



c/o San Antonio River Authority
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EXECUTIVE COMMITTEE

Suzanne Scott

Chair / River Authorities

Tim Andruss

Vice-Chair / Water Districts

Gary Middleton

Secretary / Municipalities

Kevin Janak

At-Large / Electric Generating Utilities

Adam Yablonski

At-Large / Agriculture

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Counties

Alan Cockerell

Water Utilities

Rey Chavez

Industries

Will Conley

Counties

Curt Campbell

GMA 9

Charlie Flatten

Environmental

Vic Hilderbran

GMA 7

Tom Jungman

Agriculture

Russell Labus

Water Districts

Glenn Lord

Industries

Dan Meyer

GMA 10

Con Mims

River Authorities

Kevin Patteson

River Authorities

Iliana Peña

Environmental

Robert Puente

Municipalities

Humberto Ramos

Water Districts

Steve Ramsey

Water Utilities

Weldon Riggs

Agriculture

Roland Ruiz

Water Districts

Diane Savage

GMA 13

Greg Sengemann

Water Districts

Mitchell Sowards

Small Business

Heather Sumpter

GMA 15

Thomas Taggart

Municipalities

Ian Taylor

Municipalities

Dianne Wassenich

Public

Vacant

Small Business

DATE: Friday, November 1, 2019

TO: Members of the South Central Texas Regional Water Planning Group

FROM: Steven J. Raabe, P.E.

The schedule and location of the meeting of the South Central Texas Regional Water Planning Group is as follows:

TIME AND LOCATION

Thursday, November 7, 2019

9:30 a.m.

San Antonio Water System

Customer Service Building

Room CR C145

2800 US Highway 281 North

San Antonio, Bexar County, Texas 78212

Enclosed is a copy of the posted public meeting notice.

Steven J. Raabe, P.E.

Enclosure

Agenda Packet for November 7, 2019

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 as established by the Texas Water Development Board will be held on Thursday, November 7, 2019, at 9:30 AM at San Antonio Water System (SAWS), Customer Service Building, Room CR 145, 2800 US Highway 281 North, San Antonio, Bexar County, Texas. The following subjects will be considered for discussion and/or action at said meeting.

1. (9:30 AM) Roll-Call
2. Public Comment
3. Approval of the Minutes from the August 1, 2019, Meeting of the South Central Texas Regional Water Planning Group (SCTRWPG)
4. Status of Edwards Aquifer Habitat Conservation Plan (EAHCP), Scott Storment
5. Status of Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays Basin and Bay Stakeholder Committee (BBASC) and Expert Science Team (BBEST)
6. Texas Water Development Board (TWDB) Communications
7. Chair's Report
8. Discussion and Appropriate Action Regarding the Consultant's Work and Schedule
9. Discussion and Appropriate Action Regarding Presentations of Chapters of the Region L Regional Water Plan
 - a. Discussion and Appropriate Action Regarding the Development of an Emergency Interconnection Report
 - b. Discussion Regarding Comments Received to Date on the Region L Water Plan Chapters and Water Management Strategies
10. Discussion and Appropriate Action Regarding Chapter 8 Policy Recommendations from the Workgroup
11. Discussion and Appropriate Action Regarding Presentations of Water Management Strategy Evaluations
12. Discussion and Appropriate Action Regarding Amending the SCTRWPG Bylaws to Conform to Revision to the Open Meetings Act Regarding Public Comment
13. Discussion and Appropriate Action Setting the Schedule for Calendar Year 2020 Meetings
14. Administrator Update on Funding SCTRWPG Administrative Costs for Calendar Year 2020
15. Possible Agenda Items for the Next Region L Meeting
16. Public Comment

2. Public Comment

3. Approval of the Minutes from the August 1, 2019, Meeting of the South Central Texas Regional Water Planning Group (SCTRWPG)

**Minutes of the
South Central Texas Regional Water Planning
Group**

August 1, 2019

At 9:00 AM, Natalie Ballew with the Texas Water Development Board made an informational presentation on the Groundwater Management Area Joint Planning process prior to the formal convening of the Region L planning group meeting.

Chair Suzanne Scott called the meeting to order at 9:30 a.m. in the San Antonio Water System's (SAWS) Customer Service Building, Room CR 145, 2800 US Highway 281 North, San Antonio, Bexar County, Texas.

AGENDA ITEM NO. 2: (9:30 AM) ROLL CALL

Caitlin Heller, San Antonio River Authority, called the role, and confirmed a quorum

27 of the 31 voting members, or their alternates, were present.

Voting Members Present:

Tim Andruss
Curt Campbell
Alan Cockerell
Charlie Flatten
Vic Hilderbran
Kevin Janak
Tom Jungman
Russell Labus
Glenn Lord
Dan Meyer
Gary Middleton
Jonathan Stinson for Kevin Patteson
Illiana Pena
Robert Puente
Humberto Ramos
Steve Ramsey

Weldon Riggs
Julia Carrillo for Roland Ruiz
Dianne Savage
Suzanne Scott
Greg Senglemann
Mitchell Sowards
Heather Sumpter
Thomas Taggart
Ian Taylor
Diane Wassenich
Adam Yablonski

Voting Members Absent:

John Byrum
Pat Calhoun
Rey Chavez
Will Conley

Non-Voting Members Present:

Elizabeth McCoy, Texas Water Development Board (TWDB)
Ronald Fieseler, Region K Liaison
Chad Norris, TX Dept. of Parks and Wildlife
Jami McCool, TX Dept. of Agriculture

Non-Voting Members Absent:

Iliana Delgado, TCEQ-South TX Watermaster

Don McGhee, Region M Liaison

Carl Crull, Region N Liaison

Joseph McDaniel, Region J Liaison

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.

AGENDA ITEM NO. 3: PUBLIC COMMENT

Mr. Alan Montemayor, with the Sierra Club, spoke to the Planning Group and expressed gratitude about the work the group has done. He spoke appreciatively about the planning the group has done and how growing population has increased pressure on the water supply. He urged the group to not follow the California model of water planning and to look past viewing conservation through the lens of dollars and cents. Mr. Montemayor asked the group to continue their efforts towards sustainability and water reuse. Next, Ms. Rachel Cywinski spoke to the Planning Group. She thanked the group for making it easier to procure information about Region L meetings. Ms. Cywinski then praised the group for its civil discourse and participating in water planning.

AGENDA ITEM NO. 4: APPROVAL OF THE MINUTES FROM THE MAY 2, 2019, MEETING OF THE SOUTH CENTRAL TEXAS REGIONAL WATER PLANNING GROUP (SCTRWPG)

Ms. Pena moved for the approval of the minutes. Mr. Andruss seconded the motion. Ms. Lilly then stated that an amendment would have to be made to add in Andrew Young as the alternate for Mitchell Sowards in the list of voting members present for the May 2, 2019 meeting. Mrs. Pena accepted this amendment in her motion for the approval of the minutes. The minutes were approved.

AGENDA ITEM NO. 5: STATUS OF EDWARDS AQUIFER HABITAT CONSERVATION PLAN (EAHCP), SCOTT STORMENT

Mr. Storment gave an update on the Edwards Aquifer Habitat Conservation Plan's (EAHCP) May 23rd, 2019, Board Meeting. He explained that the Implementing Committee passed and approved the Phase 2 Work Plan and the attached Resolution. This puts a capstone on Phase 1 from 2013-2019 which was a developmental and research piece. Mr. Storment said that the EAHCP will now go into maintenance mode with the 2020-2028 Phase 2 which was passed at the Edwards Aquifer Authority Board meeting as well. He continued to say that the VISPO program was approved and that the Comal Springs system has been modeled. Mr. Storment then explained that the EAHCP was going to be moving into a busy fall and that he would be back at the November Planning Group meeting to provide another update.

AGENDA ITEM NO. 6: STATUS OF GUADALUPE, SAN ANTONIO, MISSION, AND ARANSAS RIVERS AND MISSION, COPANO, ARANSAS, AND SAN ANTONIO BAYS BASIN AND BAY STAKEHOLDER COMMITTEE (BBASC) AND EXPERT SCIENCE TEAM (BBEST)

Ms. Scott updated the Planning Group on the progress and delivery dates of the BBASC 2018-2019 studies. She spoke on the BBASC nomination search for 5 vacancies and informed the group of the nomination processes. She requested that the Planning Group use the nomination sheet in the agenda packet and then send their nominations to Jade Rutledge with the TCEQ.

AGENDA ITEM NO. 7: DISCUSSION AND APPROPRIATE ACTION TO NOMINATE A BBASC REGION L REPRESENTATIVE.

Ms. Scott brought attention to the Planning Group of the vacancy of the Region L representative for the BBASC. Ms. Pena offered to serve as the Region L representative for the BBASC. Ms. Wassenich nominated her to serve, seconded by Mr. Lord and all voted in favor of her nomination.

AGENDA ITEM NO. 8: TEXAS WATER DEVELOPMENT BOARD (TWDB) COMMUNICATIONS

Ms. McCoy gave an update on several items of significance. First, since the Planning Group's May 2nd, 2019 meeting, the TWDB has approved Block 2 and 3 which allocates all Task 5A funds. Secondly, she brought the attention of the Planning Group to the TWDB's new Data Planning Dashboard which allows for the visualization of the planning data of the state's Planning Board. Thirdly, Ms. McCoy gave a legislative update on bills 807, 721, 723, SB 7 and SB 8. She began with House Bill 807, stating that the TWDB is required to appoint an Interregional Planning council based on RWPG nominations. She explained that this will improve interregional coordination and discussion on water management strategies. Ms. McCoy stated that House Bill 807 also adds 5 requirements which must be incorporated into the planning rulemaking effective immediately. She requested that RWPG stakeholders submit comments about the new requirements by August 19th, 2019 and consider nominations for the Interregional Planning Group. She then proceeded to discuss the 5 requirements, starting with 1. "Identify Unnecessary or Counterproductive Variations in Drought Response Strategies." Ms. McCoy spoke on the 2nd requirement, "Provide a Specific Assessment for ASR Projects to Meet Significant Water Needs Identified in the RWPA." She explained that the Planning Group would need to determine what the threshold is for "significant" identified water needs. She stated that, regarding the 3rd requirement, "Set Specific GPCD Goals for Each Decade for Municipal WUGS," GPCD goals can be specific or a range and that they can be assigned individually or in groups. Ms. McCoy stated the 4th requirement, "Assess the Progress in Encouraging Cooperation between WUGS to Develop WMSs that Achieve Economies of Scale and Benefit the Entire Region," should be based on information collected in developments included in Chapter 11 of the IPP. She concluded HB 807 with the 5th requirement, "Recommend Legislative Changes to Improve the Water Planning Process," which she explained was similar to existing requirements and should be included in Chapter 8 of the IPP. Ms. McCoy then proceeded to talk about HB 721 which requires the TWDB to conduct studies of ASR projects and a statewide survey of major and minor aquifer projects. She explained that the first feasibility study will be completed by September 2020 and the statewide survey report is due to state leadership by December 15, 2020. She moved on to HB 723 which requires the Texas Commission on Environmental Quality (TCEQ) to obtain or develop updated WAMs for the Brazos, Neches, Red, and Rio Grande River Basins by December 1, 2022. Ms. McCoy reviewed SB 7 which provides funding for flood planning, protection, mitigation, data collection, modeling, and Hurricane Harvey Projects. She then proceeded to speak on SB 8 which establishes a state and regional flood planning process administered by the TWDB. She concluded with the TWDB request for input at their Flood Stakeholder meetings that will be held around the state in the first two weeks of August. She explained that the closest meetings to Region L would be held in Bastrop on August 6th, and in Kerrville on August 13th. She encouraged members to attend but stated if they could not they were free to provide written feedback by August 30th. Ms. Scott stated the importance of these meetings as the TWDB is looking at ways to move forward with structural and nonstructural flood planning and management. She explained that these meetings were a great opportunity to educate the population to know their risk regarding flooding.

AGENDA ITEM NO. 9: DISCUSSION AND APPROPRIATE ACTION REGARDING THE NOMINATION OF REGION L REPRESENTATIVE FOR INTERREGIONAL PLANNING COUNCIL

Ms. Scott brought to the attention of the Planning Group the need to nominate a Region L representative to the TWDB's Interregional Planning Council. She explained that the purpose of this council was to improve coordination among the Regional Water Planning Groups (RWPG) and between the RWPGs and the TWDB in meeting goals of the state water planning process. Ms. Scott offered herself as a nominee but encouraged other nominations. Mr. Puente moved to nominate Ms. Scott, Mr. Middleton seconded, and all were in favor of the nomination.

AGENDA ITEM NO. 10: CHAIR'S REPORT

Ms. Scott informed the Planning Group about the future Planning Group meetings. She explained that they will continue to have the November 7th, 2019 meeting but are planning on restructuring the meeting dates for February. Mr. Perkins spoke about the possibility of having two meetings in 2020 before the IPP is due to make sure that the Planning Group is able to get through all of the WMS. Ms. Wassenich asked if this meant that the normal February meeting was canceled. Mr. Perkins said yes, there will be two meetings, one on January 23rd, 2020, and one on February 20th, 2020. Mr. Raabe stated that the Planning Group would remove the May 2020 meeting in order to hold public meetings for the IPP. Ms. Scott explained that this rescheduling was in line with the Guiding Principles and will allow the Planning Group to have sufficient time to digest all of the WMS and the IPP. She requested that the group look at their schedules to ensure these future meeting dates would work for them.

AGENDA ITEM NO. 11: CONSULTANT'S WORK AND SCHEDULE

Mr. Perkins reviewed his schedule for the upcoming months, stating that Black & Veatch is currently in the process of evaluating water management strategies and working on the presentations for the Planning Group. He stated that the November meeting will have a large number of these presentations. He called attention to a list of updated projects, presented in the agenda packet. Then, Mr. Perkins called for a clarification on whether the definition of Major Water Providers was limited to municipal water user groups. The planning Group agreed that was their intention when they designated the entities as Major Water Providers. Mr. Perkins returned to his schedule, highlighting that the next meeting in November will have a large number of WMS presentations, as well as presentations on Chapters 3, 4, 7, and 8.

AGENDA ITEM NO. 12: PRESENTATIONS OF CHAPTERS OF THE REGION L WATER PLAN

Mr. Perkins began by stating that Black & Veatch was in the process of completing write ups for the chapters and will soon put them on the Region L website. He asked that the Planning Group review the chapters and send comments back to the River Authority and B&V. He explained that all chapters between now and the IPP will follow this process. Mr. Perkins stated that Chapters 1 and 2 will likely be on the Region L website in late August. Ms. Scott told the Planning Group that

they would receive emails to notify them once the chapters have been posted and encouraged them to send their comments in. Mr. Perkins then proceeded to summarize Chapter 1, which he called the Description of the Plan. He explained that this chapter talks about water providers, user groups, natural resources of areas, lands, and economic features of certain areas. He added that the chapter included historical populations, densities and age demographics. He highlighted the major and minor aquifers listed in the chapter and stated that this information comes from an updated version of the last plan. Mr. Perkins then proceeded to talk about Chapter 2 which shows population water demand projections for 2020-2070. Mr. Taggart pointed out a discrepancy between the two chapters where Chapter 1 displayed the population that resided only in Region L but Chapter 2 showed the entire population. Mr. Perkins agreed that it should be consistent and told the Planning Group he would change it. He went on to say that Chapter 3 would be about supply analysis, Chapter 4 is on connecting Chapter 2 and 3, and that Chapter 5 is on WMS. Mr. Taggart asked about steam electric power and how it was displayed in the presentation. Mr. Perkins explained that their demand is projected to remain steady over the next 50 years. He also briefly presented on a graph representing a draft of Chapter 7. He told the group that Black and Veatch has reached out to various entities on drought management and summarized the information in the chart which can be found in the agenda packet.

AGENDA ITEM NO. 13: DISCUSSION AND APPROPRIATE ACTION REGARDING ADHERENCE TO HOUSE BILL 807 REQUIREMENTS

Mr. Perkins proceeded to lead a discussion on the 5 requirements from House Bill 807. He started with requirement 1, asking the Planning Group how they would like to define any of the measures in specific drought management strategies as counterproductive or unnecessary. Mrs. Wassenich stated that the reason that individual entities can handle their own drought management is because there are variations in their situations. Mr. Ramos agreed, saying that unless the Planning Group was willing to survey all of these entities, the group should move to say nothing is unnecessary or counterproductive. Mr. Taylor affirmed, saying that different entities have different goals and trying to force them into an alignment would become a policy issue. Mr. Puente stated that he supported the motion. Chairwoman Scott called Mr. Ramos' motion, seconded by Mr. Taylor. The motion passed to deem nothing counterproductive or unnecessary. Mrs. Scott expressed that the Planning Group is ensuring local managers can manage their local customers, leaving the responsibility with the water providers.

Mr. Perkins then called attention to the 2nd requirement, telling the group that they would need to define "significant water need." He asked the group if they wanted to recognize that they are currently evaluating ASR strategies. Several members questioned the legislative intent and Mr. Perkins responded by stating that what this legislation is trying to do is to get them to consider ASR for users with significant need. He explained that the Planning Group has 4-5 strategies that are ASR related and the bill wants the group to see who qualifies for ASR and decide why or why not. Ms. Wassenich moved to define "significant need" as 10,000 acft or more of a particular use type to consider ASR evaluation. Mr. Andruss seconded, all members voted in favor and the motion passed. Mr. Perkins told the group that Black and Veatch would be able to write this up with the research they currently have and Mrs. McCoy clarified that this would work.

Mr. Perkins moved on to requirement 3, stating that the Planning Group actually uses the requirement's guidance already and the group has a reduction summary. He went on to say that the group can plug in the numbers that have been calculated and put it into the plan in Section 5B. He proceeded to talk about how requirement 4 is already a part of Region L's IPP in Chapter 11 and that he would summarize what the group has done for this section. Mr. Perkins concluded that requirement 5 is likewise already in the plan under Chapter 8.

AGENDA ITEM NO. 14: DISCUSSION REGARDING CHAPTER 8 POLICY RECOMMENDATIONS FROM THE PLANNING GROUP

Ms. Scott gave an update on the progress of the Chapter 8 Policy Workgroup, stating that the group has made it about 2/3rds of the way through the chapter. She explained that the Workgroup is planning on separating the chapter into two sections, policy and funding. Ms. Scott informed the group that the next meeting is scheduled for August 27th from 10:00-12:00 pm and that she would provide another update at the November meeting.

AGENDA ITEM NO. 15: DISCUSSION AND APPROPRIATE ACTION REGARDING THE DEVELOPMENT OF AN EMERGENCY INTERCONNECTION REPORT

Mr. Perkins informed the group of the need to summarize emergency interconnections with other Regional Planning Groups. He stated that Black & Veatch is in the process of reaching out to these groups. He explained that part of the requirement is that it must be a separate document that is sent directly to the TWDB due to its sensitive information. He went on to say that this is complicated due to the Open Meetings Act which makes it difficult to have confidential meetings to review such sensitive information. Ms. Scott broached the idea of having an executive session which is covered in the Open Meetings Act. Ms. McCoy encouraged the Planning Group to have the confidential information handled by either the consultant team or a political subdivision, then discussed at a very high level in an open meeting while limiting who holds on to the confidential information. Ms. Scott offered SARA to review the work but stated that it may be better to have an independent do it. She asked if there was anyone willing to work with the consultant. Ms. Wassenich offered Thomas Taggart. Mr. Taggart agreed to review the information with Mr. Perkins. Ms. Wassenich asked how they would keep the information confidential if there is a whole team of consultants working on it. Ms. Scott responded that they are bound by ethics. Mr. Perkins confirmed, saying that this process was confidential in the last cycle. Mr. Taggart stated that this was necessary due to post-9/11 laws that keep structural and confidential information in check. Ms. Scott agreed and asked Mr. Perkins when the report will be delivered. Mr. Perkins responded that he would have the report completed in January.

AGENDA ITEM NO. 16: PRESENTATION OF WATER MANAGEMENT STRATEGIES

Mr. Perkins presented on 8 of the 29 water management strategies that have been approved for evaluation so far: CRWA Siesta, SSLGC Brackish Wilcox, SSLGC Expanded Carrizo, CVLGC Carrizo Well, NBU ASR, NBU Trinity Well Field, Victoria ASR, and Local Groundwater. These presentations can be found in the August 1, 2019 Planning Group agenda packet. On each presentation there was a slide concerning "Environmental Considerations" which caused several Planning Group members to question the definition. Mr. Perkins clarified that this is how the U.S.

Corps of Army Engineers defines it and reminded the group that these considerations were merely conceptual. He also revealed a graphic table of all WMS to display how they relate to each other in terms of cost, cultural, and environmental impacts. The group approved of the development of the graph but asked that a different color scheme be used.

AGENDA ITEM NO. 17: DISCUSSION AND APPROPRIATE ACTION TO AUTHORIZE THE CONSULTANT TO PROCEED ON WORK FOR TASK 5A SUBTASK 21 ii) ADDITIONAL WATER MANAGEMENT STRATEGIES

Mr. Perkins explained to the Planning Group that at the end of the estimated cost and scope process for the various WMS they have some remaining funds. He went on to say that Black & Veatch would like to spend a portion of this money performing an analysis on the city of Kenedy and their new well. He stated that they have received a letter from the city's engineer who is looking to create a Carrizo well field for the city to use. Ms. Scott asked for an estimate of the cost and Mr. Perkins responded that it would be around \$2000-\$3000. Mr. Ramos moved to authorize this. Mr. Andruss seconded, and all were in favor of the authorization.

AGENDA ITEM NO. 18: DISCUSSION AND APPROPRIATE ACTION TO AUTHORIZE THE SAN ANTONIO RIVER AUTHORITY TO AMEND AND EXECUTE THEIR REGIONAL WATER PLANNING CONTRACT WITH TWDB TO INCREASE AUTHORIZED FUNDS TO THE FULL CONTRACT AMOUNT

Mr. Raabe informed the Planning Group that funding from the last legislative session would complete the funding for this Region L planning cycle in the area of task 5A. He went on to say that shortly after September 1st, the TWDB will be allowed to enter into an amendment to bring these funds to the Planning Group. He explained that because the group would not be meeting until November, he wanted to bring this to the group now so that they could authorize SARA to do this. Mr. Taggart moved to authorize this. Mr. Stinson seconded, and all were in favor of the authorization.

AGENDA ITEM NO. 19: DISCUSSION REGARDING AMENDING THE SCTRWPG BYLAWS TO CONFORM TO REVISION TO THE OPEN MEETINGS ACT REGARDING PUBLIC COMMENT

Mr. Raabe explained to the Planning Group that the recent Legislature instituted revisions to the Open Meetings Act that have to do with public comment and how they are handled at meetings. He continued to say that this legislation allows an entity to adopt rules on how to allow public comment at their meeting. He produced a draft set of rules that he had adapted from SARA's public comment rules, as SARA is also a public entity. He explained the rules which can be found in the August 1, 2019 Planning Group agenda packet. Mrs. Scott clarified that these rules could not be acted upon at the current meeting and requested that members send comments to SARA who will provide a notice about the possible action 10 days prior to the November meeting. Several members questioned how they were going to inform the public about this addition to the Planning Group's Bylaws. Mrs. Scott and Mr. Raabe offered suggestions of posting the new bylaws on the SCTRWPG website and printing laminated cards with the rules to place next to the comment cards.

AGENDA ITEM NO. 20: POSSIBLE AGENDA ITEMS FOR THE NEXT REGION L MEETING

Mr. Perkins brought up several possible agenda items for the next meeting, including continuing the WMS evaluations, the possible public comment change to the Bylaws, and setting the meeting schedule for 2020.

AGENDA ITEM NO. 21: PUBLIC COMMENT

There was no public comment to be heard.

The meeting adjourned at 1:46 pm.

Approved by the South Central Texas Regional Water Planning Group at a meeting held on August 1, 2019.

GARY MIDDLETON, SECRETARY

SUZANNE B. SCOTT, CHAIR

4. Status of Edwards Aquifer Habitat Conservation Plan (EAHCP), Scott Stornment

5. Status of Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays Basin and Bay Stakeholder Committee (BBASC) and Expert Science Team (BBEST)

GSA BBASC Project Proposal Subcommittee

At the GSA BBASC Stakeholders meeting on October 10, held by conference call, the E-Flows Project Proposal Subcommittee provided recommendations relevant to Agenda item V, *Briefing and Discussion on Priority Projects from the E-Flows Project Proposal Subcommittee*.

In priority order, the Subcommittee recommended these projects be considered for potential funding by the Texas Water Development Board from funds appropriated by the 86th Texas Legislature to support agency strategies and the environmental flows adaptive management processes:

- Developing Models to Forecast Ecological Outcomes of Various Flow Scenarios on Oysters and Sport Finfish in the Colorado-Lavaca, Guadalupe-San Antonio, Mission-Aransas, and Nueces Estuaries
- Guadalupe Delta Ecological Assessment of Freshwater Inflows
- Freshwater Mussels Instream Flow Phased Assessment – Lower Guadalupe River

During the October 10 meeting, Stakeholders asked the E-Flows Project Proposal Subcommittee to consider any additional proposals that might be received by October 20. Two proposals were received:

- Using Comparative Long-Term Benthic Data for Adaptive Management of Freshwater Inflow to Three Mid-Coastal Basins - Phase 2
- Surface Water-Groundwater Interaction in Part of the Texas Hill Country in the Colorado and Guadalupe Basins

On October 25, the Subcommittee held a conference call to discuss these proposals. The consensus decision was the original recommendation should remain unchanged and the newly submitted proposals should not be recommended by the GSA BBASC for potential funding.

Regarding the Benthic Data study, Subcommittee notes were:

- Limited applicability to Guadalupe-San Antonio basin in that most samples proposed to be analyzed are in Lavaca-Colorado and Nueces estuaries (i.e. less than 6% of the samples are from the Guadalupe Estuary and these are for only one year)
- Focus on benthic infauna less of a priority than other proposed estuarine studies focused on epifauna, fish, and/or a broader spectrum of species in marsh habitats
- Potential products are unclear
- Link between study results and potential E-flows standards validation or refinement is unclear

Regarding the Surface-Water Groundwater Interaction study, Subcommittee notes were:

- Limited applicability to Guadalupe-San Antonio basin in that focus is only on a portion of Hays County
- Link between study results and potential E-flows standards validation or refinement is unclear
- Proposal lacks biological linkage components
- Greater relevance to other BBASC Work Plans than GSA Work Plan
- Project is not otherwise fully funded

6. Texas Water Development Board (TWDB) Communications

7. Chair's Report

Article VIII: Officers

Section 1: Officers; Restrictions and Terms of Office

Voting members of the SCTRWPG shall elect from the voting membership a Chair, Vice-Chair and Secretary to serve as officers. Each officer shall serve a term of one calendar year. Except as provided under Section 4 of this Article, an officer shall serve until his/her successor takes office. No two voting members representing the same interest shall serve as officers at the same time. Elections shall be held annually, with no restrictions on the number of consecutive terms an individual may serve as an officer other than those that apply because of his/her status as a voting member under these Bylaws.

Section 2: Selection

Officers shall be elected at the first meeting of each calendar year. Nominations shall be made from the floor by voting members. The voting members shall elect officers from among the nominees by consensus or by affirmative vote of a majority of the voting membership.

Section 3: Removal of Officers

Any officer may be removed from office for any of the ground for removal of voting members set forth under Article V of these Bylaws, or for repeated failure to carry out the duties of the office, by a consensus or by a majority vote of the voting membership. Removal of an officer shall be set as an agenda item at the next scheduled meeting upon written request signed by five voting members to the Chair or Secretary. The Chair or Secretary receiving the request shall notify the officer in writing that he/she shall be subject to a removal action at the next scheduled meeting. At that meeting, the officer subject to the possible removal action may present evidence of why he/she should not be removed. If the Chair is the subject of the possible removal action, the Vice-Chair shall preside over the meeting during the agenda item concerning the Chair's removal. The officer subject to the removal action shall not participate in any way in the removal decision, nor shall his/her membership count as part of the total membership for purposes of calculating the vote. The notice of the meeting shall be posted in accordance with the Open Meetings Act and shall state that the issue of possibly removing the officer will be on the agenda. Any vacancy caused by the removal shall be filled as provided under Section 4 of this Article

Section 4: Vacancies of Officers

Whenever an officer vacancy exists, the vacancy shall be filled at the next properly noticed SCTRWPG meeting. Nominations shall be made from the floor by voting members. The voting members shall elect a replacement officer from among the nominees by consensus or by affirmative vote of a majority of the voting membership. The next highest-ranking officer shall serve in the vacant position until a successor takes office, unless the office of the Secretary becomes vacant, in which case the Chair shall appoint a willing voting member to serve as Secretary until the successor to the Secretary takes office. The person selected to fill a vacancy for an officer shall serve for the unexpired term of his/her predecessor in office.

Section 5: Duties of Each Officer

- (a) Chair: The Chair shall be the executive officer of this SCTRWPG. The Chair will preside at all meetings of the SCTRWPG and perform all duties provided by these Bylaws. The Chair may establish and appoint such committees as may be necessary or desirable to assist in conducting the business of the SCTRWPG, or as may be directed by the SCTRWPG. If the Chair is unable to carry out his/her duties, the Vice-Chair shall assume the duties of the Chair.
- (b) Vice-Chair: The Vice-Chair shall assist the Chair in the discharge of his/her duties and, in the absence of the Chair, shall assume the Chair's full responsibilities and duties. In the event the Chair is unable to carry out his/her duties, the Vice-Chair shall serve as Chair until the SCTRWPG elects a new Chair under Section 4 of this Article. The Vice-Chair shall perform other duties as assigned by the Chair or these Bylaws.
- (c) Secretary: The Secretary or the Administrative Officer shall maintain the minutes and take attendance of the SCTRWPG meetings. The meetings and attendance shall be kept as part of the SCTRWPG official records. The Secretary, or the Administrative Officer, shall ensure that all notices are properly posted as provided in the Bylaws, as required by law and as required by the Texas Open Meetings Act. The Secretary shall perform other duties as assigned by the Chair or these Bylaws. If both the Chair and Vice-Chair are unable to carry out the duties of the Chair, the Secretary shall assume the duties of the Chair.

Section 6: Executive Committee

The Executive Committee shall be composed of five SCTRWPG members, including the Chair, Vice-Chair, Secretary and two members-at-large. No two voting members representing the same interest shall serve as members of the Executive Committee at the same time. The two members-at-large shall be elected annually in the same manner and with the same terms as set forth for the election of officers under this Article. Members-at-large shall be removed and their vacancies filled in the same manner prescribed for officers under this Article.

The Executive Committee shall be responsible for carrying out the duties imposed on it in these Bylaws. The voting members of the SCTRWPG may delegate any administrative decisions to the Executive Committee unless provided otherwise in these Bylaws.

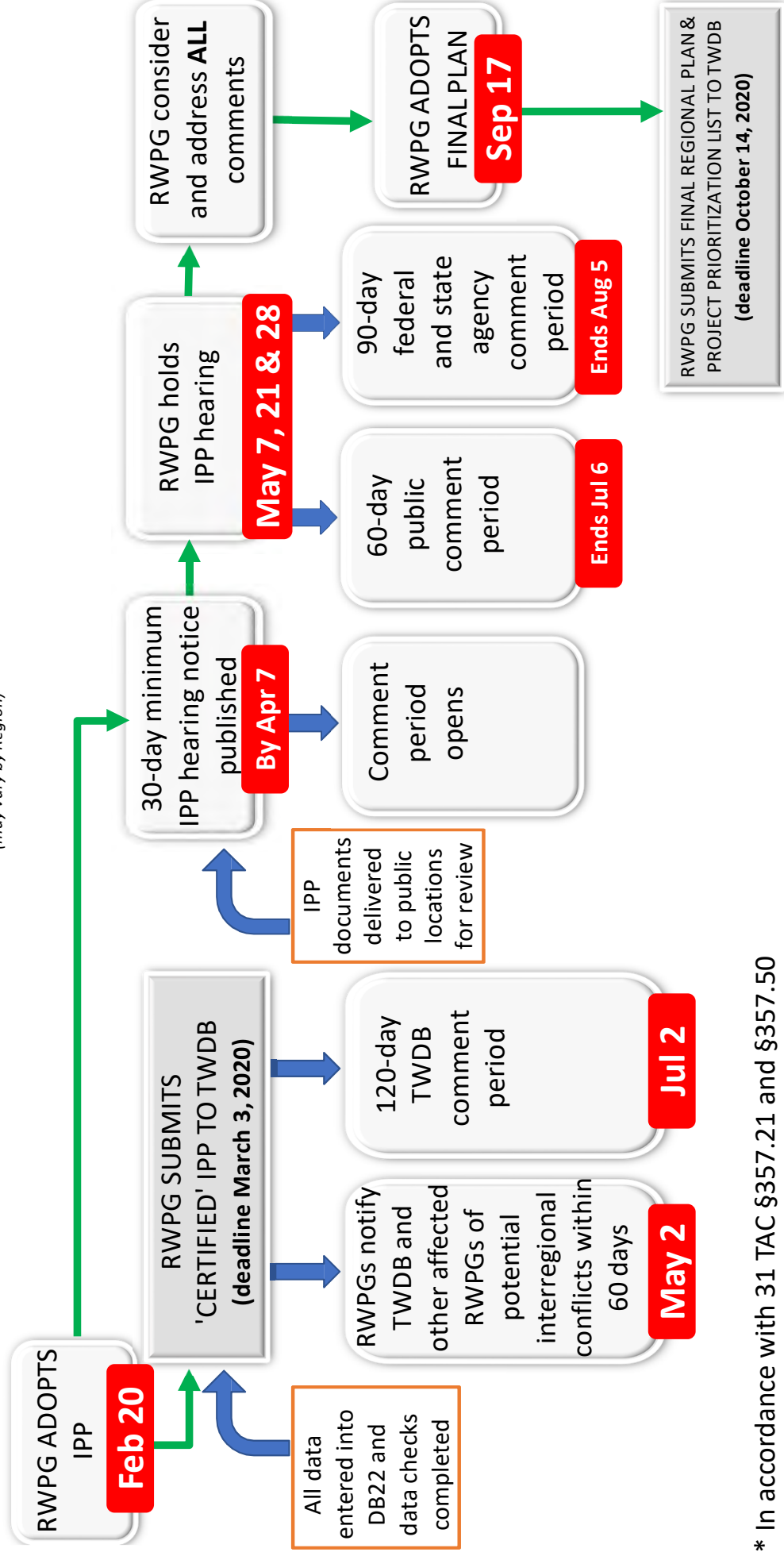
All meetings of the Executive Committee shall comply with the provisions related to meetings generally as set forth in Article IX of these Bylaws.

8. Discussion and Appropriate Action Regarding the Consultant's Work and Schedule

2021 Regional Water Plans

Initially Prepared Plan (IPP) and Final Plan Process Schematic*

(may vary by Region)







* In accordance with 31 TAC §357.21 and §357.50

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November 2019 RWPg Meeting

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Legend

-  Scheduled Region L Meeting
 Anticipated Region L Meeting
 Anticipated Activity
 Current Month

2021 Initially
Prepared Plan (IPP)
Due: Mar. 3, 2020

**2021 Final Plan Due
Oct. 14, 2020**

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9. Discussion and Appropriate Action Regarding Presentations of Chapters of the Region L Regional Water Plan

- a. Discussion and Appropriate Action Regarding the Development of an Emergency Interconnection Report
- b. Discussion Regarding Comments Received to Date on the Region L Water Plan Chapters and Water Management Strategies

BUILDING A WORLD OF DIFFERENCE

SCTRWP: Chapter 3

Regional Water Planning Group Meeting
November 7, 2019

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Chapter 3: Water Supply Analyses

Outline

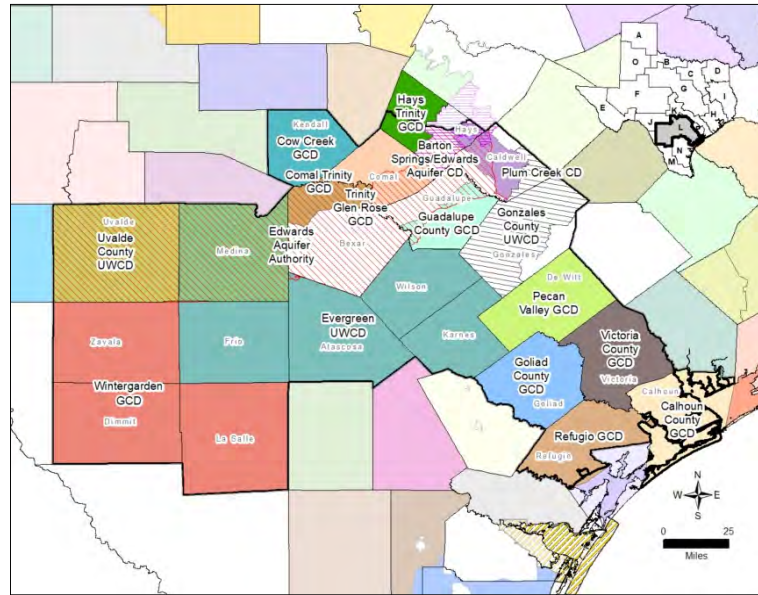
- Groundwater Supplies
 - Groundwater Availability
 - Assumptions for Assessment of Groundwater Supply
- Surface Water Supplies
 - Major Reservoirs and Associated Water Rights
 - Run-of-River Water Rights
 - Surface Water Availability
- Reuse Supplies

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Groundwater Conservation Districts

Groundwater Supplies



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Available Groundwater Supply by County
(1/2)

Assessment of Groundwater Supply for Gulf Coast, Carrizo-Wilcox, Trinity, and Edwards-Trinity Aquifers

COUNTY	AQUIFER	GCD	2070 MODELED AVAILABLE GROUNDWATER (ACFT/YR)	2070 EXISTING SUPPLY (ACFT/YR)	AVAILABILITY REMAINING FOR WMS (ACFT/YR)
Atascosa	Carrizo-Wilcox	Evergreen	75,874	53,536	22,338
Bexar	Carrizo-Wilcox	None	78,807	53,728	25,079
	Trinity	Trinity-Glen Rose	25,079	12,520	12,559
Caldwell	Carrizo-Wilcox	Plum Creek & Gonzales County	54,189	9,631	44,558
	Trinity	Plum Creek & Gonzales County	10	10	10
Calhoun	Gulf Coast	Calhoun County	7,565	3,158	4,407
Comal	Trinity	Comal Trinity	43,768	8,832	34,936
DeWitt	Gulf Coast	Pecan Valley	14,485	6,979	7,506
Dimmit	Carrizo-Wilcox	Wintergarden	4,129	3,892	237
Frio	Carrizo-Wilcox	Evergreen	77,353	75,680	1,673
Goliad	Gulf Coast	Goliad County	11,539	7,608	3,931
Gonzales	Carrizo-Wilcox	Gonzales County	86,055	19,256	66,799
	Gulf Coast	None	2	1	1

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Available Groundwater Supply by County
(2/2)

Assessment of Groundwater Supply for Gulf Coast, Carrizo-Wilcox, Trinity, and Edwards-Trinity Aquifers (cont'd)

COUNTY	AQUIFER	GCD	2070 MODELED AVAILABLE GROUNDWATER (ACFT/YR)	2070 EXISTING SUPPLY (ACFT/YR)	AVAILABILITY REMAINING FOR WMS (ACFT/YR)
Guadalupe	Carrizo-Wilcox	Guadalupe County	47,833	28,327	19,506
Hays	Trinity	Hays Trinity & BS Edwards	7,551	4,687	2,864
Karnes	Carrizo-Wilcox	Evergreen	1,295	1,028	267
	Gulf Coast	Evergreen	2,751	2,715	36
Kendall	Edwards-Trinity	Cow Creek	199	172	27
	Trinity	Cow Creek	11,139	5,800	5,339
La Salle	Carrizo-Wilcox	Wintergarden	6,863	6,804	59
Medina	Carrizo-Wilcox	Medina County	2,646	3,559	-913
	Trinity	Medina County	9,161	5,828	3,333
Refugio	Gulf Coast	Refugio County	5,847	2,487	3,360
Uvalde	Carrizo-Wilcox	Uvalde County	828	828	0
	Edwards-Trinity	Uvalde County	1,993	1,635	358
	Trinity	Uvalde County	795	795	0
Victoria	Gulf Coast	Victoria County	59,963	24,153	35,810
Wilson	Carrizo-Wilcox	Evergreen	111,093	27,363	83,730
Zavala	Carrizo-Wilcox	Wintergarden	34,695	32,322	2,373

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Available Groundwater Supply by Aquifer

Assessment of Groundwater Supply

Aquifer Name	Annual Quantity Available (acft/year)					
	2020	2030	2040	2050	2060	2070
Edwards (EAA)	243,401	243,401	243,401	243,401	243,401	243,401
Edwards (Non-EAA)	46,518	46,518	46,518	46,518	46,518	46,518
Carrizo-Wilcox	618,272	583,058	580,400	583,265	580,510	581,660
Trinity	98,163	98,163	98,163	98,163	98,163	98,163
Gulf Coast	87,521	92,517	91,023	90,925	95,761	95,761
Edwards-Trinity (Plateau)	2,192	2,192	2,192	2,192	2,192	2,192
Austin Chalk	2,935	2,935	2,935	2,935	2,935	2,935
Buda Limestone	758	758	758	758	758	758
Leona Gravel	31,402	31,402	31,402	31,402	31,402	31,402
Sparta	7,260	6,704	6,591	6,493	6,408	6,330
Queen City	18,990	16,172	15,832	15,509	15,099	14,736
Yegua-Jackson	8,547	8,547	8,547	8,547	8,547	8,547
TOTAL	1,165,959	1,132,367	1,127,762	1,130,108	1,131,694	1,132,403

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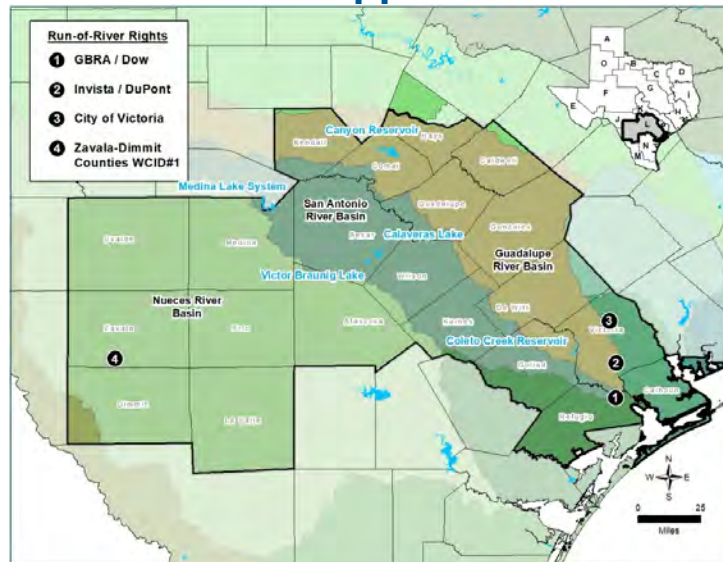
Assessment of Groundwater Supply

Aquifer Name	Percent of Total (%)					
	2020	2030	2040	2050	2060	2070
Edwards (EAA)	20.88%	21.49%	21.58%	21.54%	21.51%	21.49%
Edwards (Non-EAA)	3.99%	4.11%	4.12%	4.12%	4.11%	4.11%
Carrizo-Wilcox	53.03%	51.49%	51.46%	51.61%	51.30%	51.37%
Trinity	8.42%	8.67%	8.70%	8.69%	8.67%	8.67%
Gulf Coast	7.51%	8.17%	8.07%	8.05%	8.46%	8.46%
Edwards-Trinity (Plateau)	0.19%	0.19%	0.19%	0.19%	0.19%	0.19%
Austin Chalk	0.25%	0.26%	0.26%	0.26%	0.26%	0.26%
Buda Limestone	0.07%	0.07%	0.07%	0.07%	0.07%	0.07%
Leona Gravel	2.69%	2.77%	2.78%	2.78%	2.77%	2.77%
Sparta	0.62%	0.59%	0.58%	0.57%	0.57%	0.56%
Queen City	1.63%	1.43%	1.40%	1.37%	1.33%	1.30%
Yegua-Jackson	0.73%	0.75%	0.76%	0.76%	0.76%	0.75%
TOTAL	100%	100%	100%	100%	100%	100%

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Surface Water Supplies



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Current, Reported Reuse Supplies by County

Reuse Supplies

COUNTY	ENTITY	SUPPLY (ACFT/YR)	USE
Bexar	Fair Oaks Ranch	560	Type I Irrigation
	Cibolo Creek Municipal Authority (CCMA)	2,518	Type I Irrigation
	San Antonio River Authority (SARA)	1,657	--
	San Antonio Water System	25,000*	Type I Irrigation; Type II Manufacturing, Cooling, Environmental
Comal	City of New Braunfels	107	Type I Irrigation; Type II Manufacturing, Cooling
Guadalupe	Guadalupe-Blanco River Authority (GBRA)	445	Type I Irrigation; Type II Mining, Cooling
	City of Seguin	880	Type I Irrigation; Type II Cooling
Hays	City of Kyle	1,008	Type I Irrigation; Type II Cooling
	City of San Marcos	5,440	Type I Irrigation; Type II Cooling
Karnes	City of Kenedy	30	Type II Mining
Kendall	City of Boerne	65	Type I Irrigation
	Kendall County WCID #1	39	Type II Mining

* Projected reuse supply for 2020 decade

Type I – May be used where public contact is likely

Type II – May be used in remote, restricted, or controlled, or limited-access areas where human contact is unlikely

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SCTRWP: Chapter 4

Regional Water Planning Group Meeting
November 7, 2019

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Chapter 4: Identification of Water Needs



• Demand

- Irrigation
- Municipal
- Steam-Electric
- Mining
- Manufacturing
- Livestock

• Supplies

- Surface Water Availability
- Modeled Available Groundwater

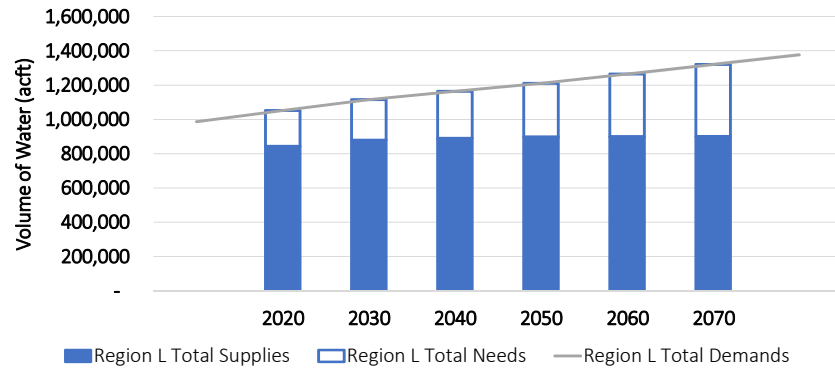
• Needs

- Assuming future demands with existing supplies
- WMS will address needs

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Regional Needs

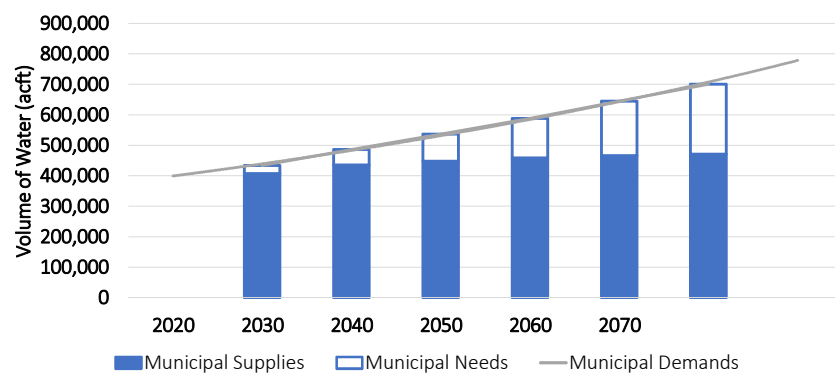


	2020	2030	2040	2050	2060	2070
Total Needs (acft/yr)	207,698	236,459	274,988	315,244	364,927	418,839

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Municipal Needs

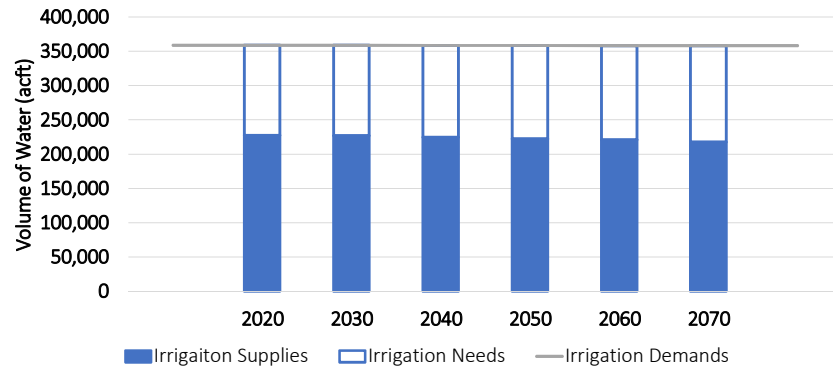


	2020	2030	2040	2050	2060	2070
Municipal Needs (acft/yr)	26,557	51,105	88,889	129,728	179,452	229,740

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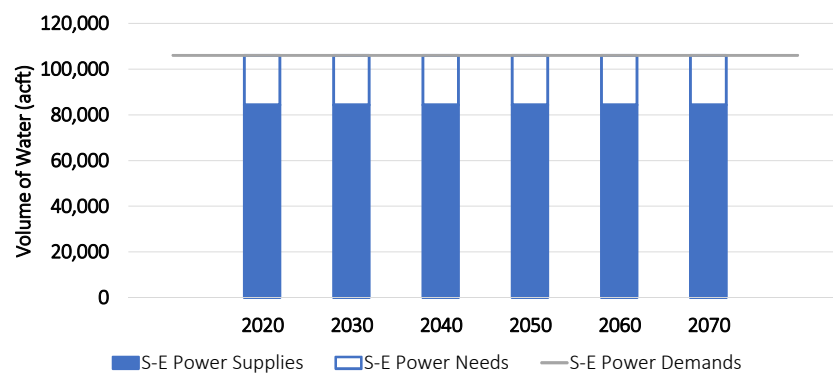
Irrigation Needs



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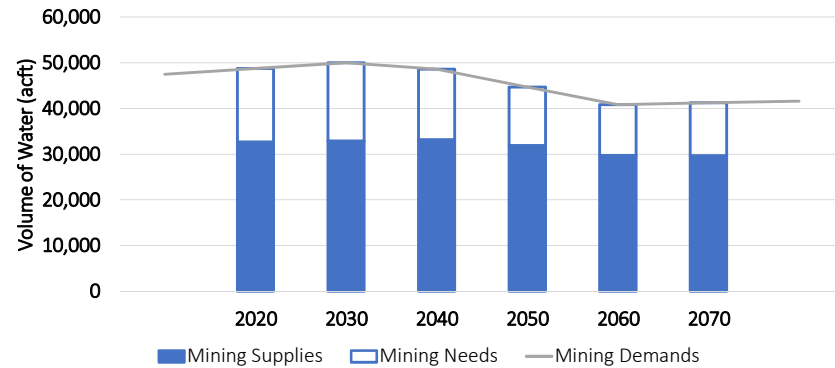
Steam-Electric Needs



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Mining Needs

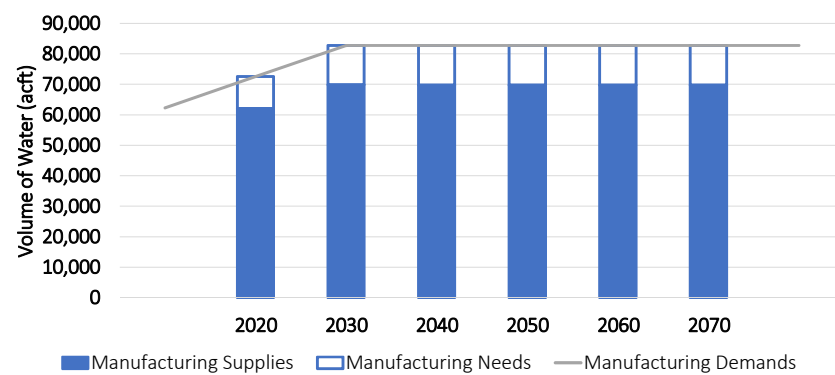


	2020	2030	2040	2050	2060	2070
Mining Needs (acft/yr)	16,147	17,125	15,491	12,786	11,170	11,578

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Manufacturing Needs

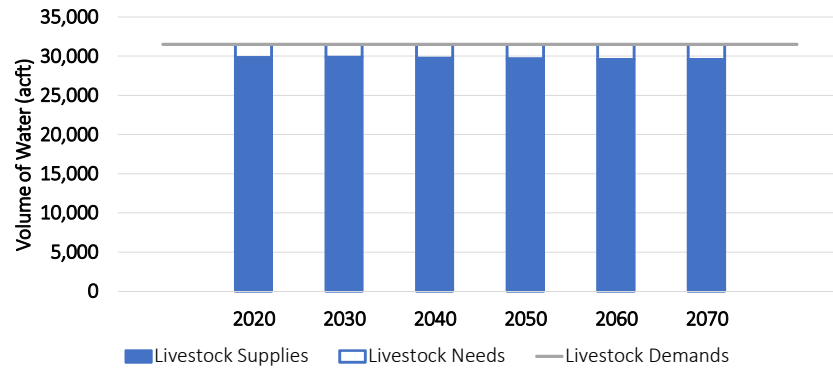


	2020	2030	2040	2050	2060	2070
Manufacturing Needs (acft/yr)	16,147	17,125	15,491	12,786	11,170	11,578

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Livestock Needs



	2020	2030	2040	2050	2060	2070
Livestock Needs (acft/yr)	1,674	1,668	1,757	1,852	1,930	1,930

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Regional Needs by WUG Type (acft/yr)

WUG Type	2020	2030	2040	2050	2060	2070
Irrigation	131,184	131,915	134,104	136,099	137,596	140,812
Municipal	26,557	51,105	88,889	129,728	179,452	229,740
Steam Electric Power	21,707	21,707	21,707	21,707	21,707	21,707
Mining	16,147	17,125	15,491	12,786	11,170	11,578
Manufacturing	10,429	12,939	13,040	13,072	13,072	13,072
Livestock	1,674	1,668	1,757	1,852	1,930	1,930
Total	207,698	236,459	274,988	315,244	364,927	418,839

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BUILDING A WORLD OF DIFFERENCE

SCTRWP: Chapter 7

Regional Water Planning Group Meeting
November 7, 2019

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Chapter 7: Drought Response Information, Activities and Recommendations

- Drought of Record
- Current Drought Preparations and Response
- Existing and Potential Emergency Interconnects
- Emergency Responses to Local Drought Conditions or Loss of Municipal Supply
- Region-Specific Drought Response Recommendations and Model Drought Contingency Plans
- Drought Management Water Management Strategies (WMS)
- Other Drought-Related Considerations and Recommendations

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Requirements for WUGs to Review and Update Drought Contingency Plans (DCPs)

- Retail Public Water Suppliers Providing Water Service to 3,300 or More Connections;
- Wholesale Public Water Suppliers; and
- Irrigation Districts

Required to be Submitted Every 5 Years to SARA and TCEQ

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Drought Contingency Plans

- Evaluated 23 DCPs
 - 11 rely solely on groundwater
 - 12 rely on both groundwater and surface water
- Most Reported Triggers:
 - Demand/Capacity Based
 - Failure/Contamination
- Most Reported Drought Response Strategies:
 - Irrigation Schedule
 - Prohibited Use

Summary of DCP in Appendix I

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Summary of Received DCPs

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	ENTITY NAME	DCP DATE	SURFACE WATER	GROUND WATER
1	Aqua WSC	2015		•
2	Canyon Lake WSC	2019	•	•
3	CRWA	2019	•	•
4	City of Converse	2013		•
5	Crystal Clear SUD	2019	•	•
6	County Line SUD	2019	•	•
7	Goforth SUD	2019	•	•
8	GBRA	2019	•	•
9	City of Kyle	2014	•	•
10	City of Marion	2014	•	•
11	McCoy WSC	2019		•
12	City of New Braunfels	2019	•	•
13	City of San Marcos	2019	•	•
14	SAWS	2019	•	•
15	City of Schertz	2019		•
16	SSLGC	2019		•
17	SSWSC	2014		•
18	Sunko WSC	2019		•
19	TBM Resident WSC	2017		•
20	Three Oaks WSC	2019		•
21	Universal City	2014		•
22	City of Victoria	2019	•	•
23	Victoria County WCID No. 1	2019		•



Drought Response Recommendations

- **2016 SCTRWP Model DCPs:**
 - **Surface Water: GBRA**
 - GBRA was selected as representative example because they provide water to several entities throughout Region L and rely on various types of surface water triggers that can be applied throughout the Region.
 - **Groundwater: SAWS**
 - SAWS was selected as representative example because they are the largest provider of groundwater to Region L.

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Model Surface Water DCP: GBRA

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DROUGHT STAGE	SUPPLY SOURCE	TRIGGER	RESPONSE
Stage 1 – Mild Water Shortage	Canyon Reservoir	<ul style="list-style-type: none"> Reservoir ≤ EL. 895 ft-MSL 	<ul style="list-style-type: none"> Achieve voluntary 5% reduction below monthly average
	Hydroelectric Lakes	<ul style="list-style-type: none"> Comal Springs 24 hr. flow rate is ≤ 250 cfs 	<ul style="list-style-type: none"> No water waste No washing of impervious outdoor ground coverings No landscape watering during restricted hours (10 am to 8 pm)* Swimming pools 25% covered by an evaporative shield when not in use Vehicles washing at commercial locations or Mon. & Fri. on a pervious surface using bucket and auto shutoff hose nozzle, hourly restrictions apply
	Luling Water Right	<ul style="list-style-type: none"> Production at Luling WTP is ≥ 2.5 MGD for 7 days -or- flow at USGS #08172000 < 130 cfs 	<ul style="list-style-type: none"> Achieve voluntary 5% reduction in daily water demand for each retail utility
	Lower Basin Water Right	<ul style="list-style-type: none"> Flow over top of the Salt Water Barrier is 6-in. or less for 5 consecutive days 	<ul style="list-style-type: none"> Achieve voluntary 5% reduction of domestic water usage

* Landscape watering by means of a bucket, hand-held hose or soaker hose, or a properly-installed drip irrigation system is permitted at any time



Model Surface Water DCP: GBRA (cont'd)

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DROUGHT STAGE	SUPPLY SOURCE	TRIGGER	RESPONSE
Stage 2 – Moderate Water Shortage	Canyon Reservoir	<ul style="list-style-type: none"> Reservoir ≤ EL. 890 ft-MSL 	<ul style="list-style-type: none"> Achieve voluntary 10% reduction below monthly average
	Hydroelectric Lakes	<ul style="list-style-type: none"> Comal Springs 24 hr. flow rate is ≤ 200 cfs 	<ul style="list-style-type: none"> All Stage 1 Responses Landscape watering 3 designated days/week outside of restricted hours * Vehicle washing only by bucket and/or hand-held hose equipped with a quick shutoff nozzle on designated watering days or at a commercial location. No water use for ornamental fountains unless recycled (or to replace evaporative loss)
	Luling Water Right	<ul style="list-style-type: none"> Flow at USGS #08172000 < 80 cfs 	<ul style="list-style-type: none"> Achieve voluntary 10% reduction in daily water demand for each retail utility utilizing GBRA Luling WTP Use of alternative water sources encouraged where appropriate
	Lower Basin Water Right	<ul style="list-style-type: none"> Sustained flow over Salt Water Barrier is not occurring 	<ul style="list-style-type: none"> Achieve voluntary 10% reduction of domestic water usage

* Landscape watering by means of a bucket, hand-held hose or soaker hose, or a properly-installed drip irrigation system is permitted at any time



Model Surface Water DCP: GBRA (cont'd)

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DROUGHT STAGE	SUPPLY SOURCE	TRIGGER	RESPONSE
Stage 3 – Severe Water Shortage	Canyon Reservoir	■ Reservoir ≤ EL. 885 ft-MSL	■ Achieve voluntary 15% reduction below monthly average ■ Initiate allocation of water supplies on a pro rata basis in accordance with Texas Water Code 11.039
	Hydroelectric Lakes	■ Comal Springs 24 hr. flow rate flow rate is ≤ 150 cfs	■ All Stage 1 and 2 Responses ■ Irrigation 2 designated days/week outside of restricted hours * ■ No Water use for ornamental fountains ■ Vehicle washing at commercial wash facility only or by using a bucket or a hand-held hose w/auto shutoff nozzle over pervious surface (day and time restrictions apply)
	Luling Water Right	■ Flow at USGS #08172000 < 40 cfs	■ Achieve a 15% reduction in daily water demand for each retail utility utilizing the GBRA Luling WTP ■ Initiate allocation of water supplies on a pro rata basis in accordance with Texas Water Code 11.039
	Lower Basin Water Right	■ Releasing of stored water from Canyon Dam to supplement Run-of-River permitted supply ■ When voluntary Stage 2 measures are ineffective in reducing water usage	■ Achieve voluntary 15% reduction of domestic water usage ■ Initiate allocation of water supplies on a pro rata basis in accordance with Texas Water Code 11.03*9

* Landscape watering by means of a bucket, hand-held hose or soaker hose, or a properly-installed drip irrigation system is permitted at any time



Model Surface Water DCP: GBRA (cont'd)

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DROUGHT STAGE	SUPPLY SOURCE	TRIGGER	RESPONSE
Stage 4 – Critical/ Emergency Water Shortage	Canyon Reservoir	■ Loss of capability to provide water service ■ Contamination of supply source ■ Drought of greater severity than the DOR	■ General Manager shall assess severity of the problem and identify the actions needed and time required to resolve the problem
	Hydroelectric Lakes	■ Comal Springs average 24 hr. flow rate flow Rate is at or below 100 cfs	■ All Stage 1, 2 and 3 Responses ■ Irrigation limited to one designated day/week outside restricted hours * ■ Filling of new and existing pools is prohibited ■ Vehicle washing only at a commercial locations
	Luling Water Right	■ Loss of capability to provide water service ■ Contamination of supply source ■ Water ceases to flow past Zedler Dam	■ General Manager assesses severity of the problem and identifies actions needed and time required to resolve the problem
	Lower Basin Water Right	■ When municipal demands of GBRA customers in Calhoun County is being met by the permitted release of stored water in Canyon Dam	■ Achieve voluntary 20% reduction of domestic water usage ■ Initiate allocation of water supplies on a pro rata basis in accordance with Texas Water Code 11.039

* Landscape watering by means of a bucket, hand-held hose or soaker hose, or a properly-installed drip irrigation system is permitted, hour restrictions apply



Model Surface Water DCP: GBRA (cont'd)

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DROUGHT STAGE	SUPPLY SOURCE	TRIGGER	RESPONSE
Stage 5 – Emergency	Hydroelectric Lakes	<ul style="list-style-type: none"> Comal Springs average 24 hr. flow rate flow Rate ≤ 50 cfs 	<ul style="list-style-type: none"> General Manager convenes emergency session to consider emergency rules or responses
	Lower Basin Water Right	<ul style="list-style-type: none"> Loss of capability to provide water service Contamination of supply source May occur at any time and is not dependent on being preceded by Stages 1 through 4 	<ul style="list-style-type: none"> Achieve voluntary, 50% reduction of domestic water usage General Manager convenes emergency session to consider emergency rules or responses

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Model Groundwater DCP: SAWS

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DROUGHT STAGE	TRIGGER	RESPONSE
Stage 1	Edwards Aquifer (Well J-17) 10-day rolling average level falls to 660 ft. MSL	<ul style="list-style-type: none"> No water waste Irrigation limited to 1 day per week at restricted times unless by hand-held device Sprinkler watering prohibited on weekend Swimming pools must be at least 25% covered by an evaporative shield when not in use Outdoor commercial fountains must have variance to operate Vehicles may only be washed at commercial locations or once per week on Saturday or Sunday with no water waste Golf courses, parks and fields must submit conservation plans and follow irrigation schedule
Stage 2	Edwards Aquifer (Well J-17) 10-day rolling average level falls to 650 ft. MSL	<ul style="list-style-type: none"> All Stage 1 responses Irrigation system, sprinkler, or soaker hose watering limited to 1 day per week at further restricted times unless by hand-held device Drip irrigation and hand-held device watering allowed any day at restricted times Hotels must offer “no linen exchange program”
Stage 3	Stage 3 water use reduction measures may be implemented when Edwards Aquifer (Well J-17) 10-day rolling average level falls to 640 ft. msl	<ul style="list-style-type: none"> All Stages 1 and 2 responses Irrigation system, sprinkler, and soaker hose watering limited to 1 day every other week at restricted times. Drip irrigation limited to restricted times and three days a week
Stage 4	After a 30-day monitoring period once Stage 3 is declared, the city manager, or designee, in consultation with SAWS president/CEO or designee, may declare or delay Stage 4	<ul style="list-style-type: none"> All Stages 1, 2, and 3 responses A surcharge is assessed on all accounts used or assumed to be used for landscape irrigation

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Emergency Interconnects

- 2016 SCTRWP: Sub-Committee evaluated interconnects, high-level information presented to RWPG, and a full confidential report was submitted to TWDB
- TWDB Clarification in August 2019 RWPG Chair's Conference:
 - TWDB has not utilized confidential reports to date.
 - Minimum requirements are to identify methodology for collecting information and who is connected to whom.
 - TWDB is providing RWPGs flexibility to choose whether to collect additional information, and identification of what is confidential

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RWPG Options for Emergency Interconnects

Option 1

Proceed with Direction Provided by RWPG in August, 2019

- Collect required information + confidential information;
- Tom Taggart review and provide direction;
- Present high-level information to RWPG; and
- Submit full confidential report to TWDB.

Option 2

Collect High-level Information

- Collect, present, and submit required information to TWDB.
- Eliminates the need for confidentiality

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Drought Management WMS

- Drought Management: periodic activation of approved drought contingency plans resulting in short-term demand reduction and/or rationing.
- 2016 SCTRWP included Drought Management WMS

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Region L Regional Water Planning
Chapter 7 - Drought Management
Summary of Drought Response Measures

Agenda Item 9 Page 21 of 24

Entity Name	DCP Date	Stage Number	Triggers										Responses										Water Supply	
			WWP	Demand/Capacity Based	Failure/Contamination	Groundwater Level	Season	Reservoir Level	Supply-Based	Well Pumping Time/Flow	Storage Tank Recovery	Other	Assessment and Identification	Water Rate Change or Surcharge	Irrigation Schedule	Mandatory Reduction	Notification of Public Agencies or Specific Users	Prohibited Use	Discontinue Water Diversions	Potential Suspend Service	Water Allocation	Others	Surface Water	Ground Water
Aqua WSC	2015	1	•	•						•					•			•		•				•
		2	•	•						•					•			•		•				•
		3	•	•						•					•			•		•				•
		4	•	•						•					•			•		•				•
Canyon Lake WSC	2019	1	•	•				•	•			•	•		•			•						•
		2		•				•					•		•			•						•
		3	•	•				•			•		•		•			•						•
		4										•	•	•	•			•						•
Canyon Regional Water Authority	2019	Emergency			•			•			•	•	•		•			•						•
		1						•					•											•
		2		•				•					•											•
		3						•					•						•					•
City of Converse	2013	4			•							•	•											•
		1	•			•							•		•			•						•
		2	•			•							•		•			•						•
		3	•			•							•		•			•						•
		4	•			•							•		•			•						•
Crystal Clear SUD	2019	5	•			•							•		•			•						•
		1			•						•				•									•
		2			•						•				•									•
		3			•						•				•									•
		4			•						•				•									•
County Line Special Utility District	2019	5			•						•								•					•
		1	•							•	•	•			•									•
		2	•							•	•	•			•									•
		3	•							•	•	•			•									•
		4	•							•	•	•			•									•
Goforth Special Utility District	2019	Conservation Period					•																	•
		1	•	•					•				•											•
		2	•	•					•				•											•
		3	•	•					•				•											•
		4	•	•					•				•											•

Region L Regional Water Planning
Chapter 7 - Drought Management
Summary of Drought Response Measures

Agenda Item 9 Page 22 of 24

Entity Name	DCP Date	Stage Number	Triggers										Responses										Water Supply	
			WWP	Demand/Capacity Based	Failure/Contamination	Groundwater Level	Season	Reservoir Level	Supply-Based	Well Pumping Time/Flow	Storage Tank Recovery	Other	Assessment and Identification	Water Rate Change or Surcharge	Irrigation Schedule	Mandatory Reduction	Notification of Public Agencies or Specific Users	Prohibited Use	Discontinue Water Diversions	Potential Suspend Service	Water Allocation	Others	Surface Water	Ground Water
Guadalupe Blanco River Authority	2019	1		•				•	•			•			•	•	•	•	•	•		•	•	•
		2		•				•	•			•			•		•	•	•	•		•	•	•
		3		•				•	•			•			•	•	•	•	•		•		•	•
		4		•	•				•			•			•		•	•	•	•		•	•	•
		5		•	•				•			•			•		•	•	•	•		•		•
City of Kyle	2014	1					•					•			•			•					•	•
		2										•			•			•					•	•
		3										•			•			•					•	•
City of Marion	2014	1						•		•					•								•	•
		2						•		•					•		•	•	•				•	•
		3						•		•					•		•	•					•	•
		4		•	•			•		•					•		•	•	•			•	•	•
McCoy WSC	2014	1		•								•			•			•					•	•
		2		•							•				•			•					•	•
		3	•	•	•							•			•			•					•	•
City of New Braunfels	2019	1				•			•						•								•	•
		2				•			•						•			•					•	•
		3				•			•						•			•					•	•
		4					•					•										•	•	•
City of San Marcos	2019	1		•	•	•			•			•			•			•					•	•
		2			•	•			•						•			•					•	•
		3			•	•			•						•			•					•	•
		4			•	•			•						•			•					•	•
		5		•	•	•			•			•			•			•				•	•	•
SAWS	2019	1				•									•			•					•	•
		2				•									•			•					•	•
		3				•									•			•					•	•
		4		•		•			•			•			•			•					•	•
City of Schertz	2019	1		•		•						•			•			•					•	•
		2		•		•						•			•			•					•	•
		3		•		•						•			•			•					•	•
		4		•		•						•			•			•					•	•

Region L Regional Water Planning
Chapter 7 - Drought Management
Summary of Drought Response Measures

Agenda Item 9 Page 23 of 24

Entity Name	DCP Date	Stage Number	Triggers										Responses										Water Supply	
			WWP	Demand/Capacity Based	Failure/Contamination	Groundwater Level	Season	Reservoir Level	Supply-Based	Well Pumping Time/Flow	Storage Tank Recovery	Other	Assessment and Identification	Water Rate Change or Surcharge	Irrigation Schedule	Mandatory Reduction	Notification of Public Agencies or Specific Users	Prohibited Use	Discontinue Water Diversions	Potential Suspend Service	Water Allocation	Others	Surface Water	Ground Water
S.S. Local Government Corporation	2019	1	•	•	•	•										•								•
		2	•	•	•											•								
		3	•	•	•											•								
		4	•	•	•	•										•								
S.S. WSC	2014	1	•																					•
		2	•																					
		3	•																					
		4	•																					
		5			•																			
Sunko Water Supply Corporation	2019	1			•					•	•													•
		2			•					•	•													
		3			•					•	•													
		4			•					•	•												•	•
		5			•																			
TBM Resident WSC	2017	1		•																				•
		2		•																				
		3		•																			•	•
		4		•																			•	•
Three Oaks WSC	2019	1																						•
		2																						
		3																						
		4																						
		Emergency			•																			
Universal City	2014	1				•																		•
		2				•																		
		3				•																		
		4				•																		
City of Victoria	2019	1																						•
		2																						•
		3																						
		4																						
		5		•	•																			

Entity Name	DCP Date	Stage Number	Triggers										Responses										Water Supply	
			WVP	Demand/Capacity Based	Failure/Contamination	Groundwater Level	Season	Reservoir Level	Supply-Based	Well Pumping Time/Flow	Storage Tank Recovery Time	Other	Assessment and Identification	Water Rate Change or Surchage	Irrigation Schedule	Mandatory Reduction	Notification of Public Agencies or Specific Users	Prohibited Use	Discontinue Water Diversions	Potential Suspend Service	Water Allocation	Others	Surface Water	Ground Water
Victoria County WCID No. 1	2019	1																						
		2		•											•			•						•
		3		•											•			•						
		4		•	•										•			•						•

Comment Tutorial for IPP

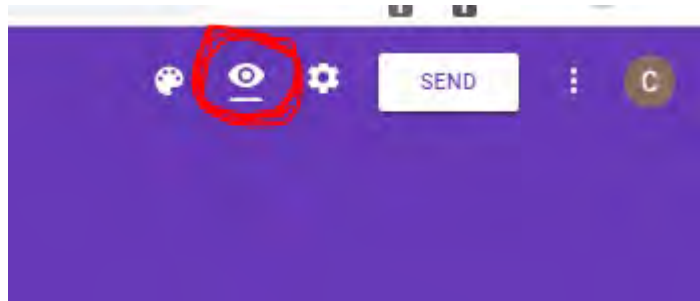
Please follow this guide on how to make comments on the Region L
2020 IPP

1. Log Into Google Drive

- a. Open your browser
- b. Go to <https://www.google.com/drive/>
- c. Click “Go to Google Drive”
- d. Type in the email/username and password shown below:
 - i. Email/Username: RegionLPG2020@gmail.com
 1. [Click enter](#)
 - ii. Password: regionl2020
 1. Click enter

2. To Comment on Chapters

- a. Once in the drive, click on the folder “Region L 2020 Initially Prepared Plan”
- b. Each chapter has a folder. Click the chapter folder you wish to review
- c. Inside the folder, you will see the pdf of the Chapter and a Google Form
 - i. Read the Chapter through the pdf
- d. To comment, click on the form
- e. In the top right corner there is an eye, click that eye to proceed



- f. Fill out the form with your comments and hit submit

A screenshot of a Google Form titled "Chapter 1". The form is displayed on a purple background. It contains the following fields: "Email address *" (with a small "Required" label), "Full Name *" (with a small "Required" label), "Organization *" (with a small "Required" label), and "Comments *" (with a small "Required" label). Below the "Comments" field, there is a note: "A copy of your response will be emailed to the address you provided." At the bottom of the form, there is a blue "Submit" button. The form is set against a light purple background.

10. Discussion and Appropriate Action Regarding Chapter 8 Policy Recommendations from the Workgroup

11. Discussion and Appropriate Action Regarding Presentations of Water Management Strategy Evaluations

Status of WMS Evaluations (Presented)	<ul style="list-style-type: none"> • Advanced Water Conservation • Local Groundwater • Facilities Expansion • Expanded Local Carrizo (SAWS) • Expanded Brackish GW (SAWS) • CRWA Wells Ranch (Phase 3) • CRWA Siesta Project • CVLGC Carrizo Project • SSLGC Expanded Carrizo Project (Guadalupe County) • SSLGC Brackish Wilcox Project (Gonzales County) • NBU ASR • NBU Trinity Well Field Expansion • City of Victoria ASR • SS WSC Brackish Wilcox <p><i>Presented in May 2019</i> <i>Presented in August 2019</i></p>
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Status of WMS Evaluations (Remaining)	<ul style="list-style-type: none"> • ARWA/GBRA Project (Phase 1) • ARWA Project (Phase 2) • ARWA Project (Phase 3) • GBRA Mid-Basin (Phase 2) • GBRA Lower Basin Storage • GBRA Lower Basin New Appropriation • GBRA Victoria County S-E Project • CRWA Brackish Carrizo-Wilcox • City of Victoria GW-SW Exchange • Martindale WSC Alluvial Well • Maxwell WSC Trinity Well • County Line SUD Trinity Well Field • County Line SUD Brackish Edwards Project • Drought Management • Edwards Transfers • Carrizo-Wilcox Conversions • Surface Water Rights • Balancing Storage • Recycled Water Strategies • City of Kenedy Carrizo Well <p><i>To Be Presented at November RWPG Meeting</i></p>
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Snapshot of Water Management Strategies

November 2019 RWPG Meeting

No.	WMS Sponsor	WMS Name	2019 Month Presented to RWPG	Firm Yield (acft/yr)	Annual Unit Cost (\$/acft)	Environmental/Cultural Assessment Ratings			
						Vegetation & Land Use	Aquatic Resources	Species of Concern	Cultural Considerations
1	SAWS	Expanded Local Carrizo	May	21,000	224	1	1	1	2
2	SAWS	Expanded Brackish GW	May	70,160	1,463	1	1	2	2
3	ARWA/GBRA	ARWA/GBRA Project (Phase 1)	Nov	30,000	1,099	1	2	2	2
4	ARWA	ARWA Project (Phase 2)	Nov	21,000	635	1	2	2	2
5	ARWA	ARWA Project (Phase 3)	Nov	5,584	1,995	1	2	2	2
6	GBRA	GBRA Mid-Basin (Phase 2)	Nov	27,000	1,492	1	2	2	2
7	GBRA	Lower Basin Storage	Nov	59,780	110	2	2	2	2
8	GBRA	Lower Basin New Appropriation	Nov	40,500	658	2	2	2	2
9	GBRA	Victoria County S-E Project	Nov	23,925	440	1	2	2	2
10	CRWA	Wells Ranch (Phase 3)	May	7,000	1,012	1	1	1	2
11	CRWA	Siesta Project	Aug	5,042	2,470	1	1	2	2
12	CRWA	Brackish Carrizo-Wilcox	Nov	14,700	1,595	1	2	2	2
13	CVLGC	Carrizo Project	Aug	10,000	1,230	1	2	2	2
14	SSLGC	Expanded CZ Project (Guad)	Aug	6,000	1,207	1	2	2	2
15	SSLGC	Brackish WX Project (Gonz)	Aug	5,000	663	1	1	1	2
16	NBU	ASR	Aug	10,818	462	0	1	2	2
17	NBU	Trinity Well Field Expansion	Aug	3,360	685	0	0	2	2
18	City of Victoria	ASR	Aug	7,900	385	0	1	1	2
19	City of Victoria	GW-SW Exchange	Nov	22,068	--	0	0	1	2
20	SSWSC	Brackish Wilcox	May	1,120	2,911	1	0	2	2
21	Martindale WSC	Alluvial Well	Nov	240	463	1	2	2	2
22	Maxwell WSC	Trinity Well	Nov	320	3,063	1	2	2	2
23	County Line SUD	Trinity Well Field	Nov	1,000	1,539	1	1	2	2
24	County Line SUD	Brackish Edwards Project	Nov	1,500	1,330	1	1	2	2

Legend

Environmental/Cultural Assessment Rating

0 N/A

1 Minimal concerns; precautions recommended

2 Additional studies recommended

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BUILDING A WORLD OF DIFFERENCE

Environmental Analyses for Water Management Strategies

Regional Water Planning Group Meeting
November 7, 2019

BUILDING A WORLD OF DIFFERENCE®

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Environmental Analysis of Individual WMS

- Four Major Analysis Categories
 1. Vegetation and Land Use
 2. Aquatic Resources
 3. Endangered and Threatened Species and Species of Concern
 4. Cultural Resources
- Analyses are conducted in GIS, based on a conceptual project location

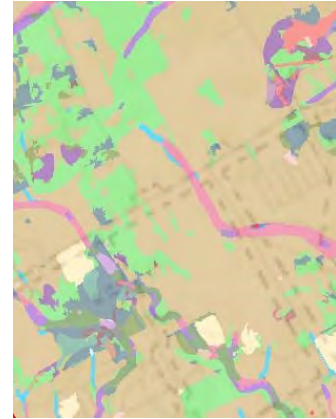


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1. Vegetation and Land Use

- Evaluate land use changes and vegetation impacts
- Data Sources:
 - Texas Parks and Wildlife Department (TPWD) Ecological Mapping Systems of Texas (EMST)
 - National Land Cover Database
 - Aerial photography



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2. Aquatic Resources

- Estimate stream and wetlands impacts
- Data Sources:
 - National Wetlands Inventory (NWI)
 - National Hydrology Database (NHD)
 - U.S. Geological Survey (USGS) Topographic Quadrangle Maps
 - FEMA Floodplains
 - TCEQ Texas 303(d) List of Impaired Streams
 - Texas Parks and Wildlife Department Ecologically Significant Stream Segments
 - Aerial photography

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3. Threatened and Endangered Species and Species of Concern

- Evaluate likely presence of suitable habitat
- Data Sources:
 - U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) county species lists
 - TPWD county species lists
 - USFWS species listing plans
 - Vegetation and aquatic resources data sources



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4. Cultural Resources

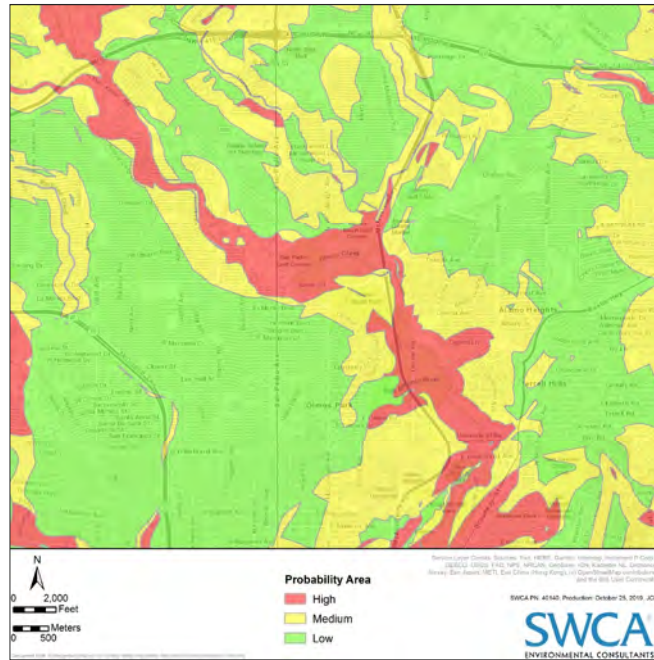
- Estimate potential for impacts to cultural resources
 - Background Review Data Sources
 - Texas Archaeological Sites Atlas
 - Cemeteries
 - Historical buildings
 - Properties listed in National Register of Historic Places (NRHP)
 - State Antiquities Landmarks (SAL)
 - Archaeological Probability Mapping
 - Maximum Entropy Analysis – estimates probability of unrecorded archaeological sites based on the following factors:
 - Previously recorded archaeological sites within the region
 - Environmental factors (e.g., soils, geology, elevation, slope, and distance to water)

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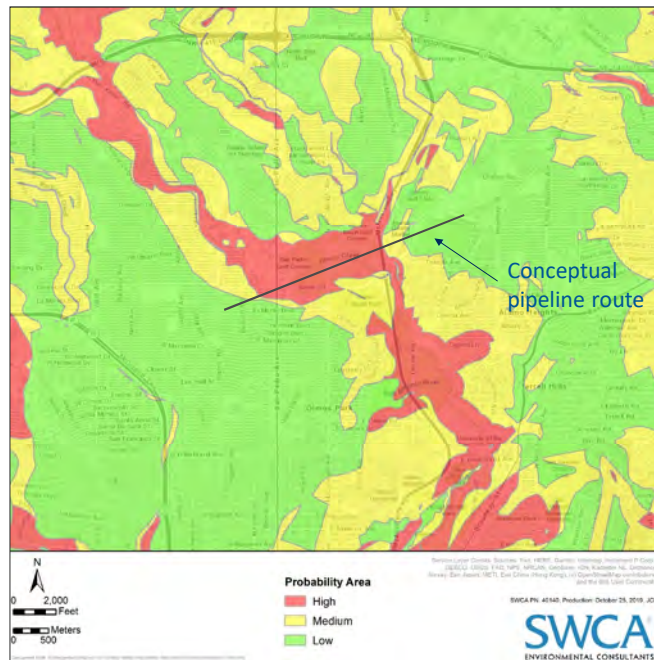
Cultural Resources Model



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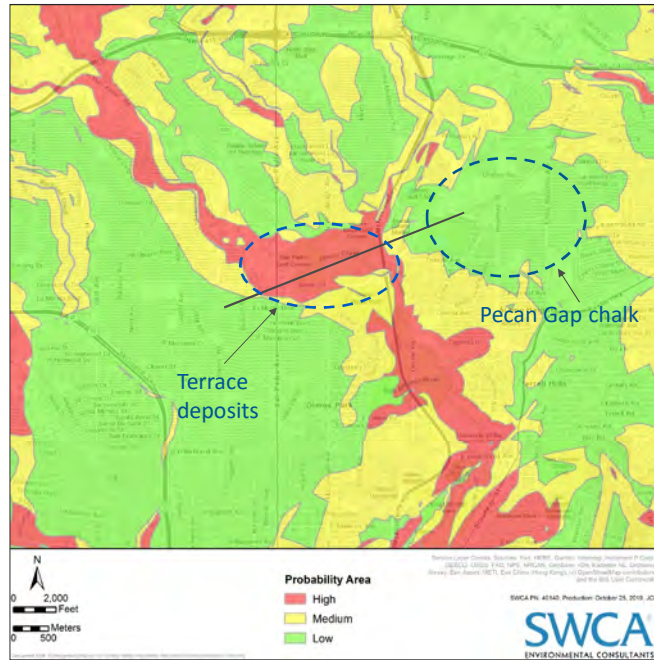
Cultural Resources Model



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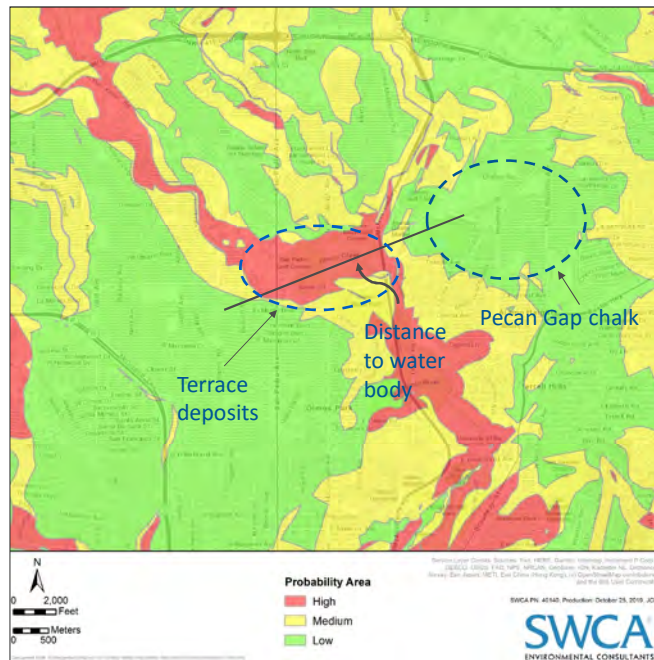
Cultural Resources Model



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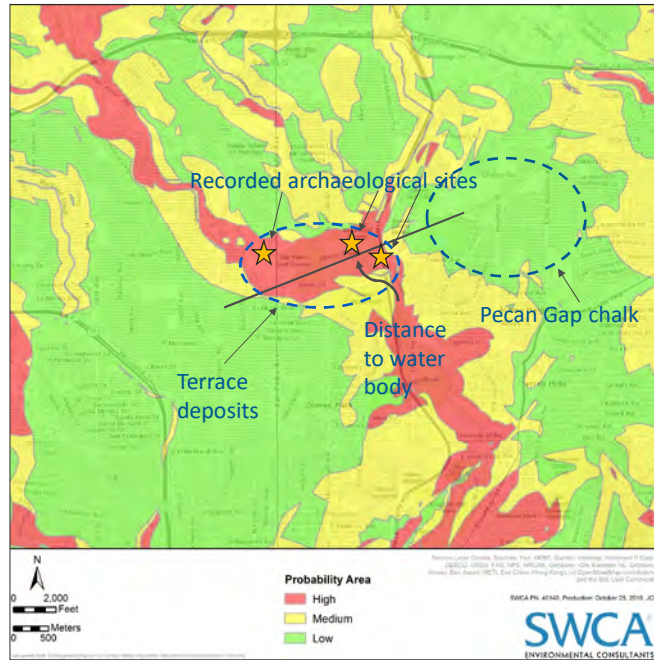
Cultural Resources Model



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10

Cultural Resources Model



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11



4. Cultural Resources

• Cultural Resources Assessment Score:

- Archaeological Probability Model starts with the environmental setting score (ex. 50%) for the conceptual project as a whole and then is modified by the presence of specific cultural resources within the Project area (50% +...).
- Each cultural resource is assigned a score modifier based on its known or potential significance. Each resource and associated score modifier is listed below:
 - NRHP/SAL Listed/Eligible Cultural Resource/Archaeological Sites and Cemeteries (+5).
 - Archaeological Sites with an Undetermined NRHP/SAL Eligibility (+2.5).
 - Potential Historic-age Structures, Linear Features, Historical Markers (+1).
 - Cultural Resource/Archaeological Sites Determined Ineligible for NRHP/SAL Listing (+0.5).

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Example Cultural Resources Assessment Score

- If a WMS has a mean archaeological setting score of 50 percent and the alignment has the following resources within 300 feet of the Project footprint:
 - 2 NRHP-Listed Archaeological Sites (+5 x 2)
 - 3 Archaeological Sites with an Undetermined NRHP/SAL Eligibility (+2.5 x 3)
 - 10 Potential Historic-age Structures, Linear Features, Historical Markers (+1 x 10)
 - 1 Cultural Resource/Archaeological Sites Determined Ineligible for NRHP/SAL Listing (+0.5 x 1)
 - Example Cultural Resources Assessment Score Totals = 78

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Drought Management WMS

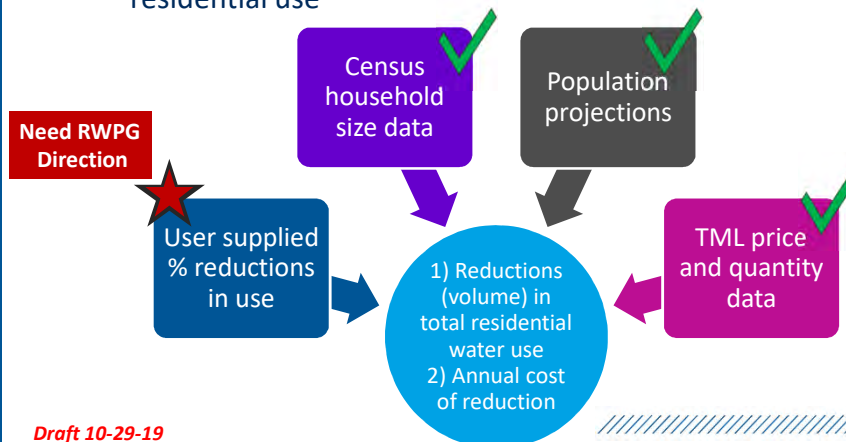
- Recommended WMS in 2016 SCTRWP
- Assumes demand reduction for a WUG by activating a drought contingency plan or water rationing
 - Applied to WUGs that **exhibit Needs** in 2020 decade
 - Reductions applied only for 2020 decade
 - Yield is year 2020 projected demand with 5%, 10%, 15%, and 20% reductions
- 2016 SCTRWP used 5% reduction
- SAWS has distinct table

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1 

Drought Management WMS

- TWDB provided Drought Management Costing Tool on Oct. 3, 2019
 - Evaluates **economic impact** of reductions due to drought WMS
 - Estimates possible costs to municipal WUGs from reduced residential use



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2 

Drought Management WMS

DEFINITIONS

- *Total Annual Water Reduction (TWDB) or Yield (DM WMS)* – in acft
 - Total annual reduction of all household water use due to drought management plan implementation.
 - Based on desired percent reduction set by the SCTRWPG, for select WUGs
- *Total Annual Cost* in 2018 dollars
 - Total annual costs for foregone water use
 - i.e. monetary value of adverse impacts upon consumers (economic impact) due to reduction in residential use

Need RWPG
Direction



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//////////////////// 3

Total Annual Water Reduction (Yield)

ENTITY	2020 YIELD (ACFT)			
	5%	10%	15%	20%
AIR FORCE VILLAGE II INC	3	7	10	13
ALAMO HEIGHTS	50	99	149	199
ATASCOSA RURAL WSC	59	118	177	236
BEXAR COUNTY WCID 10	33	66	99	132
CASTROVILLE	17	34	50	67
CLEAR WATER ESTATES WATER SYSTEM	4	7	11	14
CONVERSE	101	202	303	405
CREEDMOOR-MAHA WSC	7	13	20	26
CRYSTAL CLEAR WSC	92	184	276	368
EAST MEDINA COUNTY SUD	43	87	130	173
EL OSO WSC	19	38	57	75
FORT SAM HOUSTON	5	9	14	18
GARDEN RIDGE	47	94	141	187
HONDO	51	101	152	202
KARNES CITY	23	45	68	91

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Drought Management Yield (1/3)

Drought Management Yield (2/3)

Total Annual Water Reduction (Yield)(cont'd)

ENTITY	2020 YIELD (ACFT)			
	5%	10%	15%	20%
KIRBY	32	64	96	127
KT WATER DEVELOPMENT	7	15	22	30
LA COSTE	8	16	24	32
LACKLAND AIR FORCE BASE	67	134	201	268
LEON VALLEY	65	129	194	258
LIVE OAK	48	96	144	191
LYTLE	18	36	53	71
MARTINDALE WSC	21	42	62	83
NATALIA	6	13	19	25
OAK HILLS WSC	28	56	83	111
PEARSALL	26	52	79	105
S S WSC	95	189	284	378
SABINAL	14	27	41	55
SEGUIN	228	455	683	910
SHAVANO PARK	47	94	141	188

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Drought Management Yield (3/3)

Total Annual Water Reduction (Yield)(cont'd)

ENTITY	2020 YIELD (ACFT)			
	5%	10%	15%	20%
THE OAKS WSC	9	18	26	35
UNIVERSAL CITY	192	385	577	770
UVALDE	103	205	308	411
VICTORIA	490	980	1,470	1,959
WEST MEDINA WSC	7	15	22	29
WINGERT WATER SYSTEMS	10	20	30	40
YANCEY WSC	40	80	121	161

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Total Annual Cost in 2018 dollars (1/3)

Total Annual Cost

ENTITY	2020 TOTAL ANNUAL COST (\$)			
	5%	10%	15%	20%
AIR FORCE VILLAGE II INC	\$382	\$1,612	\$3,840	\$7,254
ALAMO HEIGHTS	\$4,414	\$18,636	\$44,397	\$83,861
ATASCOSA RURAL WSC	\$5,234	\$22,101	\$52,652	\$99,454
BEXAR COUNTY WCID 10	\$2,929	\$12,368	\$29,464	\$55,654
CASTROVILLE	\$1,833	\$7,741	\$18,442	\$34,835
CLEAR WATER ESTATES WATER SYSTEM	\$407	\$1,717	\$4,092	\$7,729
CONVERSE	\$9,040	\$38,171	\$90,936	\$171,769
CREEDMOOR-MAHA WSC	\$813	\$3,432	\$8,177	\$15,445
CRYSTAL CLEAR WSC	\$8,176	\$34,522	\$82,244	\$155,350
EAST MEDINA COUNTY SUD	\$3,856	\$16,280	\$38,786	\$73,262
EL OSO WSC	\$1,677	\$7,080	\$16,866	\$31,858
FORT SAM HOUSTON	\$530	\$2,236	\$5,328	\$10,064
GARDEN RIDGE	\$3,004	\$12,683	\$30,215	\$57,074
HONDO	\$4,519	\$19,080	\$45,455	\$85,859
KARNES CITY	\$2,568	\$10,842	\$25,829	\$48,788

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Total Annual Cost in 2018 dollars (2/3)

Total Annual Cost (cont'd)

ENTITY	2020 TOTAL ANNUAL COST (\$)			
	5%	10%	15%	20%
KIRBY	\$1,968	\$8,310	\$19,797	\$37,394
KT WATER DEVELOPMENT	\$859	\$3,628	\$8,644	\$16,328
LA COSTE	\$577	\$2,434	\$5,799	\$10,954
LACKLAND AIR FORCE BASE	\$5,954	\$25,140	\$59,892	\$113,129
LEON VALLEY	\$7,222	\$30,493	\$72,645	\$137,219
LIVE OAK	\$2,726	\$11,509	\$27,419	\$51,791
LYTLE	\$804	\$3,395	\$8,089	\$15,278
MARTINDALE WSC	\$2,381	\$10,054	\$23,952	\$45,243
NATALIA	\$689	\$2,911	\$6,935	\$13,099
OAK HILLS WSC	\$2,470	\$10,430	\$24,847	\$46,933
PEARSALL	\$1,759	\$7,425	\$17,690	\$33,414
S S WSC	\$8,404	\$35,481	\$84,529	\$159,667
SABINAL	\$657	\$2,775	\$6,611	\$12,487
SEGUIN	\$19,898	\$84,014	\$200,152	\$378,064
SHAVANO PARK	\$3,635	\$15,347	\$36,561	\$69,059

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Total Annual Cost in 2018 dollars (3/3)

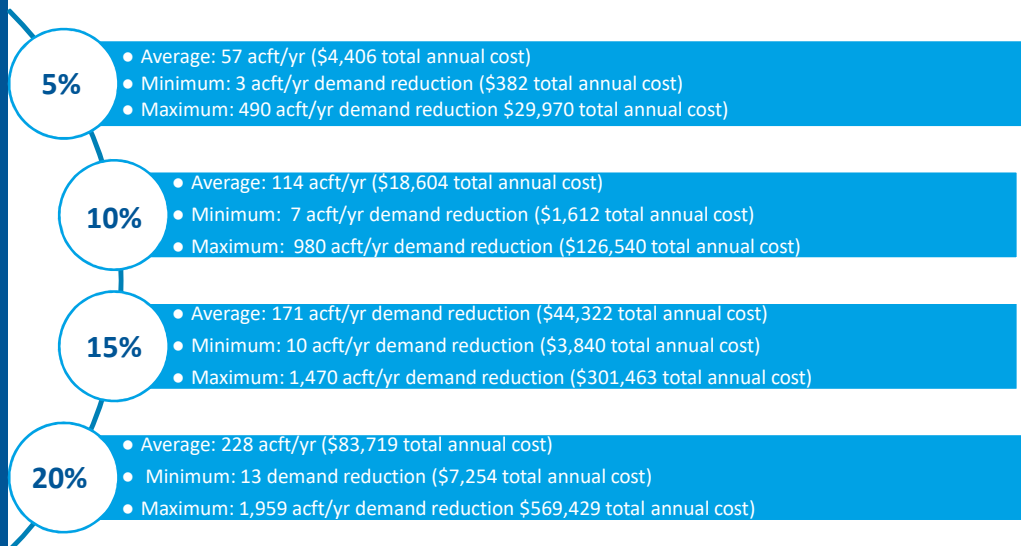
Total Annual Cost (cont'd)

ENTITY	2020 TOTAL ANNUAL COST (\$)			
	5%	10%	15%	20%
THE OAKS WSC	\$1,004	\$4,241	\$10,103	\$19,083
UNIVERSAL CITY	\$12,608	\$53,232	\$126,817	\$239,543
UVALDE	\$4,500	\$18,999	\$45,263	\$85,496
VICTORIA	\$29,970	\$126,540	\$301,463	\$569,429
WEST MEDINA WSC	\$845	\$3,566	\$8,496	\$16,047
WINGERT WATER SYSTEMS	\$1,149	\$4,850	\$11,554	\$21,825
YANCEY WSC	\$3,572	\$15,082	\$35,930	\$67,869

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RWPG Options for Drought Management Reduction Percentages



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SAWS Drought Reduction Analysis

DECADE	2020	2030	2040	2050	2060	2070
Demand (acft/yr)	239,028	262,301	285,481	308,607	331,930	353,673
% Reduction (DM)	5%	12%	16%	16%	16%	16%
DM Savings (acft/yr)	11,951	31,476	45,677	49,377	53,109	56,588
Surplus (Need) (acft/yr)	8,019	(14,468)	(34,780)	(54,469)	(75,881)	(97,624)
Surplus (Need) After DM (acft/yr)	19,970	17,008	10,897	(5,092)	(22,772)	(41,036)

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11

Edwards Transfers WMS

- Recommended WMS in 2016 SCTRWP
- Enables transfer of water rights between willing buyers and sellers solely or largely dependent on the Edwards Aquifer
 - Subject to requirements of the Edwards Aquifer Authority Act (The Act) and Edwards Aquifer Authority (EAA) rules, including geographical limitations and requirement that a portion of irrigation water rights remain with agricultural lands
- WMS focuses on irrigation to municipal transfers (which have historically occurred), limited by the availability of EAA-permitted groundwater in the Drought of Record and EAA rules
- All WMS that relate to EAA assume full implementation of the Edwards Aquifer Habitat Conservation Plan (EAHCP)

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Carrizo-Wilcox Conversions

- Recommended WMS in 2016 SCTRWP
- Methodology: Purchase irrigation or mining groundwater permits and convert to public supply permit to meet municipal Needs
- Intended for WUGs where:
 - Local Groundwater WMS is recommended strategy; and
 - Limited groundwater availability due to existing permits and/or Modeled Available Groundwater (MAG) estimates
- City of Karnes City
 - Only WUG identified for this WMS
 - Limited by Carrizo-Wilcox Aquifer MAG in Karnes County

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 1 

Carrizo-Wilcox Conversions

- **1 New Well (444 acft/yr) Anticipated to Meet Projected Needs**

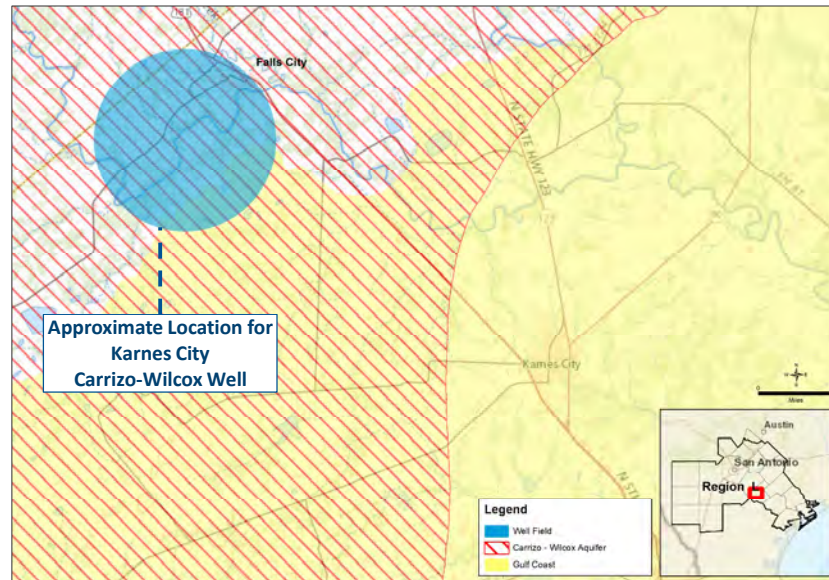
WUG	TYPE	VOLUME (ACFT/YR)					
		2020	2030	2040	2050	2060	2070
Karnes City	Projected Needs	319	305	280	267	256	232
	Project Yield	444	444	444	444	444	444
	Surplus (Need) with WMS	125	139	164	177	188	212

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 2 

Carrizo-Wilcox Conversions

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3



Carrizo-Wilcox Conversions

- Environmental and Cultural Resources Assessments Would be Necessary at Time of Implementation
- Costs for Carrizo-Wilcox Conversions WMS:
 - Not estimated due to its transactional basis
 - Limited to negotiations between Karnes City and a willing seller of permit

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4



Surface Water Rights

- Recommended WMS in 2016 SCTRWP
- Develop or enhance water supplies through lease or purchase of existing rights with consumptive use and/or impoundment authorizations
- Included as WMS to recognize the following activities are consistent with 2021 SCTRWP:
 - Transfer of water rights are consistent with 2021 SCTRWP if between willing sellers and buyers.
 - Additions of diversion points or types and places of use for existing surface water rights
- Addresses existing water rights, not applications for new surface water appropriations

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1

Surface Water Rights

- Maximizes beneficial use of existing run-of-river water rights
- Available yield determined by applicable water availability model (WAM)
 - Accounts for relative seniority, authorized annual divers, types of use, maximum diversion rate, instream flow requirements, physical location, and authorized storage
 - Guadalupe – San Antonio River Basin WAM
 - Nueces River Basin WAM
- Costs are highly variable due to the potential transactions between willing buyers and sellers

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2

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Balancing Storage WMS

- Recommended WMS in 2016 SCTRWP
- Included as WMS to recognize that storage is needed to:
 - Firm up supplies from run-of-river diversions or interruptible groundwater sources
 - Ensure that supplies delivered through long distance conveyance facilities are available to meet daily and seasonal demands
- Examples:
 - Develop or enhance water supplies through off-channel or underground (ASR) storage authorizations
 - Off-channel or underground (ASR) storage may be added through amendment of existing surface water rights
 - Only if there is no associated adverse impact on other water rights or environment greater than that with full use prior to amendment (“No Injury” Rule)

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1

Balancing Storage WMS

- Available yield determined using applicable models and tools:
 - Guadalupe – San Antonio River Basin WAM
 - Nueces River Basin WAM
 - Flow Regime Application Tool (FRAT)
 - Groundwater Availability Models (GAMs)
 - Spreadsheet Models
- Environmental considerations limited to terrestrial habitats because:
 - WMS considers existing and authorized for use water rights and groundwater rights
 - Storage is off-channel or underground
- Costs are highly variable due to specific project needs

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2

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Recycled Water Strategies

- Defined as projects that utilize treated wastewater effluent as a replacement for water supply
- Typically involves a capital project connecting the treatment plant discharge facilities to an individual area that has a relatively high, localized use
- Examples of Reuse Include:
 - Irrigation;
 - Cooling Water for Industrial Uses;
 - Fire Protection;
 - Supply to Non-recreational Water Bodies; and
 - Augmenting Water Supplies

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ARWA/GBRA Project (Phase 1)

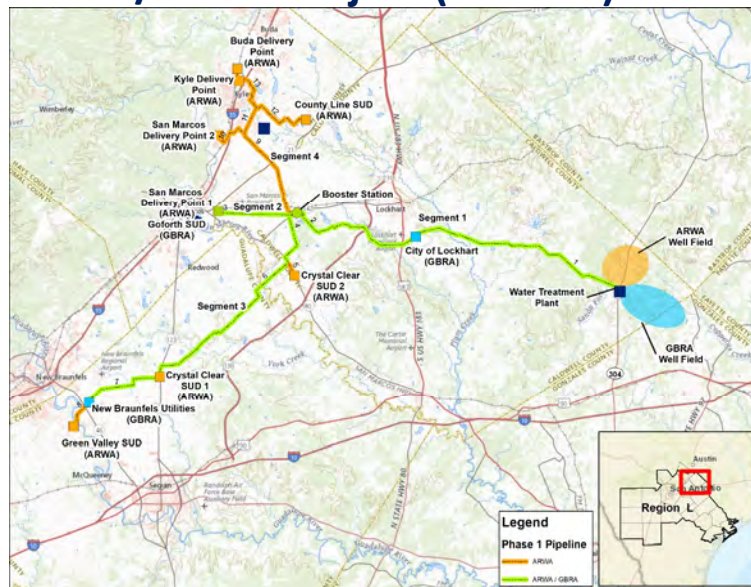
- Recommended WMS in 2016 SCTRWP (Combined ARWA and GBRA WMS's from 2016 SCTRWP)
- Source and Supply:
 - Carrizo-Wilcox Groundwater from Gonzales and Caldwell Counties (Gonzales UWCD and Plum Creek UWCD)
 - Total Project Firm Yield = 30,000 acft/yr
 - ARWA = 15,000 acft/yr
 - San Marcos, Buda, Kyle, CRWA (Green Valley SUD, Crystal Clear SUD, and County Line SUD)
 - GBRA = 15,000 acft/yr
 - Lockhart, NBU, Goforth SUD

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ARWA/GBRA Project (Phase 1)

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



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ARWA/GBRA Project (Phase 1)

- Facilities:
 - ARWA: 11 Carrizo-Wilcox Aquifer Wells, Average Flow of 1,044 gpm per Well
 - GBRA: 11 Carrizo-Wilcox Aquifer Wells, Average Flow of 1,027 gpm per Well
 - Well Collection Pipelines and Pumps
 - Peaking Factors:
 - 1.5 for ARWA
 - 1.0 for GBRA
 - 85 miles of Transmission Pipeline
 - 2 Elevated Storage Tanks; 1 Ground Storage Tank
 - 33.6 MGD WTP
 - Pump Station and Booster Station
- Decade of Need: 2020 (Expected 2023)

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Environmental Considerations

- Vegetation and Land Use 1
 - Vegetation would be expected to quickly re-establish once construction is complete
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources 2
 - Pipeline crosses stream segment designated as impaired in the 2014 Texas Integrated Report of 303(d) listed water bodies
 - Pipeline crosses the headwaters of Geronimo Creek, an ecologically significant stream segment designated by TPWD
 - Project will require on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and Species of Concern 2
 - Suitable habitat may occur for:
 - Federally endangered golden-cheeked warbler; on-site habitat assessment required
 - Several state-listed threatened species
 - Federal candidate/state-threatened freshwater mussel species
 - Pre-construction surveys for active bird nests are recommended
- Cultural Considerations 2
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 4% to 96% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

Draft 10-23-19



ARWA/GBRA Project (Phase 1)

WMS Cost Summary				
	Total	ARWA	GBRA	San Marcos**
Costs of Facilities	\$252,928,000	\$156,367,000	\$94,787,000	\$1,774,000
Total Project Costs	\$355,685,000	\$228,365,000	\$124,512,000	\$2,806,000
Annual Costs*	\$32,965,000	\$21,454,000	\$9,134,000	\$703,000
Project Yield (acft/yr)	30,000	15,000	15,000	--
Unit Costs (\$/acft/yr)	\$1,099	\$1,430	\$721	--

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

** San Marcos will contribute to costs of San Marcos WTP High Service Pump Station Expansion and Ground Storage Tank.

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ARWA Project (Phase 2)

- Recommended WMS in 2016 SCTRWP (Split 2016 WMS into two WMS's for 2021 SCTRWP)
- Source and Supply:
 - Carrizo-Wilcox Groundwater from Caldwell County (Gonzales County UWCD)
 - Total Project Firm Yield = 21,000 acft/yr
 - San Marcos, Buda, Kyle, CRWA (Green Valley SUD, Crystal Clear SUD, and County Line SUD)

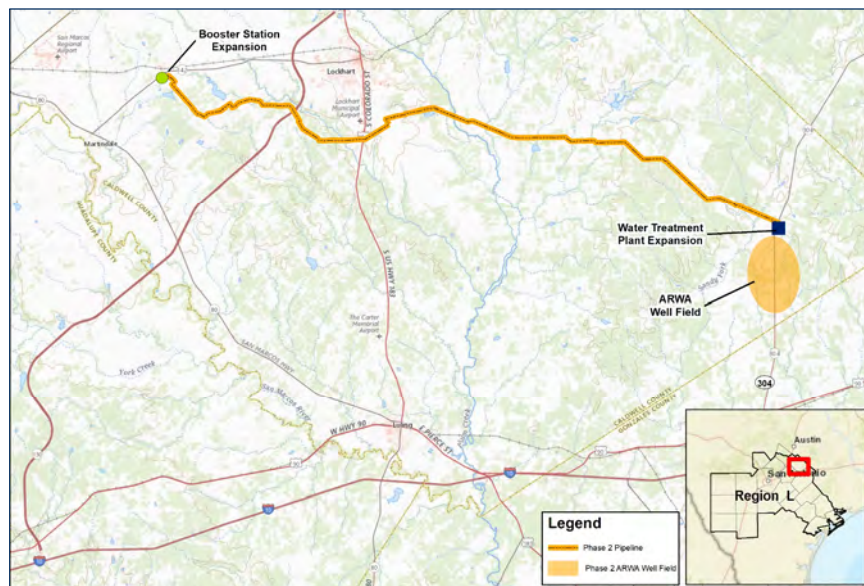
ARWA Phase	Firm Yield (acft/yr)
1	15,000
2	21,000
3	5,584
Total	41,684

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1 

ARWA Project (Phase 2)

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



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2 

ARWA Project (Phase 2)

- Facilities:
 - 15 Carrizo-Wilcox Aquifer Wells, Average Flow of 1,012 gpm per Well
 - Well Collection Pipelines and Pumps
 - Peaking Factor of 1.5
 - 28 miles of Transmission Pipeline
 - Parallel to Phase 1 Pipeline
 - 2 Ground Storage Tanks
 - 28 MGD WTP Expansion (Total of 61.6 MGD)
 - Booster Pump Station Expansion
- Decade of Need: 2040

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Environmental Considerations

- Vegetation and Land Use ①
 - Vegetation would be expected to quickly re-establish once construction is complete
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources ②
 - Project will require an on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and Species of Concern ②
 - Suitable habitat may occur for:
 - Several state listed threatened species
 - Federal candidate/state-threatened freshwater mussel species
 - Pre-construction surveys for active bird nests are recommended
- Cultural Considerations ②
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 4% to 77% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

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ARWA Project (Phase 2)

WMS Cost Summary	
Costs of Facilities	\$92,451,000
Total Project Costs	\$130,526,000
Annual Costs*	\$13,391,000
Project Yield (acft/yr)	21,000
Unit Costs (\$/acft/yr)	\$635

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

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ARWA Project (Phase 3)

- New WMS in 2021 SCTRWP
- Source and Supply:
 - Direct Potable Reuse of San Marcos Wastewater Treatment Plant Effluent
 - Total Project Firm Yield: 5,584 acft/yr
 - San Marcos, Buda, Kyle, CRWA (Green Valley SUD, Crystal Clear SUD, and County Line SUD)

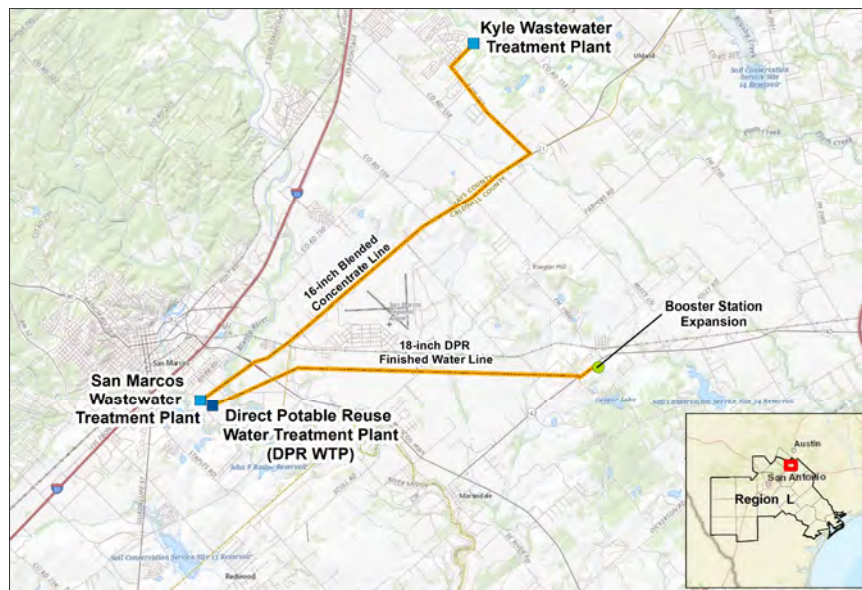
ARWA Phase	Firm Yield (acft/yr)
1	15,000
2	21,100
3	5,584
Total	41,684

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ARWA Project (Phase 3)

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



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ARWA Project (Phase 3)

- Facilities:
 - 5 MGD Direct Potable Reuse WTP and Pump Station
 - 4-mile Treated Water Transmission Pipeline
 - 11-mile Blended Concentrate Transmission Pipeline
 - 5 MGD Expanded Booster Station
 - 1 MG Ground Storage Tank
- Decade of Need: 2060

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Environmental Considerations

- Vegetation and Land Use 1
 - Vegetation would be expected to quickly re-establish once construction is complete
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources 2
 - Project will require on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and Species of Concern 2
 - Suitable habitat may occur for:
 - Several state listed threatened species
 - Federal candidate/state-threatened freshwater mussel species
 - Pre-construction surveys for active bird nests are recommended
- Cultural Considerations 2
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 18% to 90% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

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ARWA Project (Phase 3)

WMS Cost Summary	
Costs of Facilities	\$54,440,000
Total Project Costs	\$73,558,000
Annual Costs*	\$11,171,000
Project Yield (acft/yr)	5,584
Unit Costs (\$/acft/yr)	\$1,995

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

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GBRA Mid-Basin Project (Phase 2)

- Recommended WMS in 2016 SCTRWP
- Source and Supply:
 - Surface Water from Guadalupe River near the City of Gonzales
 - Water Rights Permit Application Pending at TCEQ
 - ASR Well Field near the City of Gonzales in the Carrizo-Wilcox Aquifer
 - Gonzales County Underground Water Conservation District
 - Firm Yield = 27,000 acft/yr

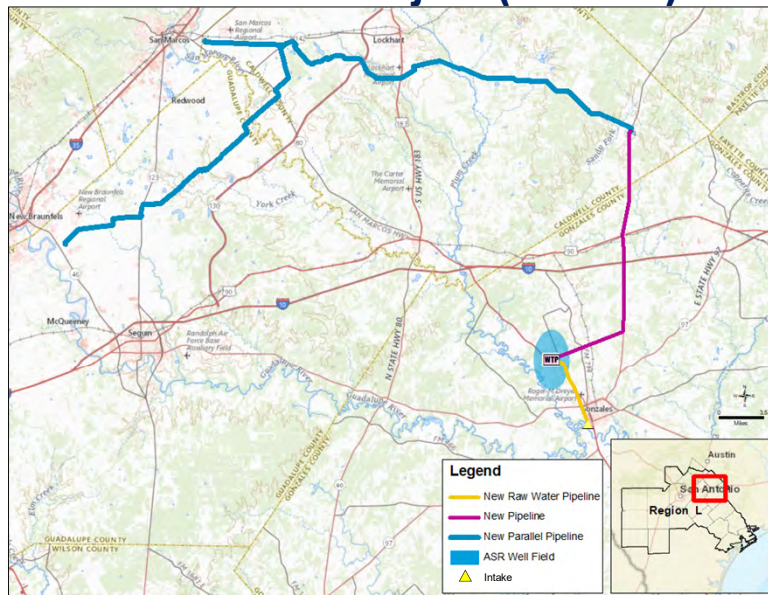
GBRA Phase	Firm Yield to GBRA
1 – ARWA/GBRA Shared Project	15,000
2 – Mid-Basin Project	27,000
Total	42,000

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GBRA Mid-Basin Project (Phase 2)

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



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GBRA Mid-Basin Project (Phase 2)

- Facilities:
 - Surface Water Intake and Pump Station
 - 5-mile Raw Water Pipeline
 - 63 MGD WTP
 - 33 ASR Wells in a New Well Field in the Carrizo-Wilcox Aquifer
 - 75-mile Treated Water Transmission Pipeline
 - 55 miles of the pipeline would be constructed parallel to ARWA/GBRA Project (Phase 1)
- Decade of Need: 2030

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Environmental Considerations

- Vegetation and Land Use 1
 - Vegetation would be expected to quickly re-establish once construction is complete
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources 2
 - Pipeline crosses a stream segment designated as impaired in the Texas 303(d) List
 - Project will require an on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and Species of Concern 2
 - Suitable habitat may occur for:
 - Federally endangered golden-cheeked warbler
 - Several state listed threatened species
 - Federal candidate/state-threatened freshwater mussel species
 - On-Site habitat assessments and field surveys for endangered are required.
- Cultural Considerations 2
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 4% to 87% likelihood
 - Structured cultural resources survey of the final design plan will be required

Environmental/ Cultural Assessment Rating

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

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GBRA Mid-Basin Project (Phase 2)

WMS Cost Summary	
Costs of Facilities	\$286,131,000
Total Project Costs	\$403,046,000
Annual Costs*	\$40,281,000
Project Yield (acft/yr)	27,000
Unit Costs (\$/acft/yr)	\$1,492

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

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GBRA Lower Basin Storage Project

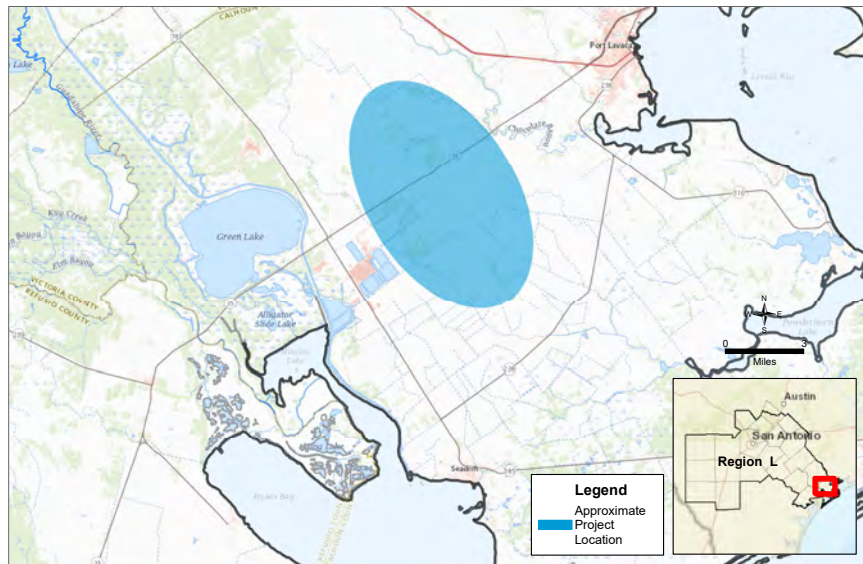
- Recommended WMS in 2016 SCTRWP
- Source and Supply:
 - Off-Channel Reservoir in Calhoun County to Firm Up Supply
 - GBRA/Dow Water Rights = 172,501 acft/yr
 - Current Firm Yield = 8,870 acft/yr
 - Incrementally Increase Firm Supply by 59,780 acft/yr
 - Total Project Firm Yield = 68,650 acft/yr
 - Water Rights Permit Application Pending at TCEQ

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GBRA Lower Basin Storage Project

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GBRA Lower Basin Storage Project

- Facilities:
 - Off Channel Reservoir (OCR) impounding approximately 12,700 acft/yr
 - Pump Station
 - 1-mile Transmission Pipeline
- Decade of Need: 2020

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Environmental Considerations

- Vegetation and 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**
 - Project will require on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and 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 cranes and other state-listed species will be required.
- Cultural Considerations **2**
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 2% to 65% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

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GBRA Lower Basin Storage Project

WMS Cost Summary	
Costs of Facilities	\$43,989,000
Total Project Costs	\$65,470,000
Annual Costs*	\$6,603,000
Project Yield (acft/yr)	59,780
Unit Costs (\$/acft/yr)	\$110

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

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GBRA Lower Basin New Appropriation Project

- Recommended WMS in 2016 SCTRWP
- Source and Supply:
 - Surface Water from the Guadalupe River
 - Diversion Upstream of Saltwater Barrier
 - Water Rights Permit Application Pending at TCEQ
 - Firm Yield = 40,500 acft/yr
 - ~24,000 acft/yr to GBRA Victoria County Steam-Electric Project
 - Potential Reservoir Sizes and Subsequent Firm Yield:

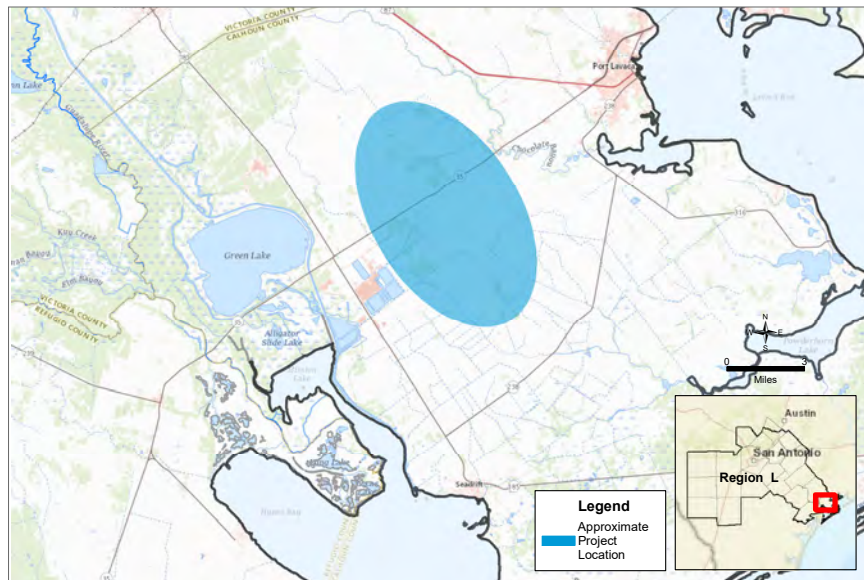
RESERVOIR SIZE (ACFT)	FIRM YIELD (ACFT/YR)
25,000	18,500
50,000	25,500
100,000	33,500
150,000	40,500
200,000	47,500

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GBRA Lower Basin New Appropriation Project

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GBRA Lower Basin New Appropriation Project

- Facilities:
 - Main Pump Station and Canal Upgrades from 355 cfs to 500 cfs
 - New Intake and Pump Station from Main Canal
 - 10-mile Diversion Pipeline
 - 150,000 acft Off-Channel Reservoir
- Decade of Need: 2020

Draft 10-23-2019



Environmental Considerations

- Vegetation and 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**
 - Project will require on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and 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 cranes and other state-listed species will be required.
- Cultural Considerations **2**
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 2% to 65% likelihood.
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

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GBRA Lower Basin New Appropriation Project

WMS Cost Summary	
Costs of Facilities	\$244,538,000
Total Project Costs	\$381,960,000
Annual Costs*	\$26,648,000
Project Yield (acft/yr)	40,500
Unit Costs (\$/acft/yr)	\$658

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

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GBRA Victoria County Steam-Electric Project

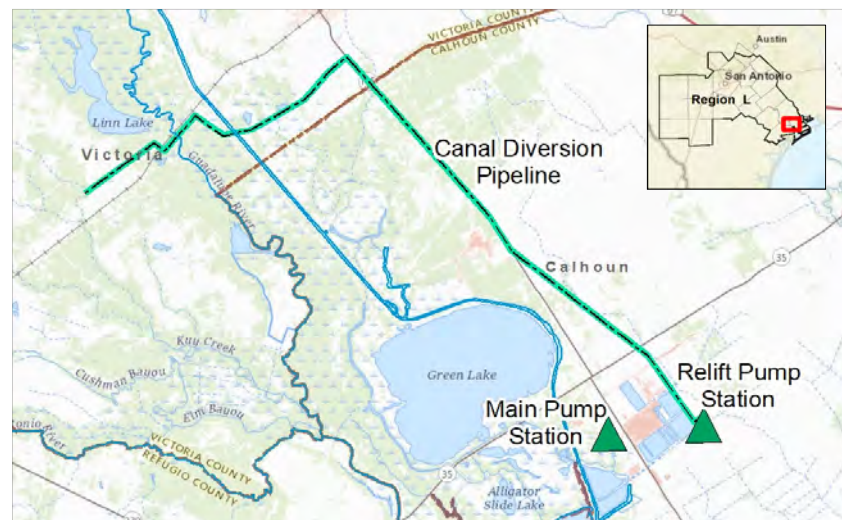
- Recommended WMS in 2016 SCTRWP
- Source and Supply:
 - Raw Water from the Guadalupe River via the GBRA Calhoun Canal System Diversion
 - Water Right from GBRA Lower Basin New Appropriation
 - WMS Only Consists of Facilities to Convey Water to Victoria County for Steam-Electric Use.
 - Firm Yield = 23,925 acft/yr

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GBRA Victoria County Steam-Electric Project

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



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GBRA Victoria County Steam-Electric Project

- Facilities:
 - 121 MGD Intake Pump Station
 - 22.4 mile, 36-inch diameter Transmission Pipeline
 - Main Pump Station Expansion
 - Calhoun Canal System Upgrades
- Decade of Need: 2020

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Environmental Considerations

- Vegetation and Land Use 1
 - Vegetation would be expected to quickly re-establish once construction is complete
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources 2
 - Project will require on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and Species of Concern 2
 - Suitable habitat may occur for:
 - Federally endangered whooping crane;
 - Federally endangered Attwater's greater prairie-chicken (low potential);
 - Federal candidate black rail; and
 - Several state listed threatened species
 - Site-specific assessments for whooping cranes and other state-listed species will be required
- Cultural Considerations 2
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 1% to 99% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

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GBRA Victoria County Steam-Electric Project

WMS Cost Summary	
Costs of Facilities	\$84,316,000
Total Project Costs	\$117,260,000
Annual Costs*	\$10,516,00
Project Yield (acft/yr)	23,925
Unit Costs (\$/acft/yr)	\$440

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

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CRWA Brackish Carrizo-Wilcox Project

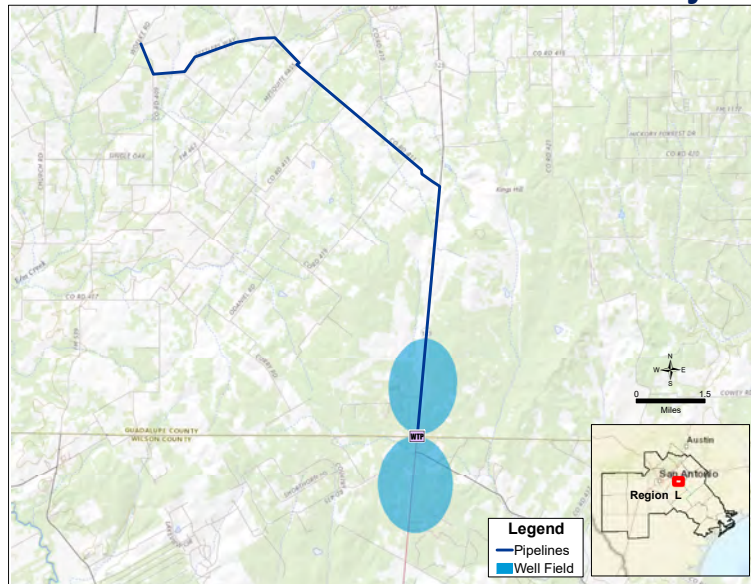
- Recommended WMS in 2016 SCTRWP
- Source and Supply:
 - Brackish Groundwater from the Carrizo-Wilcox Aquifer in Wilson and Guadalupe County
 - Evergreen Underground Water Conservation District
 - Guadalupe County Groundwater Conservation District
 - Firm Yield = 14,700 acft/yr

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CRWA Brackish Carrizo-Wilcox Project

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CRWA Brackish Carrizo-Wilcox Project

- Facilities:

- 17 Carrizo-Wilcox Wells

DESCRIPTION	GUADALUPE COUNTY WELL FIELD	WILSON COUNTY WELL FIELD
Project Yield (acft/yr)	14,700	
Number of Wells	9	8
Average Well Production Capacity per Well (gpm)	800	800

- 17.1 MGD WTP and Pump Station
- 12-mile Treated Water Transmission Pipeline
- Ground Storage Tank
- 5 Deep Well Injection Wells for Concentrate Disposal
- Peaking Factor = 1.3

- Decade of Need: 2030

Draft 10-23-2019



Environmental Considerations

- Vegetation and Land Use **1**
 - Vegetation would be expected to quickly re-establish once construction is complete
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources **2**
 - Project area includes Eclet Creek, an impaired segment in the Texas 303(d) List
 - Project will require on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and Species of Concern **2**
 - Suitable habitat may occur for several state listed threatened species
 - Pre-construction surveys for active bird nests are recommended
- Cultural Considerations **2**
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 4% to 87% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

Draft 10-23-2019



CRWA Brackish Carrizo-Wilcox Project

WMS Cost Summary	
Costs of Facilities	\$125,779,000
Total Project Costs	\$177,944,000
Annual Costs*	\$23,451,000
Project Yield (acft/yr)	14,700
Unit Costs (\$/acft/yr)	\$1,595

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

Draft 10-23-2019

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City of Victoria Groundwater - Surface Water Exchange

- Recommended WMS in 2016 SCTRWP
- Source and Supply:
 - Existing Water Rights Allow Offset of Surface Water Diversions with Discharged Groundwater to Firm Up Surface Water Supplies
 - Currently-permitted Yield: 4,939 acft/yr
 - Remaining Surface Water Rights to Authorize Groundwater Offset
 - Potential Yield: 22,068 acft/yr
 - Total GW-SW Exchange Yield: 27,081 acft/yr
- No Costs Associated with WMS Because Using Existing Facilities

Draft 10-29-19



1

City of Victoria Groundwater - Surface Water Exchange

Victoria Surface Water Rights

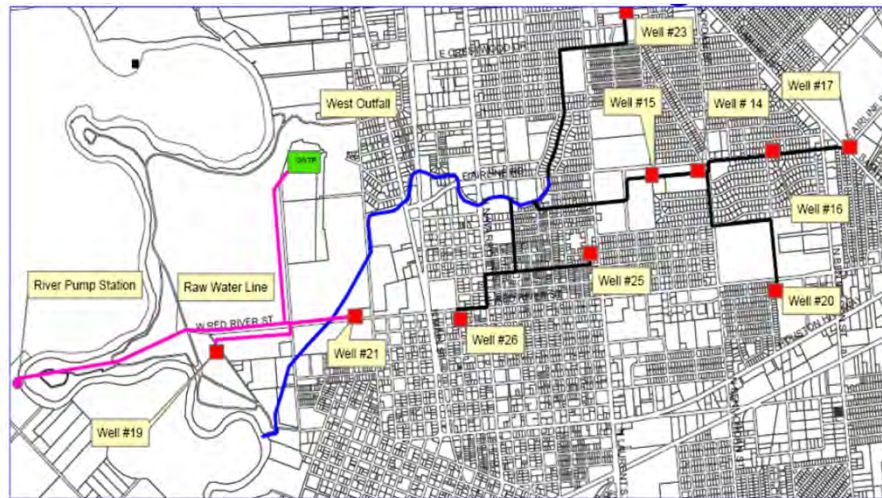
CA#/P#	PRIORITY DATE	ANNUAL DIVERSION (ACFT/YR)	WATER RIGHTS ALLOWING GW-SW EXCHANGE
3862	12/12/1951	262.7	Authorized
3606	7/10/1978	4,676	Authorized
3844	8/16/1918	608	Not Currently Authorized
3858	6/27/1951	1,000	Not Currently Authorized
3860	8/15/1951	260	Not Currently Authorized
4117	4/2/1984	200	Not Currently Authorized
5466	5/28/1993	20,000	Not Currently Authorized
Total		27,006.7	

Draft 10-29-19



2

City of Victoria Groundwater - Surface Water Exchange



Facility Locations

*Note - Physical facilities and surface water / groundwater permits are already in place

Draft 10-29-19



Environmental Considerations

- Vegetation and Land Use **0**
 - The project proposes to utilize existing facilities and infrastructure; therefore, environmental vegetation and land use impacts from construction are expected to be minimal
- Aquatic Resources **0**
 - Since the project will utilize existing facilities, no stream/wetland delineations or Corps of Engineers permitting would be required
- Threatened, Endangered, and Species of Concern **1**
 - Suitable habitat may occur for:
 - State listed threatened species
 - Federal candidate/state-threatened freshwater mussel species
- Cultural Considerations **2**
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 4% to 100% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

Draft 10-29-19



Martindale WSC Alluvial Well

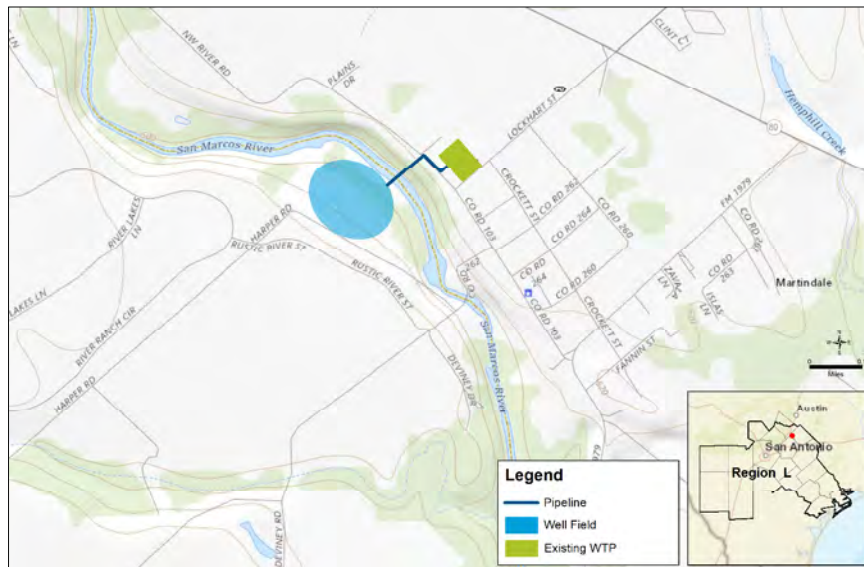
- New WMS in 2021 SCTRWP
- Source and Supply:
 - Quaternary Alluvium Near the San Marcos River in Caldwell and Guadalupe Counties
 - Not under purview of GCD
 - Coordination with TCEQ regarding stream underflow is likely necessary
 - Firm Yield = 240 acft/yr

Draft 10-23-2019



Martindale WSC Alluvial Well

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



Draft 10-23-2019



Martindale WSC Alluvial Well

- Facilities:
 - 1 Alluvial Well, Average Flow of 150 gpm per Well
 - Approximate Well Depth = 50 ft
 - Anticipated TDS = 500 mg/L
 - New Transmission Pipeline to Existing WTP
 - Uniform Peaking Factor = 1.0
- Decade of Need: 2030

Draft 10-23-2019



3

Environmental Considerations

- Vegetation and Land Use 1
 - Vegetation would be expected to quickly re-establish once construction is completed
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources 2
 - Pipeline crosses an impaired stream segment as defined in the Texas Integrated Report of 303(d) listed water bodies
 - Project will require an on-site delineation of streams; additional studies recommended
- Threatened, Endangered, and Species of Concern 2
 - Suitable habitat may occur for:
 - Several state listed threatened species
 - Federal candidate/state-threatened freshwater mussel species
 - Pre-construction surveys for active bird nests are recommended
- Cultural Considerations 2
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 42% to 76% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

0 N/A

1 Minimal concerns;
precautions
recommended

2 Additional studies
recommended

Draft 10-23-2019



4

Martindale WSC Alluvial Well

WMS Cost Summary	
Costs of Facilities	\$837,000
Total Project Costs	\$1,253,000
Annual Costs*	\$111,000
Project Yield (acft/yr)	240
Unit Costs (\$/acft/yr)	\$463

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

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Maxwell WSC Trinity Well Field

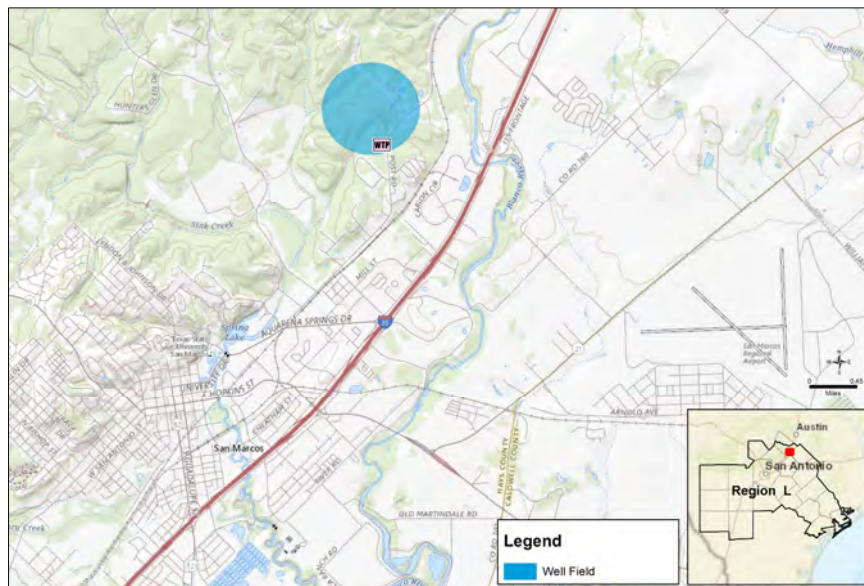
- New WMS in 2021 SCTRWP
- Source and Supply:
 - Brackish Groundwater from Trinity Aquifer in Hays County
 - Barton Springs Edwards Aquifer Conservation District
 - Firm Yield = 320 acft/yr

Draft 10-23-2019



Maxwell WSC Trinity Well Field

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



Draft 10-23-2019



Maxwell WSC Trinity Well Field

- Facilities:
 - 1 Trinity Well, Average Flow of 250 gpm per Well
 - Approximate Well Depth = 1,200 ft
 - Anticipated TDS = 2,000 mg/L
 - Brackish Groundwater Treatment Facility and Injection Well
 - Ground Storage Tank
 - Replace 5,400 ft of Existing Pipe with New 16-inch pipe
 - Uniform Peaking Factor (1.0)
- Decade of Need: 2040

Draft 10-23-2019



Environmental Considerations

- Vegetation and Land Use 1
 - Vegetation would be expected to quickly re-establish once construction is completed
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources 2
 - Facilities can typically be sited to avoid impacts to waters of the U.S.
 - Project will require an on-site delineation of streams
- Threatened, Endangered, and Species of Concern 2
 - Suitable habitat may occur for:
 - Federally endangered golden-cheeked warbler
 - Several state listed endangered and threatened species
 - Federal candidate/state-threatened plant species and freshwater mussel species
- Cultural Considerations 2
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 34% to 86% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

Draft 10-23-2019



Maxwell WSC Trinity Well Field

WMS Cost Summary	
Costs of Facilities	\$5,745,000
Total Project Costs	\$7,971,000
Annual Costs*	\$980,000
Project Yield (acft/yr)	320
Unit Costs (\$/acft/yr)	\$3,063

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

Draft 10-23-2019

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County Line SUD Trinity Well Field

- New WMS in 2021 SCTRWP
- Source and Supply:
 - Groundwater from the Trinity Aquifer Sub-crop in Hays County
 - Depending on location of wells, regulated by:
 - Plum Creek GCD;
 - Barton Springs Edwards Aquifer CD; and/or
 - Edwards Aquifer Authority for Drill Through Permit.
 - Two-Phased Project
 - Total Project Firm Yield = 1,000 acft/yr

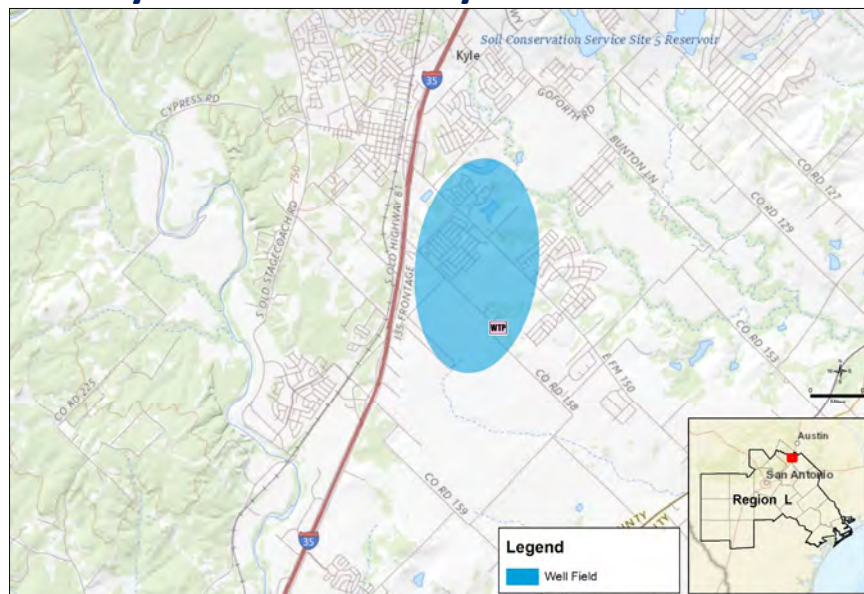
Phase	Firm Yield (acft/yr)	Decade of Need
1	500	2050
2	500	2060
Total	1,000	

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County Line SUD Trinity Well Field

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



Draft 10-23-2019



County Line SUD Trinity Well Field

- Facilities:
 - Test Drilling and Evaluation Recommended
 - 3 Trinity Aquifer Wells, Average Flow of 350 gpm per well
 - Phase 1: 2 wells
 - Phase 2: 1 well
 - Approximate Well Depth = 1,200 ft
 - Anticipated TDS = 1,000 mg/L
 - Facilities to be Shared with County Line SUD Brackish Edwards WMS:
 - 1.3 MGD Brackish Water Treatment Plant and Injection Well
 - Pump Station
 - New Well Field and Collector Pipelines
 - Uniform Peaking Factor (1.0)

Draft 10-23-2019



Environmental Considerations

- Vegetation and Land Use 1
 - Vegetation would be expected to quickly re-establish once construction is completed
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources 1
 - The project area crosses a stream segment on the Texas Integrated Report of 303(d) listed water bodies
 - Project will require an on-site delineation of streams
- Threatened, Endangered, and Species of Concern 2
 - Suitable habitat may occur for:
 - several state listed endangered and threatened species
 - federal candidate/state-threatened plant species and freshwater mussel species
- Cultural Considerations 2
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 26% to 49% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

0 N/A

1 Minimal concerns; precautions recommended

2 Additional studies recommended

Draft 10-23-2019



County Line SUD Trinity Well Field

WMS Cost Summary	
Costs of Facilities	\$8,439,000
Total Project Costs	\$11,761,000
Annual Costs*	\$1,539,000
Project Yield (acft/yr)	1,000
Unit Costs (\$/acft/yr)	\$1,539

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

Draft 10-23-2019

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County Line SUD Brackish Edwards Well Field

- New WMS in 2021 SCTRWP
- Source and Supply:
 - Brackish Groundwater from the Edwards Aquifer in Hays County
 - Depending on location of wells, regulated by:
 - Plum Creek GCD;
 - Barton Springs Edwards Aquifer CD; or
 - Edwards Aquifer Authority
 - Three-Phased Project
 - Total Project Firm Yield = 1,500 acft/year

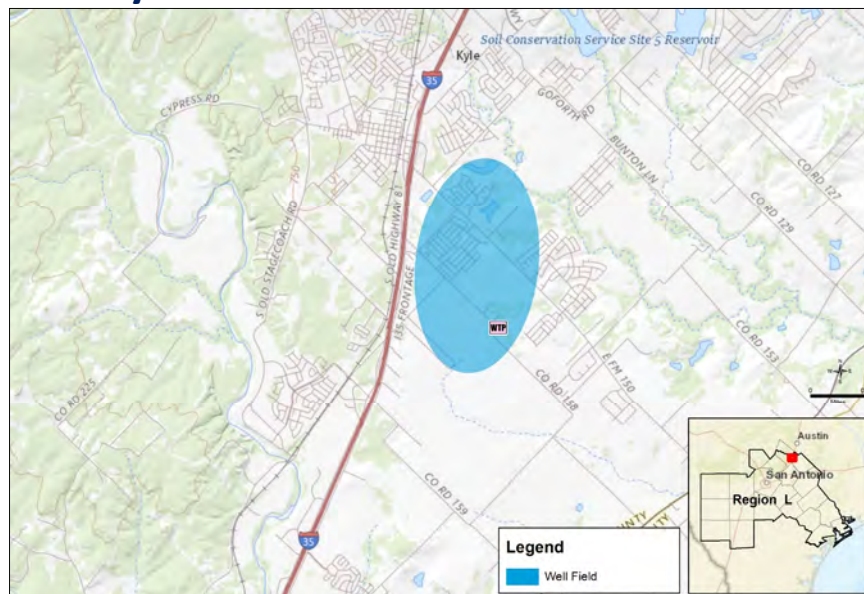
Phase	Firm Yield (acft/yr)	Decade of Need
1	500	2050
2	500	2060
3	500	2070
Total	1,500	

Draft 10-23-2019



County Line SUD Brackish Edwards Well Field

Note: Location map as shown is a hypothetical location of facilities for regional planning purposes only as it relates to planning-level cost estimates. The locations shown on the map are conceptual in nature and are not meant to represent actual locations of facilities. Siting of facilities are subject to studies, designs, engineering, and/or contract negotiations to be determined by the project's sponsor at a later date.



Draft 10-23-2019



County Line SUD Brackish Edwards Well Field

- Facilities:
 - Test Drilling and Evaluation Recommended
 - 4 Brackish Edwards Wells, Average Flow of 350 gpm per Well:
 - Phase 1: 2 wells
 - Phase 2: 1 well
 - Phase 3: 1 well
 - Assumed Well Depth = 1,200 ft
 - Assumed TDS = 1,500 mg/L
 - Facilities to be Shared with County Line SUD Trinity Well Field WMS:
 - 1.3 MGD Brackish Water Treatment Plant and Injection Well
 - Pump Station
 - New Well Field and Collector Pipelines
 - Uniform Peaking Factor (1.0)

Draft 10-23-2019



Environmental Considerations

- Vegetation and Land Use 1
 - Vegetation would be expected to quickly re-establish once construction is completed
 - Opportunity to plant native species which are beneficial to native wildlife
- Aquatic Resources 1
 - The project area crosses a stream segment on the Texas Integrated Report of 303(d) listed water bodies
 - Project will require an on-site delineation of streams
- Threatened, Endangered, and Species of Concern 2
 - Suitable habitat may occur for:
 - several state listed endangered and threatened species
 - federal candidate/state-threatened plant species and freshwater mussel species
- Cultural Considerations 2
 - Encountering unidentified archaeological resources is more likely in some landforms than others; the landforms crossed in this project range from 26% to 49% likelihood
 - Structured cultural resources survey of the final design plan is recommended

Environmental/ Cultural Assessment Rating

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

Draft 10-23-2019



County Line SUD Brackish Edwards Well Field

WMS Cost Summary	
Costs of Facilities	\$9,767,000
Total Project Costs	\$13,602,000
Annual Costs*	\$1,995,000
Project Yield (acft/yr)	1,500
Unit Costs (\$/acft/yr)	\$1,330

*Includes amortization at 3.5% for 20-years, O&M, and Power Costs

Draft 10-23-2019

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12. Discussion and Appropriate Action Regarding Amending the SCTRWPG Bylaws to Conform to Revision to the Open Meetings Act Regarding Public Comment

Proposed amendment to the South Central Texas (Region L) Planning Group bylaws:

ARTICLE IX MEETINGS

Section 8 Protocols For Public Communication at Regional Water Planning Group Meetings

(a) Oral Comments on Issues under the South Central Texas Regional Water Planning Group (Region L) Jurisdiction. Any person wishing to make an oral presentation at a Region L planning group meeting on any matter under Region L's jurisdiction must complete a registration form that indicates the agenda item or other topic on which they wish to comment, along with the speaker's name, address and other relevant information. Any person making an oral presentation to the Region L planning group may distribute related materials to the planning group at the meeting.

(b) Time Allocation. The presiding officer may limit the length of time for each speaker to three (3) minutes. Speakers may not trade or donate time to other speakers without permission from the presiding officer, and repetitive testimony shall be minimized or disallowed at the discretion of the presiding officer.

(c) Time To Speak. Citizens to be heard will be given an opportunity to speak at the beginning of the meeting prior to any actions by the Region L planning group. The presiding officer has the discretion to allow citizens to speak at another time in the meeting if it is deemed relevant to the planning group's deliberations by the presiding officer and is not disruptive to the conduct of the meeting.

(d) Rules of Decorum. Speakers and members of the audience must avoid disruptive behavior that interferes with the orderly conduct of a public meeting. Placards, banners, and hand-held signs are not allowed in planning group meetings, and speakers and members of the audience must avoid personal affronts, profanity, booing, excessive noise, and other disruptive conduct. The presiding officer may direct that anyone who disrupts a meeting be removed from the room. Members of the planning group, if recognized by the presiding officer, may ask clarifying questions of a speaker, but no extended verbal exchange between the planning group members and the speaker will be permitted.

(e) Recording. Any person making an audio or video recording of all or any part of a planning group meeting must do so in a manner that is not disruptive to the meeting. During a meeting, members of the public must remain in or behind the public seating area and are not permitted to record from any other area of the meeting room.

Pending Approval by the South Central Texas Regional Water Planning Group on November 7, 2019

13. Discussion and Appropriate Action Setting the Schedule for Calendar Year 2020 Meetings

Proposed South Central Texas Regional Water Planning Group Meeting Schedule for Calendar Year 2020

1. Thursday, January 23, 2020
2. Thursday, February 20, 2020
3. Thursday, September 17,
2020
4. Thursday, November 5, 2020

Proposed Public Meetings 2020

1. Thursday, May 7, 2020 - San Antonio
2. Thursday, May 21, 2020 - San Marcos
3. Thursday, May 28, 2020 - Victoria

*To be voted on at the February 20,
2020 Planning Group meeting

14. Administrator Update on Funding SCTRWPG Administrative Costs for Calendar Year 2020

Region L
Administrative Review
CY 2016 - CY 2019

Budget CY 2016	Expenditures				Total Expenditures
	Jan-Mar 2016	Apr-Jun 2016	Jul-Sep 2016	Oct-Dec 2016	
\$ 58,000.00	\$ 9,781.94	\$ 8,542.79	\$ 8,975.55	\$ 3,418.11	\$ 30,718.39

Budget CY 2017	Expenditures				Total Expenditures
	Jan-Mar 2017	Apr-Jun 2017	Jul-Sep 2017	Oct-Dec 2017	
\$ 58,000.00	\$ 2,911.54	\$ 656.33	\$ 4,422.72	\$ 6,301.77	\$ 14,292.36

Budget CY 2018	Expenditures				Total Expenditures
	Jan-Mar 2018	Apr-Jun 2018	Jul-Sep 2018	Oct-Dec 2018	
\$ 58,000.00	\$ 4,637.96	\$ 5,614.66	\$ 4,620.17	\$ 3,668.74	\$ 18,541.53

Budget CY 2019	Expenditures				Total Expenditures
	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	
\$ 58,000.00	\$ 910.94	\$ 1,286.85	\$ 5,175.86	\$ -	\$ 7,373.65

2020 Estimated Costs

2020 BUDGET REQUEST:

\$ 25,000

15. Possible Agenda Items for the Next Region L Meeting

16. Public Comment