meeting Activities:
  - Discussed new or proposed recommendations to consider including in Chapter 8
  - Reviewed previous Chapter 8 language
- Next Meeting Scheduled in Early June

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## Rural Community Outreach Workgroup Activities

- Meeting held April 25<sup>th</sup> in-person and virtually
- Meeting Activities:
  - Reviewed and discussed water management strategy (WMS) development process
  - Discussed potential WMSs that could benefit rural entities, such as:
    - Municipal Water Conservation, such as Advanced Meter Infrastructure (AMI) and infrastructure repairs to address water loss and unaccounted water
    - Non-municipal Water Conservation for Irrigation uses
- Next Meeting Scheduled in Early June

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AGENDA ITEM NO.9 – PRESENTATION BY TECHNICAL CONSULTANT REGARDING SCHEDULE AND  
PROGRESS UPDATE

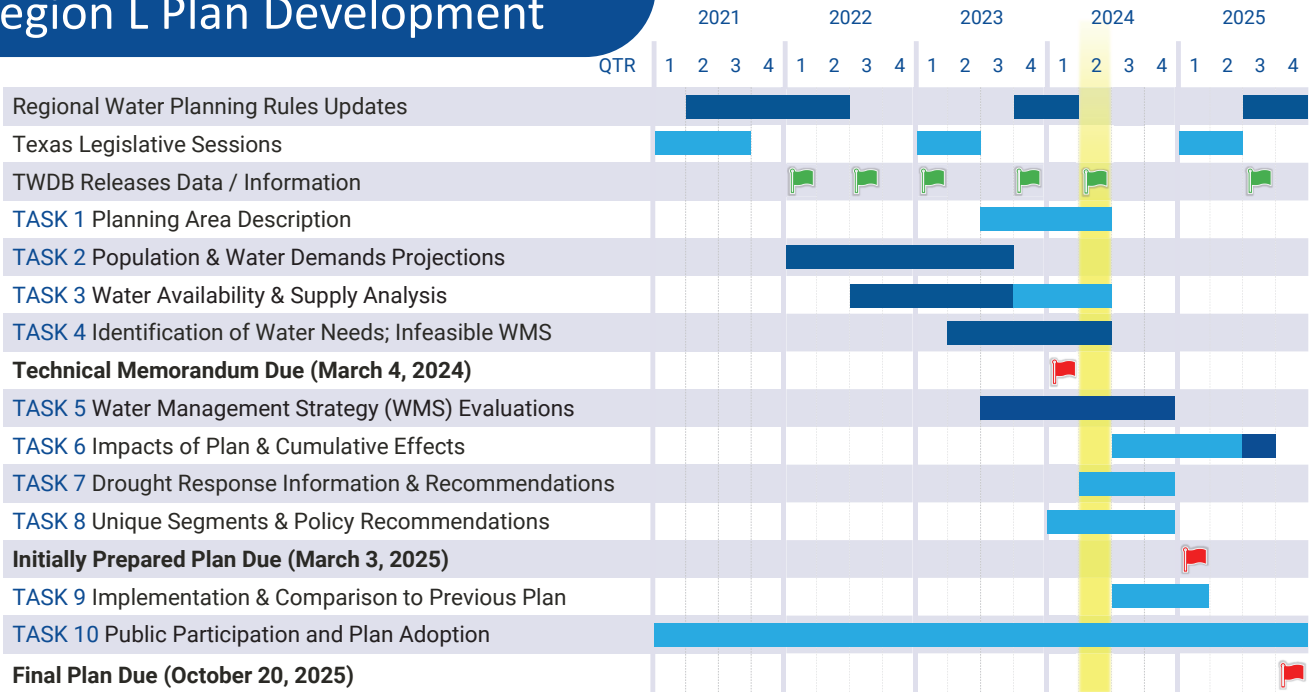
## Agenda Item 9: Presentation by Technical Consultant Regarding Schedule and Progress Updates

### Schedule and Progress Updates – Overview

- A. Regional Water Planning 101
- B. Update on Completed Efforts
- C. Update on New or Ongoing Efforts
  - 1. Drought Contingency Plans Updates
  - 2. Plan Chapter Updates
  - 3. Water Management Strategy (WMS) Updates



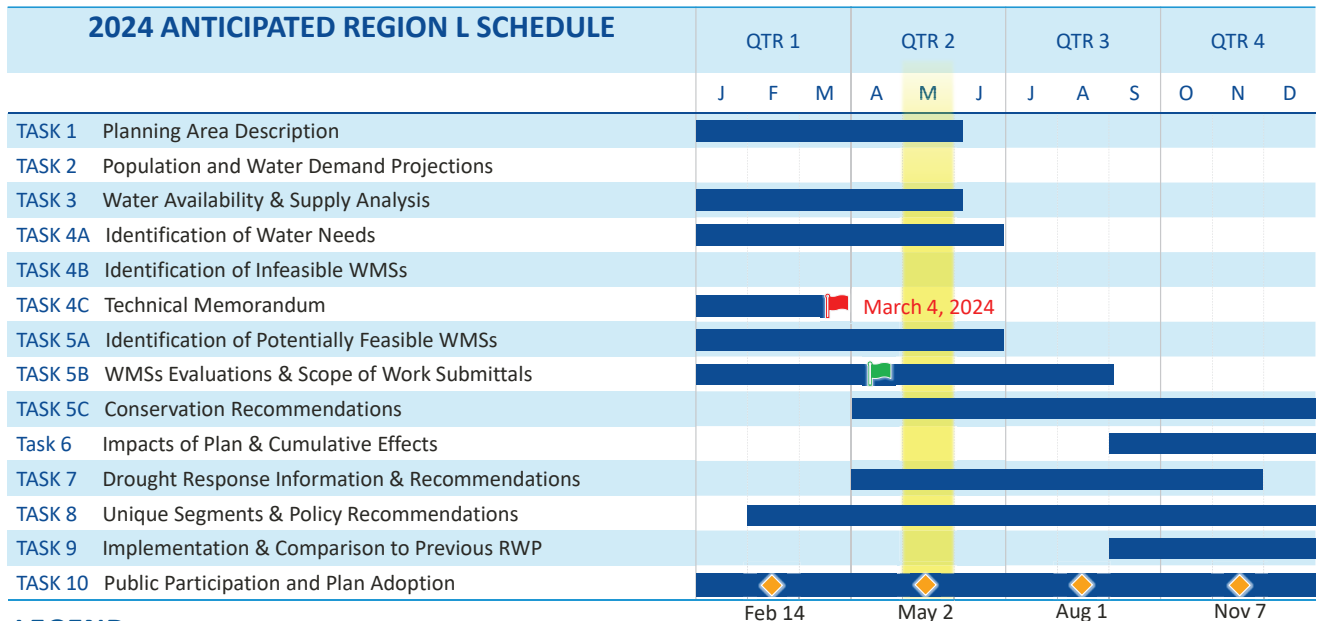
# Conceptual Schedule for Region L Plan Development



■ TWDB Conceptual Schedule   
 ■ B&V Planned Schedule   
 ■ TWDB Data Release   
 ■ TWDB Deadline

15

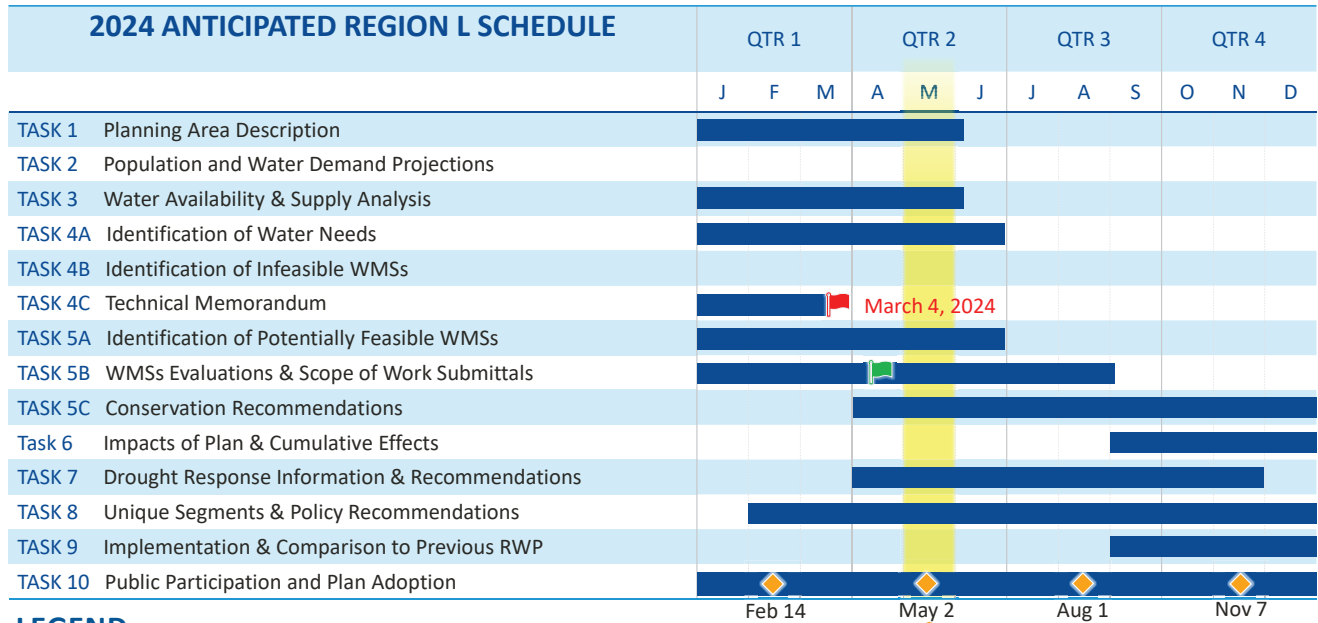
## 2024 ANTICIPATED REGION L SCHEDULE



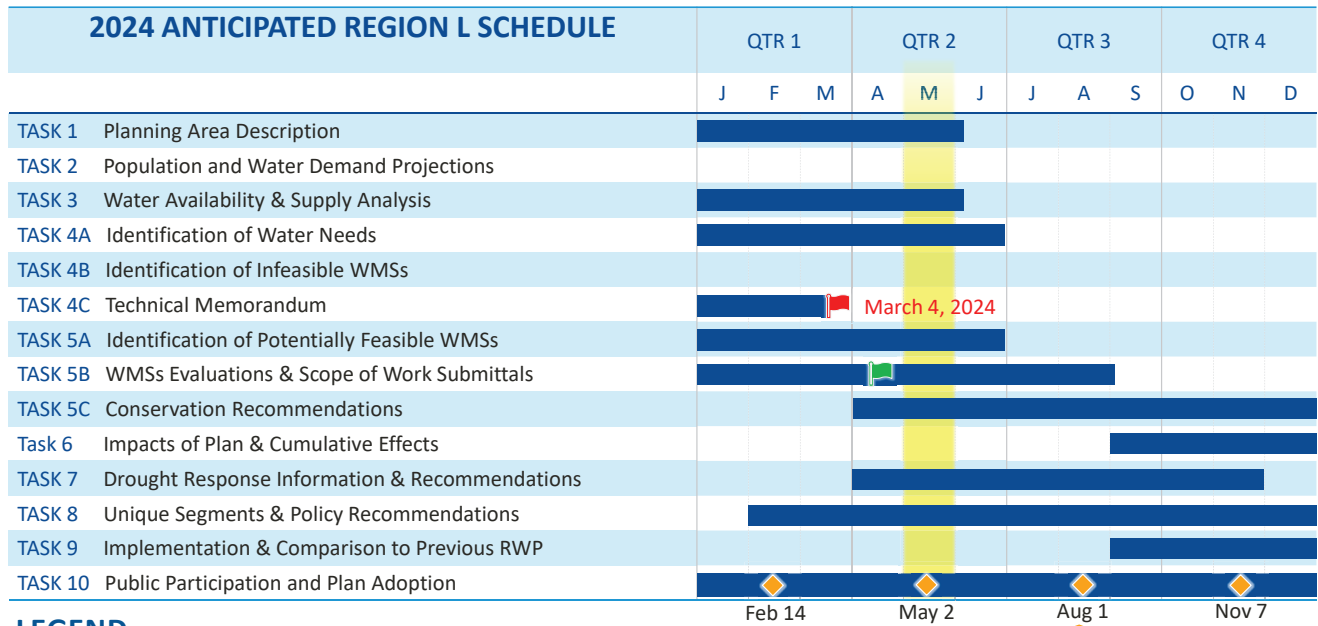
### LEGEND

■ Region L Activities   
 ■ TWDB Data Release   
 ■ TWDB Deadline   
 ◆ Region L RWPG Meeting

16



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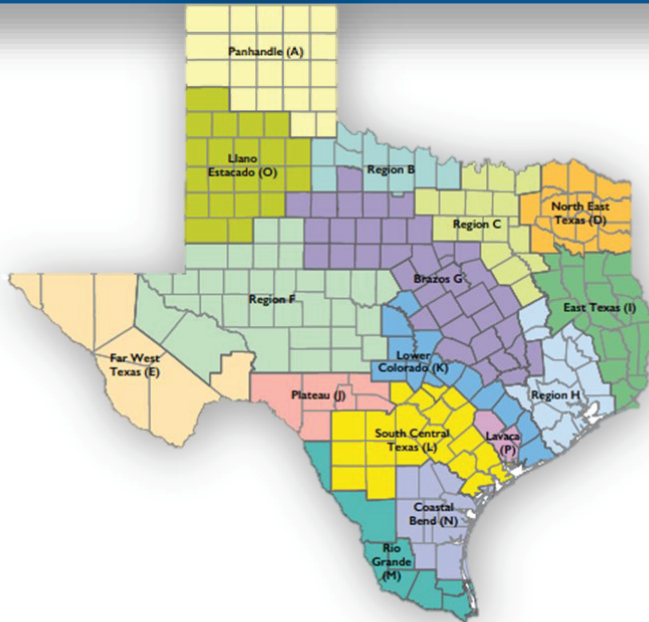
18

TOPIC



## Regional Water Planning 101

# Regional Water Planning in Texas



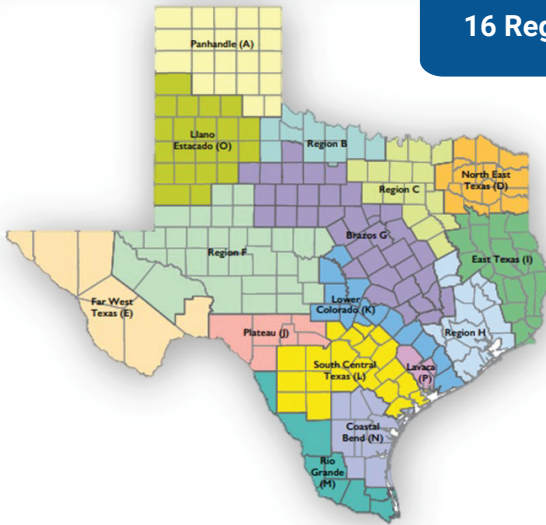
16 Regions in Texas

# Regional Water Planning in Texas

16 Regions

Develop  
Regional Water  
Plans (RWPs)

State Water Plan  
is created from the  
16 Regional Water  
Plans



Designated with consideration for:

- Watershed and aquifer delineations
- Water utility development patterns
  - Socioeconomic characteristics
- Existing regional water planning areas
  - Political subdivision boundaries
  - Public comment

*The Regional Water Plan is updated every 5 years*

# Regional Water Planning in Texas



- Volunteers with various levels of experience in the water industry
- Representatives from diverse interests:
  - Public
  - Small Business
  - Counties
  - Power Generation
  - Municipalities
  - River Authorities
  - Industries
  - Water Districts
  - Agriculture
  - Water Utilities
  - Environment
  - Groundwater Management Area
- Local political subdivision acts as an administrative agent for the planning group
- Assisted by teams of consultants

# Regional Water Planning in Texas

## Study and consider:

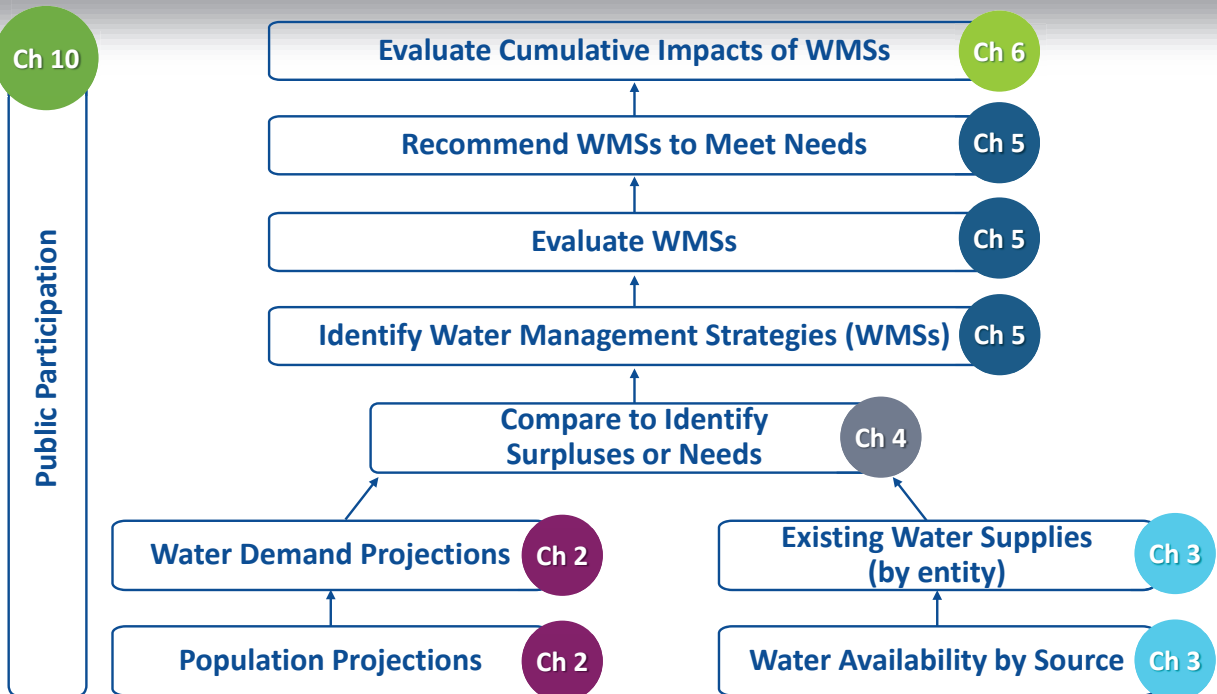
- Population and demand growth;
- Drought of Record water supply projections; and
- Impacts of water management strategies
  - Financial cost
  - Environmental, agricultural, and socioeconomic impacts



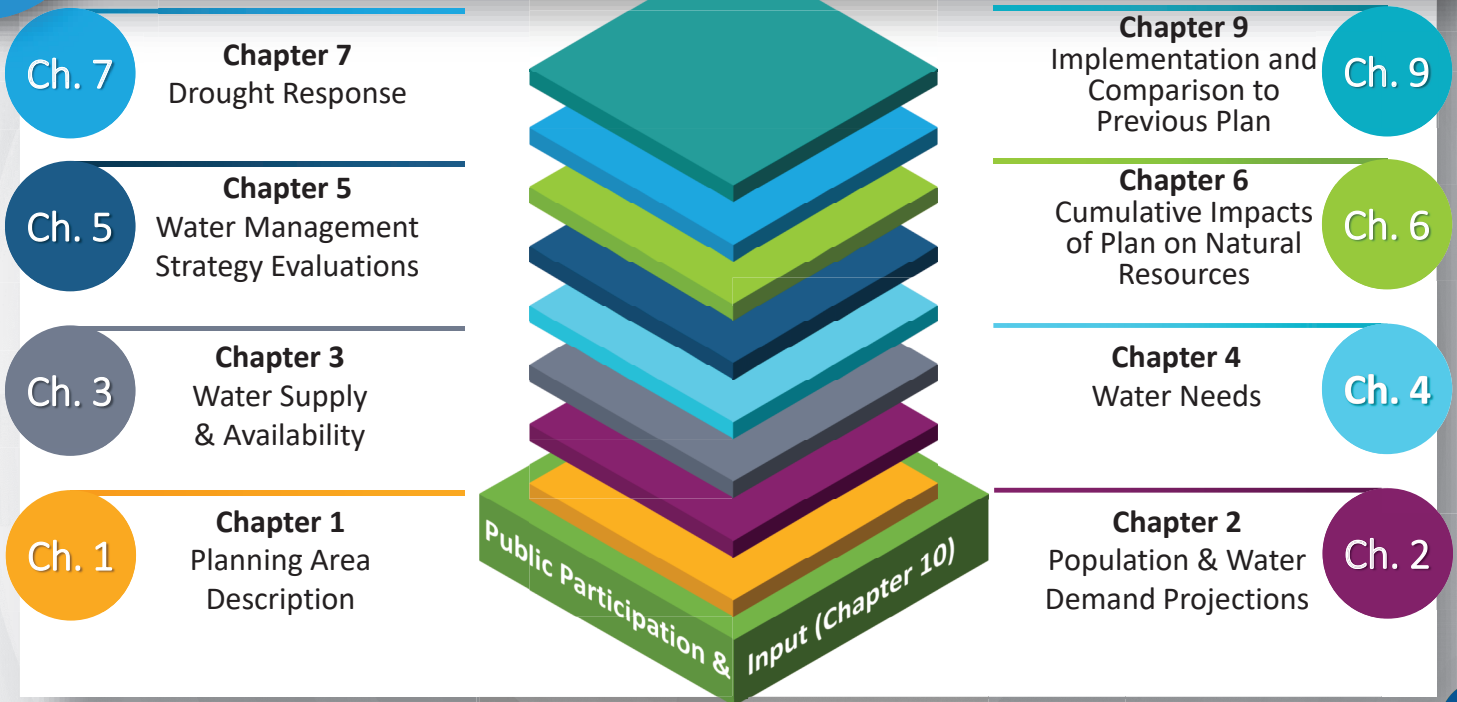
A Drought of Record is  
**“the period of time when historical records indicate that natural hydrological conditions would have provided the least amount of water supply.”**

-31 TAC §Chapter 357,  
 Subchapter A, Rule 357.10

# Foundational Process, Building On Previous Steps



# Foundational Process, Building On Previous Steps



Black & Veatch

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## Stakeholder Input on the Initially Prepared Regional Water Plan (IPP)

The Initially Prepared Plan (IPP) is due to TWDB by **March 3, 2025**.



A public hearing to receive public comments is required following submittal of the IPP to the TWDB.

- Written comments will be received for 30 days prior to and 60 after the public hearing.
- Utilities are encouraged to review their data in the IPP in case any changes are needed prior to final adoption.

Black & Veatch

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# Region L Guiding Principles

In 2015, the SCTRWPG began the 2021 Plan Enhancement Process to improve and clarify the principles that guide SCTRWPG decisions. They established 11 SCTRWPG Guiding Principles:

1. Appropriateness and adequacy of how demand and need are determined
2. Role of Regional Water Planning Groups in influencing population growth and land use
3. Conflicts of interests with respect to planning group members
4. The role of the planning group in influencing water development plans of water suppliers
5. The role of the planning group in influencing permitting entities
6. The adequacy of evaluating the plan's effects on freshwater inflows to San Antonio Bay, and the adequacy of environmental assessments of individual water management strategies (WMSs)
7. Minimum Standards for WMSs
8. Recommended WMSs
9. Management Supply
10. The role of reuse within the Regional Water Plan
11. Identifying special studies or evaluations deemed important to enhance the 2021 plan, the identification of outside funding sources, and the extent to which innovative strategies should be used.

*Guiding Principles are included as Supplemental Information in the Agenda Packet*

## TOPIC **B**

### Update on Completed Efforts

## Update on Completed Efforts

- Completed development of draft Technical Memorandum (Task 4C)
  - Finalized and Submitted to TWDB on March 4<sup>th</sup>
  - TWDB declared it Administratively Complete on March 11<sup>th</sup>
- Completed development of Scope of Work (SOW) for potential WMS evaluations (Task 5B)
  - Submitted SOW and Request for Notice to Proceed (NTP) to TWDB on March 15<sup>th</sup>
  - Awaiting NTP from TWDB
- Completed development of draft Minor Amendment to the 2021 Regional Water Plan to update the Guadalupe-Blanco River Authority (GBRA) Lower Basin Storage Project
  - Submitted Draft Minor Amendment with a Request for Minor Amendment Determination to TWDB on March 11<sup>th</sup>
  - TWDB determined amendment to be Minor on April 17<sup>th</sup>
  - Additional information is described in subsequent agenda item

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TOPIC

C

Update on New or Ongoing Efforts



## Update on New or Ongoing Efforts

- **Finishing Water Supplies and WMS Outreach (Task 3)**
  - Sent surveys to water user groups (WUGs) and wholesale water providers (WWPs) soliciting feedback on Existing Water Supplies and future WMSs
  - Met with certain WUGs and WWPs to obtain feedback
  - Will continue engaging WUGs to obtain feedback for IPP
- **Began evaluating WMSs (Task 5)**
  - Sending emails to sponsors of WMSs in 2021 RWP to request any updates to schedule, approach (yield, infrastructure components, etc.), and others
- **Began drafting Chapter 8: Recommendations Regarding Unique Stream Segments and/or Reservoir Sites and Legislative & Regional Policy Issues (Task 8)**
  - Workgroup held first meeting on April 25<sup>th</sup>
  - Will have additional meetings and present draft Chapter 8 at future RWPG meeting

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## Update on New or Ongoing Efforts

- **Continuing Interregional Coordination Efforts (Task 10)**
  - Regular calls with Region K consultant team
  - Connecting with Regions G, N, and P, as needed
- **Rural Outreach (Task 10)**
  - Rural Community Outreach Workgroup met on April 25<sup>th</sup>
  - Sending letters to rural entities to provide information about Regional Water Planning in general
  - The goal is to encourage engagement in the Regional Water Planning process from rural entities
  - Letter answers important questions like:
    - *What is the Texas State Water Plan?*
    - *What is the Regional Water Plan?*
    - *Link to the 2021 Region L Regional Water Plan*
    - *Link to the Region L website*
    - *Information on future RWPG meetings*

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# TOPIC C.1

## Drought Contingency Plans

## Drought Contingency Plans

- **Begin Drought Contingency Plan (DCP) Outreach and Evaluations (Task 7)**
  - **Background:**
    - Certain entities must prepare DCPs and submit to Texas Commission on Environmental Quality (TCEQ) and RWPGs
    - DCPs updated every five years
    - Submittal deadline to TCEQ was May 1, 2024
  - **Planning Group Responsibilities, for all eligible WUGs:**
    - Gather and request DCPs
    - Review DCPs and describe Drought Management Measures (defined as demand management activities to be implemented during drought that may be evaluated and included as Water Management Strategies)

### Next Steps

- **San Antonio River Authority will provide received DCPs to Technical Consultant**
- **Technical Consultant will send emails to request outstanding DCPs from eligible WUGs**
- **Future RWPG meetings will include updates of entities with DCPs received to date**
- **RWPG members may be asked to reach out to their network to encourage submittal of DCPs**

# DCPs Received to Date

37  
DCPs  
Total

5  
DCPs  
Received

32  
DCPs  
Needed

13%  
Complete

✓ Aqua WSC  
Atascosa Rural WSC  
Benton City WSC  
Bexar-Medina-Atascosa  
Counties WCID 1  
Boerne  
CRWA  
Cibolo  
Canyon Lake Water Service  
(Texas Water Company)  
Chaparral Water System Hays  
Converse

✓ County Line SUD  
Crystal Clear SUD  
✓ East Central SUD  
✓ Goforth SUD  
Gonzales  
Green Valley SUD  
GBRA  
Kendall West Utility  
Kyle

Lockhart  
New Braunfels  
Oliver Ranch  
Pleasanton  
Plum Creek  
Port Lavaca  
S S WSC  
SAWS  
San Marcos

Schertz  
Seguin  
Selma  
✓ Springs Hill WSC  
Sunilandings Utilities  
Universal City  
Uvalde  
Victoria  
Victoria County WCID 1

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## TOPIC C.2

Plan Chapter Updates

# Chapter 1: Planning Area Description

## Chapter 1 includes:

- Physical Description of the Region
- Population and Demography
- Economy (Major Sectors and Industries)
- Current Water Use
- Major Water Demands
- Wholesale Water Providers
- Major Water Providers
- Water Resources & Quality Considerations
- Threats to Agricultural and Natural Resources
- Water Loss Audits
- Drought of Record

# Chapter 1: Planning Area Description

- Wholesale Water Providers (WWP)  
Any person or entity, including river authorities and irrigation districts, that delivers or sells water wholesale (treated or raw) to water user groups (WUGs) or other WWPs or that the RWPG expects or recommends to deliver or sell water wholesale to WUGs or other WWPs during the period covered by the plan.

San Antonio Water System (SAWS)	Cibolo Valley Local Government Corporation (CVLGC)
Guadalupe-Blanco River Authority (GBRA)	Alliance Regional Water Authority (ARWA)
Canyon Regional Water Authority (CRWA)	Schertz-Seguin Local Government Corporation (SSLGC)

# Chapter 1: Planning Area Description

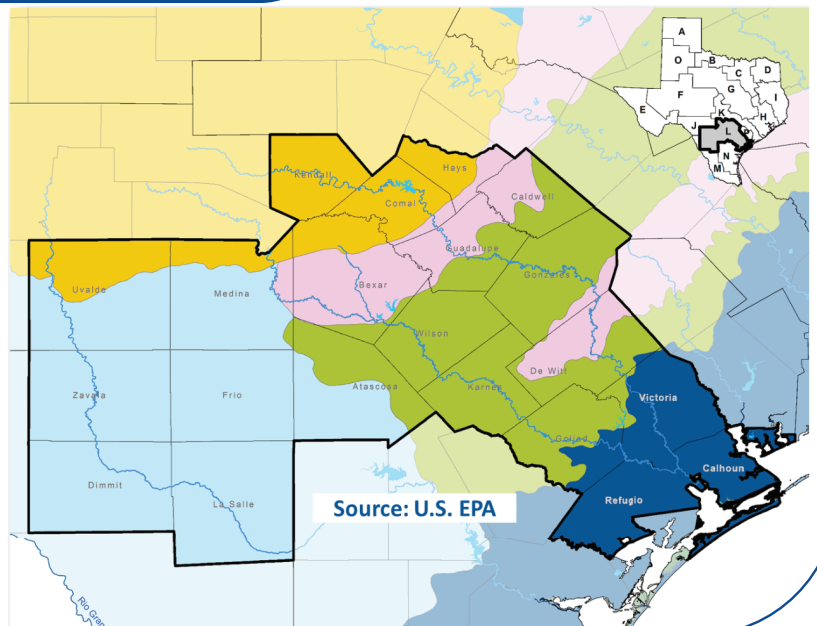
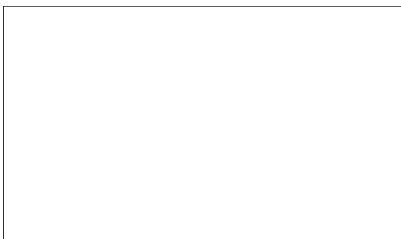
- Major Water Providers (MWP)  
Determined by the SCTRWPG to be all WWP's and any municipal water user group (WUG) with more than 20,000 acft/yr in demands.

San Antonio Water System (SAWS)	Cibolo Valley Local Government Corporation (CVLGC)	San Marcos
Guadalupe-Blanco River Authority (GBRA)	Alliance Regional Water Authority (ARWA)	New Braunfels (NBU)
Canyon Regional Water Authority (CRWA)	Schertz-Seguin Local Government Corporation (SSLGC)	Victoria

# Chapter 1: Planning Area Description

- Ecoregions

## Legend

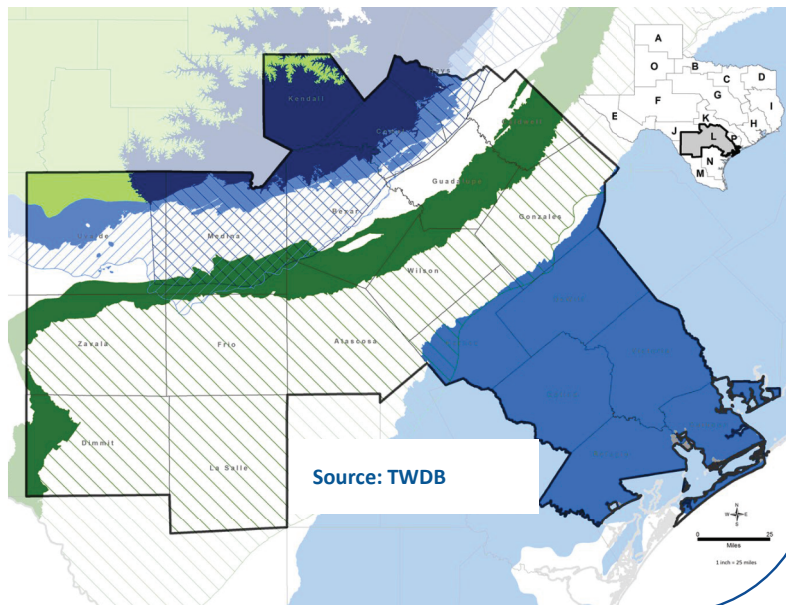


# Chapter 1: Planning Area Description

## • Major Aquifers

### Legend

-  Gulf Coast
-  Carrizo-Wilcox (outcrop)
-  Carrizo-Wilcox (subcrop)
-  Edwards-Trinity (outcrop)
-  Edwards-Trinity (subcrop)
-  Edwards (outcrop)
-  Edwards (subcrop)
-  Trinity (outcrop)
-  Trinity (subcrop)

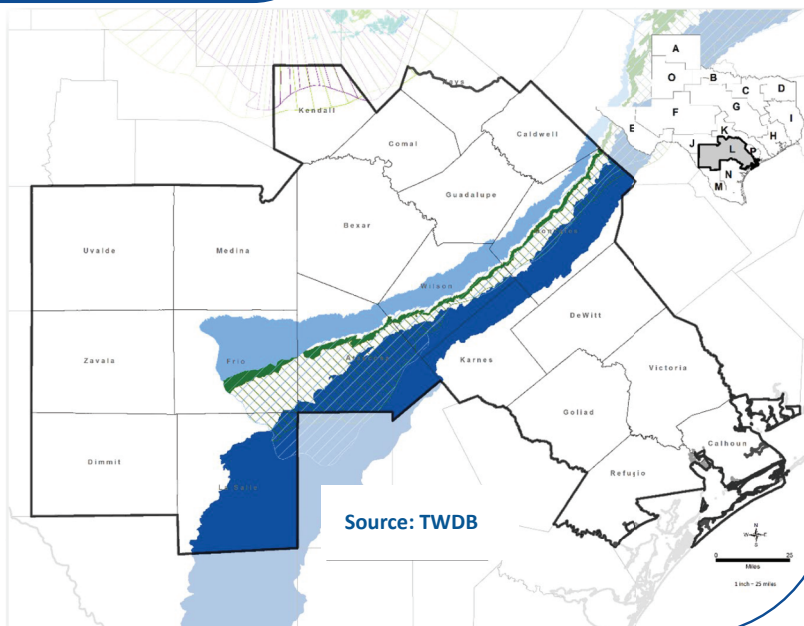


# Chapter 1: Planning Area Description

## • Minor Aquifers

### Legend

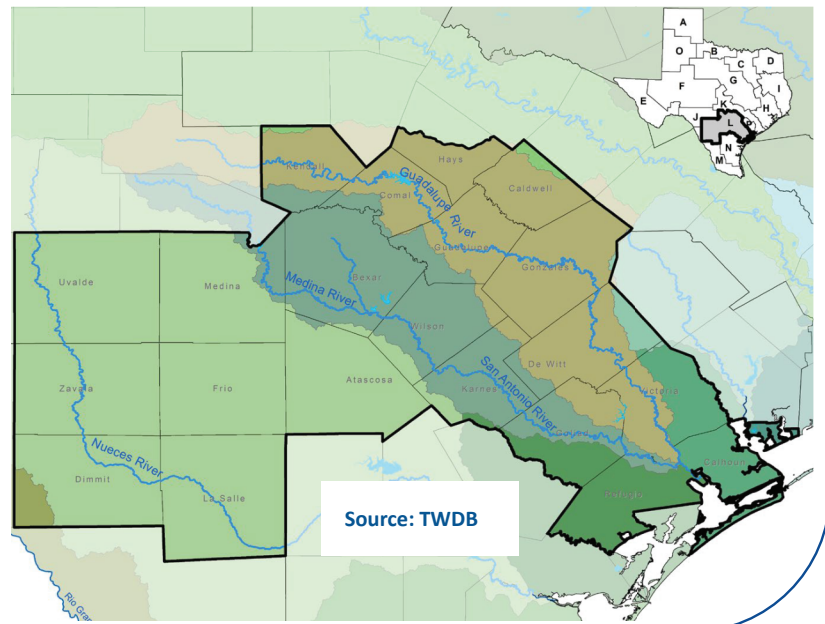
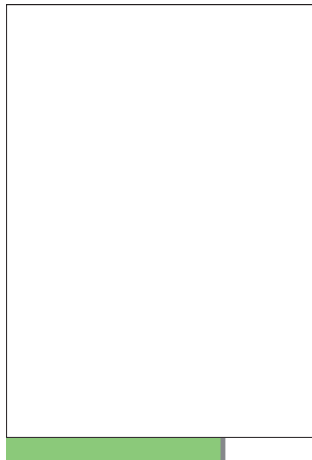
-  Marble Falls
-  Sparta (outcrop)
-  Sparta (subcrop)
-  Hickory (outcrop)
-  Hickory (subcrop)
-  Queen City (outcrop)
-  Queen City (subcrop)
-  Yegua Jackson
-  Lipan (subcrop)
-  Ellenburger-San Saba (subcrop)



# Chapter 1: Planning Area Description

- River Basins

## Legend

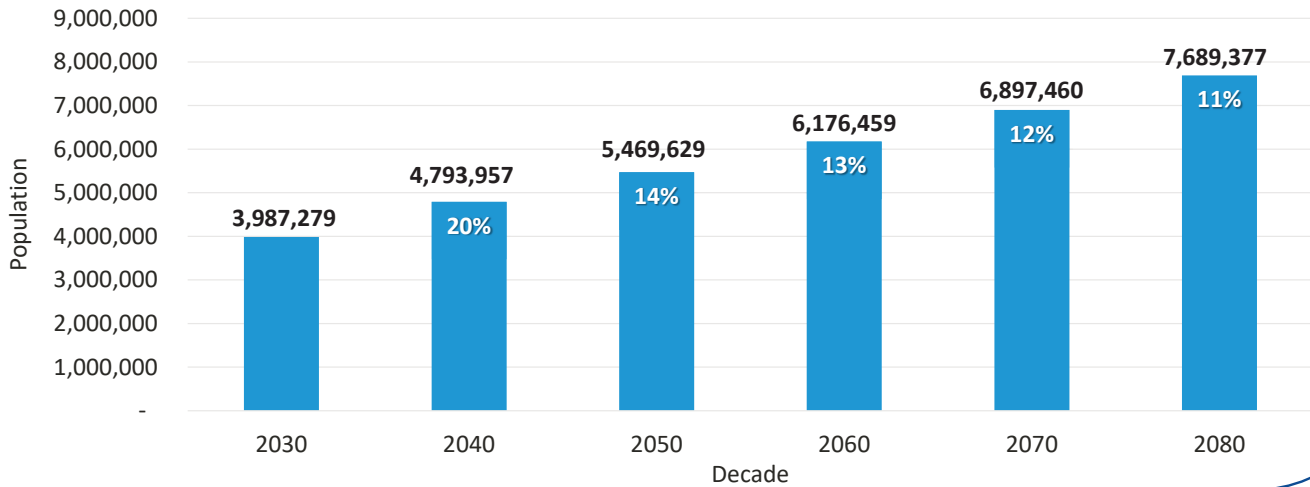


# Chapter 2: Population and Water Demand Projections

Counties	Population Projections						Counties	Population Projections					
	2030	2040	2050	2060	2070	2080		2030	2040	2050	2060	2070	2080
Atascosa	53,324	57,374	61,473	64,960	68,952	73,522	Hays	336,064	500,806	683,104	877,560	1,051,675	1,240,694
Bexar	2,555,076	2,951,404	3,222,978	3,470,641	3,699,975	3,945,495	Karnes	15,357	16,052	16,739	17,527	18,429	19,462
Caldwell	67,191	83,988	100,497	116,808	134,861	151,345	Kendall	56,306	70,896	89,665	111,448	136,387	164,940
Calhoun	19,449	18,619	17,599	16,571	15,483	14,332	La Salle	6,723	6,766	6,690	6,529	6,359	6,179
Comal	259,280	350,779	447,841	584,380	756,273	953,073	Medina	60,936	79,204	83,631	87,079	90,594	92,654
DeWitt	19,716	19,687	19,565	19,482	19,394	19,301	Refugio	6,489	6,243	5,992	5,799	5,595	5,379
Dimmit	8,175	7,818	7,383	6,983	6,560	6,112	Uvalde	24,967	24,478	23,759	22,944	22,080	21,167
Frio	19,512	20,540	21,269	21,643	22,071	22,561	Victoria	93,954	96,082	96,608	96,168	95,664	95,087
Goliad	6,803	6,648	6,559	6,454	6,334	6,197	Wilson	55,858	61,941	67,968	73,304	79,413	86,407
Gonzales	19,716	19,697	19,399	19,064	18,710	18,335	Zavala	9,480	9,232	8,858	8,472	8,064	7,632
Guadalupe	292,903	385,703	462,052	542,643	634,587	739,503	<b>Total</b>	<b>3,987,279</b>	<b>4,793,957</b>	<b>5,469,629</b>	<b>6,176,459</b>	<b>6,897,460</b>	<b>7,689,377</b>

# Chapter 2: Population and Water Demand Projections

### South Central Texas Region Population Projections (2030 to 2080)



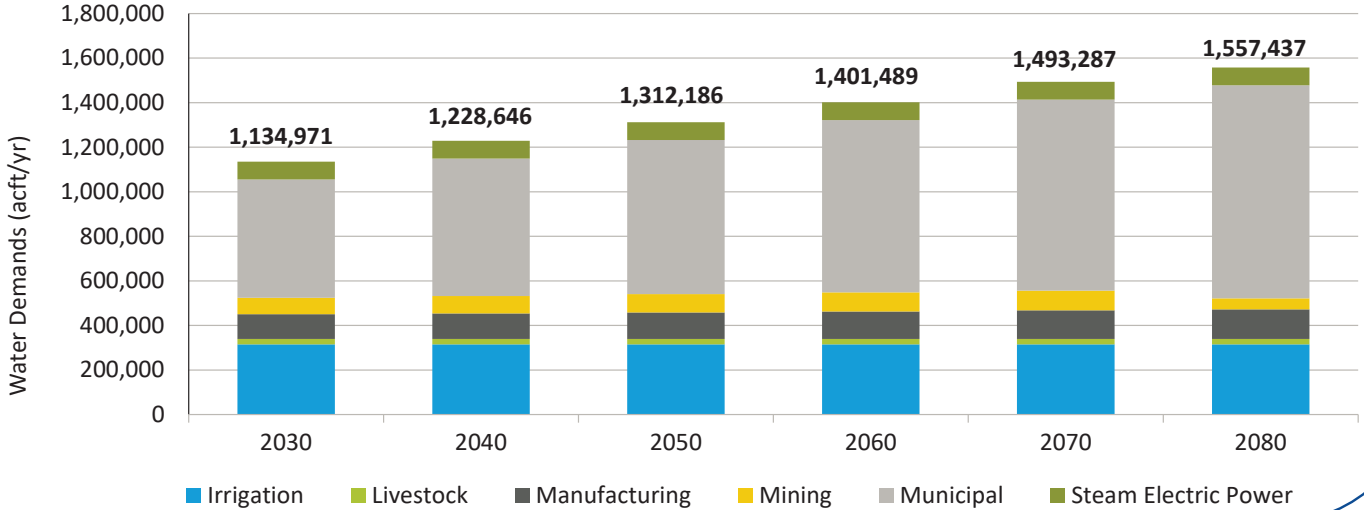
# Chapter 2: Population and Water Demand Projections

Counties	Water Demand Projections (acft/yr)						Counties	Water Demand Projections (acft/yr)					
	2030	2040	2050	2060	2070	2080		2030	2040	2050	2060	2070	2080
Atascosa	51,026	51,869	52,764	53,584	54,455	50,215	Hays	43,189	60,339	78,814	99,478	118,291	139,706
Bexar	396,152	428,883	451,020	468,589	483,258	503,941	Karnes	7,417	7,574	7,742	7,932	8,153	6,485
Caldwell	10,019	11,820	13,646	15,439	17,439	18,967	Kendall	10,284	13,140	16,545	20,445	24,885	29,962
Calhoun	67,994	69,880	71,830	73,857	75,954	78,125	La Salle	11,768	11,760	11,756	11,750	11,754	6,376
Comal	58,372	76,280	96,597	124,502	157,042	193,961	Medina	68,856	71,174	71,959	72,637	73,273	73,731
DeWitt	8,151	8,140	8,125	8,118	8,108	6,412	Refugio	2,311	2,272	2,240	2,216	2,193	2,175
Dimmit	12,973	12,890	12,803	12,720	12,637	6,412	Uvalde	63,276	63,368	63,435	63,475	63,494	63,492
Frio	81,199	81,534	81,776	81,843	81,917	76,007	Victoria	74,612	76,401	78,019	79,511	81,048	82,624
Goliad	9,836	9,814	9,803	9,791	9,777	9,761	Wilson	28,061	28,893	29,760	30,537	31,428	27,829
Gonzales	22,035	22,136	22,196	22,250	22,302	16,183	Zavala	51,091	51,061	51,010	50,957	50,902	45,912
Guadalupe	56,349	69,418	80,346	91,858	104,977	119,161	<b>Total</b>	<b>1,134,971</b>	<b>1,228,646</b>	<b>1,312,186</b>	<b>1,401,489</b>	<b>1,493,287</b>	<b>1,557,437</b>



# Chapter 2: Population and Water Demand Projections

## South Central Texas Region Water Demand Projections by Use Category (2030 to 2080)



## Next Steps



Technical Consultant completes draft chapters and provides to RWPG members for review



RWPG members provide comments to Technical Consultant



Technical Consultant revises chapter, as needed, and finalizes chapter for inclusion in 2026 Plan

# TOPIC C.3

## Water Management Strategy (WMS) Updates

## Water Management Strategies in the 2026 Plan



### Water Management Strategy (WMS)

A plan to meet a need for additional water by a discrete WUG, which can mean increasing the total water supply or maximizing an existing supply, including demand reductions.

- To add a WMS to the 2026 Regional Water Plan, WUGs can:
  - Provide initial, conceptual information to Region L's Technical Consultant
  - Consultant will either evaluate the WMS or get approval from the RWPG to allocate funds to evaluate the WMS
  - Consultant will evaluate the WMS and present to the RWPG
- Region L's Technical Consultant Information:
  - Lauren Gonzalez  
[GonzalezL@bv.com](mailto:GonzalezL@bv.com)  
512-782-4914

# Stakeholder Input on Water Management Strategies

## Have a project planned, but no identified water needs?

A WUG without identified water needs may request inclusion of a WMS.

The project sponsor should provide sufficient detail so that the WMS can be evaluated per TWDB requirements.

Generally, WMSs are included in Regional Water Plans to meet projected water needs

## It Pays to have your WMS recommended in the Plan

Certain types of State Funding are only eligible if a project is included in Regional & State Water Plans

# Schedule for Providing Project Information

Activity	Date	
Initiate process to add a new project or WMS	July 1, 2024	Technical Consultant Information to Add a WMS:  Lauren Gonzalez <a href="mailto:GonzalezL@bv.com">GonzalezL@bv.com</a> 512-782-4914
Provide all information to Technical Consultant for WMS evaluation	September 2, 2024	
Presentation to RWPG of all WMSs	November 7, 2024	

*We cannot guarantee we will be able to include a WMS in the 2026 Plan if information is provided after the deadlines*

# List of WMSs Identified to Date

1. Advanced Water Conservation
2. Non-municipal Water Conservation
3. Drought Management
4. Edwards Transfers
5. Fresh Groundwater Development
6. Brackish Groundwater Development
7. Groundwater Conversions
8. Surface Water Rights
9. Balancing Storage
10. Facilities Expansion
11. Recycled Water Strategies
12. Brush Management
13. Rainwater Harvesting
14. ARWA Project (Phase 2)
15. ARWA Project (Phase 3)
16. CRWA Wells Ranch (Phase 3)
17. CRWA Siesta Project
18. CRWA Expanded Brackish Carrizo-Wilcox Project
19. CVLGC Carrizo Project
20. GBRA WaterSECURE
21. GBRA Lower Basin New Appropriation
22. NBU ASR
23. NBU Trinity Well Field Expansion
24. SAWS Regional Wilcox Project
25. SAWS Expanded Local Carrizo Project
26. SAWS Expanded Brackish Groundwater Project
27. SSLGC Expanded Carrizo Project
28. SSLGC Expanded Brackish Wilcox Project
29. Victoria ASR
30. Victoria Groundwater-Surface Water Exchange
31. Additional WMSs, As Necessary

*All strategies must be evaluated to quantify the net quantity, reliability, cost, and impacts on environmental factors and agricultural resources.*

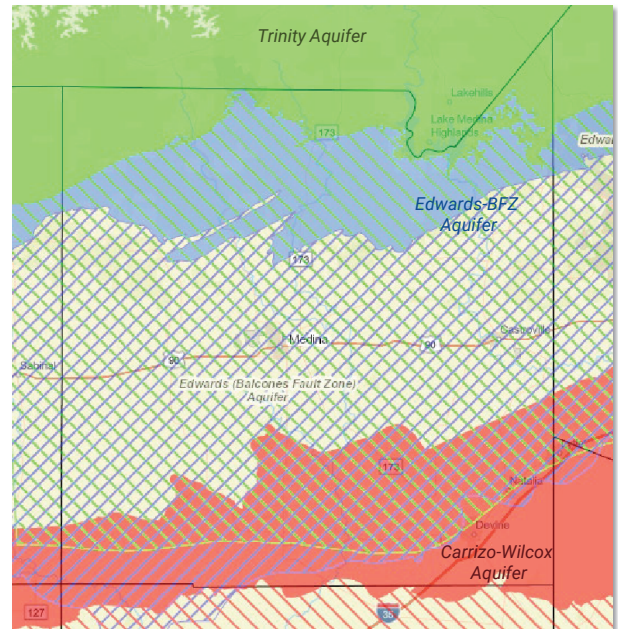
AGENDA ITEM NO.10 – CONSIDERATION AND APPROPRIATE ACTION FOR THE TECHNICAL CONSULTANT TO EVALUATE THE MEDINA COUNTY REGIONAL ASR PROJECT AS A NEW WATER MANAGEMENT STRATEGY

Agenda Item 10: Consideration and  
Appropriate Action for the Technical  
Consultant to Evaluate the Medina  
County Regional ASR Project as a New  
Water Management Strategy

# Medina County Regional Aquifer Storage & Recovery (ASR) Project

## Project Description

- **Project Sponsor(s):** Yancey WSC & East Medina County SUD
- **Source:** Various sources, including Edwards-BFZ Aquifer permits & surface water rights for Bexar Medina Atascosa WCID #1 (~20,000 acft/yr)
- **Storage:** 50,000 acft/yr in Trinity or Carrizo-Wilcox Aquifers
- **Yield:** 12,500 acft/yr
- **Facilities:**
  - Well fields for withdrawal and injection
  - Water treatment plant
  - Pump station(s)
  - Elevated & ground storage
  - Transmission pipeline



## Recommendation

### Consider Action to:



Approve the Technical Consultant to use Scope 5B funds to evaluate the Medina County Regional ASR Project as a New Water Management Strategy

AGENDA ITEM NO.11 – CONSIDERATION AND APPROPRIATE ACTION REGARDING THE PROPOSED MINOR AMENDMENT NO. 1 TO THE 2021 SOUTH CENTRAL TEXAS (REGION L) REGIONAL WATER PLAN TO UPDATE THE GUADALUPE-BLANCO RIVER AUTHORITY LOWER BASIN STORAGE PROJECT

- a. PUBLIC COMMENT REGARDING THE PROPOSED MINOR AMENDMENT NO. 1
- b. REVIEW AND CONSIDERATION OF COMMENTS RECEIVED FROM THE PUBLIC, TWDB, AND OTHER STATE OR FEDERAL AGENCIES
- c. CONSIDERATION AND APPROPRIATE ACTION TO ADOPT THE PROPOSED MINOR AMENDMENT NO. 1
- d. CONSIDERATION OF AUTHORIZING THE TECHNICAL CONSULTANT TO SUBMIT PROOF OF ADOPTION AND ANY COMMENTS TO TWDB AND TO ADDRESS ANY REQUESTS FROM TWDB ASSOCIATED WITH THE PROPOSED MINOR AMENDMENT NO. 1 ON BEHALF OF THE RWPG



## Agenda Item 11: Consideration and Appropriate Action Regarding the Proposed Minor Amendment No. 1 to the 2021 South Central Texas (Region L) Regional Water Plan to Update the Guadalupe-Blanco River Authority Lower Basin Storage Project

## Background of Minor Amendment

### FEBRUARY 14.

RWPG Approved:

- GBRA to pursue an amendment
- Submittal of a "Minor Amendment Determination Request" to TWDB

### APRIL 17.

TWDB Determined it to be a Minor Amendment

### MARCH 11.

Submitted Draft Minor Amendment with a Request for Minor Amendment Determination to TWDB

### MAY 2.

RWPG Considers Adopting Minor Amendment

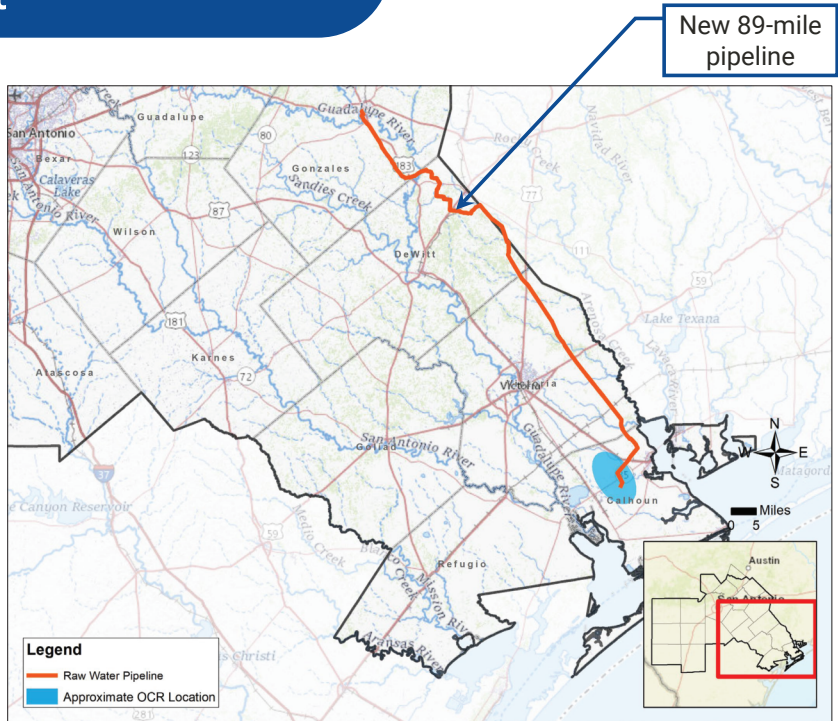
# Minor Amendment: GBRA Lower Basin Storage Project

## Need for Amendment

- Changed Conditions. Specifically, the project approach (new 89-mile pipeline) and schedule have changed since adoption of the 2021 RWP. Plan update is needed to apply for TWDB funding.

## Project Description

- Implementation Decade: 2020
- Source: GBRA/Dow Water Rights (172,501 acft/yr) and Off-Channel Reservoir (OCR) in Calhoun County to Firm Up Supply
- Yield: 59,780 acft/yr
- Facilities:
  - 12,700 acft Off-Channel Reservoir (OCR)
  - Pump Station
  - **\*New\*** 89-mile transmission pipeline



New 89-mile pipeline

## Environmental & Cultural Considerations

### Vegetation & Land Use 2

- Permanent conversion of terrestrial vegetation to reservoir use
- Opportunity to plant native species which are beneficial to native wildlife

### Aquatic Resources 2

- Pipeline crosses one river and multiple stream segments, including three ecologically significant stream segments designated by TPWD
- Project will require on-site delineation of streams; additional studies recommended

### Threatened, Endangered, & Species of Concern 2

- Suitable habitat may occur for federally endangered whooping crane, federal candidate black rail, and several state listed threatened species
- Site-specific assessments for whooping crane, Houston toad, Attwater's greater prairie-chicken, and other state-listed species will be required

### Cultural Considerations 2

- The likelihood of encountering unidentified archaeological resources varies by landforms; the landforms crossed in this project range from 13% to 62% likelihood
- Structured cultural resources survey of the final design plan is recommended

### ASSESSMENT RATING LEGEND

- 0** N/A
- 1** Minimal concerns; precautions recommended
- 2** Additional studies recommended

## WMS Cost Summary

Cost of Facilities	\$368,336,000
Total Project Costs	\$507,642,000
Annual Costs*	\$45,634,000
Project Yield (acft/yr)	59,780
Unit Costs (\$/acft/yr)	\$763

\* Includes debt service amortization at 3.5% for 20 years, reservoir debt service amortization at 3.5% for 40 years, O&M, and power costs

## Project Cost Estimate Summary

- 2018 dollars
- Developed using Uniform Costing Model (UCM) from TWDB
- Includes capital costs, annual debt service, operation and maintenance, power, land acquisition, and environmental mitigation

## Agenda Item 11.A: Public Comment Regarding the Proposed Minor Amendment No. 1

## Agenda Item 11.B: Review and Consideration of Comments Received from the Public, TWDB, and Other State or Federal Agencies

## Agenda Item 11.C: Consideration and Appropriate Action to Adopt the Proposed Minor Amendment No. 1

## Recommendation

### Consider Action to:



Adopt the Proposed Minor Amendment No. 1 to the 2021 Region L Regional Water Plan to Update the GBRA Lower Basin Storage Project

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**Agenda Item 11.D:**  
Consideration and Appropriate Action to Authorize the Technical Consultant to Submit Proof of Adoption and Any Comments to TWDB and to Address Any Requests from TWDB Associated with the Proposed Minor Amendment No. 1 on Behalf of the SCTRWPG

## Recommendation

### Consider Action to:



Authorize the Technical Consultant to submit proof of adoption and any comments to TWDB and to address any requests from TWDB associated with the Proposed Minor Amendment No. 1 on behalf of the SCTRWPG

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# Discussion

## Supplemental Information:

# Guiding Principles of the South Central Texas Regional Water Planning Group (SCTRWPG)



### PRINCIPLE I

#### Appropriateness and Adequacy of How Demand and Need are Determined

The SCTRWP generally defers to the TWDB on matters related to population and water demand projections. However, the SCTRWP retains the duty to review TWDB projections on a case by case basis. Where the SCTRWP finds a discrepancy in TWDB’s projections, and can adequately justify its findings by verifying one or more of the “criteria for adjustment,” TWDB – in consultation with TDA, TCEQ, and TPWD – may adjust population and/or water demand projections accordingly (see *generally General Guidelines for Development of the 2026 Regional Water Plan*). Consistent with Chapter 8 of the 2021 Regional Water Plan for Region L, the SCTRWP supports greater TWDB flexibility through relaxation of current methodological assumptions holding regional and state population projection totals fixed (see Chapter 8.9.3 *Population and Water Demand Projections*). Water demand projections used in developing the Regional Water Plan should be consensus figures arrived at by using TWDB data along with local input from the cities, counties, and groundwater districts.



## PRINCIPLE II

### Role of Regional Water Planning Groups in Influencing Population Growth and Land Use

Where the concepts of population growth and land use necessarily interrelate with the Regional Water Plan, the SCTRWPG shall, to the greatest extent possible, develop strategies to meet future projected demands. However, it is neither the role, nor the responsibility of the SCTRWPG to influence population growth or land use. While the SCTRWPG has a duty to remain cognizant of the sensitive relationship between the Regional Water Plan, population growth and land use, decisions concerning permitting and influencing population growth are inherently local, and remain wholly independent from the regional water planning process.



## PRINCIPLE III

### Role of Regional Water Planning Groups in Influencing Population Growth and Land Use

#### a) Active Planning Group Members

All disclosures pursuant to Article V, Section 6 of the SCTRWPG Bylaws, are the responsibility of the planning group member or designated alternate who has the potential conflict of interest. Therefore, disclosures are the responsibility of the planning group member or designated alternate. If the voting member chooses to abstain from participation in deliberations, decisions, or voting, pursuant to Article V, Section 6 of the SCTRWPG Bylaws, the reason for abstention shall be noted in the minutes.

#### b) Nomination Process

Where the SCTRWPG is soliciting nominations to fill vacancies on the planning group, nominators shall provide information regarding the nominee's current employer, and provide a description of the nominee's experience that qualifies him/her for the position in the interest group being sought to represent.

Additionally, nominees shall agree to abide by the Code of Conduct, which is incorporated in the SCTRWPG Bylaws (see SCTRWPG Bylaws, Article V, Section 6). As per the Bylaws, the Executive Committee will conduct an interview process whereby nominees will be evaluated. Prior to the interview, nominees will be provided a copy of the Bylaws. During the interview process, nominees will be asked if they are willing to agree to the Bylaws, and specifically, if they are willing to comply with the Code of Conduct.





## PRINCIPLE IV

### Role of the Planning Group in Influencing Water Development Plans of Water Suppliers

The role of the SCTRWPG is to ensure water needs are met with identified potentially feasible water management strategies. It is not the role of the SCTRWPG to influence or interfere with local water planning decisions. In the absence of a planning group recommended potentially feasible water management strategy to meet an identified need, the SCTRWPG may evaluate and report, as required, the social, environmental and economic impacts of not meeting the identified need.



## PRINCIPLE V

### Role of the Planning Group in Influencing Permitting Entities

Decisions made at the planning group level are non-regulatory, and are intended for planning purposes only. While some decisions made by the SCTRWPG could inevitably affect some decisions made by the governing boards of permitting entities, it is neither the responsibility, nor the role of the SCTRWPG to influence or interfere with the regulatory decisions made by the governing boards of permitting entities.



## PRINCIPLE VI

### Adequacy of Evaluating the Plan's Effects on Freshwater Inflows to San Antonio Bay, and the Adequacy of Environmental Assessments of Individual Water Management Strategies

The SCTRWPG's evaluation of the Plan's effect on instream flows and freshwater inflows to the San Antonio Bay, and Plan's environmental assessments of individual water management strategies are currently meeting the regulations and statutes for regional water planning. The SCTRWPG believes a structural reorganization of the data presented will benefit the understanding of the Plan's environmental assessments. The SCTRWPG will:

- a) Initiate environmental assessments earlier into the regional planning process;
- b) Eliminate environmental assessment comparisons of current plan to past plans;
- c) Consolidate threatened and endangered species information into the appendix rather than repeating in each water management strategy write-up;
- d) Update baseline year data to most current for potential impacts to vegetation and terrestrial habitat;
- e) Adjust distances for cultural resource sites;
- f) Include current conditions and streamflow protected by environmental flow standards in updated tabular form improving the way in which the data is presented;
- g) Include target flow regimes based on environmental freshwater inflow standards in updated tabular form improving the way in which the data is presented; and
- h) Include high level narrative of climate variability.

The SCTRWPG believes this environmental assessment structural reorganization will reflect realistic environmental impacts of the recommended water management strategies for both the public and planning group members.



## PRINCIPLE VII

### Minimum Standards for Water Management Strategies

For a proposed strategy to be designated by the SCTRWPG as a water management strategy in the regional water plan, the proposed strategy must:

- supply water, reduce water demands, or otherwise satisfy one or more identified needs;
- include an evaluation and description consistent with standards used by the SCTRWPG and its technical consultants as required by TWDB Rules;
- satisfy all relevant requirements established by the TWDB, including environmental flow standards;
- identify one or more entities, with sufficient ability and willingness to implement the strategy, as being the strategy's sponsor(s);
- identify all entities, as reasonably possible, who own any existing or planned infrastructure or existing permit that could be affected by the proposed strategy as being strategy participants; and
- identify groundwater conservation districts or TCEQ with jurisdiction over the proposed strategy.



## PRINCIPLE VIII

### Recommended Water Management Strategies

The SCTRWPG strives to develop a regional water plan that recommends water management strategies sufficient to supply water to all identified needs projected in the planning horizon for the region.

The SCTRWPG prefers designating water management strategies as recommended or alternative using a consensus approach while respecting the strategy sponsor(s)' wishes.

Prior to designating any water management strategies as recommended, the SCTRWPG will review the water management strategies to evaluate costs and environmental sensitivity of each water management strategy per TWDB Rules.



## PRINCIPLE IX

### Management Supply

The cumulative supply of the recommended water management strategies may include an amount of supply in excess of the amount needed to meet regional needs as considered necessary by the SCTRWPG to allow for such things as uncertainty associated with long-term planning, problems with project implementation, changing weather conditions, flexibility of sponsors in choosing projects to implement, and changes in project viability.

#### **Identified Needs without a Recommended Water Management Strategy**

For water needs that are not satisfied by recommended water management strategies, the SCTRWPG will provide a narrative explaining why the need is not satisfied.

#### **Alternative Strategies in the Regional Water Plan**

The SCTRWPG will include alternative water management strategies that sponsors wish to have identified as alternatives to one or more of their recommended water management strategies.

#### **Conceptual Approaches (Water Management Strategies Needing Further Study) in the Regional Water Plan**

The SCTRWPG will acknowledge conceptual and innovative approaches to developing water supplies, reducing water demand, and increasing efficiency of supplying water as may be proposed by others, but need further study.



## PRINCIPLE X

### Role of Reuse Within the Regional Water Plan

The SCTRWPG generally defers to the TWDB rules for regional water planning as contained in the TAC on matters related to surface water supply analysis. For surface water supply analysis, the SCTRWPG will use the most current Water Availability Models from the TCEQ to evaluate supplies, as required by section 357.32 (c) of the TAC. As per section 357.32 of the TAC, the SCTRWPG will assume full utilization of existing water rights and no return flows when using Water Availability Models.

The SCTRWPG agrees that effluent will be depicted in the Regional Water Plan only in cases of direct and/ or indirect reuse water management strategies, or where a preexisting contract for the supply of reuse is in place. Additionally, the SCTRWPG will not use effluent in the estimates of cumulative effects absent a direct and/or indirect reuse water management strategy or a preexisting contract



## PRINCIPLE XI

### Identifying Special Studies or Evaluations Deemed Important to Enhance the 2026 Plan, the Identification of Outside Funding Sources, and the Extent to Which Innovative Strategies Should Be Used

The SCTRWPG recognizes that there are no identifiable outside funding sources for special studies or evaluations. However, the SCTRWPG remains willing to consider evaluating any proposed water management strategies and special studies allowable under section 357.34 of the TAC.

FINAL DRAFT

# MINOR AMENDMENT NO. 1 OF THE 2021 SOUTH CENTRAL TEXAS (REGION L) REGIONAL WATER PLAN

Lower Basin Storage Project,  
Guadalupe-Blanco River Authority

B&V PROJECT NO. 418064

PREPARED FOR

South Central Texas (Region L) Regional Water  
Planning Group

18 APRIL 2024



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## ATTACHMENTS

Attachment A	Transmittal Letter to TWDB of Proposed Amendment and Request for Minor Amendment Determination
Attachment B	TWDB Response Letter with Minor Amendment Determination
Attachment C	Updated State Water Planning Database (DB22) Reports
Attachment D	Notice of Public Comment and Public Meeting for Region L to Consider and Adopt Minor Amendment
Attachment E	Agency and Public Comments and Responses

## INTRODUCTION

The South Central Texas (Region L) Regional Water Planning Group (SCTRWPG) is responsible for preparing the Region L Regional Water Plan. At the Regional Water Planning Group (RWPG) meeting on February 14, 2024, the SCTRWP received a presentation from the Guadalupe-Blanco River Authority (GBRA), requesting authorization to pursue an amendment of the 2021 Region L Regional Water Plan (RWP) to modify the GBRA Lower Basin Storage Project, which was included as a recommended water management strategy (WMS) in the 2021 RWP. The SCTRWP considered the request and took action to approve submittal of a minor amendment determination request to the TWDB and approve pursuit of an amendment to the 2021 RWP to modify GBRA's Lower Basin Storage Project.

The amendment was requested by GBRA due to changed conditions. Specifically, the project approach and schedule have changed since adoption of the 2021 RWP. The Lower Basin Storage Project, as described in the 2021 RWP, includes an intake structure and off-channel reservoir (OCR) to firm up the existing surface water rights in the lower Guadalupe-San Antonio River Basin. The 2021 RWP included a 1-mile raw water transmission pipeline; however, GBRA now plans to include an 89-mile pipeline from Calhoun County to Gonzales County. Additionally, the project schedule has been accelerated to meet water supply needs in the region because of significant population and water demand growth. As such, GBRA intends to apply for State Water Implementation Fund for Texas (SWIFT) funding from the Texas Water Development Board (TWDB) to initiate planning, land acquisition, and design of the water supply project. In order to be eligible for SWIFT funding, the 89-mile raw water transmission pipeline would need to be integrated into the 2021 RWP as an infrastructure component of the GBRA Lower Basin Storage Project WMS.

The addition of the 89-mile raw water transmission pipeline would connect the GBRA Lower Basin Storage Project to the GBRA Mid-Basin (Phase 2) Project, which is also included as a recommended WMS in the 2021 RWP. No modifications are proposed for the GBRA Mid-Basin (Phase 2) Project for the 2021 RWP amendment.

The purpose of this amendment is to identify and document plan sections that are changed as a result of adding the raw water transmission pipeline to the GBRA Lower Basin Storage Project. These changes are limited to environmental considerations, cultural considerations, engineering and costing, and implementation considerations. There are no proposed revisions to the project's firm yield, water availability modeling, allocation of supplies to customers, or OCR size, capacity, or location. Furthermore, the amendment:

- A. does not result in over-allocation of an existing or planned source of water;
- B. does not relate to a new reservoir;
- C. does not increase unmet needs or produce new unmet needs in the adopted RWP;
- D. does not have a significant effect on instream flows, environmental flows or freshwater flows to bays and estuaries;
- E. does not have a significant substantive impact on water planning or previously adopted management strategies; and
- F. does not delete or change any legal requirements of the plan.



## MODIFICATIONS AND ADDITIONS TO THE 2021 SOUTH CENTRAL TEXAS REGIONAL WATER PLAN

The following are changes proposed to the various chapters of the 2021 SCTRWP in order to revise the GBRA Lower Basin Storage Project as a Water Management Strategy, sponsored by the Guadalupe-Blanco River Authority. **Insertions** are shown as underlined text, **deletions** in ~~strikethrough text~~.

### EXECUTIVE SUMMARY

#### A.ES.1 MODIFICATION TO SECTION ES.7, PAGE ES-12

■ Surface Water

- GBRA Lower Basin Storage Project – Projected to supply 59,780 acft/yr in 2070 with an annual unit cost of \$~~49~~ 763/acft

#### A.ES.2 MODIFICATION TO TABLE ES-3, PAGE ES-13

Table ES-3 Water Management Strategy Supplies by Decade (acft/yr)

NO.	WMS	2020	2030	2040	2050	2060	2070	ANNUAL UNIT COST (\$/ACFT)
1.	Advanced Water Conservation	29,382	64,038	96,760	120,884	143,799	167,148	Varies <sup>1</sup>
2.	Drought Management <sup>2</sup>	14,176	31,476	45,677	49,377	53,109	56,588	94
3.	Edwards Transfers	5,328	5,814	5,622	5,795	5,770	5,906	1,242
4.	Local Groundwater	11,084	15,226	19,913	22,653	26,388	28,240	Varies
5.	Local Groundwater Conversions <sup>3</sup>	--	--	--	--	--	--	--
6.	Surface Water Rights	--	--	--	--	--	--	--
7.	Balancing Storage	--	--	--	--	--	--	--
8.	Facilities Expansion	7,914	96,288	99,217	98,454	95,834	95,675	Varies
9.	Recycled Water Strategies	3,316	10,443	11,003	26,268	36,828	52,388	Varies
10.	SAWS Expanded Local Carrizo Project	-	-	21,000	21,000	21,000	21,000	120
11.	SAWS Expanded Brackish Groundwater Project	-	-	20,160	20,160	70,160	70,160	1,269



NO.	WMS	2020	2030	2040	2050	2060	2070	ANNUAL UNIT COST (\$/ACFT)
12.	ARWA/GBRA Project (Phase 1)	30,000	30,000	30,000	30,000	30,000	30,000	1,076
13.	ARWA Project (Phase 2)	-	-	20,999	20,999	20,999	20,999	635
14.	ARWA Project (Phase 3)	-	-	-	-	5,494	5,494	2,001
15.	GBRA Mid-Basin Project (Phase 2)	-	27,000	27,000	27,000	27,000	27,000	1,492
16.	GBRA Lower Basin Storage Project	59,780	59,780	59,780	59,780	59,780	59,780	<del>110</del> 763
17.	GBRA Lower Basin New Appropriation	40,500	40,500	40,500	40,500	40,500	40,500	658
18.	GBRA Victoria County Steam-Electric Project	23,925	23,925	23,925	23,925	23,925	23,925	552
19.	CRWA Wells Ranch Phase 3 Project	3,500	7,000	7,000	7,000	7,000	7,000	1,330
20.	CRWA Siesta Project	-	-	-	-	5,042	5,042	2,470
21.	CRWA Brackish Carrizo-Wilcox Project	-	14,700	14,700	14,700	14,700	14,700	1,595
22.	CVLGC Carrizo Project	-	10,000	10,000	10,000	10,000	10,000	1,230
23.	SSLGC Expanded Carrizo Project	6,000	6,000	6,000	6,000	6,000	6,000	1,207
24.	SSLGC Expanded Brackish Wilcox Project	-	-	5,000	5,000	5,000	5,000	663
25.	NBU ASR Project	10,818	10,818	10,818	10,818	10,818	10,818	462
26.	NBU Trinity Well Field Expansion	-	3,360	3,360	3,360	3,360	3,360	685
27.	City of Victoria ASR Project	7,900	7,900	7,900	7,900	7,900	7,900	385
28.	City of Victoria Groundwater-Surface Water Exchange	8,544	8,544	8,544	8,544	8,544	8,544	N/A
29.	SS WSC Brackish Wilcox Groundwater Project	-	-	-	-	1,120	1,120	2,911
30.	Martindale WSC New Alluvial Well	-	240	240	240	240	240	463

NO.	WMS	2020	2030	2040	2050	2060	2070	ANNUAL UNIT COST (\$/ACFT)
31.	Maxwell WSC Trinity Well	-	-	230	230	230	230	4,261
32.	County Line SUD Trinity	-	-	-	500	740	740	2,888
33.	County Line SUD Brackish Edwards	-	-	-	500	1,000	1,500	3,610

<sup>1</sup> Annual unit costs varied by WUG service area description: Urban - \$600/acft; Suburban - \$681/acft; and \$770/acft

<sup>2</sup> Supplies in decades 2030 through 2070 only relate to SAWS

<sup>3</sup> Supply volume is accounted for in Local Groundwater WMS

## CHAPTER 5

### A.5.1 MODIFICATION TO SECTION 5.1.16, PAGE 5.1-12

#### 5.1.16 GBRA Lower Basin Storage Project

The GBRA and Dow Chemical Company (Dow), individually and collectively, own surface water rights in the lower Guadalupe-San Antonio River Basin (the GBRA/Dow Water Rights) authorizing diversions from the run-of-river flow of the Guadalupe River totaling 172,501 acft/yr. To firm up the run-of-river supplies of water available under the GBRA/Dow Water Rights, a 12,763 acft off-channel reservoir is considered for implementation beginning in the 2020 decade. The estimated project firm yield is 59,780 acft/yr. The annual cost is estimated to be ~~\$6,603,000~~ 45,634,000, and the annual unit cost is estimated to be ~~\$110~~ 763 per acft.

Subsection 5.2.16 includes a detailed discussion of this recommended WMS.

### A.5.2 MODIFICATION TO SECTION 5.2.16, PAGE 5.2.16-1

To firm up the run-of-river supplies of water available under the GBRA/Dow Water Rights, an OCR near the GBRA Main Canal and Dow Seadrift Operations facilities is considered for implementation in the 2020 decade. Although a final site has yet to be selected, the approximate area of the OCR is shown on Figure 5.2.16-1, approximately 3 miles east of Green Lake. The OCR is assumed to be a ring dike structure with an approximate water depth of 25 feet, capable of impounding approximately 12,763 acft of water. A pressure pipeline would transport water diverted from the GBRA Main Canal to the OCR site, and a ~~gravity outlet~~ transmission pipeline would ~~convey return~~ stored water to ~~the a facility adjacent to the intake structure that will be built as part of the GBRA Mid-Basin Project (Phase 2) (See Section 5.2.15 for a detailed discussion of the recommended WMS), that would allow for integration of the two WMSs.~~ GBRA Main Canal. GBRA has obtained water rights permits for this project.

### A.5.3 MODIFICATION TO FIGURE 5.2.16-1, PAGE 5.2.16-2

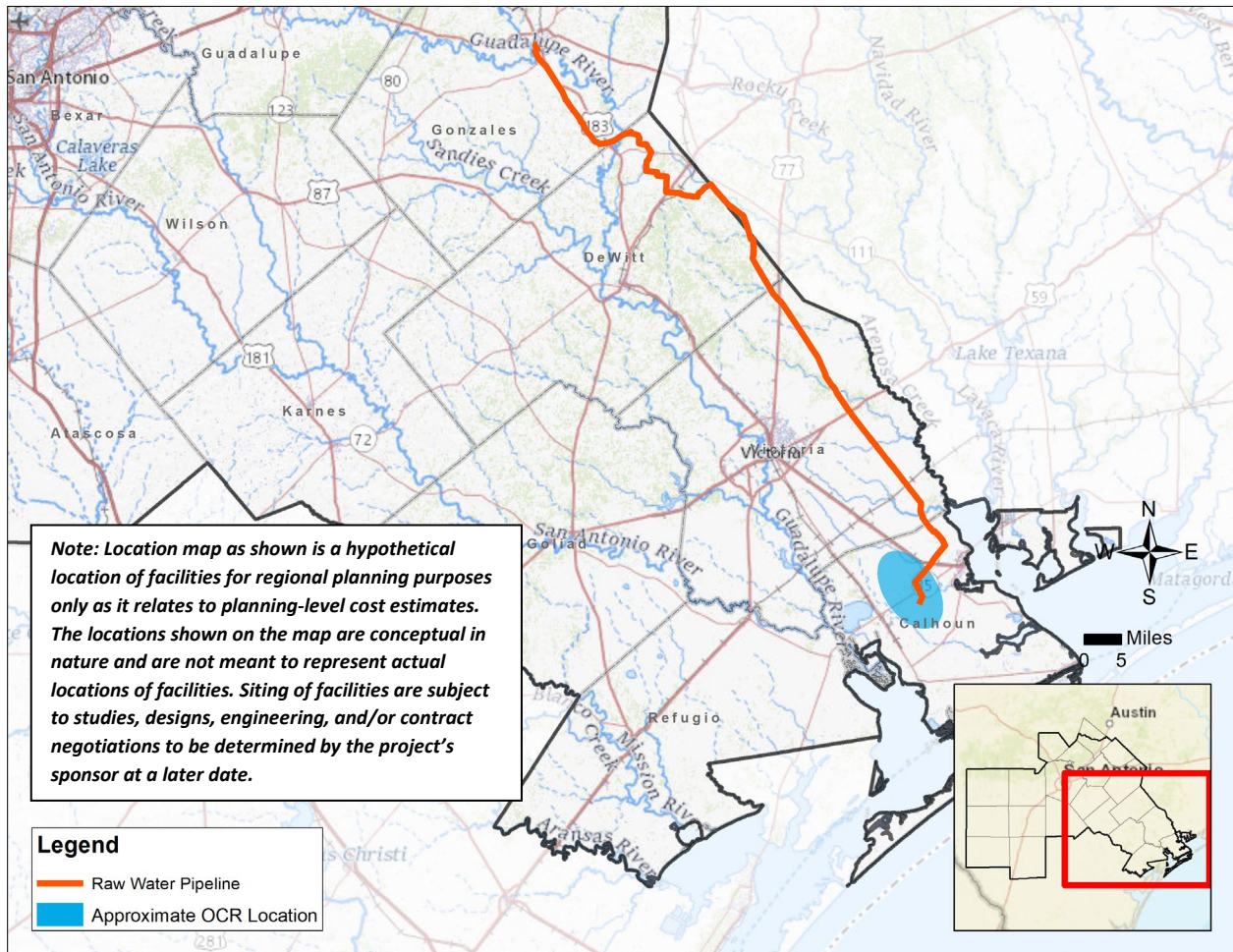


Figure 5.2.16-1 GBRA Lower Basin Storage Site Location

### A.5.4 MODIFICATION TO SECTION 5.2.16.3, PAGE 5.2.16-3

#### Environmental Considerations

##### Vegetation and Land Use

The project areaapproximate OCR area is located in the Western Gulf Coastal Plain ecoregion and lies within a variety of vegetation types, predominantly croplands, pastures, shrublands, and wetlands. A large chemical plant and associated water basins and railway lie within the project area. In addition, the transmission pipeline to the GBRA Mid-Basin Project (Phase 2) traverses the East Texas Central Plains ecoregion and the Texas Blackland Prairies ecoregion. As mapped by TPWD,<sup>1</sup> dominant vegetation types in the project area are coastal prairie, row crops, open water, and invasive evergreen shrubland. As it

<sup>1</sup> TPWD. 2019. Ecological Mapping Systems of Texas. <https://tpwd.texas.gov/landwater/land/programs/landscape-ecology/ems/>.

[crosses into the East Texas Central Plains and Blackland Prairies, the transmission pipeline alignment also crosses post oak savannah grassland and blackland prairie disturbance or tame grassland.](#) The project contains riparian vegetation zones, mapped by TPWD as riparian grassland, riparian evergreen and deciduous shrublands, riparian hardwood forest, riparian live oak forest, and riparian live oak/hardwood forest; [with the transmission pipeline alignment also crossing significant areas of central Texas floodplain hardwood forest and floodplain herbaceous vegetation communities.](#)

Based on TPWD vegetation mapping, the project may have the potential to impact 11,901 acres of agricultural resources mapped as row crops. The [approximate OCR project](#) area also contains 8,003 acres mapped as coastal prairie [that](#) may include pasture areas used for grazing or hay production. [The transmission pipeline alignment includes an additional 157 acres of area mapped as row crops. The alignment also includes 279 acres mapped as coastal prairie and 95 acres mapped as blackland prairie disturbance or tame grassland which may be used for grazing or hay production.](#)

Construction of the project reservoir would result in permanent conversion of terrestrial vegetation, including agricultural lands, to reservoir use. The project pipeline easements would require the removal of woody vegetation and long-term maintenance (mowing, woody vegetation clearing) to maintain easement access. Herbaceous vegetation would be expected to quickly re-establish within pipeline easements once construction has been completed. Revegetation of easements and other disturbed areas provides the opportunity to plant native species that are beneficial to native wildlife. Revegetation plans are typically completed during preliminary studies and design phases of projects. It is up to the sponsors of each water management strategy to determine the best course of action regarding revegetation.

### **Aquatic Resources**

The project is located between San Antonio Bay and Matagorda Bay, [with the transmission pipeline extending generally to the northwest to Gonzales.](#) A network of irrigation ditches and East and West Coloma creeks traverse the [approximate OCR project](#) area. These two creeks appear to be channelized and eventually flow into Matagorda Bay. [The project pipeline alignment crosses numerous mapped streams and their associated floodplains, including the Guadalupe River.](#) Operational water basins associated with a chemical plant occur on the western side of the project region. NWI mapping shows 1,257 acres of emergent and forested/shrub wetlands and ponds, lakes, and riverine wetlands in the [approximate OCR project](#) area. [The transmission pipeline alignment includes an additional 19.5 mapped acres of these wetland types. During planning and design of the project, GBRA intends to seek alternatives to avoid impacts to wetland resources wherever possible.](#)

[The project pipeline crosses four stream segments that have been designated as impaired in the Texas Integrated Report of 303\(d\) listed water bodies.<sup>2</sup> This list identifies the water bodies or segments in Texas that do not meet assigned water quality standards. The impaired water bodies in the pipeline alignment are Big Brushy Creek \(stream segment 1602A, from the confluence with Clarks Creek in Lavaca County upstream to the confluence with an unnamed tributary just downstream of the Loop 51 \[US B77\] bridge crossing\), Guadalupe River below the San Marcos River \(stream segment 1803, from immediately upstream of the confluence of the San Antonio River to upstream of the confluence of the San Marcos](#)

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<sup>2</sup> Texas Commission on Environmental Quality. 2018. 2016 Texas Integrated Report of Surface Water Quality for the Clean Water Act Section 305(b) and 303(d). [https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/16txir/2016\\_303d.pdf](https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/16txir/2016_303d.pdf).

River in Gonzales County), Arenosa Creek (stream segment 2453C, from Garcitas Creek confluence upstream to J-2 Ranch Road), and Garcitas Creek above tidal (stream segment 2453E, from the confluence with Mercado Creek upstream to the headwaters near the intersection of DeWitt CR 114 and CR 110). During planning and design of the project, GBRA intends to seek alternatives to avoid impacts to aquatic resources wherever possible.

The project pipeline crosses three water bodies that have been designated as ecologically significant stream segments by TPWD. No streams designated as impaired stream segments in the Texas Integrated Report of 303(d)-listed water bodies occur in the project area.<sup>3</sup> This list identifies the water bodies or segments in Texas that do not meet assigned water quality standards. No ecologically significant stream segments designated by TPWD occur in the project area. Garcitas Creek, from its confluence with Lavaca Bay in Victoria/Jackson/ Calhoun County upstream to FM 1315 in Victoria County, was designated because of the presence of estuarine wetlands, high water quality/high aesthetic value, and occurrence of rare Texas palmetto palm (*Sabal mexicana*) and diamondback terrapin (*Malaclemys terrapin*). The Guadalupe River, from US 183 in Gonzales County upstream to Lake Gonzales Dam in Gonzales County (stream segments 1803 and 1804), was designated due to known populations of the Guadalupe orb freshwater mussel (*Cyclonaias necki*). Another segment of the Guadalupe River, from its confluence with Guadalupe Bay in Calhoun/Refugio County upstream to FM 447 in northwest Victoria County (stream segment 1801 and part of 1803), was designated due to the presence of extensive freshwater and estuarine wetland habitat, including the 7,410-acre Guadalupe Delta Wildlife Management Area. This river segment also contains extensive marshland that provides habitat for the federally endangered whooping crane (*Grus americana*).<sup>4</sup>

The project will require an on-site delineation of streams, ponds, and wetlands. Stream crossings for pipeline construction would result in temporary stream impacts that ~~would~~ may require USACE permitting. Pipeline stream crossings are typically covered by USACE Nationwide Permit 12, Utility Line Activities. A preconstruction notification to the USACE is required under certain conditions, including if there would be permanent impacts to over 0.1 acre of waters of the United States. The USACE permit requires that there will be no change in pre-construction contours of waters of the United States. Utility crossings under streams (e.g., through horizontal directional drilling) would not require a USACE permit. Although the proposed project is an off-channel reservoir, streams/wetlands affected by reservoir development, if applicable, would require appropriate USACE permitting depending on impacts. During planning and design of the project, GBRA intends to seek alternatives to avoid impacts to aquatic resources wherever possible.

### Threatened, Endangered, and Species of Concern

Table 5.2.16-2 provides a summary of threatened, endangered, and candidate species and species of

<sup>3</sup> Texas Commission on Environmental Quality. 2018. 2016 Texas Integrated Report of Surface Water Quality for the Clean Water Act Section 305(b) and 303(d). <https://www.tceq.texas.gov/assets/public/waterquality/swqm/assess/16txir/2016-303d.pdf>.

<sup>4</sup> TPWD. 2024. Ecologically Significant Stream Segments – Water Planning Data for Region L (South Central Texas). [https://tpwd.texas.gov/landwater/water/conservation/water\\_resources/water\\_quantity/sigsegs/regionl.phtml](https://tpwd.texas.gov/landwater/water/conservation/water_resources/water_quantity/sigsegs/regionl.phtml).



concern that may occur in Calhoun County<sup>5</sup> <sup>6</sup>. Suitable foraging habitat for the federally endangered whooping crane (*Grus americana*) may occur in or fly over the project area. The only natural flock of whooping cranes winters mainly in and adjacent to Aransas National Wildlife Refuge (ANWR) along the central Texas coast in Aransas, Calhoun, and Refugio Counties.<sup>7</sup> The project area occurs approximately 12 miles north of the ANWR. Furthermore, the project area occurs approximately 8.5 miles north of federally designated critical habitat for the whooping crane. Habitat for the black rail (*Laterallus jamaicensis*), a species proposed to be listed as federally threatened, may occur within wetlands in the project area. This species is not currently listed as federally threatened but may be listed in the future. Habitat for other federally threatened or endangered species does not occur in the project region.

Suitable habitat may occur for state-listed threatened species including wood stork (*Mycteria americana*), bald eagle (*Haliaeetus leucocephalus*), and Texas horned lizard (*Phrynosoma cornutum*). The wood stork and bald eagle would only be expected to forage within the project area. Potentially suitable habitat may occur for numerous wildlife, plant, and insect species designated by TPWD as SGCN. These species do not have formal protected status but are being monitored by TPWD. Migratory birds may occur in the project area, particularly in riparian zones and wetland areas.

[The transmission pipeline crosses portions of Gonzales, DeWitt, Lavaca, and Victoria Counties in addition to Calhoun County. Federally threatened or endangered species that could occur along the pipeline alignment in these counties include Attwater's greater prairie-chicken \(\*Tympanuchus cupido attwateri\*\), Houston toad \(\*Bufo houstonensis\*\), and two native freshwater mussels that are proposed for federal listing as endangered species: false spike \(\*Fusconia mitchelli\*\) and Guadalupe orb \(\*Cyclonaias necki\*\). Proposed critical habitat for the two mussel species occurs within the Guadalupe River at the pipeline alignment.](#)

[In addition to the species discussed above, suitable habitat may occur for state-listed threatened species along the pipeline alignment, including Texas tortoise \(\*Gopherus berlandieri\*\) and Cagle's map turtle \(\*Graptemys caglei\*\). Potentially suitable habitat may occur for numerous wildlife, plant, and insect species designated by TPWD as SGCN.](#)

A site-specific assessment of the potential for [the whooping crane, Houston toad, and Attwater's greater prairie-chicken](#) to utilize the project area would be required. [Surveys for protected aquatic species may be required if water bodies would be impacted by project construction.](#) Additionally, site-specific field surveys would be required to determine the quality of habitat for state-listed species. Coordination with TPWD may be required to mitigate species impacts. If TWDB funding/financing will be used for the project, formal coordination with TPWD will likely be required to obtain recommendations on minimizing impacts to protected species and sensitive habitats. If suitable habitat occurs, TPWD may request preconstruction surveys to search for and relocate any protected species that occur in the project area.

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<sup>5</sup> Texas Parks and Wildlife Department. 2019. Annotated County Lists of Rare Species – Calhoun County. Last Update: July 17, 2019. <https://tpwd.texas.gov/gis/rtest/>.<sup>5</sup>

<sup>6</sup> U.S. Fish and Wildlife Service. 2019. Information for Planning and Consultation Resource List – Calhoun County. <https://ecos.fws.gov/ipac/location/4AS27B7475G4TDN27NPEFF2FYY/resources>.

<sup>7</sup> Canadian Wildlife Service and U.S. Fish and Wildlife Service 2007. International Recovery Plan for the Whooping Crane. Ottawa: Recovery of Nationally Endangered Wildlife, and USFWS, Albuquerque, New Mexico.

The federal MBTA protects birds, nests, and eggs from impacts unless permitted by USFWS. TPWD recommendations for project due diligence typically include a recommendation to conduct preconstruction nest surveys or avoid vegetation clearing during the general bird nesting season of March 15 to September 15. Preconstruction surveys for active bird nests are recommended.

**Table 5.2.16-2 Summary of Potential Habitat and Anticipated Impacts to Threatened, Endangered, and Rare Species for GBRA Lower Basin Project, Calhoun County, Texas**

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	SUITABLE HABITAT	POTENTIAL IMPACTS
<b>Amphibians</b>					
Black-spotted newt	<i>Notophthalmus meridionalis</i>	N/A	T	May be found in resacas and bodies of water with firm bottoms and little or no vegetation. Wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; the absence of predatory fish is probably important. Aestivates in the ground during dry periods; Gulf Coastal Plain south of the San Antonio River.	Suitable habitat may occur within the project area.
<a href="#">Houston toad</a>	<a href="#">Bufo houstonensis</a>	<u>E</u>	<u>E</u>	<a href="#">Primary terrestrial habitat is forests with deep sandy soils. Juveniles and adults may move through areas of less suitable soils using riparian corridors. Aquatic habitats can include any size water body.</a>	<a href="#">Suitable habitat may occur in project area in Lavaca County.</a>
Sheep frog	<i>Hypopachus variolosus</i>	N/A	T	Predominantly grassland and savannah; largely fossorial in areas with moist microclimates.	Suitable habitat may occur within the project area.
Southern crawfish frog	<i>Lithobates areolatus</i>	N/A	SGCN	Found in abandoned crawfish holes and small mammal burrows, shallow water, herbaceous wetland, riparian, temporary pools, cropland/hedgerow, grassland/herbaceous, suburban/orchard, woodland – conifer.	Suitable habitat may occur within the project area.
Strecker's chorus frog	<i>Pseudacris streckeri</i>	N/A	SGCN	Wooded floodplains and flats, prairies, cultivated fields, and marshes. Likes sandy substrates.	Suitable habitat may occur within the project area.
Woodhouse's toad	<i>Anaxyrus woodhousii</i>	N/A	SGCN	May use a variety of habitat types up to 5,000 feet elevation.	Suitable habitat may occur within the project area.

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	SUITABLE HABITAT	POTENTIAL IMPACTS
<b>Birds</b>					
<a href="#">Attwater's greater prairie-chicken</a>	<a href="#">Tympanuchus cupido attwateri</a>	E	E	<a href="#">Open prairies of mostly thick grass one to three feet tall; sandhill country with bunch grass, sage, and shinnery oak. From near sea level to 200-foot elevation along coastal plain on upper two-thirds of Texas coast; breeding February-July.</a>	<a href="#">Suitable habitat may occur in native prairie within project area.</a>
Bald eagle	<i>Haliaeetus leucocephalus</i>	N/A	T	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water.	Suitable nesting habitat does not occur in project area; may fly over and forage within the project area during migration and in the winter.
<a href="#">Black skimmer</a>	<a href="#">Rynchops niger</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Nest in open sandy areas, gravel or shell bars with sparse vegetation, or broad mats of dead vegetation in saltmarsh. Forage in tidal waters of bays, estuaries, lagoons, creeks, rivers, ditches, and saltmarsh pools.</a>	<a href="#">Suitable habitat may occur in project area near coast.</a>
Black rail	<i>Laterallus jamaicensis</i>	PT	SGCN	Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh.	Suitable habitat may occur within the project area.
<a href="#">Chestnut-collared longspur</a>	<a href="#">Calcarius ornatus</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Open shortgrass settings, especially in patches with some bare ground. Also grain sorghum fields and agricultural reserve lands.</a>	<a href="#">Suitable habitat may occur in project area.</a>
Franklin's gull	<i>Leucophaeus pipixcan</i>	N/A	SGCN	Nests around lakes and marshes; may use fields and beaches during migration.	Suitable habitat does not occur in project area; may fly over during migration.
<a href="#">Mountain plover</a>	<a href="#">Charadrius montanus</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Nests on high plains or shortgrass prairie. Forages on shortgrass plains and bare, plowed fields.</a>	<a href="#">Suitable habitat may occur in project area.</a>
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	E	E	Open country, especially savannah and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species.	Suitable habitat does not occur in project area; may fly over during migration.



SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	SUITABLE HABITAT	POTENTIAL IMPACTS
Piping plover	<i>Charadrius melodus</i>	T	T	Winters along the Texas coast where it can be found on barrier islands and beaches or mudflats.	Suitable habitat does not occur in project area; may fly over during migration.
Reddish egret	<i>Egretta rufescens</i>	N/A	T	Brackish marshes, shallow salt ponds, and tidal flats along Texas Gulf Coast; nests on dry coastal islands.	Suitable habitat does not occur in project area; may fly over during migration.
Red knot	<i>Calidris canutus rufa</i>	T	SGCN	Breeds in drier tundra areas, such as sparsely vegetated hillsides. Outside of breeding season, it is found primarily in intertidal, marine habitats, especially near coastal inlets, estuaries, and bays.	Suitable habitat does not occur in project area; may fly over during migration.
<a href="#">Sprague's pipit</a>	<a href="#">Anthus spragueii</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Pastures and weedy fields, including grasslands with dense herbaceous vegetation or grassy agricultural fields.</a>	<a href="#">Suitable habitat may occur in project area.</a>
Swallow-tailed kite	<i>Elanoides forficatus</i>	N/A	T	Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall trees in clearing or on forest woodland edge.	Suitable habitat does not occur in project area; may fly over during migration.
Tropical kingbird	<i>Tyrannus melancholicus</i>	N/A	SGCN	Open to semi-open habitat from savannahs to agricultural fields, also parks and neighborhoods.	Suitable habitat may occur in project area.
Tropical parula	<i>Setophaga pitiayumi</i>	N/A	T	Semi-tropical evergreen woodland along rivers and resacas.	Suitable habitat does not occur in project area; may fly over during migration.
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	N/A	SGCN	Open grasslands and savannahs; may use open areas such as vacant lots, nests and roosts in abandoned burrows.	Suitable habitat may occur in project area; may occur in the project area in the winter.
White-faced ibis	<i>Plegadis chihi</i>	N/A	T	Irrigated rice fields, sloughs, and freshwater marshes; will attend brackish and saltwater habitats; confined to near-coastal rockeries.	Suitable habitat may occur in project area.

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	SUITABLE HABITAT	POTENTIAL IMPACTS
White-tailed hawk	<i>Buteo albicaudatus</i>	N/A	T	Near coast on prairies, cordgrass flats, and scrub live oak; further inland on prairies, mesquite and oak savannahs, and mixed savannah-chaparral.	Suitable habitat may occur in project area.
Whooping crane	<i>Grus americana</i>	E	E	Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties. Roost predominantly in palustrine or riverine wetland systems (during migration).	Suitable foraging habitat may occur in the project area; may fly over during migration.
Wood stork	<i>Mycteria americana</i>	N/A	T	Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water. No breeding records in Texas since 1960.	Suitable foraging habitat may occur in project area.
<b>Fishes</b>					
Alligator gar	<i>Atractosteus spatula</i>	N/A	SGCN	Found in rivers, streams, lakes, swamps, bayous, bays, and estuaries typically in pools and backwater habitats. Floodplains inundated with flood waters provide spawning and nursery habitats.	Suitable habitat does not occur in project area.
<a href="#">American eel</a>	<a href="#">Anquilla rostrata</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Broad range of habitat conditions including slow- and fast-flowing waters over many substrate types.</a>	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Burrhead chub</a>	<a href="#">Macrhybopsis marconis</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Guadalupe River: flowing water over coarse sand and fine gravel substrates in medium to large streams; found to be most abundant in riffles over large gravel and cobble.</a>	<a href="#">Suitable habitat may occur in Guadalupe River and tributaries within project area.</a>
<a href="#">Fountain darter</a>	<a href="#">Etheostoma fonticola</a>	<a href="#">E</a>	<a href="#">E</a>	<a href="#">Known only from the spring-fed San Marcos and Comal rivers in dense beds of aquatic plants growing close to bottom.</a>	<a href="#">Project is outside species' range.</a>

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	SUITABLE HABITAT	POTENTIAL IMPACTS
<a href="#">Guadalupe bass</a>	<a href="#">Micropterus treculii</a>	N/A	SGCN	<a href="#">Guadalupe River Basin. Typically lentic environments but commonly observed in flowing water; usually found in spring-fed streams with clear water and relatively consistent temperatures.</a>	<a href="#">Suitable habitat may occur in Guadalupe River and tributaries within project area.</a>
<a href="#">Guadalupe darter</a>	<a href="#">Percina apristis</a>	N/A	I	<a href="#">Guadalupe River Basin. Riffles; most common under or around 25-30 cm boulders in the main current; seems to prefer moderately turbid water.</a>	<a href="#">Suitable habitat may occur in Guadalupe River and tributaries within project area.</a>
<a href="#">Medina roundnose minnow</a>	<a href="#">Dionda nigrotaeniata</a>	N/A	I	<a href="#">Upper Medina River system. Primarily restricted to clear spring-fed waters that have slight temperature variations.</a>	<a href="#">Project is outside species' range.</a>
<a href="#">Oceanic whitetip shark</a>	<a href="#">Carcharhinus longimanus</a>	N/A	I	<a href="#">Marine habitats.</a>	<a href="#">Suitable habitat does not occur in project area.</a>
Opossum pipefish	<i>Microphis brachyurus</i>	N/A	T	Brooding adults found in fresh or low salinity waters and young move or are carried into more saline waters after birth; southern coastal areas.	Suitable habitat does not occur in project area.
Saltmarsh topminnow	<i>Fundulus jenkinsi</i>	N/A	SGCN	Salt marsh, tidal meanders.	Suitable habitat does not occur in project area.
<a href="#">Shortfin mako shark</a>	<a href="#">Isurus oxyrinchus</a>	N/A	I	<a href="#">Marine habitats.</a>	<a href="#">Suitable habitat does not occur in project area.</a>
Southern flounder	<i>Paralichthys lethostigma</i>	N/A	SGCN	Brackish bays, estuaries and coastal waters to about 40 meter depth; move to deeper waters in winter.	Suitable habitat does not occur in project area.
<b>Insects</b>					
American bumblebee	<i>Bombus pensylvanicus</i>	N/A	SGCN	Meadows, parks, gardens, forests, and open fields.	Suitable habitat may occur in project area.
<a href="#">Bumblebee (no accepted common name)</a>	<a href="#">Bombus variabilis</a>	N/A	SGCN	<a href="#">Nest parasite – occurs where other bumblebee species occur.</a>	<a href="#">Suitable habitat may occur in project area.</a>
No accepted common name	<i>Trimerotropis schaefferi</i>	N/A	SGCN	Gulf dune grasshopper – grassland.	Suitable habitat may occur in project area.
<b>Mammals</b>					
American badger	<i>Taxidea taxus</i>	N/A	SGCN	Prefer grasslands and open areas.	Suitable habitat may occur in project area.

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<a href="#">Big brown bat</a>	<a href="#">Eptesicus fuscus</a>	N/A	SGCN	<a href="#">Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.</a>	<a href="#">Suitable habitat may occur in project area.</a>
Big free-tailed bat	<i>Nyctinomops macrotis</i>	N/A	SGCN	Roost in high canyon walls; will use buildings.	Suitable habitat does not occur in project area.
<a href="#">Blue whale</a>	<a href="#">Balaenoptera musculus</a>	E	E	<a href="#">Ocean-dwelling.</a>	<a href="#">Suitable habitat does not occur in project area.</a>
<a href="#">Cave myotis</a>	<a href="#">Myotis velifer</a>	N/A	SGCN	<a href="#">Colonial and cave-dwelling; also roosts in rock crevices, human-built structures, under bridges, and abandoned cliff swallow nests.</a>	<a href="#">Suitable habitat may occur in project area.</a>
Eastern red bat	<i>Lasiurus borealis</i>	N/A	SGCN	Often associated with wooded areas; found in urban areas during migration.	Suitable habitat does not occur in project area.
Eastern spotted skunk	<i>Spilogale putorius</i>	N/A	SGCN	Open fields prairies, croplands, fence rows, farmyards, and forest edges.	Suitable habitat may occur in project area.
<a href="#">Gulf of Mexico Bryde's whale</a>	<a href="#">Balaenoptera ricei</a>	E	E	<a href="#">Ocean-dwelling.</a>	<a href="#">Suitable habitat does not occur in project area.</a>
Hoary bat	<i>Lasiurus cinereus</i>	N/A	SGCN	Forests and woods in east and central Texas.	Project area is outside the expected range of this species.
Humpback whale	<i>Megaptera novaeangliae</i>	E	E	Open ocean and coastal waters, sometimes including inshore areas such as bays; summer distribution is in temperate and subpolar waters; in winter, most are in tropical/subtropical waters near islands or coasts.	Suitable habitat does not occur in project area.
Long-tailed weasel	<i>Mustela frenata</i>	N/A	SGCN	Usually close to water; rocky desert shrub, forest edges, brushlands, upland woods, fence rows, and bottomland hardwoods.	Suitable habitat may occur in project area.
Mexican free-tailed bat	<i>Tadarida brasiliensis</i>	N/A	SGCN	Roosts in buildings or limestone caves on the Edwards Plateau; found in all habitats.	Suitable habitat may occur in project area.
Mink	<i>Neovison vison</i>	N/A	SGCN	Close association with water; edges of lakes, wooded riparian zones, coastal swamps, and marshes.	Suitable habitat may occur in project area.

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Mountain lion	<i>Puma concolor</i>	N/A	SGCN	Wide range of habitats, especially rocky areas, canyons, riparian zones, and dense brush.	Suitable habitat does not occur in project area.
<a href="#">North Atlantic right whale</a>	<a href="#">Eubalaena glacialis</a>	<a href="#">E</a>	<a href="#">E</a>	<a href="#">Ocean-dwelling.</a>	<a href="#">Suitable habitat does not occur in project area.</a>
<a href="#">Northern yellow bat</a>	<a href="#">Lasius intermedius</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Prefers roosting in Spanish moss and in the hanging fronds of palm trees. Found near water and forages over grassy, open areas.</a>	<a href="#">Suitable habitat may occur in project area.</a>
Padre Island kangaroo rat	<i>Dipodomys compactus</i>	N/A	SGCN	Coastal barren sparse vegetation.	Suitable habitat does not occur in project area.
Plains spotted skunk	<i>Spilogale putorius interrupta</i>	N/A	SGCN	Open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie.	Suitable habitat may occur in project area.
<a href="#">Sei whale</a>	<a href="#">Balaenoptera borealis</a>	<a href="#">E</a>	<a href="#">E</a>	<a href="#">Ocean-dwelling.</a>	<a href="#">Suitable habitat does not occur in project area.</a>
Southern short-tailed shrew	<i>Blarina carolinensis</i>	N/A	SGCN	Various upland and wetland habitats, including moist deciduous woods, brushy areas, pine woodland and forest, mixed oak-pine-juniper woods, grassy situations, and densely wooded floodplains. Nest sites are probably under logs, stumps, and other debris.	Suitable habitat may occur in project area.
<a href="#">Sperm whale</a>	<a href="#">Physeter macrocephalus</a>	<a href="#">E</a>	<a href="#">E</a>	<a href="#">Ocean-dwelling.</a>	<a href="#">Suitable habitat does not occur in project area.</a>
Swamp rabbit	<i>Sylvilagus aquaticus</i>	N/A	SGCN	Found near water in fallen trees, thickets, and stumps.	Suitable habitat may occur in project area.
Thirteen-lined ground squirrel	<i>Ictidomys tridecemlineatus</i>	N/A	SGCN	Restricted to dry and sandy soils of open areas, such as grasslands, cultivated fields, meadows, roadsides, airfields, shrublands, and suburb lawns.	Low potential for habitat to occur in project area.
Tricolored bat	<i>Perimyotis subflavus</i>	N/A	SGCN	Caves; riparian areas, woodland, and forest.	Suitable habitat does not occur in project area.
Western hog-nosed skunk	<i>Conepatus leuconotus</i>	N/A	SGCN	Deserts, woodlands, and grasslands; common in rocky canyon country.	Suitable habitat does not occur in project area.
White-nosed coati	<i>Nasua narica</i>	N/A	T	Canyons, riparian corridors, and woodlands.	Suitable habitat does not occur in project area.

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<b>Mollusks</b>					
<a href="#">Guadalupe orb</a>	<a href="#">Quadrula aurea</a>	C	I	Sand and gravel in some locations and mud at others; found in lentic and lotic; Guadalupe River basin.	Suitable habitat may occur in Guadalupe River and tributaries within project area.
<a href="#">False spike</a>	<a href="#">Quadrula mitchelli</a>	N/A	I	Possibly extirpated from Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins.	Suitable habitat may occur in Guadalupe River and tributaries within project area.
No accepted common name	<a href="#">Nesovitrea suzanna</a>	N/A	SGCN	Land snail – coastal southern Texas woodland.	Suitable habitat does not occur in project area.
<b>Plants</b>					
<a href="#">Awnless bluestem</a>	<a href="#">Bothriochloa exaristata</a>	N/A	SGCN	Coastal prairies on black clay.	Suitable habitat may occur in project area.
<a href="#">Awnless lestdaisy</a>	<a href="#">Chaetopappa imberbis</a>	N/A	SGCN	In woodlands on lomas of Carrizo sand. Flowering and fruiting March - May.	Suitable habitat may occur in project area.
<a href="#">Bristle nailwort</a>	<a href="#">Paronychia setacea</a>	N/A	SGCN	Flowering vascular plant endemic to eastern southcentral Texas, in sandy soils.	Suitable habitat may occur in project area.
<a href="#">Coastal gay-feather</a>	<a href="#">Liatris bracteate</a>	N/A	SGCN	Coastal prairie grasslands of various types, from salty prairie on low-lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams.	Suitable habitat may occur in project area.
<a href="#">Drummond's rushpea</a>	<a href="#">Hoffmannseggia drummondii</a>	N/A	SGCN	Perennial; open areas on sandy clay.	Suitable habitat may occur in project area.
<a href="#">Elmendorf's onion</a>	<a href="#">Allium elmendorfii</a>	N/A	SGCN	Perennial. Grassland openings in oak woodlands on deep, loose, well-drained sands. Flowering March- May.	Suitable habitat may occur in project area.
<a href="#">Heartleaf evening-primrose</a>	<a href="#">Oenothera cordata</a>	N/A	SGCN	Occurs in post oak woodlands on sandy soils on the coastal plain.	Suitable habitat may occur in project area.

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<a href="#">Hill country wild-mercury</a>	<a href="#">Argythamnia aphoroides</a>	N/A	SGCN	Mostly in bluestem-grama grasslands associated with plateau live oak woodlands on clays and clay loams over limestone on rolling uplands; also in partial shade of oak-juniper woodlands in gravelly soils on rocky limestone slopes.	<a href="#">Low likelihood of suitable habitat in project area.</a>
Indianola beakrush	<i>Rhynchospora indianolensis</i>	N/A	SGCN	Locally abundant in cattle pastures in some areas (at least during wet years), possibly becoming a management problem in such sites.	Suitable habitat may occur in project area.
<a href="#">Jone's rainlilly</a>	<a href="#">Cooperia jonesii</a>	N/A	SGCN	Hardpan swales and other seasonally moist low areas.	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Low spurge</a>	<a href="#">Euphorbia peplidion</a>	N/A	SGCN	Annual. Occurs in a variety of vernal-moist situations in a number of natural regions.	<a href="#">Suitable habitat may occur in project area.</a>
Marsh-elder dodder	<i>Cuscuta attenuate</i>	N/A	SGCN	Parasitizes a particular sumpweed ( <i>Iva annua</i> ) almost exclusively as well as ragweed and heath aster. Host plants typically found in open, disturbed habitats like fallow fields and creek bottomlands.	Suitable habitat may occur in project area.
<a href="#">Net-leaf bundleflower</a>	<a href="#">Desmanthus reticulatus</a>	N/A	SGCN	Perennial. Mostly on clay prairies of the coastal plain of central and south Texas. Flowering April-July.	<a href="#">Suitable habitat may occur in project area.</a>
Sand Brazos mint	<i>Brazoria arenaria</i>	N/A	SGCN	Sandy areas in South Texas.	Suitable habitat may occur in project area.
<a href="#">Sandhill woollywhite</a>	<a href="#">Hymenopappus carrizoanus</a>	N/A	SGCN	Disturbed or open areas in grasslands and post oak woodlands on deep sands derived from the Carrizo Sand and similar Eocene formations.	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Sayersville blue eyes</a>	<a href="#">Nemophila sayersensis</a>	N/A	SGCN	Open fields and woodland margins on deep loose nutrient-poor sand.	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Seaside beebalm</a>	<a href="#">Monarda maritima</a>	N/A	SGCN	Grasslands and pastures on sandy soil near the coast.	<a href="#">Suitable habitat may occur in project area.</a>

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<a href="#">Sutherland hawthorn</a>	<a href="#">Crataegus viridis var. glabriuscula</a>	N/A	SGCN	In mesic soils of woods or on edge of woods, treeline, fence line, or thicket. Above/ near creeks and drainages, and in river bottoms. Flowering March-Apr.	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Texas beebalm</a>	<a href="#">Monarda viridissima</a>	N/A	SGCN	Endemic perennial herb of the Carrizo Sands; deep, well-drained sandy soils in openings of post oak woodlands; flowers white.	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Texas milk vetch</a>	<a href="#">Astragalus reflexus</a>	N/A	SGCN	Annual. Grasslands, prairies, and roadsides on calcareous and clay substrates. Flowering February-June.	<a href="#">Suitable habitat may occur in project area.</a>
Texas peachbush	<i>Prunus texana</i>	N/A	SGCN	Occurs at scattered sites in various well drained sandy situations; deep sand, plains and sand hills, grasslands, oak woods, 0-200 meter elevation.	Suitable habitat may occur in project area.
<a href="#">Texas pinkroot</a>	<a href="#">Spiqelia texana</a>	N/A	SGCN	Perennial. Woodlands on loamy soils. Flowering March-November.	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Texas sandmint</a>	<a href="#">Rhododon ciliatus</a>	N/A	SGCN	Annual. Open sandy areas in post oak woodlands. Flowering April-August.	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Texas tauschia</a>	<a href="#">Tauschia texana</a>	N/A	SGCN	Perennial. Loamy soils in deciduous forests or woodlands on river and stream terraces. Flowering/fruited February-April.	<a href="#">Suitable habitat may occur in project area.</a>
Texas willkommia	<i>Willkommia texana var. texana</i>	N/A	SGCN	Mostly in sparsely vegetated shortgrass patches within taller prairies on alkaline or saline soils on the Coastal Plain.	Suitable habitat may occur in project area.
Tharp's dropseed	<i>Sporobolus tharpii</i>	N/A	SGCN	Occurs on barrier islands, shores of lagoons and bays protected by the barrier islands, and on shores of a few near-coastal ponds. Plants occur at the bases of dunes, in interdune swales and sandflats, and on upper beaches. The substrate is of Holocene age.	Suitable dune habitat does not occur in project area.



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Threeflower broomweed	<i>Thurovia trifloral</i>	N/A	SGCN	Near coast in sparse, low vegetation on a veneer of light-colored silt or fine sand over saline clay along drier upper margins of ecotone between salty prairies and tidal flats; further inland associated with vegetated slick spots on prairie mima mounds.	Suitable habitat does not occur in project area.
<a href="#">Topeka purple-coneflower</a>	<a href="#">Echinacea atrorubens</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Perennial. Tallgrass prairie of the southern Great Plains, in blackland prairies and in a variety of other sites such as limestone hillsides. Flowering April-June.</a>	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Two-flower stick-pea</a>	<a href="#">Calliandra biflora</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Perennial. Open areas on caliche outcrops or in shallow sandy soils over caliche. Flowering/fruiting May-August.</a>	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Welder machaeranthera</a>	<a href="#">Psilactis heterocarpa</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Midgrass to coastal prairie grasslands and open mesquite-huisache woodlands on nearly level, grey to dark grey clayey to silty soils. Flowering September-November.</a>	<a href="#">Suitable habitat may occur in project area.</a>
Velvet spurge	<i>Euphorbia innocua</i>	N/A	SGCN	Open or brushy areas on coastal sands and the South Texas Sand Sheet.	Suitable habitat does not occur in project area.
<a href="#">Wright's trichocoronis</a>	<a href="#">Trichocoronis wrightii var. wrightii</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Annual. Wetland habitats. Flowering February-October.</a>	<a href="#">Suitable habitat may occur in project area.</a>
<b>Reptiles</b>					
Atlantic hawksbill sea turtle	<i>Eretmochelys imbricate</i>	E	E	Gulf and bay system, warm shallow waters especially in rocky marine environments, such as coral reefs and jetties, juveniles found in floating mats of sea plants; feed on sponges, jellyfish, sea urchins, mollusks, and crustaceans.	Suitable aquatic habitat does not occur in project area.

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	SUITABLE HABITAT	POTENTIAL IMPACTS
<a href="#">Cagle's map turtle</a>	<a href="#"><i>Graptemys caglei</i></a>	N/A	T	<a href="#">Shallow perennial streams with swift to moderate flow and gravel or cobble bottom, connected by deeper pools with a slower flow rate and a silt or mud bottom; forage for insects in gravel bar riffles and transition areas between riffles and pools; nests on gently sloping sand banks.</a>	<a href="#">Suitable habitat may occur in Guadalupe River and tributaries within project area.</a>
Common garter snake	<i>Thamnophis sirtalis</i>	N/A	SGCN	Irrigation canals and riparian-corridor farmlands in west; marshy, flooded pastureland, grassy or brushy borders of permanent bodies of water; coastal salt marshes.	Suitable habitat may occur in project area.
Eastern box turtle	<i>Terrapene carolina</i>	N/A	SGCN	Found in fields, forests, forest-brush, and forest-field.	Low likelihood of suitable habitat in project area.
Green sea turtle	<i>Chelonia mydas</i>	T	T	Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches; adults are herbivorous feeding on sea grass and seaweed; juveniles are omnivorous feeding initially on marine invertebrates, then increasingly on sea grasses and seaweeds.	Suitable aquatic habitat does not occur in project area.
Keeled earless lizard	<i>Holbrookia propinqua</i>	N/A	SGCN	Barrier islands, coastal dunes, and other sandy areas.	Suitable dune habitat does not occur in project area.
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	E	E	Gulf and bay system, adults stay within the shallow waters of the Gulf of Mexico; feed primarily on crabs, but also snails, clams, other crustaceans, and plants; juveniles feed on sargassum and its associated fauna.	Suitable aquatic habitat does not occur in project area.
Loggerhead sea turtle	<i>Caretta caretta</i>	T	T	Gulf and bay system primarily for juveniles, adults are most pelagic of the sea turtles; omnivorous, shows a preference for mollusks, crustaceans, and coral.	Suitable aquatic habitat does not occur in project area.

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	SUITABLE HABITAT	POTENTIAL IMPACTS
Massasauga	<i>Sistrurus tergeminus</i>	N/A	SGCN	Quite common in gently rolling prairie occasionally broken by creek valley or rocky hillside.	Low likelihood of suitable habitat in project area.
<a href="#">Prairie skink</a>	<a href="#">Plestiodon septentrionalis</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.</a>	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Pygmy rattlesnake</a>	<a href="#">Sistrurus miliarius</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Variety of wooded habitats from bottomland coastal hardwood forests to upland savannas. Frequently found in association with standing water.</a>	<a href="#">Suitable habitat may occur in project area.</a>
<a href="#">Salt marsh snake</a>	<a href="#">Nerodia clarkii</a>	<a href="#">N/A</a>	<a href="#">SGCN</a>	<a href="#">Generally restricted to brackish marshes and islands of the mid and upper coastline. May be found further inland in shallow freshwater marshes.</a>	<a href="#">Suitable habitat may occur in project area near coast.</a>
Slender glass lizard	<i>Ophisaurus attenuatus</i>	N/A	SGCN	Wooded areas, dry grasslands, sand prairies, oak savannas, pine barrens, and oil fields.	Low likelihood of suitable habitat in project area.
Texas diamondback terrapin	<i>Malaclemys terrapin littoralis</i>	N/A	SGCN	Coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows into mud when inactive; may venture into lowlands at high tide.	Suitable aquatic habitat does not occur in project area.
Texas horned lizard	<i>Phrynosoma cornutum</i>	N/A	T	Open, arid, and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush, or scrubby trees.	Suitable habitat may occur in project area.
Texas scarlet snake	<i>Cemophora coccinea lineri</i>	T	SGCN	Along Gulf Coast, known from mixed hardwood scrub on sandy soils. Mixed hardwood scrub on sandy soils; feeds on reptile eggs; semifossorial.	Low likelihood of suitable habitat in project area.
<a href="#">Texas tortoise</a>	<a href="#">Gopherus berlandieri</a>	<a href="#">N/A</a>	<a href="#">I</a>	<a href="#">Open scrub woods, arid brush, lomas, grass-cactus vegetation; often in areas with sandy well-drained soils. When inactive occupies shallow depressions dug at base of bush or cactus, sometimes in underground burrow or under object.</a>	<a href="#">Suitable habitat may occur in project area.</a>

SPECIES COMMON NAME	SPECIES SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS	SUITABLE HABITAT	POTENTIAL IMPACTS
<a href="#">Timber (canebrake) rattlesnake</a>	<a href="#">Crotalus horridus</a>	N/A	SGCN	<a href="#">Densely vegetated areas in swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay.</a>	<a href="#">Suitable habitat may occur in project area.</a>
Western box turtle	<i>Terrapene ornata</i>	N/A	SGCN	Prairie grassland, pasture, fields, sandhills, and open woodland, prefer sandy soils. Sometimes enter slow, shallow streams and creek pools. Burrows into soil or may use burrows made by other species.	Suitable habitat may occur in project area.
<a href="#">Western chicken turtle</a>	<a href="#">Deirochelys reticularia mearnsi</a>	N/A	SGCN	<a href="#">Uses aquatic habitats in the late winter, spring and early summer and terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes.</a>	<a href="#">Suitable habitat may occur in project area.</a>

PT = Proposed Threatened  
 T = Threatened  
 E = Endangered  
 C = Candidate  
 DL = Delisted  
 N/A = Not applicable  
 SGCN = Species of Greatest Conservation Need (designated by TPWD, but not formally listed as T or E)

### Cultural Considerations

Projects in Texas can come under the purview of the NHPA and the ACT. Both are administered by the THC and the SHPO in Austin, Texas. If an undertaking is federally permitted, licensed, or partially funded, the project must comply with Section 106 of the NHPA. The ACT requires projects on land owned or operated by a political subdivision of the State of Texas<sup>8</sup> to assess whether the project will impact cultural resources that meet the requirements for listing as a State Antiquities Landmark.

[The background literature review identified 12 cultural resources that intersect with the 89-mile pipeline alignment and four cultural resources that are located immediately adjacent \(within 300 feet\) of the pipeline alignment \(Table 5.2.16-3\). The 12 identified cultural resources include seven archaeological sites, two historic trails, one archeological historic district, and two cemeteries \(i.e., Ebenezer Cemetery and Mt. Pleasant/Garcitas Cemetery\). The Ebenezer Cemetery is also listed as an archaeological site \(i.e.,](#)

<sup>8</sup> Political subdivision entities include any county, municipality, special district, river authority or compact, Title 4 Water Code District, soil and water conservation district, county or municipal improvement district, regional planning commission, council of government, or utility that is public-owned. Refer to TX Code § [2254.021](#).

41GZ6) as well as a historical marker (Marker No. 1375)<sup>9</sup>. The Mt. Pleasant Cemetery (also known as the Garcitas Cemetery) is listed as a regular cemetery as well as a vicinity cemetery<sup>10</sup>.

Vicinity cemeteries are very general areas where a cemetery location was reported at one time, but the exact location is unknown. Research for these vicinity circles was conducted in 2000–2005 by historians contracted by the THC. These historians researched maps and county anthologies and worked with county historical commissions and local informants. If, at that time, an exact location could not be confirmed, a circle was hand-drawn on a USGS map and linked to a Word document. In most cases, the locational information was never historically mapped on USGS maps, county highway maps, or other local history maps. All human burials in Texas are protected by law and should be avoided. If project impacts are to occur near the vicinity cemetery locations, further work (e.g., pedestrian survey and/or metal detecting) or construction monitoring might be needed to ensure human burials are not present in the project area.

No previously recorded archaeological sites intersect or are located immediately adjacent (within 300 feet) to the project area (THC 2019). The background literature review identified one historic linear feature intersecting the project area (Table 5.2.16-3). No cemeteries, historical markers, or National Register of Historic Places listed properties are known to be near the project.

The background literature review also identified six potential historic-age structures and three linear potential historic-age structures (i.e., levees) that immediately intersect with the pipeline alignment<sup>11</sup>. An additional 59 potential historic-age structures and two levees are located immediately adjacent to (within 300 feet) of the pipeline alignment. Two of the 59 potential historic-age structures also overlap with the larger project area in Calhoun County.

The model used assessed the overall archaeological site potential to include low to high potential zones. The results of the model indicated 13% of the pipeline alignment as having a high likelihood to contain significant unidentified archaeological resources, 25% of the pipeline alignment as moderate, and 62% of the pipeline alignment as low. The areas with greatest archaeological probability are located near previously known archaeological sites, historic features, and landforms adjacent to existing drainages.

The model used assessed the overall archaeological site potential to include low to high potential zones, ranging from 2 percent to 65 percent likelihood for the project area to contain significant unidentified archaeological resources. The areas with greatest archaeological probability are located near the historic feature and landforms adjacent to existing drainages.

Projects under control of political subdivisions of the State of Texas, such as water agencies, counties, and city-owned entities, must comply with the ACT. As previously discussed, the project may also have to comply with the NHPA. The overall calculated cultural resources assessment score is 19.0 (higher scores

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<sup>9</sup> Find a Grave. 2024. *Ebenezer Cemetery*. Available at: <https://www.findagrave.com/cemetery/3354/memorial-search?cemeteryName=Ebenezer%20Cemetery&orderby=d->. Accessed February 2024.

<sup>10</sup> Texas Historical Commission (THC). 2024. *Texas Archeological and Historical Sites Atlas – Garcitas Cemetery* restricted database, Texas Historical Commission. Atlas Number 7469004105. Available at: <https://atlas.thc.texas.gov/>. Accessed February 2024.

<sup>11</sup> U.S. Geological Survey (USGS). 2024. *TopoView: historical topographic map collection*. Published by the U.S. Geological Survey (USGS). Available at: <http://ngmdb.usgs.gov/maps/TopoView>. Accessed February 2024.

indicate a higher probability of cultural resources; further information regarding methodology for developing the assessment score is provided in Section 5.2). On the basis of the results of the background review, SWCA recommends that a structured cultural resources survey of the final design plan be performed to accurately assess the presence and significance of identified and unrecorded cultural resources within project boundaries.

**Table 5.2.16-3 Cultural Resources Results**

RESOURCE NAME	RESOURCE TYPE	PREHISTORIC/HISTORIC	NRHP ELIGIBILITY	LOCATION
Levee	Linear Feature	Historic	Unknown	Intersect
<a href="#">Archaeological Site</a>	<a href="#">Quarry/Camp Site and Farmstead</a>	<a href="#">Prehistoric and Historic</a>	<a href="#">Undetermined</a>	<a href="#">Intersect</a>
<a href="#">Archaeological Site</a>	<a href="#">Lithic Scatter</a>	<a href="#">Prehistoric</a>	<a href="#">Undetermined</a>	<a href="#">Intersect</a>
<a href="#">Archaeological Site</a>	<a href="#">Lithic Scatter</a>	<a href="#">Prehistoric</a>	<a href="#">Undetermined</a>	<a href="#">Adjacent</a>
<a href="#">Archaeological Site</a>	<a href="#">Quarry/Camp Site</a>	<a href="#">Prehistoric</a>	<a href="#">Undetermined</a>	<a href="#">Intersect</a>
<a href="#">Archaeological Site</a>	<a href="#">Quarry/Camp Site</a>	<a href="#">Prehistoric</a>	<a href="#">Undetermined</a>	<a href="#">Intersect</a>
<a href="#">Archaeological Site</a>	<a href="#">Camp</a>	<a href="#">Prehistoric</a>	<a href="#">Undetermined</a>	<a href="#">Intersect</a>
<a href="#">Archaeological Site</a>	<a href="#">Quarry/Camp Site</a>	<a href="#">Prehistoric</a>	<a href="#">Undetermined</a>	<a href="#">Adjacent</a>
<a href="#">Archaeological Site</a>	<a href="#">Lithic Scatter and Farmstead</a>	<a href="#">Prehistoric and Historic</a>	<a href="#">Undetermined</a>	<a href="#">Adjacent</a>
<a href="#">Archaeological Site</a>	<a href="#">Lithic Scatter and Farmstead</a>	<a href="#">Prehistoric and Historic</a>	<a href="#">Undetermined</a>	<a href="#">Adjacent</a>
<a href="#">Archaeological Site</a>	<a href="#">Campsite and Historic Scatter</a>	<a href="#">Prehistoric and Historic</a>	<a href="#">Undetermined</a>	<a href="#">Intersect</a>
<a href="#">Archaeological Site</a>	<a href="#">Campsite and Historic Scatter</a>	<a href="#">Prehistoric</a>	<a href="#">Undetermined</a>	<a href="#">Intersect</a>
<a href="#">41GZ6 / Ebenezer Cemetery</a>	<a href="#">Archaeological Site / Cemetery / Historical Marker</a>	<a href="#">Historic</a>	<a href="#">Unknown</a>	<a href="#">Intersect</a>
<a href="#">Levee</a>	<a href="#">Linear Feature</a>	<a href="#">Historic</a>	<a href="#">Unknown</a>	<a href="#">Intersect</a>
<a href="#">Chisholm</a>	<a href="#">Historic Trail</a>	<a href="#">Historic</a>	<a href="#">Listed (segments)</a>	<a href="#">Intersect</a>
<a href="#">Cuero / Archeological</a>	<a href="#">Historic District</a>	<a href="#">Historic</a>	<a href="#">Listed</a>	<a href="#">Intersect</a>
<a href="#">El Camino Real De Los Tejas</a>	<a href="#">Historic Trail</a>	<a href="#">Historic</a>	<a href="#">Listed (segments)</a>	<a href="#">Intersect</a>
<a href="#">Garcitas / Mt. Pleasant</a>	<a href="#">Cemetery / Vicinity Cemetery</a>	<a href="#">Historic</a>	<a href="#">Unknown</a>	<a href="#">Intersect</a>
<b>ASSESSMENT SCORE TOTAL:</b>			<b>19-0</b>	<b>383.0</b>

### A.5.5 MODIFICATION TO SECTION 5.2.16.4, PAGE 5.2.16-15

Preliminary engineering and costing analyses have been performed using the 2021 Regional Water Planning methods. Black & Veatch utilized the Uniform Costing Tool, which includes standard costing procedures and methods for calculating unit costs. Relying in part on an available feasibility study and integrating current TWDB guidance for regional water planning, a cost estimate summary for the GBRA Lower Basin Storage project was prepared and is provided in Table 5.2.16-4. The engineering and costing analysis for the GBRA Lower Basin Storage Project includes the embankment and appurtenant facilities for the OCR, a 100 cfs raw water intake and pump station, and a 66-inch transmission pipeline, estimated to be ~~± 89~~ miles long. Depending on the location(s) and type(s) of use for water supplies associated with the strategy, additional facilities and costs could include transmission and treatment facilities for service to project participants and customers.

Cost estimates were calculated for capital costs, annual debt service, operation and maintenance, power, land acquisition, and environmental mitigation for season and peak day demands. The overall project costs are estimated to be ~~\$65,470,000~~ ~~\$507,642,000~~. The annual cost is estimated to be ~~\$6,603,000~~ ~~\$45,634,000~~, and the annual unit cost of additional firm supply is estimated to be ~~\$110~~ ~~\$763~~ per acft. Per section 8.2.4 of the UCM User Guide, dated November 2018, for all project components except pipelines, the UCM assumes the Environmental/Mitigation Costs are 100 percent of land costs. The recommended value for environmental studies and mitigation costs for pipelines is \$25,000/mile of pipeline. This cost estimate is representative of 600 acres for the Reservoir foot-print and conservation pool, ~~12.1~~ ~~574~~ acres for the pipeline facilities, and 5 acres for a pump station. Some participants or customers may incur additional costs for purchase of water, transmission facilities, treatment, and/or integration.

**Table 5.2.16-4 Project Cost Estimate Summary**

ITEM	ESTIMATED COSTS
Off-Channel Storage/Ring Dike (Conservation Pool 12,763 acft, 600 acres)	\$25,992,000
Primary Pump Station (68 MGD)	<del>\$15,791,000</del> <del>\$47,772,000</del>
Transmission Pipeline (66 in dia., <del>± 89</del> miles)	<del>\$2,206,000</del> <del>\$294,572,000</del>
<b>TOTAL COST OF FACILITIES</b>	<del>\$43,989,000</del> <del>\$368,336,000</del>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	<del>\$15,286,000</del> <del>\$114,189,000</del>
Environmental & Archaeology Studies and Mitigation	<del>\$2,193,000</del> <del>\$5,279,000</del>
Land Acquisition and Surveying ( <del>617</del> <del>1,179</del> acres @ \$3,584/acre)	<del>\$2,248,000</del> <del>\$6,251,000</del>

ITEM	ESTIMATED COSTS
Interest During Construction (3% for 1 years with a 0.5% return on investment)	\$1,754,000 <u>\$13,587,000</u>
<b>TOTAL COST OF PROJECT</b>	<b><u>\$65,470,000</u></b> <b><u>\$507,642,000</u></b>
<b>ANNUAL COST</b>	
Debt Service (3.5 percent, 20 years)	\$1,757,000 <u>\$32,743,000</u>
Reservoir Debt Service (3.5 percent, 40 years)	\$1,897,000 <u>\$1,980,000</u>
Operation and Maintenance	
Pipeline, Wells, and Storage Tanks (1% of Cost of Facilities)	\$22,000 <u>\$2,946,000</u>
Intakes and Pump Stations (2.5% of Cost of Facilities)	\$395,000 <u>\$1,194,000</u>
Dam and Reservoir (1.5% of Cost of Facilities)	\$390,000 <u>\$390,000</u>
Pumping Energy Costs (4,865,404 <del>57,852,831</del> kW-hr @ 0.08 \$/kW-hr)	\$389,000 <u>\$4,628,000</u>
Purchase of Water (59,780 acft/yr @ 29.33 \$/acft)	\$1,753,000
<b>TOTAL ANNUAL COST</b>	<b><u>\$6,603,000</u></b> <b><u>\$45,634,000</u></b>
<b>Available Project Yield (acft/yr)</b>	59,780
<b>Annual Cost of Water (\$ per acft)</b>	<del>\$110</del> <u>\$763</u>
<b>Annual Cost of Water After 20-year Debt Service (\$ per acft)</b>	<del>\$81</del> <u>\$216</u>
<b>Annual Cost of Water After 40-year Debt Service (\$ per acft)</b>	<del>\$49</del> <u>\$183</u>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<del>\$0.34</del> <u>\$2.34</u>
<b>Annual Cost of Water After Debt Service (\$ per 1,000 gallons)</b>	<del>\$0.15</del> <u>\$0.56</u>
Based on a peaking factor of 1.0.	



### A.5.6 MODIFICATION TO SECTION 5.2.16.5, PAGE 5.2.16-17

Information presented in this WMS was provided by GBRA and represents the current plan, which is based on the sponsor's current understanding of the system. GBRA has obtained the necessary water rights permits for this project from the TCEQ. Implementation of the GBRA Lower Basin Storage WMS includes the following considerations:

- An institutional arrangement may be needed to implement this project, including financing on a regional basis.
- It may be necessary to obtain the following permits or authorizations:
  - TCEQ interbasin transfer, depending upon location(s) of use;
  - USACE Sections 10 and 404 dredge and fill permits for the reservoir and pipelines;
  - ~~GLO sand and gravel removal permits;~~
  - [GLO easement for use of state-owned land;](#) and
  - TPWD sand, gravel, and marl permit.
- Permitting, at a minimum, will require the following additional studies:
  - Habitat mitigation plan;
  - Environmental studies; and
  - Cultural resources survey.
- Land will need to be acquired through either negotiations or condemnation.

#### Reliability

The reliability of the water supplies is projected to be high (reliability score = 5).

## CHAPTER 6

### A.6.1 MODIFICATION TO SECTION 6.1.2, PAGE 6-30

#### 6.1.2 Agricultural Resources

##### 6.1.2.1 Impacts on Agricultural Resources

To evaluate potential impacts on agricultural resources, construction impacts for each of the WMSs were estimated based on the acreage of agricultural land impacted according to TPWD mapping. These impacts are summarized for WMSs 10 through 33, which are the WMSs for which conceptual geographic location information was available. Impacts are described for each of these WMSs in Section 5.2. Overall, construction activities for the combined WMS have the potential to affect ~~19,163~~ [39,067](#) acres of agricultural land, including ~~14,885~~ [26,786](#) acres of land mapped by TPWD as row crops, and ~~4,278~~ [12,281](#) acres of land mapped as tame/disturbance grassland, which may include areas used for grazing and hay production.

## A.6.2 MODIFICATION TO TABLE 6-7, PAGE 6-44

Table 6-7 Recommended WMS Involving Voluntary Redistribution of Water

2021 WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)
SAWS Expanded Brackish Project	70,160
<a href="#">GBRA Lower Basin Storage Project</a>	<a href="#">59,780</a>
SS WSC Brackish Wilcox Groundwater Project	1,120
CRWA Brackish Carrizo-Wilcox Project	14,700
CVLGC Carrizo Project	10,000
Karnes City Local Groundwater	444
<b>Total</b>	<del>96,242</del> <a href="#">156,204</a>

## A.6.3 MODIFICATION TO TABLE 6-10, PAGE 6-31

### Endangered and Threatened Species

Table 6-10 Summary of Potential Impacts to Endangered, Threatened, and Species of Greatest Conservation Need from Water Management Strategies

NO.	WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)	POTENTIAL SPECIES IMPACT SCORE
1	Advanced Water Conservation	167,148	0
2	Drought Management	56,588	0
3	Edwards Transfers	5,906	0
4	Local Groundwater	28,240	16
5	Local Groundwater Conversions	0	0
6	Surface Water Rights	0	0
7	Balancing Storage	0	0
8	Facilities Expansion	95,675	48
9	Recycled Water Strategies	52,388	120
10	SAWS Expanded Local Carrizo Project	21,000	4
11	SAWS Expanded Brackish Groundwater Project	70,160	7
12	ARWA/GBRA Project (Phase I)	30,000	24

NO.	WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)	POTENTIAL SPECIES IMPACT SCORE
13	ARWA Project (Phase 2)	20,999	16
14	ARWA Project (Phase 3)	5,494	16
15	GBRA Mid-Basin (Phase 2)	27,000	22
16	GBRA Lower Basin Storage	59,780	<del>18</del> 36
17	GBRA Lower Basin New Appropriation	40,500	18
18	GBRA Victoria Steam-Electric Project	23,925*	14
19	CRWA Wells Ranch (Phase 3)	7,000	10
20	CRWA Siesta Project	5,042	14
21	CRWA Brackish Carrizo-Wilcox Project	14,700	8
22	CVLGC Carrizo Project	10,000	14
23	SSLGC Expanded Carrizo Project	6,000	14
24	SSLGC Expanded Brackish Wilcox Project	5,000	6
25	NBU ASR	10,818	2
26	NBU Trinity Well Field Expansion	3,360	4
27	City of Victoria ASR	7,900	1
28	City of Victoria Groundwater-Surface Water Exchange	8,544	2
29	SS WSC Brackish Carrizo-Wilcox Project	1,120	4
30	Martindale Alluvial Well	240	18
31	Maxwell WSC Trinity Well	230	8
32	County Line SUD Trinity Well Field	740	12
33	County Line SUD Brackish Edwards Well Field	1,500	12

\* The 23,925 acft yield for the GBRA Victoria Steam-Electric Project is purchased from the 40,500 acft yield for GBRA Lower Basin New Appropriation.

## A.6.4 MODIFICATION TO TABLE 6-11, PAGE 6-46

### Vegetation and Land Use

Table 6-11 Summary of Potential Impacts to Vegetation and Land Use

NO.	WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)	POTENTIAL HABITAT IMPACT SCORE
1	Advanced Water Conservation	167,148	0
2	Drought Management	56,588	0
3	Edwards Transfers	5,906	0
4	Local Groundwater	28,240	32
5	Local Groundwater Conversions	0	0
6	Surface Water Rights	0	0
7	Balancing Storage	0	0
8	Facilities Expansion	95,675	120
9	Recycled Water Strategies	52,388	400
10	SAWS Expanded Local Carrizo Project	21,000	428
11	SAWS Expanded Brackish Groundwater Project	70,160	409
12	ARWA/GBRA Project (Phase I)	30,000	25,661
13	ARWA Project (Phase 2)	20,999	3224
14	ARWA Project (Phase 3)	5,494	289
15	GBRA Mid-Basin (Phase 2)	27,000	5278
16	GBRA Lower Basin Storage	59,780	<del>44,055</del> <u>45,221</u>
17	GBRA Lower Basin New Appropriation	40,500	44,962
18	GBRA Victoria Steam-Electric Project	23,925*	651
19	CRWA Wells Ranch (Phase 3)	7,000	136
20	CRWA Siesta Project	5,042	217
21	CRWA Brackish Carrizo-Wilcox Project	14,700	1,466
22	CVLGC Carrizo Project	10,000	4,147
23	SSLGC Expanded Carrizo Project	6,000	438
24	SSLGC Expanded Brackish Wilcox Project	5,000	510

NO.	WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)	POTENTIAL HABITAT IMPACT SCORE
25	NBU ASR	10,818	0
26	NBU Trinity Well Field Expansion	3,360	0
27	City of Victoria ASR	7,900	0
28	City of Victoria Groundwater-Surface Water Exchange	8,544	0
29	SS WSC Brackish Carrizo-Wilcox Project	1,120	21
30	Martindale Alluvial Well	240	15
31	Maxwell WSC Trinity Well	230	278
32	County Line SUD Trinity Well Field	740	1,602
33	County Line SUD Brackish Edwards Well Field	1,500	1,602

\* The 23,925 acft yield for the GBRA Victoria Steam-Electric Project is purchased from the 40,500 acft yield for GBRA Lower Basin New Appropriation.

## A.6.5 MODIFICATION TO TABLE 6-13, PAGE 6-50

### Water Quality and Aquatic Habitats

**Table 6-13 Summary of Potential Stream Flow/Water Quality Impacts**

NO.	WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)	POTENTIAL STREAM FLOW/ WATER QUALITY IMPACT SCORE
1	Advanced Water Conservation	167,148	1
2	Drought Management	56,588	1
3	Edwards Transfers	5,906	0
4	Local Groundwater	28,240	0
5	Local Groundwater Conversions	0	0
6	Surface Water Rights	0	6
7	Balancing Storage	0	0
8	Facilities Expansion	95,675	2
9	Recycled Water Strategies	52,388	0
10	SAWS Expanded Local Carrizo Project	21,000	1
11	SAWS Expanded Brackish Groundwater Project	70,160	1
12	ARWA/GBRA Project (Phase I)	30,000	2
13	ARWA Project (Phase 2)	20,999	2
14	ARWA Project (Phase 3)	5,494	1
15	GBRA Mid-Basin (Phase 2)	27,000	6
16	GBRA Lower Basin Storage	59,780	6 <u>14</u>
17	GBRA Lower Basin New Appropriation	40,500	6
18	GBRA Victoria Steam-Electric Project	23,925*	3
19	CRWA Wells Ranch (Phase 3)	7,000	1
20	CRWA Siesta Project	5,042	4
21	CRWA Brackish Carrizo-Wilcox Project	14,700	2
22	CVLGC Carrizo Project	10,000	2
23	SSLGC Expanded Carrizo Project	6,000	2
24	SSLGC Expanded Brackish Wilcox Project	5,000	1

NO.	WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)	POTENTIAL STREAM FLOW/ WATER QUALITY IMPACT SCORE
25	NBU ASR	10,818	1
26	NBU Trinity Well Field Expansion	3,360	1
27	City of Victoria ASR	7,900	1
28	City of Victoria Groundwater-Surface Water Exchange	8,544	2
29	SS WSC Brackish Carrizo-Wilcox Project	1,120	1
30	Martindale Alluvial Well	240	2
31	Maxwell WSC Trinity Well	230	1
32	County Line SUD Trinity Well Field	740	1
33	County Line SUD Brackish Edwards Well Field	1,500	1

\*The 23,925 acft yield for the GBRA Victoria Steam-Electric Project is purchased from the 40,500 acft/yr yield for GBRA Lower Basin New Appropriation.

## A.6.6 MODIFICATION TO TABLE 6-14, PAGE 6-52

### Cultural Resources

**Table 6-14 Summary of Potential Impacts to Cultural Resources from Water Management Strategies**

NO.	WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)	POTENTIAL CULTURAL RESOURCES IMPACT SCORE
1	Advanced Water Conservation	167,148	0
2	Drought Management	56,588	0
3	Edwards Transfers	5,906	0
4	Local Groundwater	28,240	16
5	Local Groundwater Conversions	0	0
6	Surface Water Rights	0	0
7	Balancing Storage	0	0
8	Facilities Expansion	95,675	24
9	Recycled Water Strategies	52,388	20

NO.	WATER MANAGEMENT STRATEGY	FINAL DECADE FIRM YIELD (ACFT/YR)	POTENTIAL CULTURAL RESOURCES IMPACT SCORE
10	SAWS Expanded Local Carrizo Project	21,000	13.5
11	SAWS Expanded Brackish Groundwater Project	70,160	32
12	ARWA/GBRA Project (Phase I)	30,000	187
13	ARWA Project (Phase 2)	20,999	54.5
14	ARWA Project (Phase 3)	5,494	187
15	GBRA Mid-Basin (Phase 2)	27,000	109.5
16	GBRA Lower Basin Storage	59,780	<del>19</del> 383.0
17	GBRA Lower Basin New Appropriation	40,500	174
18	GBRA Victoria Steam-Electric Project	23,925*	46
19	CRWA Wells Ranch (Phase 3)	7,000	15
20	CRWA Siesta Project	5,042	91.5
21	CRWA Brackish Carrizo-Wilcox Project	14,700	109.5
22	CVLGC Carrizo Project	10,000	97
23	SSLGC Expanded Carrizo Project	6,000	103
24	SSLGC Expanded Brackish Wilcox Project	5,000	137.5
25	NBU ASR	10,818	50
26	NBU Trinity Well Field Expansion	3,360	67.5
27	City of Victoria ASR	7,900	2
28	City of Victoria Groundwater-Surface Water Exchange	8,544	2
29	SS WSC Brackish Carrizo-Wilcox Project	1,120	11
30	Martindale Alluvial Well	240	85
31	Maxwell WSC Trinity Well	230	73
32	County Line SUD Trinity Well Field	740	237
33	County Line SUD Brackish Edwards Well Field	1,500	237

\*The 23,925 acft yield for the GBRA Victoria Steam-Electric Project is purchased from the 40,500 acft/yr yield for GBRA Lower Basin New Appropriation.



## CHAPTER 10

### A.10.1 ADDITION OF SECTION 10.10, PAGE 10-5

#### 10.10 AMENDMENT TO THE 2021 SOUTH CENTRAL TEXAS REGIONAL WATER PLAN

An Amendment to the 2021 SCTRWP was requested by GBRA in order to modify the Lower Basin Storage Project in the 2021 SCTRWP. A public meeting was held on February 14, 2024, in which the SCTRWPG approved GBRA to pursue an amendment to update the GBRA Lower Basin Storage Project and approved submittal of a Minor Amendment Determination Request to the TWDB. On March 11, 2024, the Proposed Amendment was submitted to the TWDB for review and consideration to determine whether it would be considered a major or minor amendment; a copy of the transmittal letter is provided in Attachment A. On April 17, 2024, the TWDB provided a response letter to the SCTRWPG with the determination that the Proposed Amendment is considered a minor amendment. A copy of the response letter from TWDB is provided in Attachment B. The TWDB's correspondence also included a copy of the updated state water planning database (DB22) reports relevant to the amendment (See Attachment C).

In accordance with 31 TAC §357.21(g)(2), the SCTRWPG posted public notice, accepted written comment, and held a public meeting regarding the Proposed Minor Amendment. A public notice was posted on April 18, 2024, 14 days prior to the public meeting. The post notified the public of a public meeting scheduled on May 2, 2024, and included a statement that written comments would be accepted for 14 days and meeting materials would be made available on the SCTRWPG website ([www.RegionLTexas.org](http://www.RegionLTexas.org)) seven days prior to and 14 days following the public meeting. A copy of the public notice is included as Attachment D.

On May 2, 2024, the SCTRWPG held a public meeting to accept public comments and to review and consider comments received from the public, TWDB, and other state or federal agencies. A summary of public and agency comments is included in Attachment E. During the May 2<sup>nd</sup> public meeting, the SCTRWPG adopted the Minor Amendment No. 1 of the 2021 SCTRWP to modify the GBRA Lower Basin Storage Project.

## **ATTACHMENT A**

# **Transmittal Letter to TWDB of Proposed Amendment and Request for Minor Amendment Determination**

March 11, 2024

B&V Project 418064

Mr. Bryan McMath  
Interim Executive Administrator  
Texas Water Development Board  
P.O. Box 13231  
1700 North Congress Avenue  
Austin, Texas 78711-3231

Transmitted via Email

RE: Transmittal of Proposed Amendment to the 2021 South Central Texas (Region L) Regional Water Plan to modify the Guadalupe-Blanco River Authority Lower Basin Storage Project

Dear Mr. McMath,

On behalf of the South Central Texas Regional Water Planning Group (SCTRWPG), Black & Veatch submits this letter transmitting a Proposed Amendment to the 2021 South Central Texas (Region L) Regional Water Plan (RWP) to modify the Guadalupe-Blanco River Authority (GBRA) Lower Basin Storage Project, which was included as a recommended water management strategy (WMS) in the 2021 RWP. This letter also serves as a request to the Texas Water Development Board (TWDB) to provide a “minor amendment determination” for the Proposed Amendment to the 2021 RWP.

**RWPG Actions.** At the regular meeting of the SCTRWPG on February 14, 2024, GBRA provided a presentation requesting authorization to pursue an amendment of the 2021 RWP to modify the GBRA Lower Basin Storage Project by adding an 89-mile raw water transmission pipeline that would connect the GBRA Lower Basin Storage Project to the GBRA Mid-Basin (Phase 2) Project, which is also included as a recommended WMS in the 2021 RWP. The SCTRWPG considered the request and took action to approve submittal of a minor amendment determination request to the TWDB and approve pursuit of an amendment to the 2021 RWP to modify GBRA’s Lower Basin Storage Project.

**Need for Amendment.** The Proposed Amendment is needed by GBRA due to changed conditions. Specifically, the project approach and schedule have changed since adoption of the 2021 RWP, necessitating that GBRA initiate planning, land acquisition, and design of the water supply project sooner than previously anticipated. The GBRA Lower Basin Storage Project, as described in the 2021 RWP, includes an intake structure and off-channel reservoir (OCR) to firm up the existing surface water rights in the lower Guadalupe-San Antonio River Basin. The 2021 RWP included a 1-mile raw water transmission pipeline; however, GBRA now plans to include an 89-mile pipeline from Calhoun County to Gonzales County. Additionally, the project schedule has been accelerated to meet water supply needs in the region because of significant population and water demand growth. As such, GBRA intends to apply for State Water Implementation Fund for Texas (SWIFT) funding from the Texas Water Development Board (TWDB) to initiate planning, land acquisition, and design of the water supply project. In order to be eligible for SWIFT funding, the 89-mile raw water transmission pipeline would need to be integrated into the 2021 RWP as an infrastructure component of the GBRA Lower Basin Storage Project WMS.

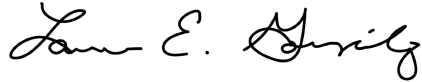
**Documentation of Plan Changes.** The enclosed Proposed Amendment documents the plan sections for which the amendment applies and identifies where changes would occur based on the amendment. The GBRA Lower Basin Storage Project WMS was evaluated in accordance with statutes, rules, and regional water planning technical guidelines. It should be noted that the modifications in the Proposed Amendment do not affect water availability modeling; therefore, revised modeling files are not necessary nor included in this transmittal.

**Minor Amendment Criteria.** In accordance with Title 31 of the Texas Administrative Code Chapter 357.51(c)(2), the Proposed Amendment meets all criteria associated with a minor amendment. The following table demonstrates how the Proposed Amendment meets the minor amendment criteria:

<b>Criteria in 31 TAC 357.51(c)(2)</b>	<b>Proposed Amendment's Compliance with Criteria</b>
<p>An amendment is minor if it meets the following criteria:</p> <p>(A) does not result in over-allocation of an existing or planned source of water;</p>	<p>The Proposed Amendment does not modify the project's firm yield nor the project's sales/transfers to customers, as described in the 2021 RWP. Furthermore, The GBRA and Dow Chemical Company (Dow), individually and collectively, own surface water rights in the lower Guadalupe-San Antonio River Basin, authorizing diversions from the run-of-river flow of the Guadalupe River totaling 172,501 acft/yr. In accordance with the existing GBRA/Dow Water Rights, the project is expected to have a firm yield of 59,780 acft/yr), which does not result in over-allocation of the Guadalupe River run-of river now or in the future.</p>
<p>(B) does not relate to a new reservoir;</p>	<p>The Proposed Amendment does not relate to any modifications of the project's OCR, as described in the 2021 RWP. The OCR footprint, size, and capacity are unchanged from the adopted 2021 RWP.</p>
<p>(C) does not increase unmet needs or produce new unmet needs in the adopted RWP;</p>	<p>The Proposed Amendment does not modify the project's firm yield nor the project's sales/transfers to customers, as described in the 2021 RWP. Therefore, the Proposed Amendment does not modify nor increase unmet needs, nor produce new unmet needs in the adopted RWP.</p>
<p>(D) does not have a significant effect on instream flows, environmental flows or freshwater flows to bays and estuaries;</p>	<p>The Proposed Amendment does not modify the project's firm yield nor the OCR size, capacity, or footprint. Therefore, the Proposed Amendment has no effects on instream flows, environmental flows, or freshwater flows to bays and estuaries.</p>
<p>(E) does not have a significant substantive impact on water planning or previously adopted management strategies; and</p>	<p>The Proposed Amendment would add an 89-mile raw water transmission pipeline that connects the GBRA Lower Basin Storage Project to the GBRA Mid-Basin (Phase 2) Project, which is also included as a recommended WMS in the 2021 RWP. No modifications or changes to the GBRA Mid-Basin (Phase 2) Project are proposed. Therefore, the Proposed Amendment does not have an impact on water planning or previously adopted management strategies.</p>
<p>(F) does not delete or change any legal requirements of the plan.</p>	<p>The Proposed Amendment does not have any proposed modifications that would delete or change any legal requirements of the plan.</p>

The South Central Texas Regional Water Planning Group appreciates your review and consideration of the enclosed Proposed Amendment. Please let me know if you need additional information or if you have any questions. Thank you.

Sincerely,



Lauren E. Gonzalez  
BLACK & VEATCH

Enclosure: Proposed Amendment of the 2021 Region L Regional Water Plan to modify the GBRA Lower Basin Storage Project

cc: Tim Andruss, Chair, Region L Regional Water Planning Group  
Jonathan Stinson, Guadalupe-Blanco River Authority  
Brian Perkins, Guadalupe-Blanco River Authority  
Cayethania Castillo, San Antonio River Authority  
Sarah Lee, Texas Water Development Board  
Michele Foss, Texas Water Development Board

**ATTACHMENT B**

**TWDB Response Letter with  
Minor Amendment Determination**



P.O. Box 13231, 1700 N. Congress Ave.  
Austin, TX 78711-3231, [www.twdb.texas.gov](http://www.twdb.texas.gov)  
Phone (512) 463-7847, Fax (512) 475-2053

April 12, 2024

Mr. Tim Andruss  
Chair  
South Central Texas (Region L) Regional Water Planning Group  
c/o San Antonio River Authority  
100 East Guenther Street  
San Antonio, Texas 78283

Dear Chairman Andruss:

I have reviewed Region L's request for a minor amendment determination. Based on the request and supporting materials, I have determined that amending the Region L 2021 Regional Water Plan (RWP) to modify the Guadalupe-Blanco River Authority (GBRA) Lower Basin Storage Project constitutes a minor amendment under 31 Texas Administrative Code (TAC) §357.51(c).

If the Region L Regional Water Planning Group adopts the proposed minor amendment, the planning group will need to submit the following items to the Texas Water Development Board (TWDB):

1. Documentation of the planning group action adopting this minor amendment in the form of a cover letter.
2. A final version of the 2021 Region L RWP amendment.

Please note that the final amendment to the 2021 Region L RWP must include the following:

1. A copy of the updated state water planning database (DB22) reports relevant to the amendment (provided by the TWDB).
2. A summary of any public comments received on the proposed amendment and the region's response to the public comments.

**Our Mission**

Leading the state's efforts  
in ensuring a secure  
water future for Texas

**Board Members**

Brooke T. Paup, Chairwoman | George B. Peyton V, Board Member | L'Oreal Stepney, P.E., Board Member  
Bryan McMath, Interim Executive Administrator

Mr. Tim Andruss, Chair

April 12, 2024

Page 2

After receipt of all required information, the TWDB Board will consider approving the Region L amendment at a regularly scheduled meeting, and then may amend the 2022 State Water Plan, as appropriate.

If Region L makes any substantive changes during the minor amendment process, the TWDB will need to review the modified proposed amendment to ensure that any other changes still meet all of the criteria under 31 TAC §357.51(c).

If you have any questions concerning this determination, please contact Michele Foss of our Regional Water Planning staff at 512-463-9225 or [michele.foss@twdb.texas.gov](mailto:michele.foss@twdb.texas.gov).

Sincerely,

Bryan McMath

Interim Executive Administrator

c: Jonathan Stinson, Guadalupe-Blanco River Authority  
Brian Perkins, Guadalupe-Blanco River Authority  
Cayethania Castillo, San Antonio River Authority  
Lauren Gonzalez, Black & Veatch  
Jaime Burke, Black & Veatch  
Sarah Lee, Water Supply Planning  
Michele Foss, Water Supply Planning



## **ATTACHMENT C**

### **Updated State Water Planning Database (DB22) Reports**

### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

						WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	2020	2030	2040	2050	2060	2070
Air Force Village II Inc	L	DROUGHT MANAGEMENT - AIR FORCE VILLAGE II	DEMAND REDUCTION	\$127	N/A	3	0	0	0	0	0
Air Force Village II Inc	L	ENTITY PURCHASE TO MEET SHORTAGES - SAWS	L   Carrizo-Wilcox Aquifer   Bexar COUNTY	\$701	\$4163	107	114	114	97	81	74
Air Force Village II Inc	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	9	27	46	62	78	85
Alamo Heights	L	DROUGHT MANAGEMENT - ALAMO HEIGHTS	DEMAND REDUCTION	\$88	N/A	50	0	0	0	0	0
Alamo Heights	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Bexar COUNTY	\$1242	\$1242	464	388	307	181	105	32
Alamo Heights	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	340	341	233	188	108	41
Alamo Heights	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	103	279	440	600	752	892
Aqua WSC*	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	1	1	1
Asherton	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	7	24	47	57	65	72
Atascosa Rural WSC	L	DROUGHT MANAGEMENT - ATASCOSA RURAL WSC	DEMAND REDUCTION	\$89	N/A	59	0	0	0	0	0
Atascosa Rural WSC	L	FE - ATASCOSA RURAL WSC	L   Edwards-BFZ Aquifer   Medina COUNTY	\$8838	\$2161	31	31	31	31	31	31
Atascosa Rural WSC	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer   Atascosa COUNTY	\$468	\$250	1,049	2,098	2,098	2,098	2,098	2,098
Atascosa Rural WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	50
Batesville WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	5	13	16	22	29	37
Benton City WSC	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer   Atascosa COUNTY	N/A	\$0	0	0	0	0	153	345
Benton City WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	60
Bexar County WCID 10	L	DROUGHT MANAGEMENT - BEXAR COUNTY WCID 10	DEMAND REDUCTION	\$89	N/A	33	0	0	0	0	0
Bexar County WCID 10	L	ENTITY PURCHASE TO MEET SHORTAGES - SAWS	L   Carrizo-Wilcox Aquifer   Bexar COUNTY	\$701	\$1463	348	312	243	197	199	198
Bexar County WCID 10	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	51	141	234	310	340	372
Big Wells	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	3	2	2	4	7	11
Boerne	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	139	496	1,009	1,551	1,936	2,352
Boerne	L	REUSE - BOERNE NON-POTABLE REUSE	L   Direct Non-Potable Reuse	\$1783	\$442	750	1,500	1,500	1,500	1,500	1,500
Buda*	L	ARWA - PHASE 3	L   Direct Non-Potable Reuse	N/A	\$1995	0	0	0	0	21	21
Buda*	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	2	6	9	13	17	23
Canyon Lake Water Service*	L	GBRA - MBWSP	L   Carrizo-Wilcox Aquifer ASR Fresh/Brackish   Gonzales COUNTY	N/A	\$442	0	0	0	0	0	174
Canyon Lake Water Service*	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	89	380	759
Carrizo Hill WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	2	10	11	14	17	20
Carrizo Springs	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	77	210	346	498	645	784

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
						2020	2030	2040	2050	2060	2070
Castroville	L	DROUGHT MANAGEMENT - CASTROVILLE	DEMAND REDUCTION	\$108	N/A	17	0	0	0	0	0
Castroville	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	N/A	300	200	150	100	0	0
Castroville	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	46	109	167	225	283	336
Charlotte	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	8	27	33	43	57	73
Cibolo	L	CIBOLO VALLEY LGC CARRIZO GROUNDWATER PROJECT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	N/A	\$314	0	2,000	2,000	2,000	2,000	2,000
Cibolo	L	CIBOLO VALLEY LGC CARRIZO GROUNDWATER PROJECT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Wilson COUNTY	N/A	\$314	0	3,000	3,000	3,000	3,000	3,000
Cibolo	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	43	267	545	875
Clear Water Estates Water System	L	DROUGHT MANAGEMENT - CLEAR WATER ESTATES WATER SYSTEM	DEMAND REDUCTION	\$102	N/A	4	0	0	0	0	0
Clear Water Estates Water System	L	LOCAL GROUNDWATER DEVELOPMENT	L   Trinity Aquifer   Comal COUNTY	\$0	\$0	627	806	987	1,171	1,352	1,528
Clear Water Estates Water System	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	54	142	253	386	534	695
Converse	L	CRWA - WELLS RANCH (PHASE 3)	L   Carrizo-Wilcox Aquifer   Guadalupe COUNTY	\$1330	\$849	264	575	762	736	730	720
Converse	L	DROUGHT MANAGEMENT - CONVERSE	DEMAND REDUCTION	\$90	N/A	101	0	0	0	0	0
Converse	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	0	8
Cotulla	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	67	180	303	443	589	737
County Line SUD	L	ARWA - PHASE 2	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	N/A	\$199	0	0	669	669	669	669
County Line SUD	L	ARWA - PHASE 3	L   Direct Non-Potable Reuse	N/A	\$2001	0	0	0	0	178	178
County Line SUD	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$1430	\$358	478	478	478	478	478	478
County Line SUD	L	COUNTY LINE SUD - BRACKISH EDWARDS WELLFIELD	L   Edwards-BFZ Aquifer Saline   Hays COUNTY	N/A	\$2301	0	0	0	500	1,000	1,500
County Line SUD	L	COUNTY LINE SUD - TRINITY WELLFIELD	L   Trinity Aquifer   Hays COUNTY	N/A	\$1078	0	0	0	500	740	740
County Line SUD	L	REUSE - COUNTY LINE SUD	L   Direct Non-Potable Reuse	\$993	\$401	560	1,120	1,680	2,240	2,800	3,360
County-Other, Bexar	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	0	16
County-Other, Calhoun	L	LOCAL GROUNDWATER DEVELOPMENT	L   Gulf Coast Aquifer System   Calhoun COUNTY	N/A	\$711	0	0	0	0	412	412
County-Other, Comal	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	117	264	296	388	520	671
County-Other, Dimmit	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	2
County-Other, Frio	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	1
County-Other, Guadalupe	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	5	13

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
						2020	2030	2040	2050	2060	2070
County-Other, Hays*	L	GBRA - MBWSP	L   Carrizo-Wilcox Aquifer ASR Fresh/Brackish   Gonzales COUNTY	N/A	\$442	0	0	0	0	2,029	7,220
County-Other, Hays*	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	0	232
County-Other, Karnes	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	1	11	21
County-Other, Kendall	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	6
County-Other, La Salle	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	5
County-Other, Medina	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	27
County-Other, Uvalde	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	1
County-Other, Victoria	L	GBRA LOWER BASIN STORAGE PROJECT	L   GBRA Lower Basin Off-Channel Lake/Reservoir	\$763	\$183	846	906	951	1,015	1,095	1,166
County-Other, Wilson	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	4
County-Other, Zavala	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	4	9	15	24	32	42
Crystal City	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	60	196	353	496	573	654
Crystal Clear WSC	L	ARWA - PHASE 2	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	N/A	\$199	0	0	3,585	3,585	3,585	3,585
Crystal Clear WSC	L	ARWA - PHASE 3	L   Direct Non-Potable Reuse	N/A	\$2001	0	0	0	0	953	953
Crystal Clear WSC	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$1430	\$358	2,560	2,560	2,560	2,560	2,560	2,560
Crystal Clear WSC	L	DROUGHT MANAGEMENT - CRYSTAL CLEAR WSC	DEMAND REDUCTION	\$89	N/A	92	0	0	0	0	0
Crystal Clear WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	77
Cuero	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	91	233	367	503	637	744
Devine	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	4
Dilley	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	50	145	248	362	453	501
East Medina County SUD	L	DROUGHT MANAGEMENT - EAST MEDINA COUNTY SUD	DEMAND REDUCTION	\$90	N/A	43	0	0	0	0	0
East Medina County SUD	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	150	250	300	400	450	500
El Oso WSC*	L	DROUGHT MANAGEMENT - EL OSO WSC	DEMAND REDUCTION	\$88	N/A	14	0	0	0	0	0
El Oso WSC*	L	LOCAL GROUNDWATER DEVELOPMENT	N   Gulf Coast Aquifer System   Bee COUNTY	\$1317	\$842	12	13	18	20	45	47
El Oso WSC*	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	29	84	138	161	176	194
Elmendorf	L	DROUGHT MANAGEMENT - ELMENDORF	DEMAND REDUCTION	\$234	N/A	8	0	0	0	0	0
Elmendorf	L	ENTITY PURCHASE TO MEET SHORTAGES - SAWS	L   Carrizo-Wilcox Aquifer   Bexar COUNTY	\$701	\$1463	46	133	214	292	350	399
Elmendorf	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	1	17	35
Encinal WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	8	25	44	58	68	77

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
						2020	2030	2040	2050	2060	2070
Fair Oaks Ranch	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	117	334	587	831	1,141	1,423
Fair Oaks Ranch	L	REUSE - FAIR OAKS RANCH NON-POTABLE REUSE	L   Direct Non-Potable Reuse	N/A	\$93	0	672	672	672	672	672
Falls City	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	6	17	26	36	39	42
Floresville	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer   Wilson COUNTY	N/A	\$402	0	0	828	828	1,654	1,656
Floresville	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	79	270	523	819	1,118	1,283
Fort Sam Houston	L	DROUGHT MANAGEMENT - FORT SAM HOUSTON	DEMAND REDUCTION	\$106	N/A	5	0	0	0	0	0
Fort Sam Houston	L	ENTITY PURCHASE TO MEET SHORTAGES - SAWS	L   Carrizo-Wilcox Aquifer   Bexar COUNTY	\$701	N/A	1,716	1,315	927	557	207	0
Fort Sam Houston	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$600	\$600	213	436	639	824	993	1,144
Garden Ridge	L	DROUGHT MANAGEMENT - GARDEN RIDGE	DEMAND REDUCTION	\$64	N/A	47	0	0	0	0	0
Garden Ridge	L	LOCAL GROUNDWATER DEVELOPMENT	L   Trinity Aquifer   Comal COUNTY	\$0	\$0	918	1,241	1,638	1,788	2,184	2,565
Garden Ridge	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	108	300	553	781	1,102	1,449
Goforth SUD*	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$721	\$283	1,869	1,883	1,887	1,854	1,780	1,703
Goforth SUD*	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	\$721	\$283	1,898	1,913	1,917	1,915	1,912	1,906
Goforth SUD*	L	DROUGHT MANAGEMENT - GOFORTH SUD	DEMAND REDUCTION	\$89	N/A	103	0	0	0	0	0
Goforth SUD*	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	0	50
Goliad	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	15	51	93	111	123	135
Gonzales	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	96	271	465	690	941	1,081
Gonzales County WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	109	289	490	717	966	1,233
Green Valley SUD	L	ARWA - PHASE 2	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	N/A	\$199	0	0	2,232	2,232	2,232	2,232
Green Valley SUD	L	ARWA - PHASE 3	L   Direct Non-Potable Reuse	N/A	\$2001	0	0	0	0	594	594
Green Valley SUD	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$1430	\$358	1,595	1,595	1,595	1,595	1,595	1,595
Guadalupe-Blanco River Authority	L	FE - GBRA WESTERN CANYON EXPANSION	L   Canyon Lake/Reservoir	N/A	\$510	0	0	0	0	1,725	1,566
Guadalupe-Blanco River Authority	L	FE - HAYS COUNTY PIPELINE PROJECT	L   Canyon Lake/Reservoir	N/A	N/A	0	2,179	5,108	4,345	0	0
Guadalupe-Blanco River Authority	L	GBRA - MBWSP	L   Carrizo-Wilcox Aquifer ASR Fresh/Brackish   Gonzales COUNTY	N/A	\$442	0	18,553	18,063	17,449	14,726	8,567
Guadalupe-Blanco River Authority	L	GBRA LOWER BASIN STORAGE PROJECT	L   GBRA Lower Basin Off-Channel Lake/Reservoir	\$763	\$183	58,934	58,874	58,829	58,765	58,685	58,614
Hondo	L	DROUGHT MANAGEMENT - HONDO	DEMAND REDUCTION	\$89	N/A	51	0	0	0	0	0
Hondo	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	500	500	450	425	500	500
Hondo	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	87	260	450	599	675	754

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**Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)**

WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
						2020	2030	2040	2050	2060	2070
Jourdanton	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	38	125	232	326	382	442
Karnes City	L	DROUGHT MANAGEMENT - KARNES CITY	DEMAND REDUCTION	\$112	N/A	23	0	0	0	0	0
Karnes City	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer   Karnes COUNTY	\$1131	\$611	134	134	134	134	134	134
Karnes City	L	LOCAL GROUNDWATER DEVELOPMENT	L   Yegua-Jackson Aquifer   Karnes COUNTY	\$1131	\$611	310	310	310	310	310	310
Karnes City	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	21	63	84	91	102	114
Kendall County WCID 1	L	REUSE - KENDALL COUNTY WCID NON-POTABLE	L   Direct Non-Potable Reuse	\$0	\$0	180	180	180	180	180	180
Kendall West Utility	L	LOCAL GROUNDWATER DEVELOPMENT	L   Trinity Aquifer   Kendall COUNTY	N/A	\$0	0	282	561	902	1,365	1,596
Kendall West Utility	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	9
Kenedy	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	86	200	304	409	505	593
Kirby	L	DROUGHT MANAGEMENT - KIRBY	DEMAND REDUCTION	\$62	N/A	32	0	0	0	0	0
Kirby	L	ENTITY PURCHASE TO MEET SHORTAGES - SAWS	L   Carrizo-Wilcox Aquifer   Bexar COUNTY	\$701	\$1463	174	275	249	240	238	237
Knippa WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	6	18	31	42	47	54
KT Water Development	L	DROUGHT MANAGEMENT - KT WATER DEVELOPMENT	DEMAND REDUCTION	\$123	N/A	7	0	0	0	0	0
KT Water Development	L	LOCAL GROUNDWATER DEVELOPMENT	L   Trinity Aquifer   Comal COUNTY	\$806	\$511	161	161	322	483	483	644
KT Water Development	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	28	78	146	228	321	421
Kyle	L	ARWA - PHASE 2	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	N/A	\$199	0	0	5,916	5,916	5,916	5,916
Kyle	L	ARWA - PHASE 3	L   Direct Non-Potable Reuse	N/A	\$2001	0	0	0	0	1,573	1,573
Kyle	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$1430	\$358	4,225	4,225	4,225	4,225	4,225	4,225
Kyle	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	52	266	480
La Coste	L	DROUGHT MANAGEMENT - LA COSTE	DEMAND REDUCTION	\$72	N/A	8	0	0	0	0	0
La Coste	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	100	100	100	100	100	100
La Vernia	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	15	55	109	157	188	219
Lackland Air Force Base	L	DROUGHT MANAGEMENT - LACKLAND AIR FORCE BASE	DEMAND REDUCTION	\$89	N/A	67	0	0	0	0	0
Leon Valley	L	DROUGHT MANAGEMENT - LEON VALLEY	DEMAND REDUCTION	\$111	N/A	65	0	0	0	0	0
Leon Valley	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Bexar COUNTY	\$1242	\$1242	92	115	150	299	328	356
Leon Valley	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	79	113	122	300	304	302
Leon Valley	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$600	\$600	42	102	112	165	212	265
Live Oak	L	DROUGHT MANAGEMENT - LIVE OAK	DEMAND REDUCTION	\$57	N/A	48	0	0	0	0	0

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### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
						2020	2030	2040	2050	2060	2070
Live Oak	L	ENTITY PURCHASE TO MEET SHORTAGES - SAWS	L   Carrizo-Wilcox Aquifer   Bexar COUNTY	\$701	\$1463	392	333	297	261	226	192
Live Oak	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	57	171	183	205	237	271
Lockhart	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$721	\$283	1,489	1,489	1,489	1,489	1,489	1,489
Lockhart	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	\$721	\$283	1,511	1,511	1,511	1,511	1,511	1,511
Lockhart	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	0	71
Loma Alta Chula Vista Water System	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	12	34	57	84	112	140
Luling	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	N/A	\$453	0	353	353	706	706	1,059
Luling	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	2
Lytle	L	DROUGHT MANAGEMENT - LYTLE	DEMAND REDUCTION	\$45	N/A	18	0	0	0	0	0
Lytle	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	350	400	450	500	600	650
Lytle	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	25	94	166	199	242	286
Manufacturing, Comal	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$1430	N/A	2,786	0	0	0	0	0
Manufacturing, Comal	L	GBRA - MBWSP	L   Carrizo-Wilcox Aquifer ASR Fresh/Brackish   Gonzales COUNTY	N/A	\$442	0	3,783	3,783	3,783	3,783	3,783
Manufacturing, DeWitt	L	LOCAL GROUNDWATER DEVELOPMENT	L   Gulf Coast Aquifer System   DeWitt COUNTY	N/A	\$56	0	242	242	242	242	242
Manufacturing, Guadalupe	L	GBRA - MBWSP	L   Carrizo-Wilcox Aquifer ASR Fresh/Brackish   Gonzales COUNTY	N/A	\$442	0	402	402	402	402	402
Manufacturing, Karnes	L	LOCAL GROUNDWATER DEVELOPMENT	L   Yegua-Jackson Aquifer   Karnes COUNTY	N/A	\$8	0	0	232	231	242	242
Manufacturing, Victoria	L	GBRA LOWER BASIN NEW APPROPRIATION	L   GBRA Lower Basin New Appropriation Off-Channel Reservoir	N/A	\$112	0	16,575	16,575	16,575	16,575	16,575
Marion	L	CRWA - WELLS RANCH (PHASE 3)	L   Carrizo-Wilcox Aquifer   Guadalupe COUNTY	N/A	\$849	0	0	18	59	103	146
Martindale WSC	L	CRWA - WELLS RANCH (PHASE 3)	L   Carrizo-Wilcox Aquifer   Guadalupe COUNTY	N/A	\$849	0	65	140	250	530	854
Martindale WSC	L	DROUGHT MANAGEMENT - MARTINDALE	DEMAND REDUCTION	\$113	N/A	21	0	0	0	0	0
Martindale WSC	L	FE - CRWA HAYS CALDWELL WTP EXPANSION	L   Guadalupe Run-of-River	\$1566	\$698	255	255	255	255	255	255
Martindale WSC	L	MARTINDALE WSC - ALLUVIAL WELL	L   San Marcos River Alluvium Aquifer   Caldwell COUNTY	N/A	\$96	0	240	240	240	240	240
Maxwell WSC	L	MAXWELL WSC - TRINITY WELL FIELD	L   Trinity Aquifer   Hays COUNTY	N/A	\$1822	0	0	230	230	230	230
Medina County WCID 2	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	6	18	31	36	42	48
Mining, Comal	L	LOCAL GROUNDWATER DEVELOPMENT	L   Trinity Aquifer   Comal COUNTY	\$70	\$31	4,116	5,566	7,018	8,228	9,206	9,185
Mining, DeWitt	L	LOCAL GROUNDWATER DEVELOPMENT	L   Gulf Coast Aquifer System   DeWitt COUNTY	\$7	\$7	1,937	1,937	1,937	1,937	1,937	1,937

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### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
						2020	2030	2040	2050	2060	2070
Mining, Uvalde	L	LOCAL GROUNDWATER DEVELOPMENT	L   Leona Gravel Aquifer   Uvalde COUNTY	\$54	\$54	242	242	242	242	242	242
Moore WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	5	14	24	27	31	36
Natalia	L	DROUGHT MANAGEMENT - NATALIA	DEMAND REDUCTION	\$115	N/A	6	0	0	0	0	0
Natalia	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	125	150	150	200	200	200
Natalia	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	7	23	26	33	44	55
New Braunfels	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$721	\$283	3,969	3,969	3,969	3,969	3,969	3,969
New Braunfels	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	\$721	\$283	4,031	4,031	4,031	4,031	4,031	4,031
New Braunfels	L	FE - NBU SEGUIN INTERCONNECT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	\$212	\$143	2,500	2,500	2,500	2,500	2,500	2,500
New Braunfels	L	FE - NBU SOUTH WTP EXPANSION	L   Guadalupe Run-of-River	N/A	\$1438000	0	1	1	1	1	1
New Braunfels	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$600	\$600	663	2,240	4,381	5,814	7,168	8,631
New Braunfels	L	NBU - ASR	L   Trinity and/or Brackish Edwards Aquifer ASR Fresh/Brackish   Comal COUNTY	\$462	\$207	10,818	10,818	10,818	10,818	10,818	10,818
New Braunfels	L	NBU - TRINITY DEVELOPMENT	L   Trinity Aquifer   Comal COUNTY	N/A	\$284	0	3,360	3,360	3,360	3,360	3,360
Nixon	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	1	1	3	11	23	38
Oak Hills WSC	L	DROUGHT MANAGEMENT - OAK HILLS WSC	DEMAND REDUCTION	\$88	N/A	28	0	0	0	0	0
Oak Hills WSC	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Wilson COUNTY	\$0	\$0	475	675	875	1,050	1,200	1,350
Oak Hills WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	30	72	101	142	192	248
Pearsall	L	DROUGHT MANAGEMENT - PEARSALL	DEMAND REDUCTION	\$68	N/A	26	0	0	0	0	0
Pearsall	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer   Frio COUNTY	\$564	\$296	807	807	1,614	1,614	1,614	1,614
Pearsall	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	81	247	434	496	573	655
Picosa WSC	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Wilson COUNTY	N/A	\$0	0	0	19	58	99	137
Pleasanton	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	95	307	565	846	985	1,130
Polonia WSC*	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	0	4
Poth	L	LOCAL GROUNDWATER DEVELOPMENT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Wilson COUNTY	N/A	\$0	0	0	0	0	35	97
Poth	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	7	9	14	25	43	64
Refugio	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	19	59	85	96	108	119
Runge	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	10	28	46	55	59	64

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### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
						2020	2030	2040	2050	2060	2070
S S WSC	L	CRWA - WELLS RANCH (PHASE 3)	L   Carrizo-Wilcox Aquifer   Guadalupe COUNTY	\$1330	\$849	345	1,123	1,882	2,655	2,479	2,869
S S WSC	L	DROUGHT MANAGEMENT - S S WSC	DEMAND REDUCTION	\$88	N/A	95	0	0	0	0	0
S S WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	16	159
S S WSC	L	SS WSC BRACKISH CARRIZO WILCOX PROJECT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Wilson COUNTY	N/A	\$2578	0	0	0	0	1,120	1,120
Sabinal	L	DROUGHT MANAGEMENT - SABINAL	DEMAND REDUCTION	\$47	N/A	14	0	0	0	0	0
Sabinal	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Uvalde COUNTY	\$1242	\$1242	150	150	150	125	125	125
Sabinal	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	20	57	96	141	182	203
San Antonio Water System	L	DROUGHT MANAGEMENT - SAWS	DEMAND REDUCTION	\$99	\$358	11,951	31,476	45,677	49,377	53,109	56,588
San Antonio Water System	L	FE - SAWS ASR TREATMENT PLANT EXPANSION	L   Carrizo-Aquifer ASR Fresh/Brackish   Bexar COUNTY	N/A	\$115	0	33,600	33,600	33,600	33,600	33,600
San Antonio Water System	L	FE - SAWS WESTERN INTEGRATION PIPELINE	L   Canyon Lake/Reservoir	\$2281	\$293	500	3,094	3,094	3,094	3,094	3,094
San Antonio Water System	L	FE - SAWS WESTERN INTEGRATION PIPELINE	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	\$2281	\$293	390	390	390	390	390	390
San Antonio Water System	L	FE - SAWS WESTERN INTEGRATION PIPELINE	L   Guadalupe Run-of-River	\$2281	\$293	516	516	516	516	516	516
San Antonio Water System	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$600	\$600	24,367	50,667	74,313	89,629	102,682	115,929
San Antonio Water System	L	REUSE - SAWS - REUSE WATER PROGRAMS	L   Direct Non-Potable Reuse	N/A	\$1194	0	5,000	5,000	15,000	25,000	40,000
San Antonio Water System	L	SAWS - EXPANDED LOCAL CARRIZO	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Bexar COUNTY	N/A	\$42	0	0	21,000	21,000	21,000	21,000
San Antonio Water System	L	SAWS ADVANCED METER INFRASTRUCTURE	DEMAND REDUCTION	\$52554	N/A	426	606	510	0	0	0
San Antonio Water System	L	SAWS EXPANDED BRACKISH GROUNDWATER PROJECT	L   Carrizo-Wilcox Aquifer   Wilson COUNTY	N/A	\$1269	0	0	0	0	23,482	23,482
San Antonio Water System	L	SAWS EXPANDED BRACKISH GROUNDWATER PROJECT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Wilson COUNTY	N/A	\$1269	0	0	20,160	20,160	46,678	46,678
San Marcos	L	ARWA - PHASE 2	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	N/A	\$199	0	0	7,530	7,530	7,530	7,530
San Marcos	L	ARWA - PHASE 3	L   Direct Non-Potable Reuse	N/A	\$2001	0	0	0	0	2,002	2,002
San Marcos	L	ARWA/GBRA PROJECT (PHASE 1)	L   Carrizo-Wilcox Aquifer   Caldwell COUNTY	\$1430	\$358	2,594	5,380	5,380	5,380	5,380	5,380
San Marcos	L	FE - CRWA HAYS CALDWELL WTP EXPANSION	L   Direct Non-Potable Reuse	\$1566	\$698	1,288	1,288	1,288	1,288	1,288	1,288
San Marcos	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$600	0	0	54	395	949	1,706
San Marcos	L	REUSE - SAN MARCOS	L   Direct Non-Potable Reuse	\$1435	\$1435	1,826	1,971	1,971	1,971	1,971	1,971
San Marcos	L	REUSE - SAN MARCOS	L   Direct Potable Reuse	N/A	\$1980	0	0	0	3,808	3,808	3,808
Schertz	L	CIBOLO VALLEY LGC CARRIZO GROUNDWATER PROJECT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	N/A	\$314	0	2,000	2,000	2,000	2,000	2,000

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### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

						WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	2020	2030	2040	2050	2060	2070
Schertz	L	CIBOLO VALLEY LGC CARRIZO GROUNDWATER PROJECT	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Wilson COUNTY	N/A	\$314	0	3,000	3,000	3,000	3,000	3,000
Schertz	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	242	375	622	971	1,428	1,967
Schertz	L	SSLGC EXPANDED BRACKISH WILCOX GROUNDWATER	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	N/A	\$214	0	0	2,500	2,500	2,500	2,500
Schertz	L	SSLGC EXPANDED CARRIZO PROJECT	L   Carrizo-Wilcox Aquifer   Guadalupe COUNTY	\$1207	\$321	3,000	3,000	3,000	3,000	3,000	3,000
Seadrift	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	6	13	15	21	31	41
Seguin	L	DROUGHT MANAGEMENT - SEGUIN	DEMAND REDUCTION	\$87	N/A	228	0	0	0	0	0
Seguin	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	59	232	448
Seguin	L	SSLGC EXPANDED BRACKISH WILCOX GROUNDWATER	L   Carrizo-Wilcox Aquifer Fresh/Brackish   Gonzales COUNTY	N/A	\$214	0	0	2,500	2,500	2,500	2,500
Seguin	L	SSLGC EXPANDED CARRIZO PROJECT	L   Carrizo-Wilcox Aquifer   Guadalupe COUNTY	\$1207	\$321	3,000	3,000	3,000	3,000	3,000	3,000
Selma	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Bexar COUNTY	N/A	\$1242	0	31	88	123	172	223
Selma	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	62	109	154	202	253	309
Shavano Park	L	DROUGHT MANAGEMENT - SHAVANO PARK	DEMAND REDUCTION	\$77	N/A	47	0	0	0	0	0
Shavano Park	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Bexar COUNTY	\$1242	\$1242	103	129	139	117	113	104
Shavano Park	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	87	123	113	127	114	99
Shavano Park	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	42	109	185	269	356	444
Smiley	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	5	15	26	31	36	42
South Buda WCID 1	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	4	6	12	21	38	60
Springs Hill WSC	L	FE - SHWSC LAKE PLACID WTP EXPANSION	L   Canyon Lake/Reservoir	\$1207	\$551	1,394	1,394	1,394	1,394	1,394	1,394
Steam-Electric Power, Bexar	L	ENTITY PURCHASE TO MEET SHORTAGES - SAWS	L   Carrizo-Wilcox Aquifer   Bexar COUNTY	\$701	\$1463	2,797	2,797	2,797	2,797	2,797	2,797
Steam-Electric Power, Bexar	L	FE - CPS DIRECT RECYCLE PIPELINE	L   Direct Non-Potable Reuse	N/A	\$20	0	50,000	50,000	50,000	50,000	50,000
Steam-Electric Power, Victoria	L	GBRA LOWER BASIN NEW APPROPRIATION	L   GBRA Lower Basin New Appropriation Off-Channel Reservoir	N/A	\$207	0	23,925	23,925	23,925	23,925	23,925
Stockdale	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	13	49	98	143	171	201
Sunko WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	17	32	47	71	106	145
Texas State University	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	33	101	153	167	185	201
The Oaks WSC	L	DROUGHT MANAGEMENT - THE OAKS WSC	DEMAND REDUCTION	\$112	N/A	9	0	0	0	0	0
The Oaks WSC	L	ENTITY PURCHASE TO MEET SHORTAGES - SAWS	L   Carrizo-Wilcox Aquifer   Bexar COUNTY	\$701	\$1463	132	170	208	242	271	294
The Oaks WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	12	34	44	57	72	89

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
						2020	2030	2040	2050	2060	2070
Tri Community WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	0	2
Universal City	L	DROUGHT MANAGEMENT - UNIVERSAL CITY	DEMAND REDUCTION	\$66	N/A	192	0	0	0	0	0
Universal City	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Bexar COUNTY	\$1242	\$1242	175	171	150	114	115	119
Universal City	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	N/A	N/A	0	158	121	124	50	0
Universal City	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$681	0	0	0	0	67	140
Uvalde	L	DROUGHT MANAGEMENT - UVALDE	DEMAND REDUCTION	\$44	N/A	103	0	0	0	0	0
Uvalde	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Uvalde COUNTY	\$1242	\$1242	2,138	2,195	2,074	1,947	1,911	2,030
Uvalde	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	193	552	945	1,384	1,744	1,942
Victoria	L	DROUGHT MANAGEMENT - VICTORIA	DEMAND REDUCTION	\$61	N/A	490	0	0	0	0	0
Victoria	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$600	\$600	809	2,199	3,642	5,158	6,705	7,516
Victoria	L	VICTORIA - ASR	L   Gulf Coast Aquifer ASR   Victoria COUNTY	\$385	\$47	7,900	7,900	7,900	7,900	7,900	7,900
Victoria	L	VICTORIA - GROUNDWATER-SURFACE WATER EXCHANGE	L   Gulf Coast Aquifer System   Victoria COUNTY	\$0	\$0	8,544	8,544	8,544	8,544	8,544	8,544
Waelder	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	7	18	21	27	35	44
Water Services	L	LOCAL GROUNDWATER DEVELOPMENT	L   Trinity Aquifer   Bexar COUNTY	N/A	\$611	0	252	252	315	379	504
Water Services	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$600	\$600	24	26	31	59	99	144
West Medina WSC	L	DROUGHT MANAGEMENT - WEST MEDINA WSC	DEMAND REDUCTION	\$121	N/A	7	0	0	0	0	0
West Medina WSC	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	75	75	75	75	75	75
West Medina WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	9	30	54	70	79	90
Wimberley WSC	L	GBRA - MBWSP	L   Carrizo-Wilcox Aquifer ASR Fresh/Brackish   Gonzales COUNTY	N/A	\$442	0	262	752	1,366	2,060	2,851
Windmill WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	15	43	75	111	125	141
Wingert Water Systems	L	DROUGHT MANAGEMENT - WINGERT WATER SYSTEMS	DEMAND REDUCTION	\$115	N/A	10	0	0	0	0	0
Wingert Water Systems	L	LOCAL GROUNDWATER DEVELOPMENT	L   Trinity Aquifer   Comal COUNTY	\$872	\$524	296	296	296	296	296	296
Wingert Water Systems	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$681	\$681	5	40	86	102	111	119
Woodsboro	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	6	9	8	14	20	27
Yancey WSC	L	DROUGHT MANAGEMENT - YANCEY WSC	DEMAND REDUCTION	\$89	N/A	40	0	0	0	0	0
Yancey WSC	L	EDWARDS TRANSFERS	L   Edwards-BFZ Aquifer   Medina COUNTY	\$1242	\$1242	100	225	300	350	400	450
Yancey WSC	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	N/A	\$770	0	0	0	0	0	11
Yoakum*	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	13	40	40	45	53	63

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

### Region L Recommended Water User Group (WUG) Water Management Strategies (WMS)

						WATER MANAGEMENT STRATEGY SUPPLY (ACRE-FEET PER YEAR)					
WUG ENTITY NAME	WMS SPONSOR REGION	WMS NAME	SOURCE NAME	UNIT COST 2020	UNIT COST 2070	2020	2030	2040	2050	2060	2070
Yorktown	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	12	35	36	43	52	60
Zavala County WCID 1	L	MUNICIPAL WATER CONSERVATION	DEMAND REDUCTION	\$770	\$770	24	65	113	168	225	283
<b>REGION L RECOMMENDED WMS SUPPLY TOTAL</b>						198,517	428,822	550,572	596,348	691,577	736,777

\*A single asterisk next to a WUG's name denotes that the WUG is split by two or more planning regions.

### Region L Recommended Projects Associated with Water Management Strategies

SPONSOR NAME	SPONSOR IS WWP?	ONLINE DECADE	PROJECT NAME	PROJECT DESCRIPTION	CAPITAL COST
Alliance Regional Water Authority	YES	2040	ARWA PHASE 2	MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; STORAGE TANK	\$130,526,000
Alliance Regional Water Authority	YES	2060	ARWA PHASE 3	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$73,558,000
Alliance Regional Water Authority	YES	2020	ARWA/GBRA SHARED FACILITIES PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW SURFACE WATER INTAKE; NEW WATER RIGHT/PERMIT NO IBT; PUMP STATION; STORAGE TANK	\$228,365,000
Atascosa Rural WSC	NO	2020	FE - ATASCOSA RURAL WSC INTERCONNECT	CONVEYANCE/TRANSMISSION PIPELINE	\$3,623,000
Atascosa Rural WSC	NO	2020	LOCAL GROUNDWATER - ATASCOSA RURAL WSC	MULTIPLE WELLS/WELL FIELD	\$6,490,000
Boerne	NO	2020	BOERNE NON-POTABLE REUSE PROJECT	NEW WATER TREATMENT PLANT	\$9,575,000
Canyon Regional Water Authority	YES	2030	CRWA - BRACKISH WILCOX GROUNDWATER	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$177,944,000
Canyon Regional Water Authority	YES	2060	CRWA SIESTA PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$107,161,000
Canyon Regional Water Authority	YES	2020	CRWA WELLS RANCH (PHASE 3)	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; WATER TREATMENT PLANT EXPANSION	\$47,832,000
Canyon Regional Water Authority	YES	2020	FE - CRWA EXPANDED LAKE DUNLAP WTP	WATER TREATMENT PLANT EXPANSION	\$19,040,000
Canyon Regional Water Authority	YES	2020	FE - CRWA HAYS CALDWELL WTP EXPANSION	WATER TREATMENT PLANT EXPANSION	\$19,040,000
Cibolo Valley Local Government Corporation	YES	2030	CIBOLO VALLEY LCG CARRIZO PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$130,277,000
County Line SUD	YES	2050	COUNTY LINE SUD BRACKISH EDWARDS PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; STORAGE TANK	\$13,602,000
County Line SUD	YES	2050	COUNTY LINE TRINITY WELLFIELD	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; NEW WATER TREATMENT PLANT; PUMP STATION; MULTIPLE WELLS/WELL FIELD	\$11,761,000
County Line SUD	YES	2020	REUSE - COUNTY LINE SUD	NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$28,256,000
County-Other, Calhoun	NO	2060	LOCAL GROUNDWATER - CALHOUN COUNTY-OTHER	MULTIPLE WELLS/WELL FIELD	\$1,502,000
El Oso WSC	NO	2020	EL OSO REGION L GROUNDWATER DEVELOPMENT	MULTIPLE WELLS/WELL FIELD; CONVEYANCE/TRANSMISSION PIPELINE; WATER TREATMENT PLANT EXPANSION	\$809,000
Fair Oaks Ranch	NO	2030	FAIR OAKS RANCH NON-POTABLE REUSE PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION	\$3,159,000
Floresville	NO	2040	LOCAL CARRIZO AQUIFER - FLORESVILLE	MULTIPLE WELLS/WELL FIELD; CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER RIGHT/PERMIT NO IBT	\$5,477,000
Guadalupe-Blanco River Authority	YES	2020	ARWA/GBRA SHARED FACILITIES PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW SURFACE WATER INTAKE; NEW WATER RIGHT/PERMIT NO IBT; PUMP STATION; STORAGE TANK	\$124,512,000
Guadalupe-Blanco River Authority	YES	2030	FE - GBRA WESTERN CANYON WTP EXPANSION	WATER TREATMENT PLANT EXPANSION; PUMP STATION	\$23,953,000
Guadalupe-Blanco River Authority	YES	2030	FE - HAYS COUNTY PIPELINE	CONVEYANCE/TRANSMISSION PIPELINE	\$25,486,000
Guadalupe-Blanco River Authority	YES	2020	GBRA LOWER BASIN STORAGE	NEW SURFACE WATER INTAKE; NEW WATER RIGHT/PERMIT NO IBT; RESERVOIR CONSTRUCTION; CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	\$507,642,000
Guadalupe-Blanco River Authority	YES	2030	GBRA MBWSP	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK; INJECTION WELL	\$403,046,000
Guadalupe-Blanco River Authority	YES	2030	GBRA NEW APPROPRIATION (LOWER BASIN)	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; PUMP STATION; RESERVOIR CONSTRUCTION	\$381,960,000

### Region L Recommended Projects Associated with Water Management Strategies

SPONSOR NAME	SPONSOR IS WWP?	ONLINE DECADE	PROJECT NAME	PROJECT DESCRIPTION	CAPITAL COST
Guadalupe-Blanco River Authority	YES	2030	GBRA VICTORIA COUNTY STEAM-ELECTRIC PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$117,260,000
Karnes City	NO	2020	KARNES CITY - LOCAL GROUNDWATER DEVELOPMENT	MULTIPLE WELLS/WELL FIELD; CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER RIGHT/PERMIT NO IBT	\$4,080,000
KT Water Development	NO	2020	LOCAL GROUNDWATER - KT WATER DEVELOPMENT	MULTIPLE WELLS/WELL FIELD	\$3,596,000
Luling	NO	2030	LOCAL GROUNDWATER - LULING	MULTIPLE WELLS/WELL FIELD	\$4,038,000
Manufacturing, DeWitt	NO	2030	LOCAL GROUNDWATER - MANUFACTURING, DEWITT	MULTIPLE WELLS/WELL FIELD	\$167,000
Manufacturing, Karnes	NO	2040	LOCAL GROUNDWATER - MANUFACTURING, KARNES	MULTIPLE WELLS/WELL FIELD	\$188,000
Martindale WSC	NO	2030	MARTINDALE WSC - ALLUVIAL WELL	CONVEYANCE/TRANSMISSION PIPELINE; SINGLE WELL	\$1,253,000
Maxwell WSC	NO	2040	MAXWELL WSC - TRINITY WELLFIELD	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; STORAGE TANK; INJECTION WELL	\$7,971,000
Mining, Comal	NO	2020	LOCAL GROUNDWATER - MINING, COMAL	MULTIPLE WELLS/WELL FIELD	\$10,202,000
Mining, DeWitt	NO	2020	LOCAL GULF COAST AQUIFER - DEWITT MINING	MULTIPLE WELLS/WELL FIELD	\$1,333,000
Mining, Uvalde	NO	2020	LOCAL GROUNDWATER - MINING, UVALDE	MULTIPLE WELLS/WELL FIELD	\$153,000
New Braunfels	NO	2020	FE - NBU SEGUIN INTERCONNECT	CONVEYANCE/TRANSMISSION PIPELINE	\$2,428,000
New Braunfels	NO	2030	FE - NBU SOUTH WTP EXPANSION	WATER TREATMENT PLANT EXPANSION	\$27,701,000
New Braunfels	NO	2030	NBU - TRINITY DEVELOPMENT	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION; STORAGE TANK	\$19,155,000
New Braunfels	NO	2020	NEW BRAUNFELS UTILITIES ASR	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; PUMP STATION; STORAGE TANK	\$39,198,000
Pearsall	NO	2020	LOCAL CARRIZO AQUIFER - PEARSALL	MULTIPLE WELLS/WELL FIELD; CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER RIGHT/PERMIT NO IBT	\$6,140,000
S S WSC	NO	2060	BRACKISH WILCOX GROUNDWATER FOR SS WSC	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$20,384,000
San Antonio Water System	YES	2030	FE - CPS DIRECT RECYCLE PIPELINE	CONVEYANCE/TRANSMISSION PIPELINE	\$35,589,000
San Antonio Water System	YES	2030	FE - SAWS EXPANDED ASR TREATMENT PLANT	WATER TREATMENT PLANT EXPANSION	\$39,508,000
San Antonio Water System	YES	2020	FE - SAWS WESTERN INTEGRATED PIPELINE (PHASE 2)	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; STORAGE TANK	\$113,039,000
San Antonio Water System	YES	2030	RECYCLED WATER PROGRAM - SAWS	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; STORAGE TANK	\$196,963,028
San Antonio Water System	YES	2040	SAWS - EXPANDED BRACKISH WILCOX PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; INJECTION WELL; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$819,805,000
San Antonio Water System	YES	2040	SAWS - EXPANDED LOCAL CARRIZO	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; WATER TREATMENT PLANT EXPANSION	\$23,489,000
San Antonio Water System	YES	2020	SAWS ADVANCED METER INFRASTRUCTURE	DATA GATHERING/MONITORING TECHNOLOGY	\$208,060,000
San Marcos	NO	2020	SAN MARCOS - NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; STORAGE TANK	\$106,770,000
San Marcos	NO	2050	SAN MARCOS - POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; WATER TREATMENT PLANT EXPANSION	\$106,770,000
Schertz-Seguin Local Government Corporation	YES	2040	BRACKISH WILCOX GROUNDWATER FOR SSLGC	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$31,941,000
Schertz-Seguin Local Government Corporation	YES	2020	SSLGC EXPANDED CARRIZO PROJECT	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$75,542,000
Springs Hill WSC	NO	2030	FE - SPRINGS HILL 16 INCH BORED PIPELINE UNDER THE GUADALUPE RIVER	CONVEYANCE/TRANSMISSION PIPELINE	\$490,000

### Region L Recommended Projects Associated with Water Management Strategies

SPONSOR NAME	SPONSOR IS WWP?	ONLINE DECADE	PROJECT NAME	PROJECT DESCRIPTION	CAPITAL COST
Springs Hill WSC	NO	2020	FE - SPRINGS HILL LAKE PLACID WTP EXPANSION	WATER TREATMENT PLANT EXPANSION; PUMP STATION	\$12,995,000
Victoria	NO	2020	VICTORIA - ASR	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; PUMP STATION; INJECTION WELL	\$37,982,000
Water Services	NO	2030	LOCAL GROUNDWATER - WATER SERVICES	MULTIPLE WELLS/WELL FIELD	\$4,378,000
Wingert Water Systems	NO	2020	LOCAL GROUNDWATER - WINGERT WATER SYSTEMS	MULTIPLE WELLS/WELL FIELD	\$1,463,000
<b>REGION L RECOMMENDED CAPITAL COST TOTAL</b>					<b>\$4,564,627,028</b>

## **ATTACHMENT D**

# **Notice of Public Comment and Public Meeting for Region L to Consider and Adopt Minor Amendment**



NOTICE OF OPEN MEETING OF THE  
SOUTH CENTRAL TEXAS REGIONAL  
WATER PLANNING GROUP

TAKE NOTICE that a meeting of the South-Central Texas Regional Water Planning Group (SCTRWPG) as established by the Texas Water Development Board will be held on Thursday, May 2, 2024 at 9:30 AM both in person and virtually. The in-person meeting will be held at the San Antonio Water System's Customer Service Building, Room CR-145, 2800 US Hwy 281 North, San Antonio, TX 78212. You can attend virtually on WebEx at <https://saws.webex.com/saws/j.php?MTID=m3b2a7303c8e91ea193231fd4b81f860f>. The planning group members will consider and may take action regarding:

1. (9:30 AM) Roll-Call
2. Public Comment (Limited to 3 minutes)
3. Approval of the Minutes from the Previous Meeting of the South-Central Texas Regional Water Planning Group (SCTRWPG)
4. Discussion and Appropriate Action Regarding Filling Existing Vacancies and Vacancies to Result from Future Term Expirations or Resignations
5. Election of Officers for the 2024 SCTRWPGE Executive Committee
6. Status Reports and Communications by TWDB
7. Status Reports and Communications Related to Regional Water Planning including reports by the Chair, Regional Liaisons, Groundwater Management Area Representatives, and Members of the Planning Group
8. Consideration and Appropriate Action Regarding Briefings on Workgroup Activities
9. Presentation by Technical Consultant Regarding Schedule and Progress Update
10. Consideration and Appropriate Action for the Technical Consultant to Evaluate the Medina County Regional ASR Project as a New Water Management Strategy
11. Consideration and Appropriate Action Regarding the Proposed Minor Amendment No. 1 to the 2021 South Central Texas (Region L) Regional Water Plan to Update the Guadalupe-Blanco River Authority Lower Basin Storage Project
  - a. Public Comment Regarding the Proposed Minor Amendment No. 1
  - b. Review and Consideration of Comments Received from the Public, TWDB, and Other State or Federal Agencies
  - c. Consideration and Appropriate Action to Adopt the Proposed Minor Amendment No. 1
  - d. Consideration and Appropriate Action to Authorize the Technical Consultant to Submit Proof of Adoption and any Comments to TWDB and to Address Any Requests from TWDB Associated with the Proposed Minor Amendment No. 1 on Behalf of the SCTRWPGE
12. Discussion and Appropriate Action Regarding the Establishment of Additional Subcommittees
13. Schedule and Potential Agenda Items for the Next Meeting of the SCTRWPGE
14. Public Comment (Limited to 3 minutes)
15. Adjourn

As per agenda item 11, 31 TAC §357.21(g)(2) states at a minimum, notice must be provided at least 14 days prior to the meeting, written comment must be accepted for 14 days prior to the meeting and considered by the RWPG members prior to taking the associated action, and meeting materials must be made available on the RWPG website for a minimum of seven days prior to and 14 days following the meeting.

Comments and submissions may be submitted through email to [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org) and include "Region L South Central Texas Water Planning Group Meeting Public Comment" in the subject line of the email. Any written documentation can be sent to Tim Andruss, Chair, South Central Texas Regional Water Planning Group, c/o San Antonio River Authority, Attn: Caye Castillo, 100 E. Guenther Street, San Antonio, TX 78204. Please direct any questions to Caye Castillo at (210) 302-4258, [ccastillo@sariverauthority.org](mailto:ccastillo@sariverauthority.org).

## **ATTACHMENT E**

### **Agency and Public Comments and Responses**

*This attachment will be updated after the  
comment period. If no comments are  
received, this attachment will be removed  
and Chapter 10 language will be revised to  
indicate no comments were received.*