Region L
South Central Texas Regional Water Planning Group

c/o San Antonio River Authority
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www.RegionLTexas.org

DATE: April 27, 2017

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, May 4, 2017
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 May 4, 2017

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, May 4, 2017, at 9:00 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. (9:00 AM) Planning 101: New Member Orientation (Refresher for Veteran Members) by Texas Water Development Board (TWDB)—Ron Ellis

2. (10:00 AM) Roll-Call

3. Public Comment

4. Approval of the Minutes from the February 2, 2017, Meeting of the South Central Texas Regional Water Planning Group (Region L)

5. Status of Edwards Aquifer Habitat Conservation Plan (HCP) – Nathan Pence, Executive Director EAHCP

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)

7. Texas Water Development Board (TWDB) Communications

8. Chair's Report

9. Discussion and Appropriate Action Authorizing the Administrator to Request Written Approval From the Executive Administrator of the TWDB for the Guadalupe-Blanco River Authority's (GBRA) Proposed Substitution of an Alternative Water Management Strategy for Two Recommended Water Management Strategies in the SCTRWPG 2016 Plan, or a Determination of whether GBRA's Proposed Action Constitutes a Minor or Major Amendment

10. 2021 Plan Enhancement Process: Recap of Guiding Principles Previously Discussed and Adopted

11. Status of Environmental Assessment Workgroup's Progress on the Following Components of the 2021 Plan Enhancement Process

    a. The Adequacy Of Evaluating the Plan's Effects on Freshwater Inflows to San Antonio Bay

    b. The Adequacy of Environmental Assessments Of Individual Water Management Strategies

12. Status of Minimum Standards Workgroup's on the Following Components of the 2021 Plan Enhancement Process

a. How Water Management Strategies are categorized

b. Establishing Minimum standards for Water Management Strategies included in the Plan

c. Maintaining Management Supply While Avoiding Over-planning

13. Discussion and Appropriate Action Regarding the Following Components of the 2021 Plan Enhancement Process

    a. The Role of Reuse Within the Regional Water Plan

    b. Identifying Special Studies or Evaluations Deemed Important to Enhance The 2021 Plan and Identification of Outside Funding Sources

    c. The Extent to Which Innovative Strategies Should Be Used

14. Discussion and Appropriate Action Regarding Consultant's Work and Schedule

15. Texas Comptroller of Public Accounts Presentation: Impact of Federal Listing of Freshwater Mussels as Endangered or Threatened Species – Kimberley A. Horndeski

16. Possible Agenda Items for the Next Region L Meeting

    a. Adopting Substitution to 2016 Region L Regional Water Plan

    b. Workgroup Updates

    c. Review and Recommend Revision Request Regarding Draft Population Demand Projections

    d. 2017 SAWS Management Plan

17. Public Comment

1. (9:00 AM) Planning 101: New Member Orientation (Refresher for Veteran Members) by Texas Water Development Board (TWDB)—Ron Ellis

Regional Water Planning in Texas

Introduction to the 5th Cycle

Ron Ellis
Project Manager
Water Use, Projections, & Planning
Texas Water Development Board
Updated December 2016

The following presentation is based upon professional research and analysis within the scope of the Texas Water Development Board's statutory responsibilities and priorities but, unless specifically noted, does not necessarily reflect official Board positions or decisions.

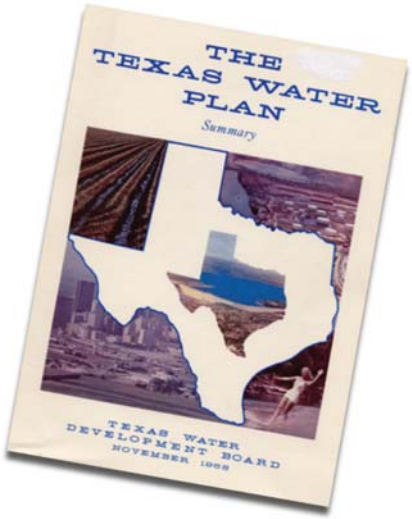
Overview

- Background on regional and state water planning in Texas
- Overview of regional water planning groups
- Fundamentals of water planning
- Foundation of the State Water Plan

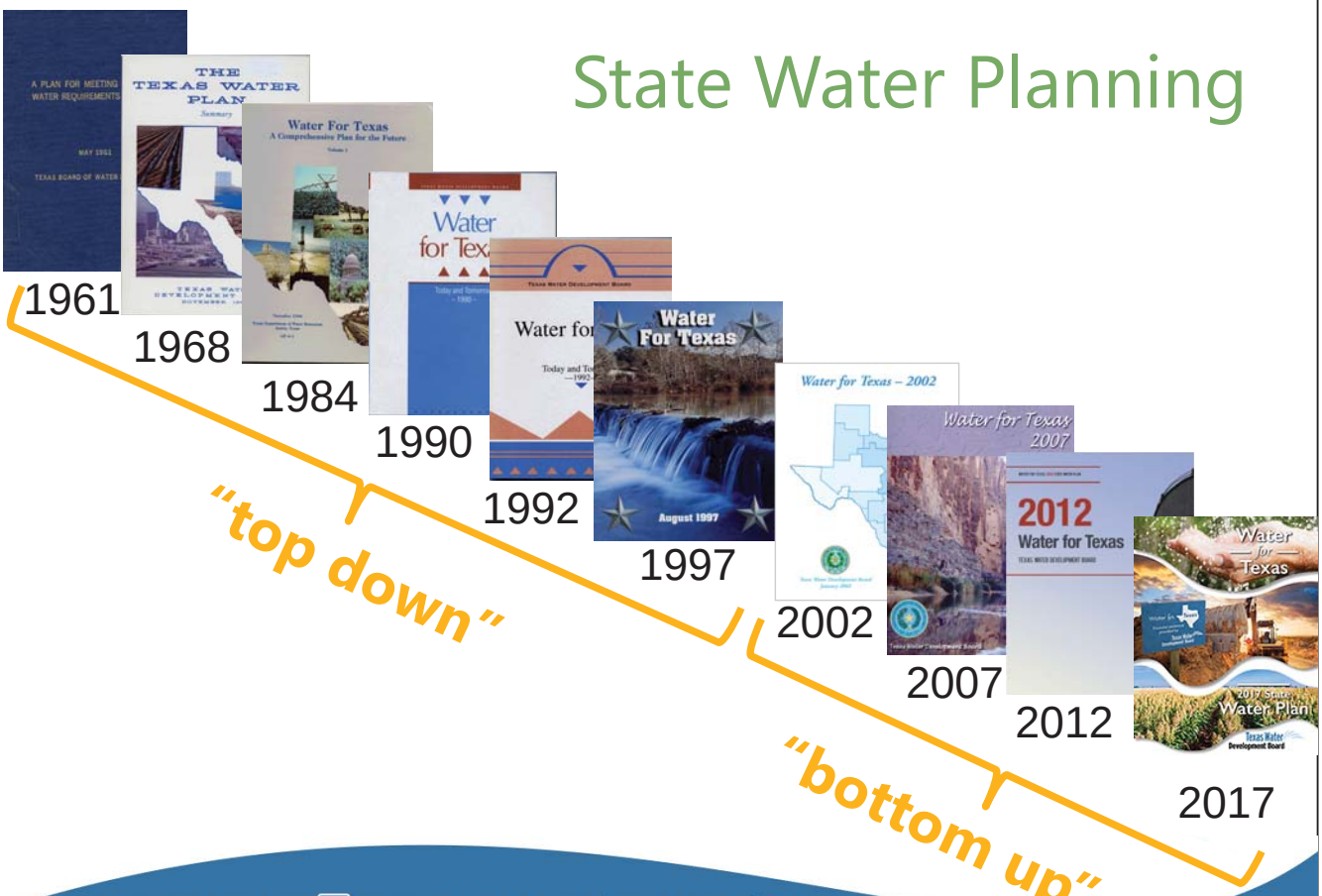
Water Planning: Legislative Response to Drought

1950s – Drought of Record

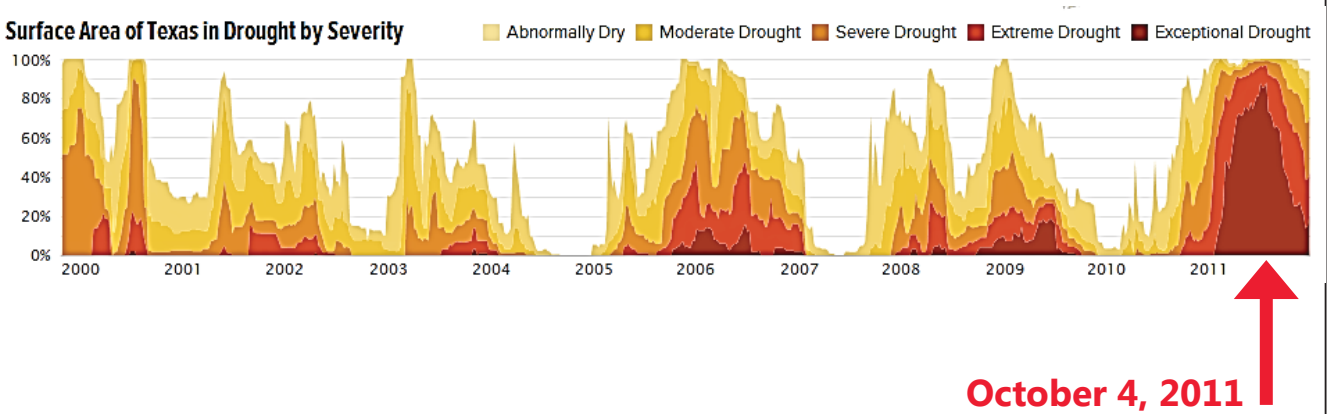
- 1957: Creation of TWDB
- $200 million in Water Development Fund



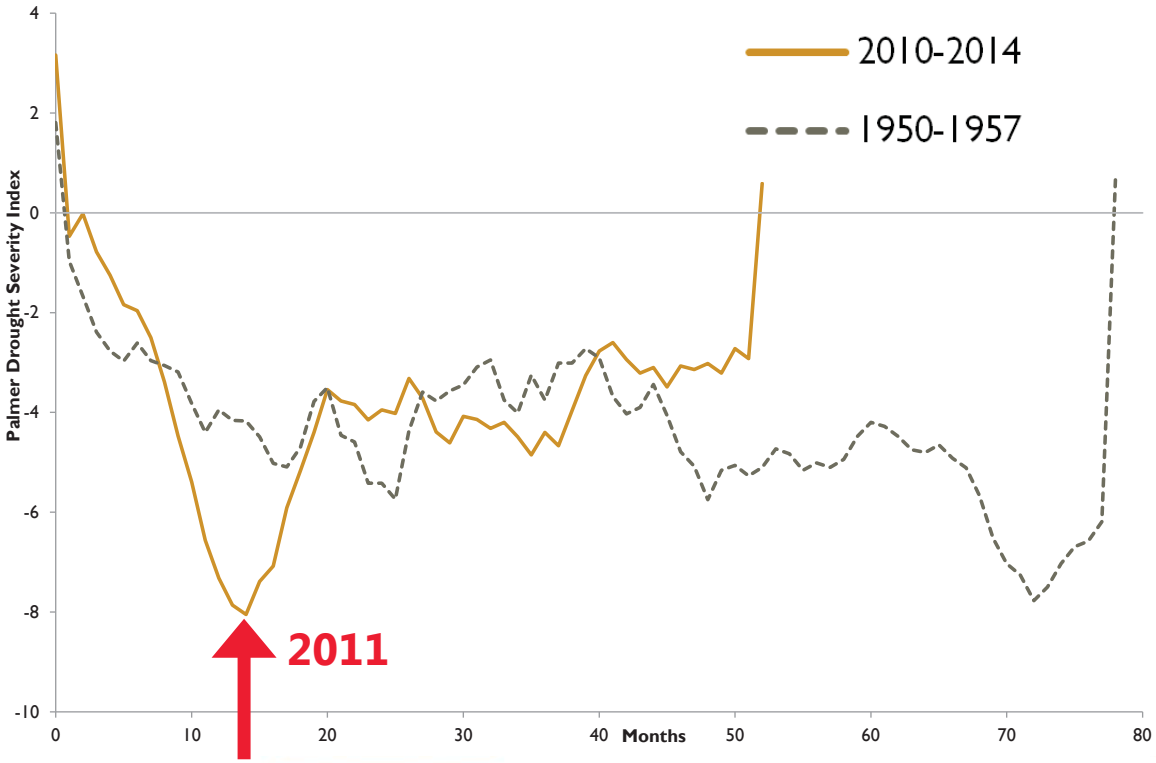
State Water Planning



Why do we plan?

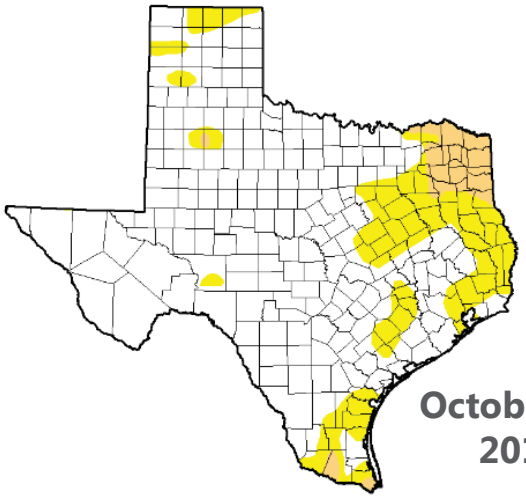


Worst Statewide Texas Droughts



Types of Drought

- Meteorological
- Agricultural
- Hydrological*
- Socioeconomic

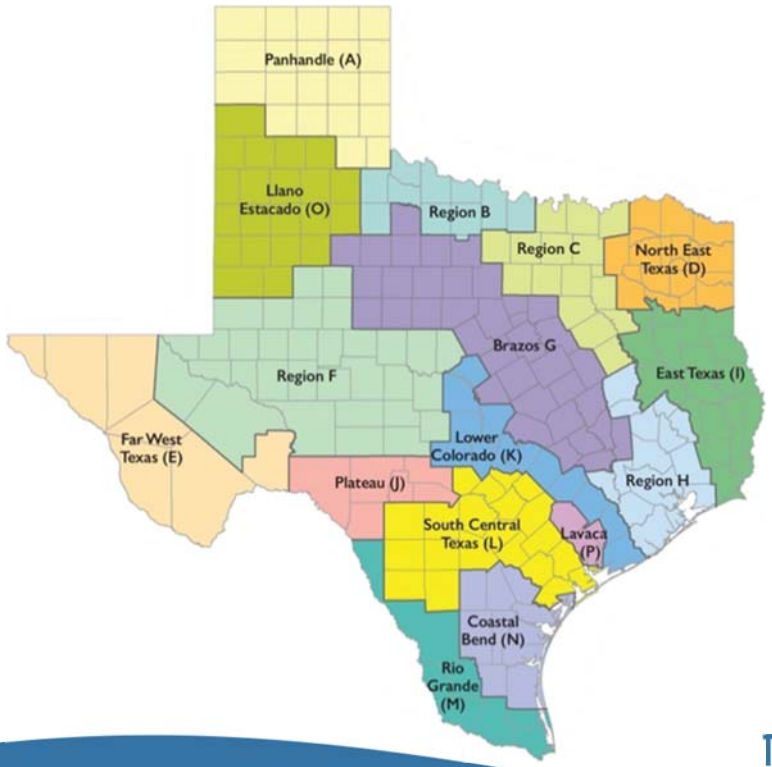


October 11, 2016

*regional water planning focuses on drought impacting water supplies

Overview of Regional Water Planning Groups

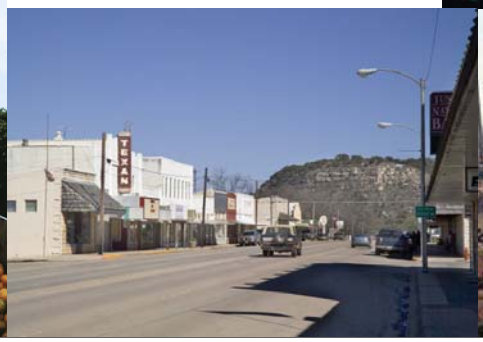
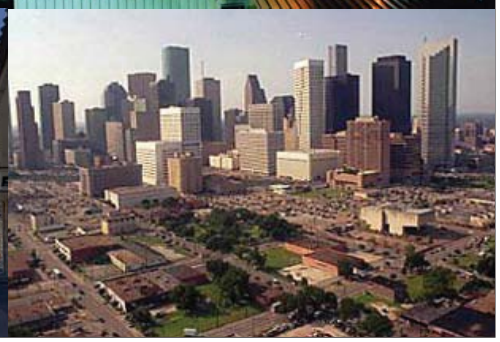
16 Regional Water Planning Areas






Diverse interest groups represented



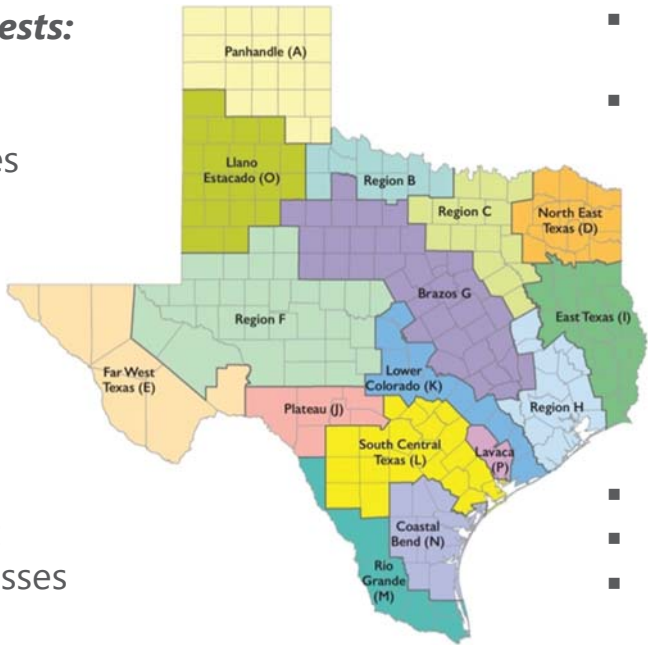



Voting Member Categories

Statutory interests:

- Public
- Counties
- Municipalities

- Industries
- Agriculture
- Environment
- Small businesses



- Electric-generating utilities
- River authorities

- Water districts
- Water utilities
- Groundwater management areas (varies by region)

There are approximately 370 voting members in the 16 groups

Key Responsibilities of Planning Group Members

- Represent interest category and region
- Develop a plan that serves region and state
- Consider local water plans
- Ensure adoption of a regional water plan by the statutory deadline that meets all requirements

How do planning groups function?

- Select a host political subdivision
- Select technical consultants
- Self-govern (maintain own bylaws and membership)
- Hold regular public meetings and sub-group meetings as necessary
- Consider stakeholder input and make decisions in accordance with bylaws

Public Notice Requirements

- Subject to Texas Open Meetings Act
- Follow significant public notice requirements (requirements vary depending on activity)
- Must hold initial preplanning public meeting for input on the next plan
- Must present how the planning group will identify potentially feasible water management strategies at a public meeting

Funding the Planning Process

- Legislative appropriations
- RWPGs apply for funding (based on 5-year cycles)
- Funding through TWDB contract with political subdivision
- Political subdivisions subcontract with technical consultants
- RWPGs direct work of consultants

Relevant Documents

- Statute
- Administrative rules
- Contract Scope of Work/Task budget
- Contract Exhibit C – general guidelines for regional water plan development
- Contract Exhibit D – guidelines for data deliverables

http://www.twdb.texas.gov/waterplanning/rwp/planningdocu/2021/current_docs.asp

Roles

Public

Legislature

TWDB

16 Regional Water Planning Groups

16 technical consultants

16 political subdivisions

CONTRACTS

Incentives to Participate

- TWDB funding
- TCEQ permitting

Fundamentals of Water Planning

Basic Planning Parameters

- Meet **drought of record** water needs
- 50-year planning horizon
- 5-year planning cycle
- 6 categories of water use: municipal, manufacturing, mining, irrigation, livestock, and steam-electric power
- Geographic breakdown of water user group information by county, river basin, and region

Planning Units & Key Terms

- **Drought of Record (DOR)** = period of time when historical records indicate that natural hydrological conditions would have provided the least amount of water supply
- Data is **decadal** (over 50 year period)
- Water volumes are in **acre-feet**
  (1 acre-foot = 325,851 gallons)
- **Water User Group** = "WUG"
- **Wholesale Water Provider** = "WWP"
- **Major Water Provider** = "MWP"

Key Planning Terminology

Availability* = maximum amount of raw water that could be produced by a source during a repeat of the **DOR**

Existing Supply* = maximum amount of water that is physically and legally accessible for immediate use by a **WUG** under a repeat of **DOR** conditions

*See handout page 1: Section 6.1 from the 2017 State Water Plan

Key Planning Terminology

Demand = volume of water required to carry out the anticipated domestic, public, and/or economic activities of a **WUG** during drought conditions

Need = a potential water supply shortage, based on the difference between water demands and existing water supplies (can be met by implementing recommended water management strategies)

Unmet Need = the portion of an identified water need that is not met by recommended water management strategies

Key Planning Terminology

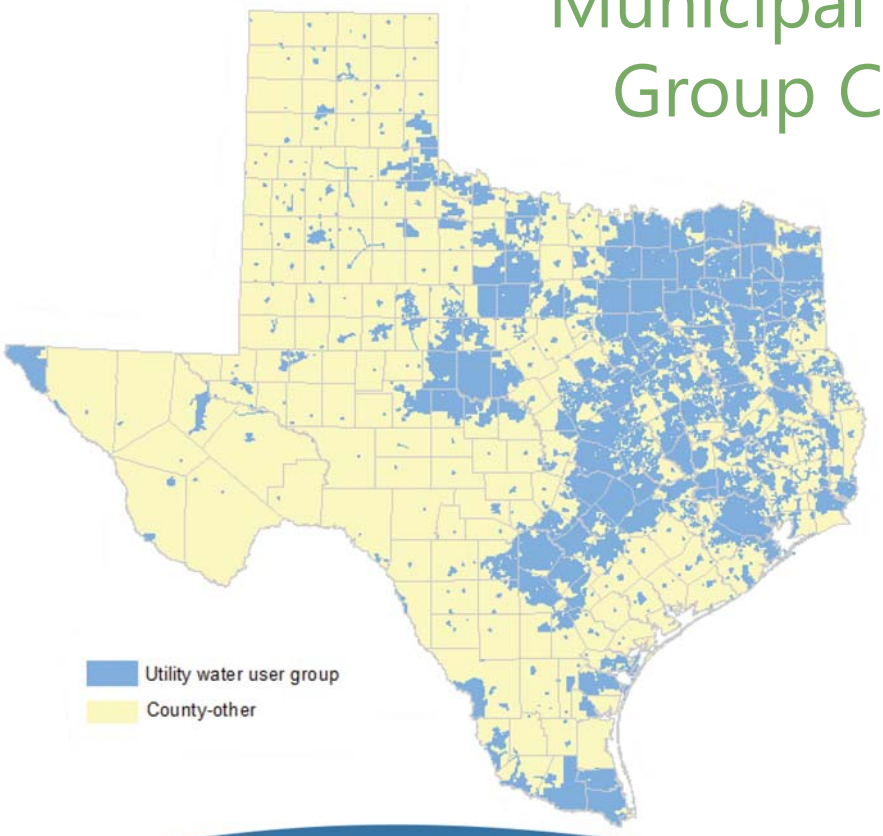
Water Management Strategy (WMS) = a plan to meet a need for additional water by a discrete **WUG**, through increasing total water supplies or maximizing existing supplies, including through reducing demands

Water Management Strategy Project (WMSP) = a water project that has a capital cost and when implemented, would develop, deliver, or treat additional water supplies or conserve water for **WUGs** or **WWPs**

WUGs in the 2016 Regional Water Plans

Demand Category	Number of WUGs
Municipal WUGs	
Cities & Utilities	1,364
County-Other	254
Non-municipal WUGs	
Manufacturing	183
Mining	228
Steam-Electric Power	85
Irrigation	241
Livestock	254
Total number of WUGs	**2,609**

Municipal Water User Group Categories



Water Planning Basics

Project population → Project water demands

Water availability (by source) → Existing water supplies (by entity)

→ **Compare** to identify surpluses or needs

→ **Identify**, **evaluate**, and **recommend** water management strategies and projects

Path to Recommending Strategies and Associated Projects

- **identify** "potentially feasible" strategies and projects
- **evaluate** potentially feasible strategies and projects
- **compare** evaluated strategies and projects
- **recommend** strategies and projects that are "cost-effective and environmentally sensitive" 31 TAC 357.35(b)

Potentially Feasible Water Management Strategies*

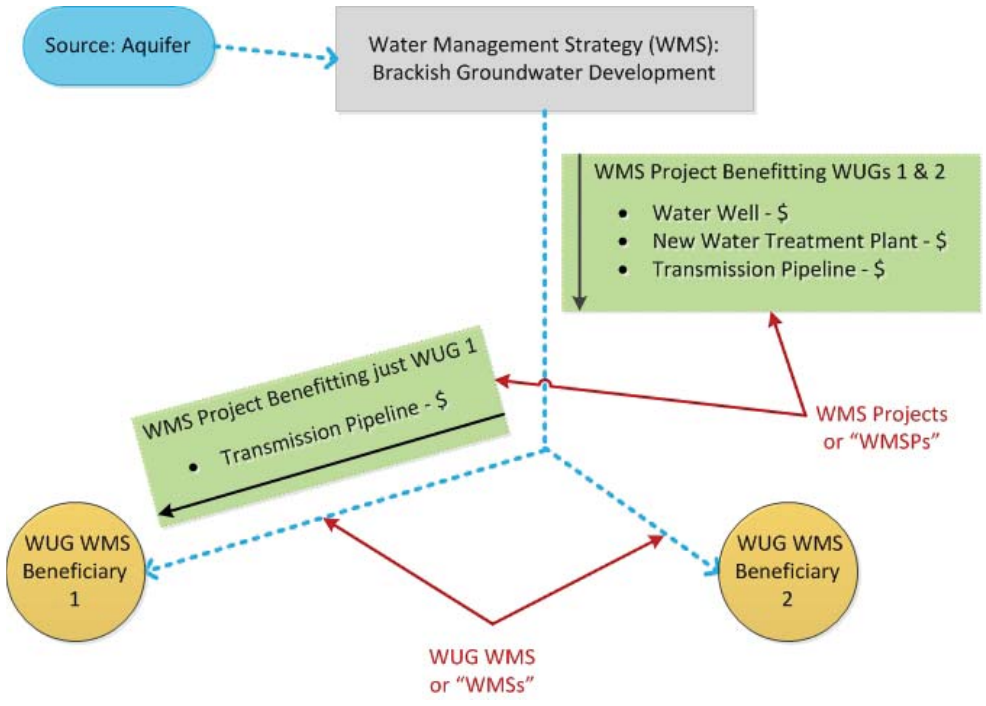
- WMS's that must be considered:
  - Expanded use of existing supplies
  - New supply development
  - Conservation and drought management measures
  - Reuse of wastewater
  - Interbasin transfers of surface water
  - Emergency transfers of surface water
- Water conservation and drought management measures must be considered for every water user group with an identified water need

*See handout page 2: List of potentially feasible WMSs required to be considered

Evaluation of Strategies and Associated Projects

- Evaluations are based on:
  - water quantity and reliability
  - financial costs
  - impacts to environment and agriculture
  - impacts to water quality
  - other factors such as regulatory requirements, time required to implement, etc.

Water Management Strategy vs. Project



Prioritization of Projects

- Regional and state level prioritization of WMSPs are required by SWIFT Legislation
- Each recommended WMSP must be prioritized
- Regional prioritization based on uniform standards developed by stakeholder committee (RWPG Chairs)
- State prioritization system based on statute and TWDB administrative rules

Regional Planning Deliverables

- Standard contract tasks associated with 11 Chapters
- Populate Online State Water Plan database (DB22)
- Report documents: Technical Memorandum, Initially Prepared Plan, and Final Plan
- List of prioritized projects

Standard RWP Chapters*

1. Planning area description
2. Population and water demand projections
3. Water supply analysis
4. Identification of water needs
5. Water management strategies and projects
6. Impacts of plan and consistency with protection of the State's water, agricultural, and natural resources

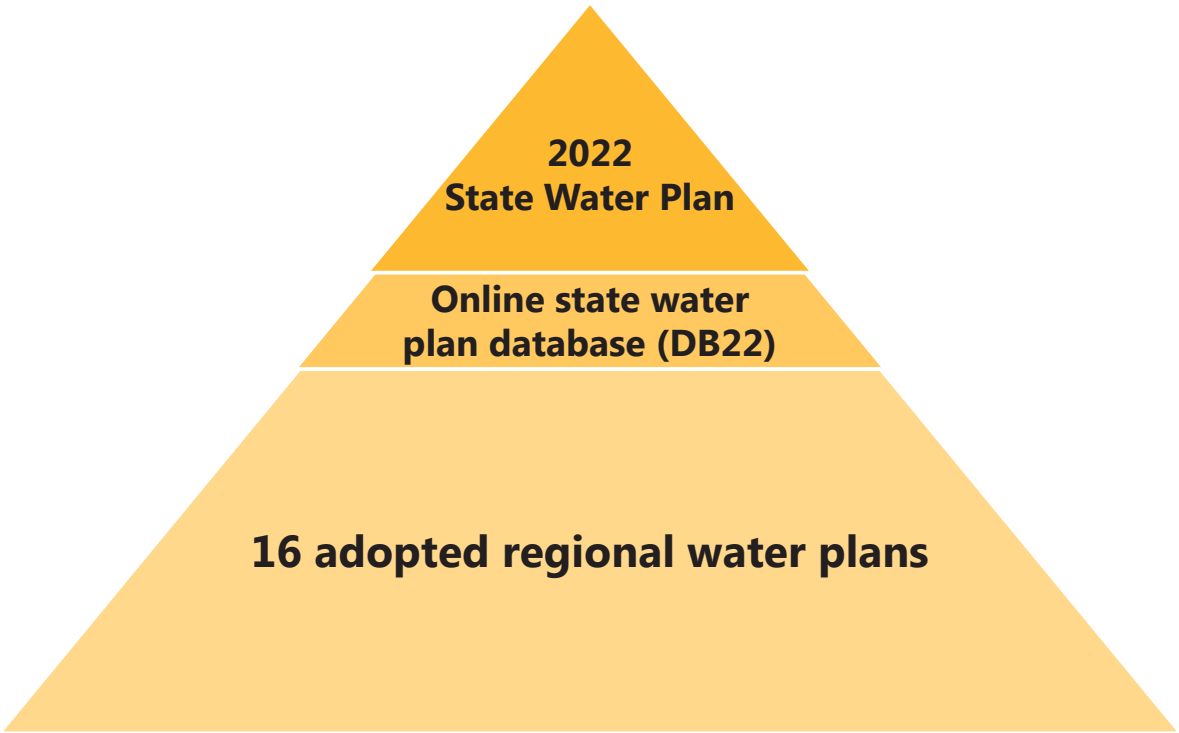
*See handout page 3: General Document Cross-Reference Table

Standard RWP Chapters (cont.)

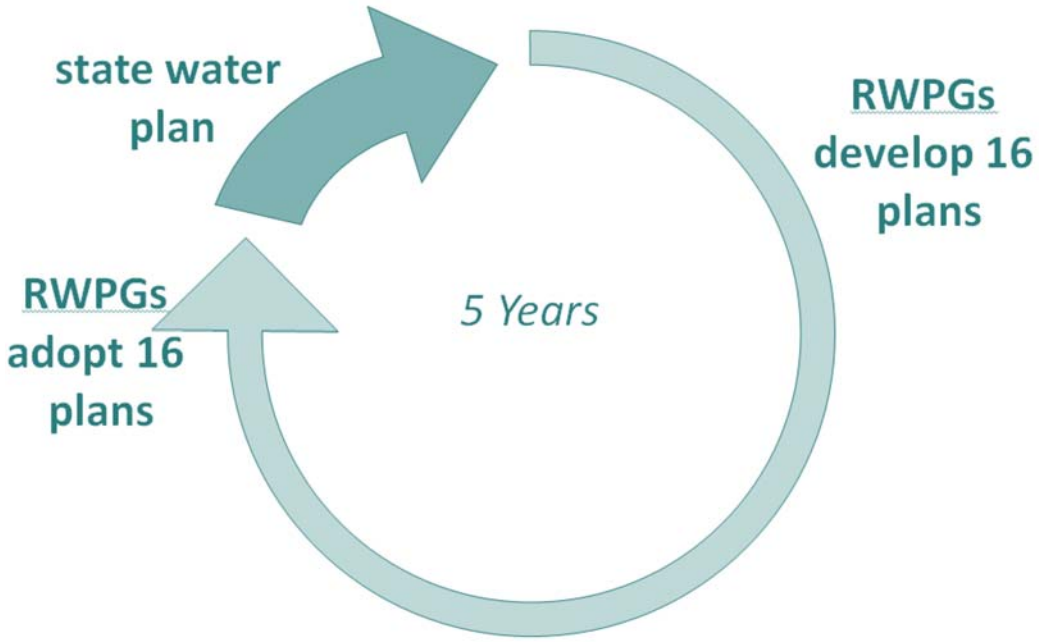
7. Drought response information, activities, and recommendations
8. Unique stream segments, unique reservoir sites, and policy recommendations
9. Infrastructure financing analysis
10. Adoption of plan
11. Implementation and comparison to previous regional water plan

Foundation of the State Water Plan

Bottom Up Approach



Regional & State Planning Cycles



Audience

- The State Water Plan is delivered to the Governor, the Legislature, and the public
- Key aspects for their consideration:
  - Long-term projections of water supplies, demands, and needs
  - Project costs and funding needs
  - Policy recommendations

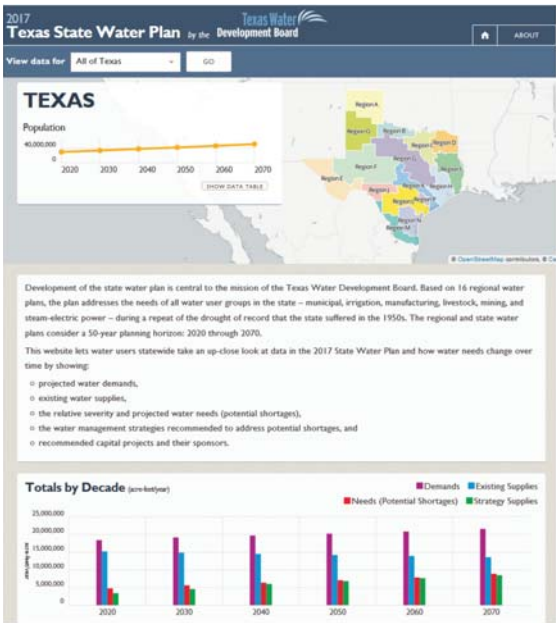
Snapshot of the 2017 State Water Plan

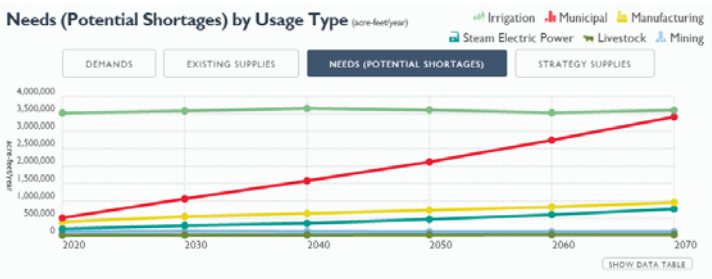
5,500 strategies

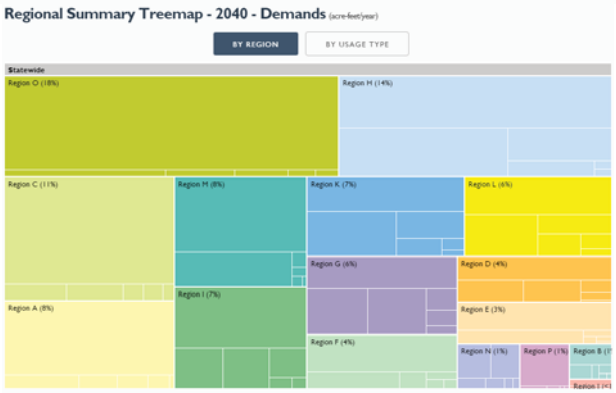
2,500 projects

Capital cost of **$63** billion

The State Water Plan is Online and Interactive







http://texasstatewaterplan.org

Additional TWDB Presentations

- Update on revised 31 TAC Chapter 357 rules
- What's new in the 5th cycle of planning
- Detailed plan requirements
- Others based on planning group requests

Questions?

Ron Ellis
Project Manager
Water Use, Projections, & Planning
Texas Water Development Board
Ron.Ellis@twdb.texas.gov

Supplemental Handout to the Regional *Water Planning in Texas, Introduction to the 5th Cycle* Presentation

1) Excerpt from the 2017 State Water Plan that explains "availability" vs. "existing supply"

"6.1 Evaluating water resources for planning[1]

Estimating how much water Texans will have to meet their water demands is a two-step process that examines both water *availability* and *existing supply*. Those two terms have very specific, and not necessarily intuitive, meanings in the water planning process.

Water availability refers to the maximum volume of raw water that could be withdrawn annually from each source (such as a reservoir or aquifer) during a repeat of the drought of record. Availability does not account for whether the supply is connected to or legally authorized for use by a specific water user group. Water availability is analyzed from the perspective of the source and answers the question: *How much water from this source could be delivered to water users as either an existing water supply or, in the future, as part of a water management strategy?* Determining water availability is the first step in assessing potential water supply volumes for a planning group.

Second, planning groups evaluate the subset of the water availability volume that *is already connected* to water user groups. This subset is defined as existing supply. Existing water supplies are based on legal access to the water as well as the infrastructure (such as pipelines and treatment plant capacity) already in place to treat and deliver the water to the "doorstep" of water user groups. Existing supply is analyzed from the perspective of water users and answers the question: *How much water supply could each water user group already rely on should there be a repeat of the drought of record?*

For example, the firm yield of a surface water reservoir may be 100,000 acre-feet per year. Of that 100,000 acre-feet per year in supplies available at the source, the current pipeline to that source could only convey 60,000 acre-feet per year to users as an existing supply. There remains, therefore, an additional 40,000 acre-feet per year in available water that could serve as the basis for a future water management strategy. Within a county, for another example, there may be a modeled available groundwater volume of 50,000 acre-feet per year, but because water users' current permits and pumping facilities are only able to pump 20,000 acre-feet per year for existing supplies, there remains 30,000 acre-feet per year in available groundwater that could support water management strategies.

Because existing supplies are a subset of the availability of water sources, existing supplies cannot exceed a source's availability without the risk of a water user running short of water in a drought of record. If existing supplies exceed availability it is called an over-allocation. To ensure that planning groups did not assign more water supply to a water source than the source could provide in a drought, the TWDB performed a detailed, statewide accounting of all assigned existing water supply volumes and notified planning groups of over-allocations. Planning groups then made adjustments to their draft plans so that supplies did not exceed the availability of any source in the final plans."

[1] Page 61 of the 2017 State Water Plan.

2) Potentially feasible WMSs required to be considered by planning groups, per Texas Water Code §16.053(e)(3) and 31 Texas Administrative Code §357.34(c) include

- conservation[2] *[perennial demand management]*;
- drought management[3] *[temporary demand management]*;
- reuse;
- management of existing water supplies;
- conjunctive use;
- acquisition of available existing water supplies;
- development of new water supplies;
- developing regional water supply facilities or providing regional management of water supply facilities;
- developing large-scale desalination facilities for seawater or brackish groundwater that serve local or regional brackish groundwater production zones identified and designated under TWC §16.060(b)(5);
- developing large-scale desalination facilities for marine seawater that serve local or regional entities;
- voluntary transfer of water within the region using, but not limited to, contracts, water marketing, regional water banks, sales, leases, options, subordination agreements, and financing agreements;
- emergency transfer of water under TWC §11.139;
- interbasin transfers of surface water;
- system optimization;
- reallocation of reservoir storage to new uses;
- enhancements of yields;
- improvements to water quality;
- new surface water supply;
- new groundwater supply
- brush control;
- precipitation enhancement;
- aquifer storage and recovery;
- cancellation of water rights; and
- rainwater harvesting.

[2] RWPGs must consider water conservation practices, including potential applicable best management practices, for each identified water need (31 TAC §357.34(g)(2)). If RWPGs do not adopt a water conservation strategy to meet an identified need, they shall document the reason in the RWP (31 TAC §357.34(g)(2)(B)).
[3] RWPGs shall consider drought management measures for each identified need... If a RWPG does not adopt a drought management strategy for a need it must document the reason in the RWP (31 TAC §357.34(g)(1)).

3) General Document Cross-Reference Table from *Draft First Amended General Guidelines for Fifth Cycle of Regional Water Plan Development*

Regional Water Planning Contract Document References			2021 Regional Water Plan Chapter, Associated TAC Sections, and Content		
TWDB Contract Reimbursement Accounting Number ('CAS')	Exhibit A - Contract SOW Task	Exhibit C - General Guidelines for Regional Water Plan Development	**Regional Water Plan Chapter Number**	Primary TAC Section	General Content
TBD	1	1	**1**	§357.30	Description of the Regional Water Planning Area
1	2A	2	**2**	§357.31	Projected Non-Municipal Water Demands
2	2B			§357.31	Projected Population and Municipal Water Demands
TBD	3	3	**3**	§357.32	Water Supply Analysis
TBD	4A	4	**4**	§357.33	Identification of Water Needs
TBD	4C			contract	Technical Memorandum
TBD	4B	5	**5**	§357.34	Identification of Potentially Feasible Water Management Strategies (WMSs)
TBD	5A			§357.34; §357.35	Evaluations of Potentially Feasible WMSs, Recommended WMSs/WMSPs, and Alternative WMSs/WMSPs
TBD	5B			§357.34	Conservation Recommendations *[as an individual subchapter]*
TBD	6	6	**6**	§357.40	Impacts of Regional Water Plan
				§357.41	Consistency with Protection of Water Resources, Agricultural Resources, and Natural Resources
TBD	7	7	**7**	§357.42	Drought Response Information, Activities, and Recommendations
TBD	8	8	**8**	§357.43	Policy Recommendations & Unique Sites
TBD	9	9	**9**	§357.44	Infrastructure Financing Analysis
3	10	10	**10**	§357.21; §357.50	Public Participation and Plan Adoption
TBD	11	11	**11**	§357.45	Implementation and Comparison to the Previous Regional Water Plan
TBD	12	12	**N/A**	§357.46	RWPG Prioritization of Recommended Water Management Strategy Projects (WMSP)

2. (10:00 AM) Roll-Call

3. Public Comment

4. Approval of the Minutes from the February 2, 2017, Meeting of the South Central Texas Regional Water Planning Group (Region L)

Minutes of the
South Central Texas Regional Water Planning Group
February 2, 2017

Chairwoman 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.

29 of the 30 voting members, or their alternates, were present.

Voting Members Present:

Tim Andruss
Pat Calhoun
Herb Williams for Gene Camargo
Patrick Garcia for Rey Chavez
Don Dietzmann
Art Dohman
Alston Beinhorn for Blair Fitzsimons
Charlie Flatten
Vic Hilderbran
Kevin Janak
Jay Troell for Russell Labus
John Kight
Glenn Lord
Doug McGooky
Dan Meyer
Gary Middleton
Con Mims
Kevin Patteson
Sara Beasley for Iliana Pena
Robert Puente
Steve Ramsey
Weldon Riggs
David Roberts
Roland Ruiz
Clifton Stacy for Dianne Savage
Suzanne Scott
Greg Sengelmann
Thomas Taggart
Dianne Wassenich
Adam Yablonski

Voting Members Absent
Will Conley

Non-Voting Members Present:
Ron Ellis, Texas Water Development Board (TWDB)
Marty Kelley, Texas Department of Parks and Wildlife
Ronald Fieseler, Region K Liaison
Jamie McCool, Texas Department of Agriculture

Non-Voting Members Absent:
Charles Wiedenfeld, Region J Liaison
Don McGhee, Region M 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.

All PowerPoint presentations and meeting materials referenced in the minutes are available in the meeting Agenda Packet at www.regionaltexas.org.

AGENDA ITEM NO. 1: PUBLIC COMMENT

No public comments were made.

AGENDA ITEM NO. 2: ELECTION OF OFFICERS

Con Mims move to re-elect the current officers by acclamation. Multiple voter members seconded the motion. The motion carried by consensus. The officers for calendar year 2017 are Chair: Suzanne Scott, Vice-Chair: Tim Andruss, Secretary: Gary Middleton, At-large: Kevin Janak, and At-large: Adam Yablonski.

AGENDA ITEM NO. 3: APPROVAL OF THE MINUTES FROM THE NOVEMBER 4, 2016, MEETING OF THE SOUTH CENTRAL TEXAS REGIONAL WATER PLANNING GROUP (SCTRWPG)

Con Mims made a motion to approve the minutes from November 3, 2016, meeting of the SCTRWPG. Kevin Janak seconded the motion. There were no objections. The motion passed by consensus

AGENDA ITEM NO. 4: STATUS OF EDWARDS AQUIFER HABITAT CONSERVATION PLAN (HCP) – NATHAN PENCE, EXECUTIVE DIRECTOR EAHCP

No update was provided.

AGENDA ITEM NO. 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)

Chairwoman Scott briefed the Planning Group on the BBASC's recent efforts to recharge interest in BBASC operations. She informed the group of several vacancies on the BBASC, and notified the group that BBASC was currently receiving nominations. Mrs. Scott invited planning group members, who were interested in serving on the BBASC or nominating others to serve, to complete the nomination form provided in the agenda packet.

AGENDA ITEM NO. 6: TEXAS WATER DEVELOPMENT BOARD (TWDB) COMMUNICATIONS

a. GOLDWATER PROJECT PRESENTATION ON A UNIFORM METHODOLOGY FOR MEASURING CONSERVATION ACROSS REGIONS

Steven Cortez, Averitt and Associates, informed the planning group about the Goldwater Project. Averitt and Associates is under contract with TWDB to quantify water conservation efforts throughout the state, region by region, utility by utility. The Goldwater Project is a statewide study, which seeks to maximize conservation efforts for water utilities through large-scale, uniform measurement and analysis. Participating regions under the State Water Plan will be provided the tools to achieve their short- and long-term conservation goals. The project is designed to help water planners and utilities understand how water conservation strategies are being implemented to meet local, regional, and statewide water conservation goals.

b. TWDB RULES PRESENTATION

Ron Ellis, Texas Water Development Board (TWDB), briefed the planning group on deadlines, and schedule regarding regional water planning processes. He reminded the planning group that applications to amend the regional water planning contracts pursuant to TWDB's request for applications (RFA), were due by noon on February 21, 2017. April 6, 2017 was the anticipated board meeting that would potentially approve the amendment applications. August 31, 2017, is the deadline for executing the amendments. Mr. Ellis also informed the group that TWDB is looking for comments on the regional water planning "guidelines" document, which was in the process of being revised by TWDB. Comment were due by February 21, 217. Draft population projects, as well as the municipal demand and mining demand projections were sent out to the planning groups on December 22, 2017. Mr. Ellis anticipated that by June 2017, TWDB would release projections for irrigation, livestock, manufacturing, and steam electric power. In addition, historical water use data for municipal water user groups would sent out.

Mr. Ellis then presented the revised TWDB rules regarding state and regional water planning. The rule were adopted on November 17, and became effective on December 8, 2016. Notable changes included revisions to the definition of "water user group" to reflect the utility-based planning approach, revisions to the definitions of "wholesale water providers" and "major water providers," and the addition of the term "water management strategy project." Moreover, the TWDB revised public notice requirements and requirements related to the analysis of existing surface water supply, groundwater availability. Mr. Ellis reviewed a number of other rule revisions, and provide a PowerPoint, available at www.regionltexas.org for reference (*see* http://www.regionltexas.org/wp-content/uploads/2017/01/Agenda-Packet-1-2-2017.pdf).

AGENDA ITEM NO. 7: CHAIR'S REPORT

Chairwoman Scott provided updates to the planning group regarding recent conference call among the regional water planning chairs. Additionally, she provided a report produced by the Region A Chair, C.E. Williams, which compared the bylaws of each regional water planning group. Chair Scott also provided a legislative report of bills filed at the outset of the 84th Texas Legislature.

AGENDA ITEM NO. 8: 2021 PLAN ENHANCEMENT PROCESS: RECAP OF GUIDING PRINCIPLES PREVIOUSLY DISCUSSED AND ADOPTED

Chair Scott reviewed the previously approved Guiding Principles, highlighted some changes made to the 2021 Plan Enhancement Schedule, and reminded the planning group of the 2021 Plan Enhancement Process.

AGENDA ITEM NO. 9: DISCUSSION AND APPROPRIATE ACTION ADOPTING GUIDING PRINCIPLES ON THE FOLLOWING ISSUES IDENTIFIED THROUGH THE 2021 PLAN ENHANCEMENT PROCESS

a. THE ADEQUACY OF EVALUATING THE PLAN'S EFFECTS ON FRESHWATER INFLOWS TO THE SAN ANTONIO BAY; AND THE ADEQUACY OF ENVIRONMENTAL ASSESSMENTS OF INDIVIDUAL WMS'S

Chair Scot stated the agenda item, reviewed past discussion, opened up discussion to the planning

group concerning the adequacy of evaluating the plan's effects on freshwater inflows to the San Antonio Bay, and the adequacy of environmental assessments of individual water management strategies.

Dianne Wassenich read a letter from Norman Johns, a critical response to Region L's 2016 Plan's environmental components. Discussion ensued among planning group members.

Brian Perkins, Black and Veatch, provide insight regarding TWDB rules and guidance requirements related to environmental assessments as a baseline. Additionally, a memo developed by SWCA, provided potential options for revamping the Region L environmental assessment process. It was noted that costs are the prohibitive factor, as regional water planning activities are largely limited to the scope and budget approved by TWDB, excepting outside funding sources. Mr. Perkins noted that what Region L has done in the past in term of environmental assessments, has been at least sufficient to meet the TWDB expectation, by virtue of the plans being accepted and adopted into the state water plans. The question then becomes, whether the current process is satisfying to the planning group.

After some discourse, Robert Puente motioned to adopt a guiding principle, which—in effect—would state that the planning group adequately evaluates the Regional Water Plan's effects on freshwater inflows to the San Antonio Bay and the Plan's impacts on the environment as evidenced by TWDB's adoption of the State Water Plan, and that no workgroup is needed to explore improvements to the planning group's historic practice. Gary Middleton seconded the motion, conditioning it on further open discussion.

Further discussion ensued. Jenna Cantwell, SWCA, noted that not all of the recommended options require additional work. Some options simply restructure information in a more transparent and user-friendly way.

After more discussion, Robert Puente withdrew his motion, and proposed alternate language that would establish a workgroup. Gary Middleton agreed to withdraw his second to Robert's initial motion as well.

Further discussion lead to the crafting of guiding principle that would establish one workgroup to address both: 1) the adequacy of evaluating the plan's effects on freshwater inflows to the San Antonio Bay; and 2) the adequacy of environmental assessments of individual water management strategies.

Robert Puente motioned to adopt the following language:

> The SCTRWPG's evaluation of its plan's effects on the instream effects and freshwater inflows to the San Antonio Bay, and its environmental assessments of individual water management strategies are currently meeting the regulations and statutes for regional water planning. It is the SCTRWPG's intent to create a workgroup to evaluate the current methodologies and whether additional or alternative environmental assessment of instream effects and freshwater inflows into the San Antonio Bay, and of individual water management strategies, are necessary. If additional or alternative methodologies are recommended, the workgroup shall identify what costs would be associated with the additional evaluation and how these costs would be covered. The Workgroup will report back to the full SCTRWPG on any recommendations it may have.

Gary Middleton seconded Mr. Puente's motion. The motion passed by consensus

b. CREATION OF AN ENVIRONMENTAL ASSESSMENT WORKGROUP

The following members and staff were identified to participate on the workgroup: Steven Siebert (SAWS), Kevin Janak, Jonathon Stinson (GBRA), Con Mims, Marty Kelly, Charlie Flatten, Rey Chavez, and Diane Wassenich. Steven Siebert was designated Chair. Chair Scott set a goal of May 2018 as a deadline for developing a comprehensive recommendation to the planning group.

AGENDA ITEM NO. 10: DISCUSSION AND APPROPRIATE ACTION REGARDING THE FOLLOWING COMPONENTS OF THE 2021 PLAN ENHANCEMENT PROCESS

a. HOW WATER MANAGEMENT STRATEGIES ARE CATEGORIZED; E.G. RECOMMENDED, ALTERNATE, NEEDING FURTHER STUDY
b. ESTABLISHING MINIMUM STANDARDS FOR WATER MANAGEMENT STRATEGIES INCLUDED IN THE PLAN
c. MAINTAINING MANAGEMENT SUPPLIES WHILE AVOIDING "OVER PLANNING"

Brian Perkins gave a presentation outlining TWDB's rules and guidance, and Region L historic processes concerning the categorization of water management strategies and the implications of each category, minimum standards of water management strategy evaluations, and management supplies.

The presentation sparked questions and discussion. Before taking any action, the planning group broke for lunch.

Upon reconvening, the planning group opened up Agenda Item No. 10 for discussion. After several ideas were raised, Chair Scott suggested creating a Minimum Standards Workgroup to address defining what—if any—minimum standards ought to be implemented for water management strategies; to explore the nature of recommended, alternate, and needs further study categories, and whether different minimum standards should be used for each category; and to outline the process by which the planning group should address the three overarching issues: 1) categorization of water management strategies, 2) setting minimum standards, and 3) maintaining management supply.

The following members were designated to participate on the planning group: Tim Andruss, Con Mims, Tom Taggart, Greg Sengelmann, Donovan Burton, and Dianne Wassenich. Tim Andruss was designated Chair of the newly created workgroup.

AGENDA ITEM NO. 11: DISCUSSION AND APPROPRIATE ACTION REGARDING CONSULTANT'S WORK AND SCHEDULE

a. TEXAS WATER DEVELOPMENT BOARD'S DRAFT POPULATION AND WATER DEMAND PROJECTIONS FOR MUNICIPAL AND MINING

Brian Perkins briefly reviewed the consultants schedule for the fifth cycle of regional water planning, and disseminated a list of ongoing projects Black and Veatch and their subcontractors are involved with on a contractual level.

Mr. Perkins then presented on population/ municipal water demand projections and mining demand projections. Crucially, Mr. Perkins focused on observations of the projections delivered by TWDB.

The following observations were noted: 1) mining projections are unchanged from 2016 Plan; 2) region-wide population projection is nearly identical; 3) region-wide municipal water demand projections increases by approximately 12,500 acre-feet per year; 4) effects of Eagle-Ford shale activities on municipal water demands have been removed from the projections (effects 7 counties); 5) county-wide, three counties water demand projections are significantly lower (Caldwell, Guadalupe, and Wilson counties); 6) county-wide, 7 counties water demand projections are significantly higher (Atascosa, Bexar, Comal, hays, Medina, Uvalde, and Victoria).

Mr. Perkins laid out the following response procedure to TWDB's projections: ask TWDB for clarification on a few issues; survey water user groups and wholesale water providers for review of TWDB draft projections; report water user groups and wholesale water providers comments to Region L Planning Group at a future meeting; and then develop list of requested revisions for submittal to TWDB.

AGENDA ITEM NO. 12: COMMERCIAL SCALE RAINWATER HARVESTING PRESENTATION FROM REGION K CHAIR—JOHN BURKE

Charlie Flatten introduced John Burke, Chair of Region K Regional Water Planning Group. Mr. Burke gave presentation on commercial scale rainwater harvesting. The PowerPoint slides are available at www.regionltexas.org.

AGENDA ITEM NO. 13: POSSIBLE AGENDA ITEMS FOR THE NEXT REGION L MEETING

a. **ADOPTION OF GUIDING PRINCIPLES**
b. **DISCUSSION ON THE FOLLOWING COMPONENTS OF THE 2021 PLAN ENHANCEMENT PROCESS: 1) IDENTIFYING SPECIAL STUDIES OR EVALUATIONS DEEMED IMPORTANT TO ENHANCE THE 2021 PLAN AND IDENTIFICATION OF OUTSIDE FUNDING SOURCES; 2) ADDRESS THE ROLE OF REUSE WITHIN THE REGIONAL WATER PLAN; AND 3) THE EXTENT TO WHICH INNOVATIVE STRATEGIES SHOULD BE USED.**
c. **TWDB PLANNING 101 PRESENTATION**

The planning group reviewed the items scheduled for the next meeting. No items were added.

AGENDA ITEM NO. 17: PUBLIC COMMENT

Rachel Cywinski offered public comment, noting the difficulty of finding scheduled meetings on the Region L website. Ms. Cywinski also noted the importance of looking consumptive uses versus non-consumptive uses as a consideration for water planning.

Chair Scott adjourned the meeting.

_____
GARY MIDDLETON, SECRETARY

Approved by the South Central Texas Regional Water Planning Group at a meeting held on May 4, 2017.

_____
SUZANNE SCOTT, CHAIR

5. Status of Edwards Aquifer Habitat Conservation Plan (HCP) – Nathan Pence, Executive Director EAHCP

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)

Members of the Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays Stakeholders Committee

Stakeholder Groups	Members
Agriculture Irrigation	1. Jim Bower*
Free-range Livestock	2. Terry Dudley*
Concentrated Animal Feeding Operation	3. Jay Gray
Recreational Water Users	4. Colin McDonald* 5. Jennifer Ellis
Municipalities	6. Robert Puente 7. Kate Garcia 8. Ian Taylor
Soil and Water Conservation Districts	9. Mike Mecke
Industry: Refining	10. Scott Courtney*
Industry: Chemical Generation	11. Lance Thomasson
Commercial Fisherman	12. Jack Campbell
Public Interest Groups	13. Diane Wassenich 14. Charlie Flatten* 15. Garret Engelking
Regional Water Planning Groups	16. Con Mims 17. David Mauk
Groundwater Conservation Districts	18. Roland Ruiz 19. Thurman Clements, Jr 20. Milan Michalec
River Authorities	21. Suzanne Scott 22. Tommy Hill 23. James Murphy
Environmental Interests	24. Ken Dunton 25. Jace Tunnell
Electric Generation	26. Doris Cooksey

7. Texas Water Development Board (TWDB) Communications

8. Chair’s Report

REGIONAL WATER PLANNING 5-2-17

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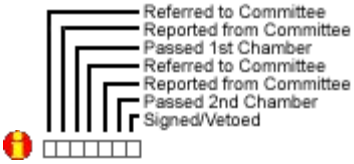


HB 31 Larson, Lyle(R) Relating to the regulation of groundwater.

Last Action: 4-26-17 S Received in the Senate

HB 174 Lucio III, Eddie(D) Relating to the authority of the Texas Water Development Board to provide financial assistance to political subdivisions for water supply projects.

Last Action: 2-14-17 H Introduced and referred to committee on House Natural Resources

HB 793 Capriglione, Giovanni(R) Relating to the definition of a governmental body for the purposes of the public information law.

Companies: SB 408 Watson, Kirk(D) (Identical)
4-18-17 H Referred to House Committee on House Government Transparency and Operation

Last Action: 4-24-17 H Committee action pending House Government Transparency and Operation

HB 1648 Price, Four(R) Relating to the designation of a water conservation coordinator by a retail public water utility to implement a water conservation plan.

Companies: SB 1451 Seliger, Kel(R) (Identical)
3-20-17 S Introduced and referred to committee on Senate Agriculture, Water, and Rural Affairs

Last Action: 5- 1-17 S Received in the Senate

HB 2005 Larson, Lyle(R) Relating to the duty of the Texas Water Development Board to conduct studies of and prepare and submit reports on aquifer storage and recovery.

Last Action: 4-18-17 S Received in the Senate

HB 2204 Kacal, Kyle(R) Relating to the requirements for construction contracts for certain water supply projects, treatment works, and flood control measures.

Companies: SB 1416 Perry, Charles(R) (Identical)
3-16-17 S Introduced and referred to committee on

Senate Agriculture, Water, and Rural Affairs

Last Action: 5- 3-17 H Meeting set for 10:30 A.M. or Adj., JHR 140, House State Affairs

HB 2215 Price, Four(R)

Relating to the adoption of desired future conditions for aquifers in groundwater management areas and the consideration of those conditions in the regional water planning process.

Last Action: 5- 1-17 S Received in the Senate

HB 2363 Nevarez, Poncho(D)

Relating to export fees charged by the Middle Pecos Groundwater Conservation District.

Companions: SB 1256 Uresti, Carlos(D) (Identical)
3-13-17 S Introduced and referred to committee on Senate Agriculture, Water, and Rural Affairs

Last Action: 3-16-17 H Introduced and referred to committee on House Natural Resources

HB 2377 Larson, Lyle(R)

Relating to the development of brackish groundwater.

Last Action: 5- 3-17 H Set on the House Calendar

HB 2378 Larson, Lyle(R)

Relating to extensions of an expired permit for the transfer of groundwater from a groundwater conservation district.

Companions: SB 774 Perry, Charles(R) (Identical)
5- 1-17 S Committee action pending Senate Agriculture, Water, and Rural Affairs

Last Action: 5- 1-17 S Received in the Senate

HB 2802 Larson, Lyle(R)

Relating to the review of river authorities by the Sunset Advisory Commission.

Last Action: 4-28-17 H Passed (Vote: Y:105/N: 23)

HB 2894 Lucio III, Eddie(D)

Relating to desalinated seawater and a requirement that the Texas Commission on Environmental Quality provide expedited consideration of certain applications to amend water rights.

Companions: SB 1430 Perry, Charles(R) (Identical)
4-19-17 H Received in the House

Last Action: 4-27-17 H Voted favorably from committee as substituted House Natural Resources

HB 2948 Larson, Lyle(R)

Relating to the state and regional water planning process.

Last Action: 4-27-17 S Received in the Senate

HB 3027 Phelan, Dade(R)

Relating to the applicability of open meetings and public information laws to regional water planning groups and their committees.

	Companions:	SB 347 Watson, Kirk(D) (Identical) 5- 2-17 H Passed to third reading
	Last Action:	5- 2-17 H Laid on the table - subject to call - see SB 347
HB 3037	Workman, Paul(R)	Relating to the definition of groundwater management areas to coincide with major and minor aquifers and the joint planning process in those areas.
	Last Action:	5- 3-17 H Meeting set for 10:30 A.M. or Adj., E2.010, House Natural Resources
HB 3043	Workman, Paul(R)	Relating to the joint planning process for groundwater management.
	Companions:	SB 1528 Creighton, Brandon(R) (Identical) 5- 1-17 S Not heard in committee Senate Agriculture, Water, and Rural Affairs
	Last Action:	4-26-17 H Reported from committee as substituted House Natural Resources
HB 3166	Lucio III, Eddie(D)	Relating to the consideration of modeled sustainable groundwater pumping in the adoption of desired future conditions in groundwater conservation districts.
	Last Action:	5- 4-17 H Set on the House Calendar
HB 3314	Frank, James(R)	Relating to the procedure for action on certain applications for an amendment to a water right.
	Companions:	SB 226 Taylor, Van(R) (Identical) 4-19-17 H Received in the House
	Last Action:	5- 3-17 H Meeting set for 10:30 A.M. or Adj., E2.010, House Natural Resources
HB 3677	Isaac, Jason(R)	Relating to the creation of the Heart of Texas Aquifer District and the dissolution of certain groundwater conservation districts.
	Last Action:	3-31-17 H Introduced and referred to committee on House Natural Resources
HB 3735	Frank, James(R)	Relating to an application for a new or amended water right submitted to the Texas Commission on Environmental Quality.
	Last Action:	4-28-17 H Reported favorably from committee on House Natural Resources
HB 3742	Phelan, Dade(R)	Relating to the procedure for contested case hearings regarding water rights permit applications and amendments to certain water management plans.
	Last Action:	5- 1-17 H Reported from committee as substituted House Natural Resources
HB 3987	Larson, Lyle(R)	Relating to the authority of the Texas Water Development Board to use the state participation account of the water development fund to provide financial assistance for the development of certain facilities.

Last Action: 5- 2-17 H Passed (Vote: Y:145/N: 0)

HB 3991 Larson, Lyle(R)

Relating to appropriations of water for use in aquifer storage and recovery projects.

Last Action: 4-21-17 H Reported favorably from committee on House Natural Resources

HB 4006 Larson, Lyle(R)

Relating to a requirement that the Texas Commission on Environmental Quality obtain or develop updated water availability models for all of the river basins in this state.

Last Action: 3-31-17 H Introduced and referred to committee on House Natural Resources

HB 4050 Larson, Lyle(R)

Relating to exports of groundwater from a groundwater conservation district.

Last Action: 4- 3-17 H Introduced and referred to committee on House Natural Resources

HB 4162 Larson, Lyle(R)

Relating to exports of groundwater from a groundwater conservation district.

Last Action: 3-31-17 H Introduced and referred to committee on House Natural Resources

HB 4164 Larson, Lyle(R)

Relating to the procedures for adopting a moratorium on the issuance of permits by groundwater conservation districts.

Last Action: 3-31-17 H Introduced and referred to committee on House Natural Resources

HB 4166 Larson, Lyle(R)

Relating to the applicability of certain rules when considering an application for a permit to drill or operate a well.

Last Action: 3-31-17 H Introduced and referred to committee on House Natural Resources

HCR 43 Davis, Yvonne(D)

Directing the Texas Water Development Board and the Texas Commission on Environmental Quality to support the creation of a model water recycling project.

Last Action: 4-27-17 H Committee action pending House Natural Resources

HJR 101 Workman, Paul(R)

Proposing a constitutional amendment dedicating a portion of the revenue derived from the state sales and use tax to the Texas Water Development Fund II.

Last Action: 3-14-17 H Introduced and referred to committee on House Ways and Means

SB 225 Taylor, Van(R)

Relating to the referral by the Texas Commission on Environmental Quality to the State Office of Administrative Hearings of an issue regarding an application for a water right.

Companions: HB 3525 Price, Four(R) (Identical)
3-31-17 H Introduced and referred to committee on

House Natural Resources

Last Action: 4- 3-17 S Committee action pending Senate Agriculture, Water, and Rural Affairs

SB 347 — Watson, Kirk(D); Phelan, Dade(R)

Relating to the applicability of open meetings and public information laws to regional water planning groups and their committees.

Companions:

HB 3027 — Phelan, Dade(R) — (Identical)
5- 2-17 H Laid on the table - subject to call - see SB 347

Last Action: 5- 2-17 H Passed to third reading

SB 538 — Hinojosa, Chuy(D)

Relating to state and local planning for and responses to drought.

Last Action: 2- 8-17 S Introduced and referred to committee on Senate Agriculture, Water, and Rural Affairs

SB 696 — Perry, Charles(R)

Relating to a requirement that the Texas Commission on Environmental Quality obtain or develop updated water availability models for certain river basins.

Last Action: 5- 2-17 S Passed (Vote: Y: 31/N: 0)

SB 1009 — Perry, Charles(R)

Relating to administrative completeness requirements for permit and permit amendment applications for groundwater conservation districts.

Companions:

HB 4017 — Larson, Lyle(R) — (Identical)
3-31-17 H Introduced and referred to committee on House Natural Resources

Last Action: 5- 3-17 H Meeting set for 10:30 A.M. or Adj., E2.010, House Natural Resources

SB 1053 — Perry, Charles(R)

Relating to an appeal of a desired future condition in a groundwater management area.

Last Action: 4- 3-17 S Committee action pending Senate Agriculture, Water, and Rural Affairs

SB 1312 — Miles, Borris (F)(D)

Relating to the deadline for adoption of desired future conditions in groundwater conservation districts.

Last Action: 4-27-17 S Removed from hearing 05/01/17, Senate Agriculture, Water, and Rural Affairs

SB 1416 — Perry, Charles(R)

Relating to the requirements for construction contracts for certain water supply projects, treatment works, and flood control measures.

Companions:

HB 2204 — Kacal, Kyle(R) — (Identical)
5- 3-17 H Meeting set for 10:30 A.M. or Adj., JHR 140, House State Affairs

Last Action: 3-16-17 S Introduced and referred to committee on Senate Agriculture, Water, and Rural Affairs

SB 1430	Perry, Charles(R)	Relating to desalinated seawater and a requirement that the Texas Commission on Environmental Quality provide expedited consideration of certain applications to amend water rights.

Companions:	HB 2894	Lucio III, Eddie(D)	(Identical)
		4-27-17 H Voted favorably from committee as substituted House Natural Resources	
Last Action:	4-19-17 H Received in the House		

SB 1511	Perry, Charles(R)	Relating to the state and regional water planning process and the funding of projects included in the state water plan.

Last Action:	4-20-17 H Received in the House

SB 1525	Perry, Charles(R)	Relating to a study by the Texas Water Development Board of water needs and availability in this state.

Last Action:	4-20-17 H Received in the House

SB 1528	Creighton, Brandon(R)	Relating to the joint planning process for groundwater management.

Companions:	HB 3043	Workman, Paul(R)	(Identical)
		4-26-17 H Reported from committee as substituted House Natural Resources	
Last Action:	5- 1-17 S Not heard in committee Senate Agriculture, Water, and Rural Affairs		

	All	Track
Total Bills:	42	42

9. Discussion and Appropriate Action Authorizing the Administrator to Request Written Approval From the Executive Administrator of the TWDB for the Guadalupe-Blanco River Authority's (GBRA) Proposed Substitution of an Alternative Water Management Strategy for Two Recommended Water Management Strategies in the SCTRWPG 2016 Plan, or a Determination of whether GBRA's Proposed Action Constitutes a Minor or Major Amendment

April 12, 2017

Mr. Steve Raabe, Administrator
South Central Texas Regional Water Planning Group
c/o San Antonio River Authority
P.O. Box 839980
San Antonio, Texas 78283

RE: Amendment to the 2016 Region L Plan and the 2017 State Water Plan

Dear Mr. Raabe:

The Guadalupe-Blanco River Authority (GBRA) is preparing to implement one of the evaluated water management strategies from the 2016 Region L Water Plan to serve the water supply needs in Comal, Hays, and Guadalupe Counties. GBRA intends to apply for financing utilizing the Texas Water Development Board's (TWDB) State Water Implementation Fund for Texas (SWIFT). In order to qualify for SWIFT or other state-offered financing consideration, GBRA will need to amend the 2016 Region L Plan and 2017 State Water Plan by substituting an alternative strategy in place of two recommended strategies. GBRA requests the assistance of the South Central Regional Water Planning Group and TWDB to determine the appropriate amendment type and process, and would appreciate the planning group's consideration for action to initiate an amendment at the next regularly scheduled meeting.

The proposed amendment will substitute the following two recommended strategies: 1) GBRA Mid-Basin Project (ASR) (50,000 acft) and the 2) Texas Water Alliance (TWA) Carrizo Project (MAG-Limited) (15,000 acft), with the Mid-Basin Water Supply Project (MBWSP) – Conjunctive Use with Aquifer Storage & Recovery (ASR) alternative water management strategy (42,000 acft).

The GBRA MBWSP Conjunctive Use with ASR incorporates surface water from the Guadalupe River near Gonzales with a Carrizo well field that produces groundwater and stores treated surface water. The strategy is configured to include an ASR well field that is co-located with the Carrizo well field on TWA leased property in northern Gonzales County and eastern Caldwell County. GBRA intends to purchase the affected TWA assets and will finalize the transaction prior to applying for financial assistance.

Pursuant to provisions included in Title 31, Part 10, Chapter 357, Texas Administrative Code, and upon TWDB Executive Administrator approval, GBRA believes this request may be considered a substitution since the MBWSP – Conjunctive Use with ASR alternative water management strategy is capable of meeting the same water need without over-allocating any source.

Thank you in advance for your positive consideration and attention. Please do not hesitate to contact me if you need any additional information.

Sincerely,

Kevin Patteson
General Manager/CEO

CC: Ms. Suzanne Scott, Chair
South Central Regional Water Planning Group

Regional Laboratory: 933 East Court Street ~ Seguin, Texas 78155
830-379-5822 ~ 800-413-4130 ~ 830-379-9718 fax ~ www.gbra.org

TWA
Texas Water Alliance, Limited

1399 Sattler Road
New Braunfels, Texas 78132
Phone: 830-964-2166

April 28, 2017

Mr Steve Raabe, Administrator
South Central Texas Regional Water Planning Group
c/o San Antonio River Authority
PO Box 839980
San Antonio, TX 78283

RE: Amendment to the 2016 Regional L Plan and the 2017 State Water Plan

Dear Mr. Raabe:

Recently you received a letter from the Guadalupe-Blanco River Authority (GBRA) requesting an amendment to the most recent Region L and State Water Plans in which they proposed the replacement of two recommended strategies: 1) GBRA Mid-Basin Project (ASR) (50,000 acft) and the 2) Texas Water Alliance (TWA) Carrizo Project (MAG-Limited) (15,000 acft) with the Mid-Basin Water Supply Project (MBWSP)- Conjunctive Use with Aquifer Storage & Recovery (ASR) alternative water management strategy (42,000 acft).

TWA and GBRA have worked closely over the last year to develop the most reliable and cost effective water supply project possible for Region L and believe that the MBWSP- Conjunctive Use project will provide that solution. Therefore TWA fully endorses GBRA's request for the substitution of that alternative in the Regional and State Water Plans.

Thank you for your consideration of this proposal. Please contact me directly if you need any further information.

Sincerely,

Thomas Hodge
Vice President
Texas Water Alliance

CC: Kevin Patteson, CEO of GBRA

2016 Region L Water Plan

Request for Substitution of Water Management Strategies

Guadalupe-Blanco River Authority
Mid-Basin Water Supply Project

Overview

- GBRA's Substitution Request
- Texas Administrative Code/TWDB Rules
- Review of affected Water Management Strategies
- Questions

GBRA Request


GBRA Guadalupe-Blanco River Authority

- GBRA is preparing to implement one of the evaluated water management strategies from the 2016 Region L Water Plan to serve the water supply needs in Comal, Hays, and Guadalupe Counties.
- In order to qualify for SWIFT or other state-offered financing consideration, GBRA needs to amend the 2016 Region L Plan and 2017 State Water Plan by substituting an alternative strategy in place of two recommended strategies.

GBRA Request

- GBRA intends to purchase Texas Water Alliance (TWA) Carrizo groundwater assets.
- The current Mid-Basin Water Supply Project – ASR Recommended Strategy in 2016 Region L Water Plan does not include production of Carrizo groundwater.
  - Alternative Strategy incorporates all phases from the existing recommended Mid-Basin Water Supply Project, but also incorporates groundwater production volumes associated with TWA's project.
- TWA has provided a letter supporting GBRA's strategy substitution.

Texas Administrative Code
Title 31, Part 10, Chapter 357
RULE §357.51 Amendments to Regional Water Plans

- (e) Substitution of Alternative WMSs.
  - "…RWPGs may substitute one or more evaluated Alternative Water Management Strategies for a recommended strategy if the strategy originally recommended is no longer recommended and the substitution of the Alternative WMS is capable of meeting the same Water Need without over-allocating any source.
  - Proposed substitutions must receive written approval from the EA prior to substitution by the RWPG."

Substitution Requirements

- Project Evaluation
  - The Alternative Mid-Basin Water Supply Project (MBWSP),Conjunctive Use with ASR, water management strategy evaluation can be found in the 2016 South Central Texas Regional Water Plan. (Vol. II, Ch. 5.2.32)
- Water User Group Needs
  - TWDB will determine if substitution is capable of supplying WUG Needs
- Over-Allocation
  - TWDB to ensure there is not an over-allocation of the water supply source
  - Substitution is needed to remove TWA Carrizo Project since GBRA's Alternative MBWSP includes Carrizo groundwater volumes

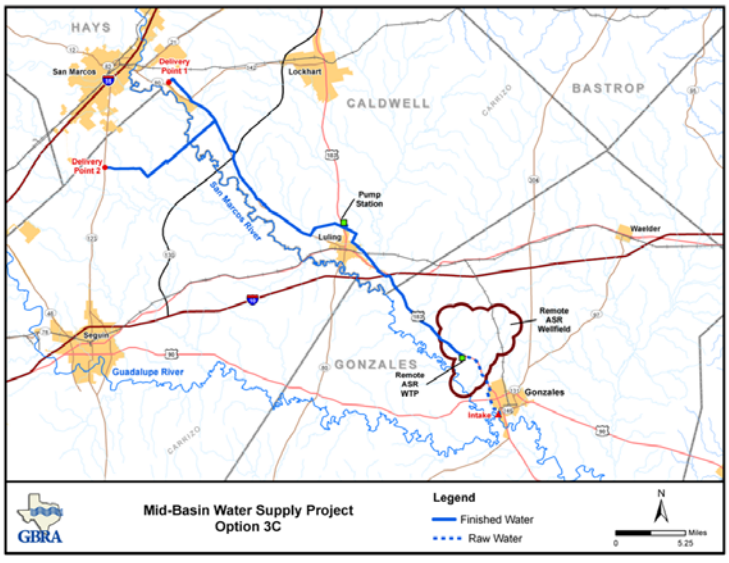
Affected Water Management Strategies

The requested substitution replaces two recommended strategies with one evaluated Alternative Water Management Strategy:

- RECOMMENDED
  1. GBRA Mid-Basin Water Supply Project (MBWSP)
     - Surface Water with ASR
     - 50,000 acft
  2. Texas Water Alliance (TWA) Carrizo Project
     - 15,000 acft (MAG-Limited)
- ALTERNATIVE
  1. Mid-Basin Water Supply Project (MBWSP)
     - Conjunctive Use with ASR
     - 42,000 acft

Recommended

GBRA Mid-Basin Water Supply Project
Surface Water with ASR



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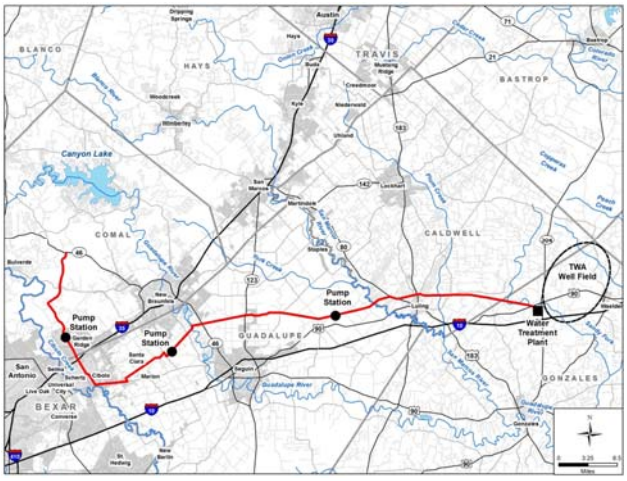
Recommended
MBWSP - SURFACE WATER W/ ASR

- The MBWSP is a phased project to provide water supplies directly to participants in Comal, Caldwell, Hays, and/or Guadalupe Counties.
- The recommended water management strategy focuses on an ASR formulation which includes run-of-river diversions from the Guadalupe River near Gonzales, treatment, and transmission to participants and ASR wells in Gonzales County for storage and subsequent recovery during periods when run-of-river diversions are limited.
- The project has a firm yield of 50,000 acft/yr

Recommended
MBWSP - SURFACE WATER W/ ASR
NEEDS

	WUG Strategy Supply 2020	WUG Strategy Supply 2030	WUG Strategy Supply 2040	WUG Strategy Supply 2050	WUG Strategy Supply 2060	WUG Strategy Supply 2070
UNASSIGNED WATER VOLUMES	43,008	39,244	25,674	36,009	30,467	21,074
WUG NEEDS	6,992	10,756	24,326	13,991	19,533	28,926
Total	50,000	50,000	50,000	50,000	50,000	50,000

Recommended TWA Carrizo Project



Recommended TWA Carrizo Project

- The TWA has secured groundwater leases and permits in northern Gonzales County to deliver up to 15,000 acft/yr of Carrizo Aquifer groundwater to entities in Gonzales, Guadalupe, and Comal Counties.
- Due to MAG limitations, the recommended firm supply of the project is 14,680 acft/yr

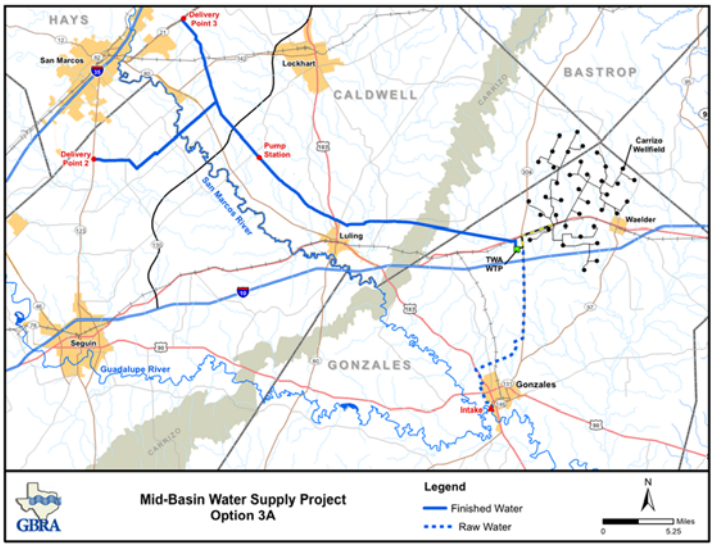
Recommended TWA Regional Carrizo Needs

	WUG Strategy Supply 2020	WUG Strategy Supply 2030	WUG Strategy Supply 2040	WUG Strategy Supply 2050	WUG Strategy Supply 2060	WUG Strategy Supply 2070
UNASSIGNED WATER VOLUMES	8,413	11,916	13,249	9,707	4,866	3,532
WUG NEEDS	0	8,413	2,573	5,464	10,699	12,056
Total	8,413	20,329	15,822	15,171	15,565	15,588

Combined WUG Needs without Unassigned Volumes

	WUG Strategy Supply 2020	WUG Strategy Supply 2030	WUG Strategy Supply 2040	WUG Strategy Supply 2050	WUG Strategy Supply 2060	WUG Strategy Supply 2070
MBWSP WUG NEEDS	6,992	10,756	24,326	13,991	19,533	28,926
TWA WUG NEEDS	0	671	2,573	5,464	10,699	12,056
Total	6,992	11,427	26,899	19,455	30,232	40,982

Alternative
Mid-Basin Water Supply Project
Conjunctive Use with ASR



Alternative
MBWSP
Conjunctive Use with ASR

- MBWSP Conjunctive Use with ASR is a phased project which incorporates surface water from the Guadalupe River with a Carrizo well field that produces groundwater and stores treated surface water.
- The strategy is configured to include an ASR well field that is co-located with the Carrizo well field on TWA leased property in Gonzales County.

Alternative
MBWSP
Conjunctive Use with ASR

- Using monthly water availability and daily disaggregation procedures, an accounting model was used to simulate surface water diversions to a WTP and ASR well field as well as groundwater production from which a firm supply of treated water could be delivered to project participants.
- Models indicate a firm yield of 42,000 acft/yr

Alternative
MBWSP
Conjunctive Use with ASR

Water User Group Name	Source Name	WUG Strategy Supply 2020	WUG Strategy Supply 2030	WUG Strategy Supply 2040	WUG Strategy Supply 2050	WUG Strategy Supply 2060	WUG Strategy Supply 2070
UNASSIGNED WATER VOLUMES	CARRIZO-WILCOX AQUIFER	21,000	21,000	21,000	21,000	21,000	21,000
UNASSIGNED WATER VOLUMES	GUADALUPE RUN-OF-RIVER	21,000	21,000	21,000	21,000	21,000	21,000
Total		42,000	42,000	42,000	42,000	42,000	42,000

WUG Needs

Combined WUG Needs from Recommended Strategies (without Unassigned Volumes)

	WUG Strategy Supply 2020	WUG Strategy Supply 2030	WUG Strategy Supply 2040	WUG Strategy Supply 2050	WUG Strategy Supply 2060	WUG Strategy Supply 2070
MBWSP WUG NEEDS	6,992	10,756	24,326	13,991	19,533	28,926
TWA WUG NEEDS	0	671	2,573	5,464	10,699	12,056
Total	6,992	11,427	26,899	19,455	30,232	40,982

Available Supply from Alternative Strategy

Water User Group Name	Source Name	WUG Strategy Supply 2020	WUG Strategy Supply 2030	WUG Strategy Supply 2040	WUG Strategy Supply 2050	WUG Strategy Supply 2060	WUG Strategy Supply 2070
UNASSIGNED WATER VOLUMES	CARRIZO-WILCOX AQUIFER	21,000	21,000	21,000	21,000	21,000	21,000
UNASSIGNED WATER VOLUMES	GUADALUPE RUN-OF-RIVER	21,000	21,000	21,000	21,000	21,000	21,000
Total		42,000	42,000	42,000	42,000	42,000	42,000

Questions?

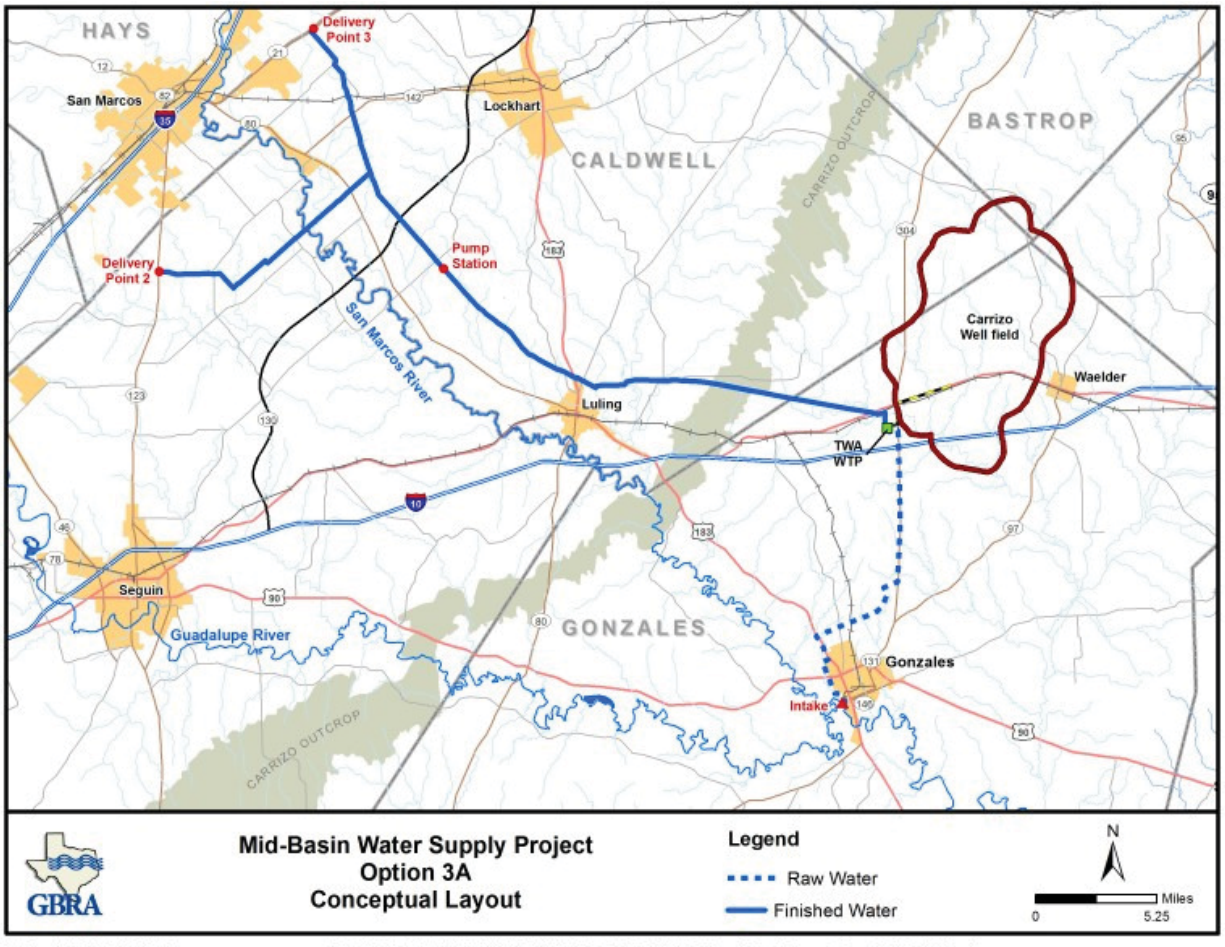
GBRA appreciates the assistance of the South Central Regional Water Planning Group and the Texas Water Development Board.

5.2.32 GBRA Mid-Basin Water Supply Project – Conjunctive Use with ASR

5.2.32.1 Description of Strategy

The Guadalupe-Blanco River Authority (GBRA) Mid-Basin Water Supply Project (MBWSP) Conjunctive Use with Aquifer Storage & Recovery (ASR) strategy (Option 3A) incorporates surface water from the Guadalupe River near Gonzales with a Carrizo well field that produces groundwater and stores treated surface water. The strategy is configured to include an ASR well field that is co-located with the Carrizo well field on Texas Water Alliance (TWA) leased property in northern Gonzales County and eastern Caldwell County. The overall project map is shown in Figure 5.2.32-1.

Figure 5.2.32-1 MBWSP – Conjunctive Use Conceptual Layout



Surface water from the river diversion point near Gonzales is pumped 15.3 miles to a water treatment plant (WTP) located adjacent to the Carrizo well field. Treated surface water will generally be delivered to meet daily participant needs, however, when WTP capacity exceeds daily participant needs, the excess treated water will be injected into the Carrizo using dual-purpose ASR/production wells. This WTP will also treat water

produced from the well field because the well field will generally produce a blend of raw Carrizo groundwater and treated surface water. This is necessary because the Carrizo groundwater contains iron and manganese.

Potable water supplies are conveyed to two delivery points which would include a meter and two storage tanks with sufficient capacity for 15% of average daily demand. MBWSP participants will be responsible for construction of any facilities required to connect to the delivery locations. Additionally, some treated supply could be made available to customers along the transmission line.

The total finished water pipeline route length is 45.6 miles, paralleling existing right of way for nearly 29 miles. The transmission line is sized to deliver supply at a peak rate that is 2.0 times that for uniform delivery of annual supply. Three pump stations are required to deliver supplies along the finished transmission main. A High Service Pump Station (HSPS) will pump from the clear well located at the WTP and will provide sufficient head to deliver supplies to the first booster pump station. This pump station will boost pressures to convey supplies to Delivery Point 3 and part way to Delivery Point 2. The second booster pump station will boost pressures to convey supplies to Delivery Point 2.

5.2.32.2 Available Yield

The operational concept for the MBWSP – Conjunctive Use with ASR strategy is summarized as follows: (1) when demands can be met with water rights in the Guadalupe River at Gonzales, the water is treated and delivered directly to participants; (2) when surface water supplies available from the river exceed demands and there is unused capacity in the water treatment plant and delivery system, the excess surface water is treated and stored in the Carrizo Aquifer through ASR wells; and (3) when available surface water supplies cannot meet participant demands, native groundwater or surface water previously stored in the aquifer is produced or recovered to meet the balance of the participant demands. The loss of ASR water is assumed to be zero. The introduction of ASR water adds to the volume of storage and allows for greater withdrawals to stay within GCUWCD drawdown limits. From a quantity perspective, it makes no difference whether the water withdrawn is native groundwater, finished surface water, or a blend of both.

Surface Water Modeling

Estimates of surface water available for diversion under a new appropriation from the Guadalupe River at Gonzales were computed subject to senior water rights and environmental flow standards recently adopted by the TCEQ. Surface water availability was computed in conformance with GBRA's Application No. 12378, which includes a maximum annual diversion of 75,000 acft/yr from the Guadalupe River at Gonzales and maximum instantaneous diversion rate of 500 cfs. The models used to determine availability and yield include the Guadalupe-San Antonio River Basin Water Availability Model (GSA WAM) and the Flow Regime Application Tool (FRAT).

Major modeling assumptions in applications of the GSA WAM and FRAT include:

- Water availability computed subject to full use of senior water rights for consumptive uses and environmental flow standards adopted by TCEQ on August 8, 2012.

- Treated effluent discharges were excluded throughout the river basin (similar to TCEQ Run 3), except when specifically addressed in a water right (e.g., INVISTA, Kate O'Connor Trust, etc.).
- Springflows from the Edwards Aquifer were based on aquifer management in accordance with full implementation of the Edwards Aquifer Habitat Conservation Plan (EAHCP) approved by the U.S. Fish and Wildlife Service (USFWS). Two Edwards Aquifer simulation models (GWSIM-IV for the 1934-1946 period and MODFLOW for the 1947-2000 period) were used to estimate springflow.

In order to calculate surface water available from the Guadalupe River at Gonzales for the MBWSP, a new water right (junior to all existing water rights) was modeled in the GSA WAM to obtain monthly unappropriated and regulated flows for the Guadalupe River at Gonzales. The portion of streamflow allocated to downstream senior water rights was calculated by subtracting the unappropriated flow from the regulated flow. Monthly regulated flows were then disaggregated to daily values using gaged or estimated daily streamflows for the Guadalupe River at Gonzales. Monthly amounts allocated to downstream senior water rights were then taken uniformly out of the base of the daily hydrograph such that the sum of daily pass-through amounts in each month equals the total monthly amount allocated to downstream senior water rights.

Daily senior water right pass-throughs and daily regulated flows are incorporated into the FRAT model, along with the TCEQ environmental flow standards for the Guadalupe River at Gonzales. These environmental flow standards consist of seasonal subsistence and base flows, two tiers of seasonal pulses, and a pulse exemption provision under which pulses may be excluded if the magnitude of the maximum diversion rate of the water right is less than or equal to 20 percent of the pulse peak. For example, if the maximum diversion rate for the MBWSP is 116 cfs, all small and large seasonal pulse diversion restrictions would be excluded and the MBWSP would not be required to honor those pulses. Additionally, the environmental flow standard for the Guadalupe River at Gonzales includes a provision for diversions that are made between the base flow and the subsistence flow, such that when streamflow is between the base and subsistence flows, only 50 percent of the difference between the streamflow and the subsistence flow can be diverted.

Groundwater Modeling

Groundwater availability analyses utilized the Texas Water Development Board (TWDB) Central Groundwater Availability Model (GAM) for the Carrizo-Wilcox Aquifer. Groundwater availability was based on an acceptable level of drawdown in the GCUWCD rules. The assumed maximum acceptable drawdown for the Carrizo and Wilcox aquifers in the artesian zone is 100 feet, which is measured in monitoring wells that are more than 6,000 feet from the nearest production well in the well field.

Surface Water, Groundwater, and ASR

Using monthly water availability and daily disaggregation procedures described above, an accounting model was used to simulate surface water diversions to a WTP and ASR well field as well as groundwater production from which a firm supply of treated water could be delivered to project participants. Simulations indicate that a firm yield of 42,000 acft/yr can be obtained assuming a maximum instantaneous river diversion rate and ASR

WTP capacity of 116 cfs (75 mgd) and maximum long-term drawdown in the Carrizo Aquifer near the well field on the order of 100 feet.

5.2.32.3 Environmental Issues

Environmental issues for the proposed GBRA MBWSP - Conjunctive Use with ASR project are described below. Implementation of this project would require field surveys by qualified professionals to document vegetation/habitat types, waters of the U.S. including wetlands and cultural resources that may be impacted. Where impacts to protected species habitat or significant cultural resources cannot be avoided, additional studies would be necessary to evaluate habitat use and/or value, or eligibility for inclusion in the National Register of Historic Places, respectively. Compensation would be required for unavoidable adverse impacts involving net losses of wetlands.

The GBRA MBWSP- Conjunctive Use with ASR water management strategy involves the construction of an intake on the Guadalupe River with a raw water transmission pipeline to the new TWA WTP site, a well field in Gonzales County, a raw water transmission pipeline from the well field to the TWA WTP, a potable water pipeline to a delivery point near San Marcos through Luling with an additional booster pump station, and a potable water pipeline section to a delivery point near Seguin. The pipelines traverse both the Blackland Prairie and Post Oak Savannah ecoregions[1] and are within the Texan biotic province[2]. Vegetation within the project area is dominated by a mosaic of post oak woods, forest, and grassland to the east and cropland along the western portion of the pipeline.

The Guadalupe River intake has the potential for localized negative ecological impacts as the site area consists of over 90% riparian woodland. Riparian woodlands, especially those located within floodplains, are ecological features that contribute to the natural and traditional character of waterways. These areas help protect water quality, wildlife habitat, and aquatic resource functions and services. However, the well field, transmission pipelines and the TWA WTP site are anticipated to have a low negative impact to terrestrial habitat. Approximately 60-80% of these areas occur within grassland, cropland and disturbed areas. Any remaining habitat which includes woody species within these areas has been highly fragmented by existing land uses and disturbances including roads, utility rights-of-way and cropland. Outside the maintained right-of-way, land use would not be anticipated to change due to pipeline construction. Herbaceous habitats would recover fastest from impacts and would experience low negative impacts. Impacts to woody vegetation would be permanent due to pipeline and WTP maintenance. The proposed well field would have a minimal impact on vegetation within the project area due to limited surface exposure.

The transmission pipelines and water treatment plant site are anticipated to have minimal impact on existing terrestrial habitat. Many pipeline segments are co-located along existing rights-of-way, fencerows, and other disturbances, which would reduce their overall vegetative impact. Pipelines, including collection, raw, and finished water transmission, would require multiple crossing of roads, railroads, and other utilities, as well as being in close proximity to structures, but no adverse effects are expected. The

[1] Gould, F.W. 1975. The Grasses of Texas. Texas A&M University Press. College Station, Texas.
[2] Blair, W.F., "The Biotic Provinces of Texas, "Tex. J. Sci. 2:93-117, 1950.

TWA WTP is located on undeveloped grassland. Impacts to land use would be limited to the removal of existing vegetation and temporary impacts during construction.

With numerous miles of raw and finished water pipelines, crossings of many jurisdictional waters would occur. Intermittent waters, which in this area primarily include streams and impoundments, would occur frequently and make up the majority of the jurisdictional areas crossed. Major intermittent waters potentially affected by this strategy include Buck, Crooked, and Salt branches; Callihan, Cottonwood, Dickerson, Kerr, Long, McNeil, Morrison, Seals, and West Fork Plum creeks; Dry Run; and Sandy Fork. Impacts from pipelines to these waters are anticipated to be minor, would be restorable and temporary, and occur during construction.

Perennial waters are less commonly encountered in the project area and include the Guadalupe River (intake), San Marcos River, Artesia Creek, Mule Creek and Plum Creek. Avoidance and minimization measures, such as horizontal directional drilling, construction best management practices (BMPs), and avoiding perennial and /or sensitive aquatic habitats (e.g., the San Marcos River, Plum Creek, etc.) would reduce the potential impacts from pipelines.

The TCEQ 2010 Texas Integrated Report for Clean Water Act Sections 305(b) and 303(d) lists Sandy Fork as a Category 5b water body. This listing indicates Sandy Fork is impaired because it “does not meet applicable water quality standards or is threatened for one” and “a review of the water quality standards for this water body will be conducted before a Total Maximum Daily Load (TMDL) is scheduled.” Bacteria levels are the parameter on which TCEQ bases this designation. The designation applies to TCEQ Segment ID 1803G_01, which occurs from the confluence with Peach Creek up to the confluence with Scruggs Creek (NHD Reach Code 12100202021868). The raw water transmission line from the well field to the TWA WTP site and the finished water transmission pipeline both cross this designated segment, but the potential negative impact is anticipated to be negligible. Impacts from construction of these project components would be temporary and available avoidance and minimization practices could further reduce potential impacts. The TWA WTP site has limited potential water body impact with one small, potentially jurisdictional ephemeral stream located on the site.

The surface water intake is located along the Guadalupe River within a flood hazard area, and would require the placing of structures and fill material into the river. Impacts resulting from this action would include possible localized impacts to the riparian buffer, bank condition, and possibly instream habitat depending on the final intake design. However the intake is not expected to have an adverse effect on the river’s overall chemical, physical, or biological functions, such as water/sediment transport, access to floodplains, water supply, habitat, and recreation. The WTP site and wells are not located within flood hazard areas.

Coordination with the U.S. Army Corps of Engineers would be required for construction within waters of the U.S. Impacts from this proposed project resulting in a loss of less than 0.5 acres of waters of the U.S. could be covered under Nationwide Permit #12 for Utility Line Activities unless there are significant impacts to the aquatic environment by other project components.

The Texas Parks & Wildlife Department (TPWD) has identified a number of stream segments throughout the state as ecologically significant on the basis of biological function, hydrologic function, riparian conservation, exceptional aquatic life uses, and/or threatened or endangered species. Currently, 21 stream segments in Region L are considered ecologically significant by the TPWD[3]. Pipelines associated with this water management strategy do not cross any of these stream segments. The section of the Guadalupe River from U.S. 183 (near the Gonzales diversion point) upstream to Lake Gonzales Dam, however, is listed as ecologically significant as it contains two of four known remaining populations of the golden orb, a rare, endemic mollusk.

Cultural resources protection on public lands in Texas is afforded by the Antiquities Code of Texas (Title 9, Chapter 191, Texas Natural Resource Code of 1977), the National Historic Preservation Act (Pl96-515), and the Archeological and Historic Preservation Act (PL93-291). Based on the review of available GIS datasets, there are ten cemeteries, five national register properties, two national district properties, and 42 historical markers located within a 0.5-mile buffer of the proposed pipeline route. Additionally, there are seven cemeteries and four historical markers within the potential well field area.

Based on a review of soils, geology, and aerial photographs, there is a high probability for undocumented significant cultural resources within the alluvial deposits and terrace formations associated with waterways, specifically the intermittent and perennial aquatic resources. The intake has a high potential impact for cultural resources, primarily due to its location in an area with known cultural resources within one-half mile. The well field collection and transmission pipelines potentially are considered to have low negative impact to cultural resources. For the most part, the pipelines would cross areas of low probability for cultural resources, but those probabilities increase near waterways and associated landforms. However, Thompsonville cemetery is located in the well field near proposed collection piping. The WTP site and wells potentially have negligible negative impacts. No known cultural resource sites occur within these areas, but these components are sited in low probability areas.

A review of archaeological resources in the proposed project area should be conducted during the project planning phase. Taking into consideration that the owner or controller of the project will likely be a political subdivision of the State of Texas (i.e. river authority, municipality, county, etc.), they will be required to coordinate with the Texas Historical Commission regarding impacts to cultural resources. The project sponsor will also be required to coordinate with the U.S. Army Corps of Engineers regarding any impacts to waters of the United States or wetlands.

The species listed by USFWS, and TPWD, as endangered or threatened with potential habitat in Gonzales, Caldwell, and Guadalupe counties are listed in Table 5.2.32-1. The Texas Natural Diversity Database, maintained by TPWD, which documents the occurrence of rare species within the state was included in this analysis. Available data did not reveal the occurrence of any listed species within the project area, but the absence of data does not imply the absence of occurrence. Depending on the final design of the intake and resulting impacts to instream habitat, this portion of the project includes potential impacts to federal-candidate/state-listed mollusks and the Cagle's map

[3] TPWD, "Ecologically Significant River and Stream Segments," http://www.tpwd.state.tx.us/landwater/water/environconcerns/water_quality/sigsegs/index.phtml accessed February 6, 2014.

turtle based on known occurrences of these species near the intake site. The well field, pipelines, and WTP site include limited potential impacts to listed species.

Table 5.2.32-1 Endangered, Threatened, and Species of Concern for Caldwell, Gonzales, and Guadalupe Counties

Common Name	Scientific Name	Impact Value	Multiplier Based on Status	Adjusted Impact	Summary of Habitat Preference	USFWS Listing	TPWD Listing	Potential Occurrence in County
BIRDS								
American peregrine falcon	*Falco peregrinus anatum*	0	2	0	Migrant and local breeder in West Texas.	DL	T	Possible Migrant
Artic peregrine falcon	*Falco peregrinus tundrius*	0	1	0	Migrant throughout the state.	DL		Possible Migrant
Bald eagle	*Haliaeetus leucocephalus*	0	2	0	Found primarily near rivers and large lakes.	DL	T	Possible Migrant
Henslow's sparrow	*Ammodramus henslowii*	1	1	1	Found in weedy fields or cut-over areas			Resident
Interior least tern	*Sterna antillarum athalassos*	0	3	0	Nests along sand and gravel bars in braided streams	LE	E	Resident
Mountain plover	*Charadrius montanus*	1	1	1	Non-breeding, shortgrass plains and fields			Nesting/ Migrant
Sprague's pipit	*Anthus spragueii*	0	1	0	Migrant in Texas in winter mid Sept. to early April. Strongly tied to native upland prairie.			Possible Migrant
Western burrowing owl	*Athene cunicularia hypugaea*	1	1	1	Open grasslands, especially prairie, plains and savanna			Resident
Whooping crane	*Grus americana*	0	3	0	Potential migrant	LE	E	Potential Migrant
Wood stork	*Mycteria americana*	1	2	2	Forages in prairie ponds, ditches, and shallow standing water formerly nested in TX		T	Migrant
FISHES								
Blue sucker	*Cycleptus elongatus*	1	2	2	Major rivers in Texas.		T	Resident
Guadalupe bass	*Micropterus treculi*	1	1	1	Endemic to perennial streams of the Edwards Plateau region.			Resident
Guadalupe darter	*Percina sciera apristis*	1	1	1	Guadalupe River Basin. Usually found over gravel or gravel and sand raceways of larger streams and rivers.			Resident

Common Name	Scientific Name	Impact Value	Multiplier Based on Status	Adjusted Impact	Summary of Habitat Preference	USFWS Listing	TPWD Listing	Potential Occurrence in County
INSECTS								
A mayfly	*Campsurus decolaratus*	0	1	0	In Texas and Mexico, possibly clay substrates, found in shoreline vegetation.			Potential Resident
MAMMALS								
Cave myotis bat	*Myotis velifer*	0	1	0	Roosts colonially in caves, rock crevices			Resident
Plains spotted skunk	*Spilogale putorius interrupta*	1	1	1	Prefers wooded, brushy areas.			Resident
Red wolf	*Canis rufus*	0	3	0	Extirpated.	LE	E	Historic Resident
MOLLUSKS								
Creeper (squawfoot)	*Strophitus undulates*	1	1	1	Small to large streams. Colorado, Guadalupe, and San Antonio River basins.			Resident
False spike mussel	*Quincuncina mitchelli*	1	2	2	Substrates of cobble and mud. Rio Grande, Brazos, Colorado and Guadalupe river basins.		T	Resident
Golden orb	*Quadrula aurea*	1	2	2	Sand and gravel, Guadalupe, San Antonio, Lower San Marcos, and Nueces River basins	C	T	Resident
Palmetto pill snail	*Euchemostrema leai cheatumi*	0	1	0	Known only from Palmetto State Park.			Resident
Texas fatmucket	*Lampsilis bracteata*	1	2	2	Streams and rivers on sand, mud and gravel, Colorado and Guadalupe River basins.	C	T	Resident
Texas pimpleback	*Quadrula petrina*	1	2	2	Mud, gravel and sand substrates, Colorado and Guadalupe river basins		T	Resident
PLANTS								
Big red sage	*Salvia pentstemonoides*	0	1	0	Texas endemic, found in moist to seasonally wet steep limestone outcrops on canyons or along creek banks.			Resident

Common Name	Scientific Name	Impact Value	Multiplier Based on Status	Adjusted Impact	Summary of Habitat Preference	USFWS Listing	TPWD Listing	Potential Occurrence in County
Bristle nailwort	*Paronychia setacea*	1	1	1	Endemic to south central Texas in sandy soils.			Resident
Buckley's spiderwort	*Tradescantia buckleyi*	1	1	1	Endemic in grassland openings in oak woodlands.			Resident
Green beebalm	*Monarda viridissima*	1	1	1	Endemic perennial herb. Found in well-drained sandy soils in opening of post oak woodlands.			Resident
Elmendorf's onion	*Allium elmendorfii*	1	1	1	Endemic, in deep sands			Resident
Parks' jointweed	*Polygonella parksii*	0	1	0	Texas endemic, primarily found on deep, loose, sand blowouts in Post Oak Savannas.			Resident
Shinner's sunflower	*Helianthus occidentalis ssp.*	1	1	1	Found on prairies on the Coastal Plain.			Resident
Sandhill woolywhite	*Hymenopappus carrizoanus*	1	1	1	Found south of the Guadalupe River. Prefers dense riparian corridors.			Resident
REPTILES								
Cagle's map turtle	*Graptemys caglei*	1	2	2	Endemic to Guadalupe River System. Found near waters' edge.		T	Resident
Spot-tailed earless lizard	*Holbrookia lacerata*	1	1	1	Moderately open prairie-brushland.			Resident
Texas Garter Snake	*Thamnophis sirtalis annectens*	1	1	1	Wet or moist microhabitats			Resident
Texas Horned Lizard	*Phrynosoma cornutum*	1	2	2	Varied, sparsely vegetated uplands.		T	Resident
Texas Tortoise	*Gopherus berlandieri*	1	2	2	Open brush w/ grass understory.		T	Resident
Timber/ canebrake rattlesnake	*Crotalus horridus*	1	2	2	Floodplains, upland pine, deciduous woodlands, riparian zones.		T	Resident

TPWD, 2014. Annotated County List of Rare Species – Gonzales, Guadalupe and Caldwell County revised 8/7/2012.

USFWS, 2013. Endangered Species List for Texas. http://www.fws.gov/southwest/es/ES_ListSpecies.cfm accessed online February 6, 2013.

The project area may provide potential habitat to endangered or threatened species found in Gonzales, Caldwell, or Guadalupe counties. A survey of the project area may

be required prior to pipeline and well field construction to determine whether populations of or potential habitats used by listed species occur in the area to be affected. Coordination with TPWD and USFWS regarding threatened and endangered species with the potential to occur in the project area should be initiated early in project planning.

Based on existing habitat types, the following species have potential to occur near project components. The aquatic species are only of concern at river intake or locations where pipelines cross perennial waters.

A. Federal-Listed Endangered Species

Whooping Crane (Grus americana) — The Whooping Crane is a federally listed species which would occur in Texas only during migration. Whooping cranes use a variety of habitats during migration, including croplands for feeding and large, marshy palustrine wetlands for roosting. Although large wetlands do not exist within the project area, the Whooping Crane could potentially occur in any surrounding cropland habitat during migration.

B. Federal-Listed Candidate Species

Golden Orb (Quadrula aurea) — The Golden orb is a federal candidate for listing and is state threatened. This freshwater mollusk exists in sand, gravel or mud substrates within lake or river systems. The TPWD designates a segment of the Guadalupe River near the intake as an Ecologically Significant Stream Segment based on the occurrence of the golden orb. This species was collected during a fall 2011 survey near Gonzales and could potentially occur in perennial streams, like the Guadalupe River, and near the proposed surface water intake.

Texas fatmucket (Lampsilis bracteata) — The Texas fatmucket is a federal candidate for listing in the state and is state threatened. This freshwater mollusk exists in more shallow rivers or streams with substrates of sand, mud and gravel. This species could potentially occur in perennial streams, like the Guadalupe River, and near the proposed surface water intake.

Texas pimpleback (Quadrula petrina) — The Texas pimpleback is a federal candidate for listing in the state, but not in Gonzales and Caldwell counties, and is state threatened. This freshwater mollusk exists in small to moderate streams and rivers of slow flow rates, as well as moderate size reservoirs with substrates of mixed mud, sand and fine gravel. This species was collected during a fall 2011 survey near Gonzales, Texas and could potentially occur in perennial streams, like the Guadalupe River, and near the proposed surface water intake.

C. State-Listed Species

Bald Eagle (Haliaeetus leucocephalus) — The Bald Eagle is a state-listed threatened species that could occur as a migrant near major aquatic resources. Although they breed primarily in the eastern half of the state, they could potentially occur along rivers or large lakes in this region of Texas during the winter and during migration. This species could potentially occur near perennial waterways.

Interior Least Tern (Sterna antillarum athalassos) — The Interior Least Tern is listed as endangered by the USFWS. They prefer to nest on sandbars, islands, salt flats, and bare or sparsely vegetated sand, shell, and gravel beaches that are associated with braided

streams, rivers and reservoirs. They could potentially occur within these habitats along the San Marcos River, Plum Creek, Salt Branch, or dry, exposed impoundments.

Peregrine Falcon (Falco peregrinus), including the American peregrine falcon (F. p. anatum) subspecies, is a state threatened bird that could be a possible migrant. They utilize a wide range of habitats during migration, including urban areas and landscape edges such as lakes or large river shores.

Blue sucker (Cycleptus elongatus) is a state threatened fish and exists in large portions of major rivers in Texas. Their preferred habitat includes channels and flowing pools with a moderate current and a bottom of exposed bedrock with hard clay, sand and gravel components.

False spike mussel (Quadrula mitchelli) is state threatened freshwater mollusk. The TPWD county list states the species as possibly extirpated in Texas. This species was collected during a fall 2011 survey near Gonzales, Texas and could potentially occur in perennial streams, like the Guadalupe River, and near the proposed surface water intake.

Cagle's map turtle (Graptemys caglei) is a state threatened reptile and occupies riverine habitat in the Guadalupe-San Antonio river systems. They prefer shallow water with swift to moderate flow and a substrate of gravel or cobble or deeper pools with a slower flow rate and a substrate of silt or mud. This turtle will nest on gently sloping sand banks along rivers. The NDD depicts an approximately 5 mile stretch of recorded Cagle's map turtle observations downstream of the Gonzales Dam, near the intake. This species could potentially occur in perennial waterways.

Texas horned lizard (Phrynosoma cornutum) is a state threatened reptile and is present throughout much of the state. They exist in open, arid, and semi-arid regions with sparse vegetation, which includes grass, cactus, scattered brush or scrubby trees. This species could potentially occur in areas with this type of contiguous vegetation.

Texas tortoise (Gopherus berlandieri) is a state threatened reptile that is active in the warmer months of March through November. They occur in open brush with a grass understory and will avoid areas of open grass or bare ground. This species could potentially occur in areas with this type of contiguous vegetation.

Timber/Canebrake rattlesnake (Crotalus horridus) is a state threatened reptile that occurs in swamps, floodplains, upland pine and deciduous woodlands, riparian zones, and abandoned farmland. They could also be present in limestone bluffs, sandy soil or black clay. This species could potentially occur in areas of abandoned farmland or forested riparian areas.

D. Unique or Rare Species

American eel (Anguilla rostrata) is not a listed species, but is part of a unique community designation within the San Marcos River. The NDD has no recorded occurrences of this species in the location of the proposed assessment area, but the species could potentially occur in perennial streams.

Guadalupe bass (Micropterus treculii) is an endemic game fish to Texas, found in the northern and eastern Edwards Plateau including headwaters of the San Antonio River, the Guadalupe River above Gonzales, the Colorado River north of Austin, and portions

of the Brazos River drainage. Relatively small populations occur outside of the Edwards Plateau, primarily in the lower Colorado River. Although not a listed species, it is the official state fish and considered rare by TPWD. This species could potentially occur in perennial waters.

The primary impacts that would result from construction of the proposed project would include the conversion of existing habitats and land uses within the pipeline right-of-way, WTP site, and well sites to maintained areas. These impacts are anticipated to be minor. The surface water intake would require the placing of structures and fill material into the river which may result in possible localized impacts to the riparian buffer, bank condition, and possibly instream habitat depending on the final intake design.

5.2.32.4 Engineering and Costing

Costs are based on the GBRA's MBWSP Engineering Feasibility Study (Option 3A) and indexed to September 2013 prices and other TWDB costing assumptions. The project is sized for 42,000 acft/yr annual delivery with a 2.0 peaking factor. Total project and annual costs for this option at the stated project yield are included in Table 5.2.32-2.These costs are for all facilities including raw water intake and pump station, raw water delivery pipelines, well field facilities, treatment plant, and potable water facilities up to the customer delivery points (i.e. everything shown in Figure 5.2.32-1). Costs for engineering, legal, and contingencies are estimated as 30 percent of capital costs for the pipeline and 35 percent of capital costs for other facilities (e.g., pump stations). Interest during construction was calculated based on a 3 percent differential between loan payments and earnings with a 2.5 year construction period. The capital costs for all facilities are $462,962,000 (Table 5.2.32-2).

Adding in non-capital costs: engineering/legal /contingencies, environmental, land acquisition and surveying, interest during construction, and groundwater lease payments; the total project costs for all facilities required to provide a firm annual supply of 42,000 acft/yr are $700,897,000. Annual costs which include debt service (5.5%, 20 years), operation and maintenance, and energy costs are $77,054,000, resulting in annual unit costs of $1,835/acft.

In terms of environmental impacts, the amount and type of impact drives potential surveying, permitting, and mitigation costs. Implementing measures to avoid and limit impacts (e.g., horizontal directional drilling) to sensitive environmental features and aquatic resources may lessen potential costs. Potential environmental and archaeological costs (surveying, permitting, and mitigation) are estimated at $1,064,000.

Table 5.2.32-2 Summary Cost Estimate for GBRA MBWSP- Conjunctive Use with ASR

Item	*Estimated Costs for Facilities*
Intake Pump Stations	$16,348,000
Transmission Pipeline	$115,443,000
Transmission Pump Station(s) & Storage Tank(s)	$23,277,000
Well Fields (Wells, Pumps, and Piping)	$87,097,000
Storage Tanks (Other Than at Booster Pump Stations)	$3,675,000
Water Treatment Plant	$212,959,000
Access Roads	$4,163,000
TOTAL COST OF FACILITIES	**$462,962,000**
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	$156,684,000
Environmental & Archaeology Studies and Mitigation	$1,064,000
Land Acquisition and Surveying	$9,073,000
Interest During Construction (4% for 2.5 years with a 1% ROI)	$55,070,000
Advanced Payments for Groundwater Leases	$16,044,000
TOTAL COST OF PROJECT	**$700,897,000**
ANNUAL COST	
Debt Service (5.5 percent, 20 years)	$58,615,000
Operation and Maintenance	
Intake, Pipeline, Pump Station & Groundwater	$4,841,000
Water Treatment Plant (2.5% of Cost of Facilities)	$9,418,000
Pumping Energy Costs (46,441,667 kW-hr @ 0.09 $/kW-hr)	$4,180,000
TOTAL ANNUAL COST	**$77,054,000**
Available Project Yield (acft/yr), based on a Peaking Factor of 2	42,000
Annual Cost of Water ($ per acft)	$1,835
Annual Cost of Water ($ per 1,000 gallons)	$5.63

Note: Unit costs for Option 3A in GBRAs MBWSP Engineering Feasibility Study were estimated at $1635/acft using March 2012 prices, debt service at 5% for 30 years, and $0.12/kwhr.

5.2.32.5 Implementation Issues

For each aquifer in the region, the GCDs have adopted desired future conditions (DFCs). In some GCDs, full use of all groundwater supplies (permitted, grandfathered and exempt) may result in non-achievement of the DFCs for an aquifer. To ensure consistency with the DFCs, TWDB currently requires that groundwater availability for each aquifer be limited for planning purposes to the modeled available groundwater (MAG) for the aquifer. This has resulted, for planning purposes only, in adjustments to permit amounts, and a lack of firm water available for future permits in this plan for some areas for certain time periods. This should not be construed as recommending or requiring that GCDs make these adjustments, or deny future permit applications. SCTRWPG recognizes and supports the ability of permit holders to exercise their rights to groundwater use in accordance with their permits and it recognizes and supports the GCDs discretion to issue permits and grandfather historical users for amounts in excess of the MAG. SCTRWPG may not modify groundwater permits that GCDs have already issued or limit future permits that GCDs may issue. If the MAG is increased during or after this planning cycle, SCTRWPG may amend this Plan to adjust groundwater supply numbers that are affected by the new MAG amount.

Significant implementation issues for the project include TCEQ approval of GBRA's surface water diversion permit application and modifications of or variances to rules from the Gonzales County Underground Water Conservation District (GCUWCD) including:

a. Allowing the maximum production of a well to exceed the average annual production by a factor of 2.0 instead of 1.5; and

b. Modify contiguous acreage requirements to be based on long-term average annual well field production instead of the maximum annual permitted capacity; and

c. Granting recharge credit for injected water through ASR operations; these credits would be used to increase the allowable groundwater production from given leases.

Other implementation issues include:

a. Whether an agreement can be reached with TWA to acquire their groundwater leases;

b. Renewal of GCUWCD 5-year production permits and 30-year export permits for project life;

c. Additional groundwater development in the region will not have a substantial effect on groundwater levels in the well field areas;

d. A test drilling program is recommended during a Pre-Design Phase to confirm aquifer properties and support designs of the wells;

In addition it will be necessary to obtain the following permits and agreements:

e. USACE Sections 10 and 404 Dredge and Fill Permits for the reservoir and pipelines;

f. GLO Sand and Gravel Removal permits;

g. GLO Easement for use of state-owned land;

h. TPWD Sand, Gravel, and Marl permit; and

i. Private land for construction of facilities to be acquired through either negotiations or condemnation.

Permitting may require development of habitat mitigation plan, environmental studies, and/or cultural resources studies and mitigation.

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Texas Water Development Board

Amending an Approved Regional Water Plan

Background

Every five years, the 16 regional water planning groups must develop and adopt regional water plans, which are then submitted to the Texas Water Development Board (TWDB) for approval. The TWDB then compiles the regional water plans into a state water plan. During the five-year span between the regular regional water plan adoptions, the plans may need to be amended to identify long-term water supplies.

How is an amendment to a regional water plan initiated?

A regional water planning group may initiate an amendment on its own. A political subdivision of the state of Texas in the regional water planning area may also request an amendment from the regional water planning group on the basis of changed conditions or new information[1].

A regional water planning group uses the following process to review amendment requests:

- The planning group must formally consider the request within 180 days of its submittal.
- The planning group may, at its discretion, accept or reject the proposed amendment.
- The political subdivision may petition the TWDB executive administrator for agency review if the political subdivision is not satisfied with the planning group's decision[2].
- The executive administrator may ask the regional water planning group to make a revision.
- If the revision is not made within 90 days, the matter is presented to the TWDB, which can order a revision to the regional water plan and state water plan on the basis of changed conditions or new information.

What are the ways that a regional water plan may be modified?

Revisions to Population or Water Demand Projections may be requested from the TWDB whenever current projections are no longer reasonable owing to changed conditions or the availability of new information[3].

The process requires the following:

- A regional water planning group must submit a revision request, usually based on a request from a political subdivision, to the TWDB.
- The regional water planning group must provide at least 14 days notice for a meeting and make the proposed population and/or water demand projection revisions available for public inspection prior to the meeting.
- The regional water planning group must accept oral and written public comments at the meeting in which the request is considered and written comments for 14 days prior to and following the meeting.
- The regional water planning group submits the revision request to the TWDB, including a summary of all comments the planning group received at the meeting and during the 14-day comment period.
- The TWDB consults with other state agencies, and within 45 days of receipt of a revision request from a regional water planning group, the executive administrator responds to the request.
- All requested revisions will be presented for consideration of approval at an upcoming TWDB Board

[1] 31 TAC §357.51 (a). Any amendment proposed must meet rules and guidelines for development of a regional water plan.

[2] The petition must be provided to the regional water planning group and must include the changed condition or new information that affects the approved regional water plan; the specific sections and provisions of the approved regional water plan that are affected by the changed condition or new information; the efforts made with the regional water planning group to obtain an amendment; and the proposed amendment to the approved regional water plan (31 TAC §357.51 (a)).

[3] 31 TAC §357.31.

meeting. Based on consultations with the Texas Department of Agriculture, Texas Commission on Environmental Quality, and Texas Parks and Wildlife Department, the TWDB staff will make a consensus recommendation to the Board.

Substitutions of water management strategies that have already been fully evaluated and are explicitly identified as "alternative" water management strategies in adopted regional water plans may be made if[4]

- the water management strategy originally recommended is no longer recommended, and
- the proposed substitution of the alternative water management strategy is capable of meeting the same water need without over-allocating any source.

The process requires the following:

- An entity requests the regional water planning group to make a substitution.
- The regional water planning group considers the substitution request as an action item on an agenda at one of its public meetings[5].
- Substitution materials are submitted to the TWDB executive administrator for consideration[6].
- The executive administrator approves the substitution if it is in accordance with 31 Texas Administrative Code (TAC) § 357.51 (e).
- The regional water planning group adopts the substitution at its public meeting and submits evidence of adoption to the TWDB[7].

Minor amendments can be made to incorporate changes that do not

- result in over-allocation of an existing or planned source of water,
- relate to a new reservoir,
- increase unmet needs or produce new unmet needs in the adopted regional water plan,
- have a significant effect on instream flows, environmental flows, or freshwater flows to bays and estuaries,
- have a significant substantive impact on water planning or previously adopted management strategies, or
- delete or change any legal requirements of a plan[8].

The process requires the following:

- An entity requests the regional water planning group to amend a regional water plan.
- The regional water planning group considers the request and takes action to pursue the amendment at one of its regular public meetings.
- Amendment materials are prepared in accordance with TWDB rules and guidance, and a request for a "minor amendment determination" is submitted to the TWDB's executive administrator.
- The executive administrator reviews the request and issues a determination to the planning group.
- If the executive administrator determines that it is a "minor amendment," the regional water planning group considers adopting the amendment at a regular public meeting with an opportunity for public input. This meeting requires at least a 14-day notice[9]. The regional water planning group considers public comments and may adopt the amendment at the meeting[10]. Comments must also be accepted for 14 days after the meeting.
- The regional water planning group submits the adopted minor amendment materials, including a summary of public comments, to the TWDB for approval.
- The TWDB reviews the adopted minor amendment and, if acceptable, approves it at its next regular

[4] Per 31 TAC §357.51 (e).
[5] Posted under the Texas Open Meetings Act; see also 31 TAC §357.21 (c).
[6] 31 TAC §357.51 (e).
[7] Posted under the Texas Open Meetings Act.
[8] 31 TAC §357.51 (c).
[9] 31 TAC §357.51 (c) and posted under the Texas Open Meetings Act.
[10] Amendment adoption must include response to public comment and must otherwise comply with TWDB technical guidelines.

Board meeting.
- The TWDB then amends the state water plan, which requires a 30-day public notice for the hearing on the proposed state water plan amendment prior to its adoption.

Major amendments can be made to incorporate changes that cannot be addressed through a minor amendment. Major amendments shall not result in an over-allocation of an existing or planning source of water, and shall conform with all other rules for regional water plan development[11].

The process requires the following:
- An entity requests the regional water planning group to make an amendment.
- The regional water planning group considers the request and takes action to pursue the amendment at one of its regular public meetings.
- Amendment materials are prepared in accordance with TWDB rules and guidance for consideration at a public hearing.
- The regional water planning group holds a public hearing on the proposed amendment[12]. This process requires 30 days between the mailed and published notice of the hearing and the hearing date and a 30-day comment period following the hearing.
- The regional water planning group considers all public comments received and may adopt the regional water plan amendment at a regular planning group meeting[13] after the 30-day comment period[14].
- The regional water planning group submits the adopted amendment materials, including a summary of public comments, to the TWDB for approval[15].
- The TWDB reviews the adopted amendment and considers approving the adopted regional water plan amendment.
- The TWDB then amends the state water plan, which requires a 30-day public notice for the hearing on the proposed state water plan amendment prior to its adoption.

Who pays for an amendment?

The regional water planning group may ask the political subdivision requesting the amendment to pay for study costs related to the request. Limited TWDB funds may be available to pay for plan amendments. Unsolicited proposals requesting TWDB funding for an amendment may be submitted at any time using the standard grant application instruction sheet. Proposals must include a scope of work, task items, and expense budgets for the work to be performed. Allocation of funds requires Board approval and is variable depending on the extent of the scope of work presented with the request and the availability of funds.

Why might a regional water plan need to be amended?

If a project sponsor seeks (a) funding from the TWDB for a water supply project or (b) a water rights permit from the Texas Commission on Environmental Quality, the proposed project must be found to be consistent with the approved regional water plan and state water plan.

If the proposed project is not already consistent with the approved regional and state water plan and the sponsor cannot wait to incorporate the proposed project into the next adopted regional water plan, the existing regional water plan must be amended, or a waiver of statutory requirements regarding consistency with such plans must be obtained from the TWDB and/or Texas Commission on Environmental Quality[16].

Additionally, in order for projects to be eligible for funding from the State Water Implementation Fund for Texas,

[11] 31 TAC §357.51 (b).
[12] 31 TAC §357.21 (d).
[13] Posted under the Texas Open Meetings Act; see also 31 TAC §357.21 (d).
[14] Amendment adoption must include response to public comment and must otherwise comply with TWDB technical guidelines.
[15] Amendments to an approved regional water plan shall include a technical report and data in accordance with TWDB specifications, executive summary, and summaries of all written and oral comments received with a response. Data must be transferred to the TWDB (31 TAC §357.50 (g)).
[16] 31 TAC §357.60 (b)(5).

projects must be recommended in the most recent regional and state water plans.

Statutes and Rules

Texas Water Code, Chapter 16, Subchapter C:
http://www.statutes.legis.state.tx.us/Docs/WA/htm/WA.16.htm

31 TAC Chapter 357:
http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=31&pt=10&ch=357&rl=Y

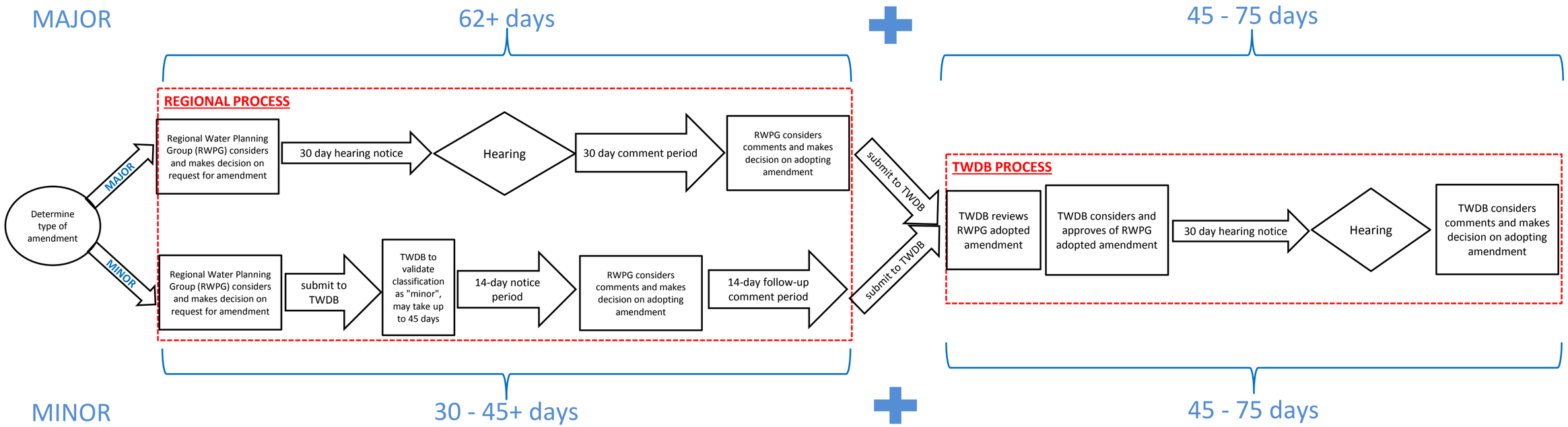
For more information on regional water planning and related guidance, please visit the following Web site:
http://www.twdb.texas.gov/waterplanning/rwp/index.asp

Note:

This guidance document does not cover all procedural and substantive requirements applicable to water plan amendments. For this reason, this document should not be used as a substitute for the regulations as written. In case of doubt, consult the Texas Water Code, Chapter 16, Subchapter C, and 31 TAC Chapter 357. Regional water planning groups or political subdivisions with legal questions regarding changes to the regional water plans should consult with their own attorneys or the Texas Attorney General's Office.

Updated 12/16

Texas Water Development Board
State Water Plan Amendment Process Timeline



Please note: the <u>Regional</u> Process timeline outlined above is exclusive of any additional days needed to accommodate scheduling for public meetings, posting of public notice, or other variables. Also, the timeline does not reflect the additional days needed by the Regional Water Planning Group (RWPG) to prioritize the amended regional plan.

updated 11/30/16

10. 2021 Plan Enhancement Process: Recap of Guiding Principles Previously Discussed and Adopted

2021 Plan Enhancement Process Schedule

May 2016	The appropriateness and adequacy of how demand and need are determined.	**Discussed**: May 5, 2016 **Adopted**: August 4, 2016	**Guiding Principle Adopted**
	The role of regional water planning groups in influencing population growth and land use.	**Discussed**: May 5, 2016 **Adopted**: August 4, 2016	**Guiding Principle Adopted**
	Defining conflicts of interests of planning group members	**Discussed**: May 5, 2016 **Adopted**: August 4, 2016	**Guiding Principle Adopted**
August 2016	The role of regional water planning groups in influencing water development plans of water suppliers.	**Discussed**: August 4, 2016 **Adopted**: Nov. 3, 2016	**Guiding Principle Adopted**
	The role of regional water planning groups in influencing permitting entities.	**Discussed**: August 4, 2016 **Adopted**: Nov. 3, 2016	**Guiding Principle Adopted**
November 2016	The adequacy of evaluating the Plan's effects on freshwater inflows to San Antonio Bay.	**Discussed**: Nov. 3, 2016 **Adopted**:	**Assigned to Environmental Assessment Workgroup**
	The adequacy of environmental assessments of individual WMS's.	**Discussed**: Nov. 3, 2016 **Adopted**:	**Assigned to Environmental Assessment Workgroup**
February 2017	How Water Management Strategies are categorized; e.g. Recommended, Alternate, Needing Further Study.	**Discussed**: Feb 2, 2017 **Adopted**:	**Assigned to Minimum Standards Workgroup**
	Establishing Minimum standards for Water Management Strategies included in the Plan	**Discussed**: Feb 2, 2017 **Adopted**:	**Assigned to Minimum Standards Workgroup**
	Maintaining management supply while avoiding "over planning".	**Discussed**: Feb 2, 2017 **Adopted**:	**Assigned to Minimum Standards Workgroup**
May 2017	Identifying special studies or evaluations deemed important to enhance the 2021 Plan and identification of outside funding sources.	**Discussed**: **Adopted**:	
	Address the role of reuse within the regional water plan.	**Discussed**: **Adopted**:	
	The extent to which innovative strategies should be used.	**Discussed:** **Adopted:**	

South Central Texas Regional Water Planning Group

2021 Regional Water Plan Enhancement Process Guiding Principles

Appropriateness and Adequacy of How Demand and Need are Determined

Guiding Principle:
Discussed at SCTRWPG meeting on May 5, 2016, Adopted on August 4, 2016
The South Central Texas Regional Water Planning Group (SCTRWPG) generally defers to the Texas Water Development Board (TWDB) on matters related to population and water demand projections. However, the SCTRWPG retains the duty to review TWDB projections on a case by case basis. Where the SCTRWPG finds a discrepancy in TWDB's projections, and can adequately justify its findings by verifying one or more of the "criteria for adjustment," TWDB – in consultation with Texas Department of Agriculture, Texas Commission on Environmental Quality, and Texas Parks and Wildlife Department – may adjust population and/or water demand projections accordingly (see generally *General Guidelines for Fifth Cycle of Regional Water Plan Development*, Article 2. *Population and Water Demand Projections*). Consistent with Chapter 8 of the 2016 Regional Water Plan for Region L, the SCTRWPG supports greater TWDB flexibility through relaxation of current methodological assumptions holding regional and state population projection totals fixed (see Chapter 8.9.3 *Population and Water Demand Projections).* Water demand projections used in developing the Regional Water Plan should be consensus figures arrived at by using TWDB data along with local input from the cities, counties, and groundwater districts.

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

Guiding Principle:
Discussed at SCTRWPG meeting on May 5, 2016, Adopted August 4, 2016
Where the concepts of population growth and land use necessarily interrelate with the Regional Water Plan, the SCTRWPG shall, to the greatest extent possible, develop strategies to meet future projected demands. However, it is neither the role, nor the responsibility of the SCTRWPG to influence population growth or land use. While the SCTRWPG has a duty to remain cognizant of the sensitive relationship between the Regional Water Plan, population growth and land use, decisions concerning permitting and influencing population growth are inherently local, and remain wholly independent from the regional water planning process.

Conflicts of Interests With Respect to Planning Group Members

Guiding Principle:
Discussed at SCTRWPG meeting on May 5, 2016, Adopted August 4, 2016

1. Active Planning Group Members

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

SCTRWPG Bylaw Excerpt

> Potential conflicts of interest shall be clearly stated by the voting member or designated alternate prior to any deliberation or action on an agenda item with which the joint member or designated alternate may be in conflict. Where the potential conflict is restricted to a divisible portion of an agenda item, the Chair may divide the agenda item into parts for deliberation and voting purpose. An abstention from participation in deliberations, decisions or voting and the reason therefore shall be noted in the minutes.

(see *SCTRWPG Bylaws*, Article V, Section 6, (b))

2. Nomination Process

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

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

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

Guiding Principle:
Discussed at SCTRWPG meeting on August 4, 2016, Adopted: November 3, 2016

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

The Role of the Planning Group in Influencing Permitting Entities

Guiding Principle:
Discussed at SCTRWPG meeting on August 4, 2016, Adopted: November 3, 2016

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

The adequacy of evaluating the Plan's effects on freshwater inflows to San Antonio Bay.
And
The adequacy of environmental assessments of individual WMS's.

Guiding Principle:
Discussed at SCTRWPG meeting on November 3, 2016, Adopted: February 2, 2017

The SCTRWPG's evaluation of its plan's effects on the instream effects and freshwater inflows to the San Antonio Bay, and its environmental assessments of individual water management strategies are currently meeting the regulations and statutes for regional water planning. It is the SCTRWPG's intent to create a workgroup to evaluate the current methodologies and whether additional or alternative environmental assessment of instream effects and freshwater inflows into the San Antonio Bay, and of individual water management strategies, are necessary. If additional or alternative methodologies are recommended, the workgroup shall identify what costs would be associated with the additional evaluation and how these costs would be covered. The Workgroup will report back to the full SCTRWPG on any recommendations it may have.

11. Status of Environmental Assessment Workgroup’s Progress on the Following Components of the 2021 Plan Enhancement Process

    a. The Adequacy Of Evaluating the Plan's Effects on Freshwater Inflows to San Antonio Bay

    b. The Adequacy of Environmental Assessments Of Individual Water Management Strategies

Environmental Assessment Workgroup
Region L Planning Group Meeting Update

Steven Siebert
Chair/ Environmental Assessment Workgroup

May 4, 2017

Region L Planning Group Meeting

Environmental Assessment Workgroup

Workgroup Goal

- This Workgroup is tasked with evaluating current methodologies, and determining if additional or alternative environmental assessments of instream effects and freshwater inflows into the San Antonio Bay, and of individual water management strategies, are necessary. If such additional or alternative methodologies are recommended, this Workgroup will identify what costs would be associated with the additional/alternative evaluation and how these costs would be covered.

Environmental Assessment Workgroup

Evaluative Principles

- Structure
  - How is the environmental assessment data being presented in the Region L Plan
- Realism
  - The Plan should reflect realistic environmental impacts of the recommended water management strategies
- Realism and Structure reflect how a reworking of data presented would benefit the understanding of environmental assessments within the Region L Plan

- To Date, the Workgroup has reviewed restructure of environmental assessments for the 2021 Plan at no additional cost and possible recommendation for plan reorganization of environmental assessments for 2021 RWP

Environmental Assessment Workgroup

Next Steps

- Next Workgroup meeting
  - Wednesday May 24, 1:30 – 4:00pm
  - San Antonio River Authority

- Recommendation to Planning Group
  - August or November 2017 Planning Group meeting

Environmental Assessment Workgroup
Region L Planning Group Meeting Update

Steven Siebert
Chair/ Environmental Assessment Workgroup

May 4, 2017

Region L Planning Group Meeting

San Antonio Water System

12. Status of Minimum Standards Workgroup's on the Following Components of the 2021 Plan Enhancement Process

    a. How Water Management Strategies are categorized

    b. Establishing Minimum standards for Water Management Strategies included in the Plan

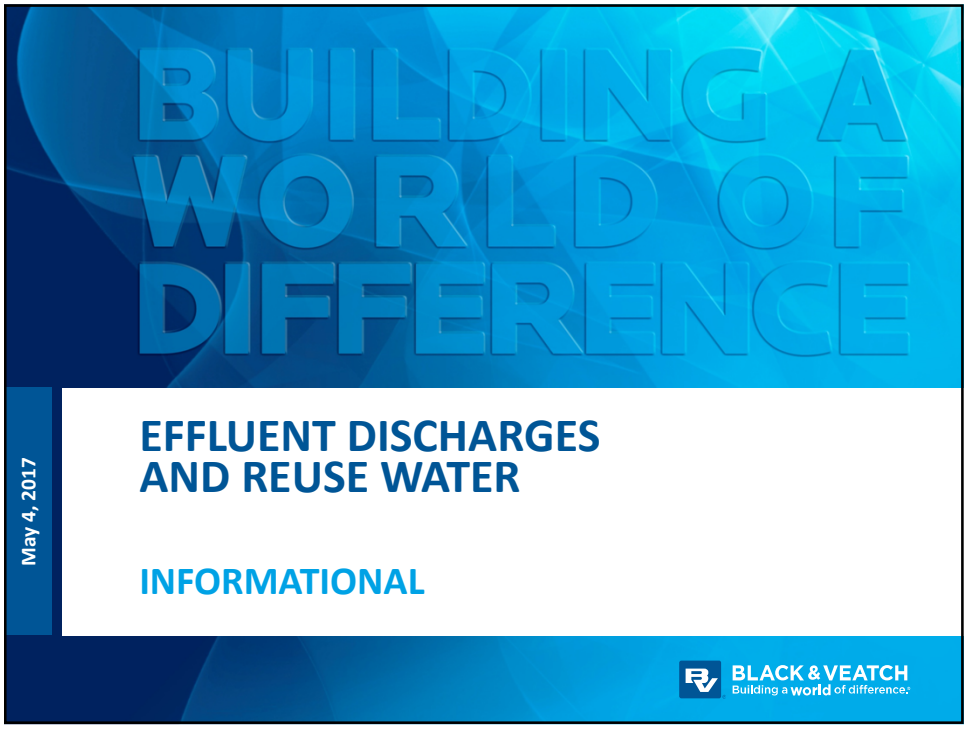
    c. Maintaining Management Supply While Avoiding Over-planning

13. Discussion and Appropriate Action Regarding the Following Components of the 2021 Plan Enhancement Process

    a. The Role of Reuse Within the Regional Water Plan

    b. Identifying Special Studies or Evaluations Deemed Important to Enhance The 2021 Plan and Identification of Outside Funding Sources

    c. The Extent to Which Innovative Strategies Should Be Used


BUILDING A WORLD OF DIFFERENCE
May 4, 2017
EFFLUENT DISCHARGES AND REUSE WATER
INFORMATIONAL
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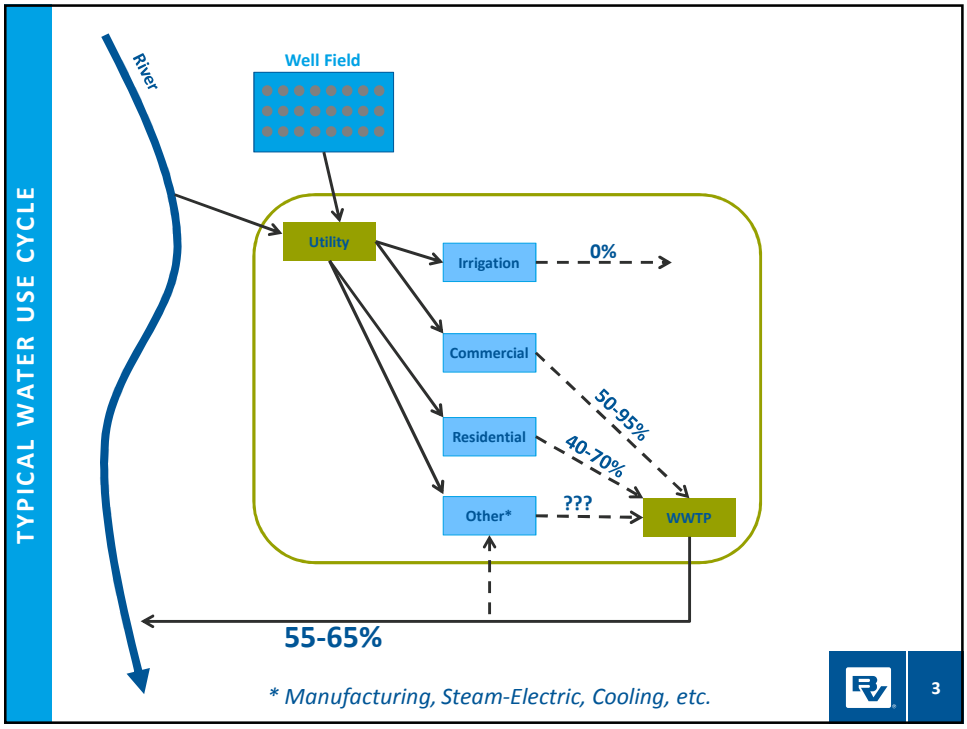
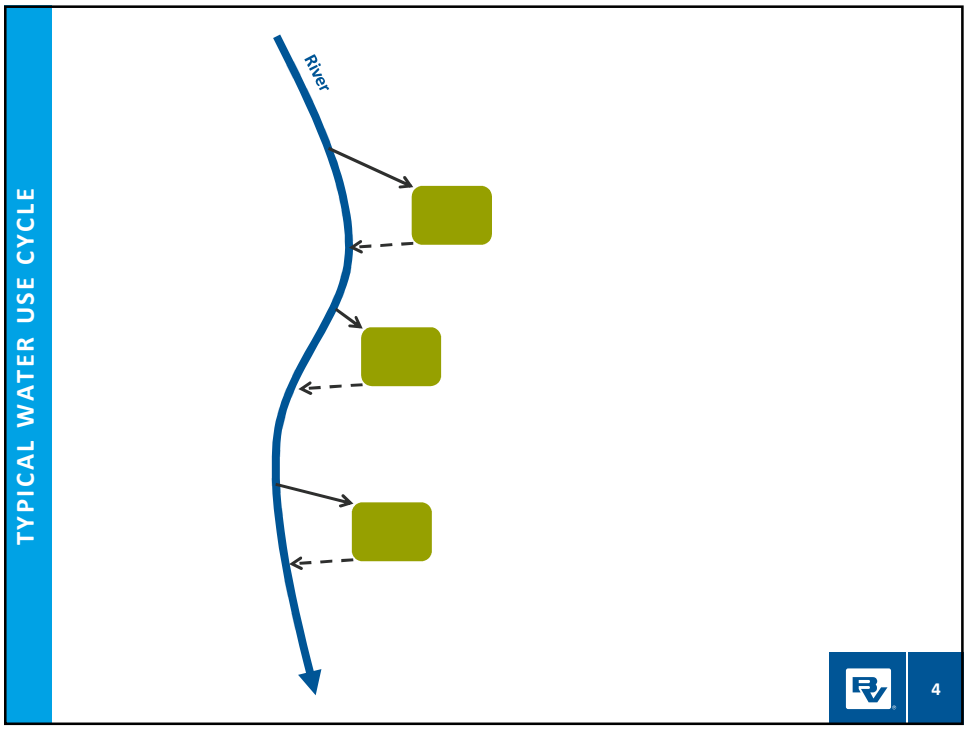
EFFLUENT
2


TYPICAL WATER USE CYCLE
River
Well Field
Utility
Irrigation
0%
Commercial
50-95%
Residential
40-70%
Other*
???
WWTP
55-65%
* Manufacturing, Steam-Electric, Cooling, etc.
3


TYPICAL WATER USE CYCLE
River
4

EFFLUENT MODELING

Effluent in Regional Planning WAM Modeling

There are 2 ways effluent is modeled in the WAM:

1. Return Flow Factors on Water Rights
   - Directly tied to a Water Right
   - Used to emulate requirements written in Water Rights Permits (Consumptive/Non-Consumptive)

2. Point Discharges ★
   - Not directly tied to a Water Right
   - Used to emulate historical discharges from most WWTPs

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REUSE

REUSE = RECYCLE = RECLAIMED

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REUSE PROJECTS

Reuse Project Classification

- Direct vs Indirect
  - Direct: Water delivered directly from the WWTP to the end customer via pipe (flange-to-flange)
  - Indirect: Water delivered to the customer via a natural body of water (bed-and-banks transfer)
- Potable vs Non-Potable
  - Potable: Water that's safe to drink
  - Non-Potable: Water that's not safe for drinking but could be used for other purposes (irrigation, industrial processes, cooling towers, etc)

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REUSE PROJECTS

Reuse Evaluation In Regional Planning

Example Municipal Utility (YR 2050)	
Water Demand	100,000 acft/yr
Existing Supplies	80,000 acft/yr
Need	20,000 acft/yr
WWTP Influent/Effluent*	60,000 acft/yr
WMS: Reuse	20,000 acft/yr

In the past, we've avoided the Potable/Non-Potable Issue Here

** Assumed 60% of Demand*

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REUSE PROJECTS

Reuse Projects in Region L

- Reuse is included in the Region L Plan in 2 Ways: As Existing Supply or as a Water Management Strategy (WMS)

- Existing Supply
  - Those Reuse Projects that are constructed, operating, and delivering water to customers (SAWS Recycle Program)
  - Used in the Calculation of Need
    (Needs = Demands – Existing Supplies)

- Water Management Strategies
  - Planned Reuse Projects to meet Needs

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REUSE PROJECTS

Reuse Supplies in Region L

2016 SCTRWP (Region L) Existing Supplies
- SAWS
- San Marcos
- New Braunfels
- GBRA
- SARA
- Kyle
- Kenedy
- Boerne

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REUSE PROJECTS

Reuse Projects in Region L

2016 SCTRWP (Region L) WMSs

- SAWS Direct Reuse
- Dos Rios WWTP – CPS Energy Pipeline
- NBU Direct Reuse
- San Marcos Direct Reuse
- Kyle Direct Reuse
- SARA Direct Reuse
- CCMA Direct Reuse

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INNOVATIVE STRATEGIES

Innovative Water Management Strategies Evaluated in Region L Water Plans

Advanced Water Conservation

- Evaluated and "Recommended" in 2001, 2006, 2011, & 2016 Region L Plans

Drought Management

- Evaluated and Designated as "Needs Further Study" in 2006 Region L Plan
- Evaluated and "Recommended" in 2011 & 2016 Region L Plans

Reuse/Recycle Programs

- Evaluated and "Recommended" in 2001, 2006, 2011, & 2016 Region L Plans

2

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INNOVATIVE STRATEGIES

Innovative Water Management Strategies Evaluated in Region L Water Plans

Brackish Groundwater Desalination

- Evaluated and "Recommended" in 2006, 2011, & 2016 Region L Plans

Seawater Desalination

- Evaluated and "Recommended" in 2001, 2006, 2011, & 2016 Region L Plans

Aquifer Storage & Recovery

- Evaluated and "Recommended" in 2001, 2011, & 2016 Region L Plans
- Evaluated and Designated as "Needs Further Study" in 2006 Region L Plan

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INNOVATIVE STRATEGIES

Innovative Water Management Strategies Evaluated in Region L Water Plans

Brush Management

- Evaluated and Designated as "Needs Further Study" in 2001, 2006, 2011, & 2016 Region L Plans

Rainwater Harvesting

- Evaluated and Designated as "Needs Further Study" in 2001, 2006, & 2011 Region L Plans

Weather Modification / Cloud Seeding

- Evaluated and Designated as "Needs Further Study" in 2001, 2006, & 2011 Region L Plans

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INNOVATIVE STRATEGIES

Innovative Water Management Strategies Evaluated in Region L Water Plans

Special Studies (2011 Planning Cycle)

- Study #2
  - Brackish Groundwater Supplies
- Study #3
  - Advanced Water Conservation
  - Drought Management
  - Condensate Collection
  - Land Stewardship

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14. Discussion and Appropriate Action Regarding Consultant’s Work and Schedule

2021 South Central Texas Regional Water Plan
Estimated Schedule
May 2017 RWPG Meeting

Task/ Chapter	Description	2017 A	M	J	J	A	S	O	N	D	2018 J	F	M	A	M	J	J	A	S	O	N	D	2019 J	F	M	A	M	J	J	A	S	O	N	D	2020 J	F	M	A	M	J	J	A	S	O	N	D
1	Planning Area Description																																												
2	Population/Water Demands ★	MUN/MIN				IRR/SE/IND, and Revision Requests																																									
3	Existing Supply Analyses																																												
4	Identification of Needs																																												
5	Identification & Evaluation of Potential WMSs																																												
6	Impacts of Regional Water Plan; Cumulative Effects																																												
7	Drought Response Information, Activities, & Recommendations																																												
8	Policy Recommendations & Unique Sites																																												
9	Infrastructure Financing Analysis																																												
10	Public Participation & Plan Adoption ★																																												
11	Implementation & Comparison to Previous Plan																																												
12	Prioritization																																												
NA	Texas Legislative Sessions																																												
NA	GMA DFC Revisions																																												

Anticipated Funding

Tech Memo
Sep 10, 2018

Anticipated Funding

2021 IPP Due
Mar 3, 2020

2021 RWP Due
Sep 2, 2020

KEY:

- *Scheduled Region L Meetings*
- *Anticipated Region L Meetings*
- *Currently Funded Tasks*
- *Public Hearing(s) on 2021 IPP*
- *Anticipated Activity*
- *Activity Uncertainty*

POPULATION & DEMAND SURVEY

- Emailed Survey to ~145 Contacts, Representing 138 WUGs (Utilities and County-Other)
- County-Other Surveys Generally Went to County Judges
- Survey Example

1

POPULATION & DEMAND SURVEY RESPONSES (VIA EMAIL)

Entity	Population	Demand	GPCD	Notes
Alamo Heights	high			Landlocked
Aqua WSC	ok	ok	ok	Mostly in Region K (we will coordinate)
Bexar County Other	ok	ok	ok	
City Of Cibolo				City to Utility transition may need to be corrected
City of Converse	ok	ok	ok	
City Of Marion				Concerns about population projection
City Of Natalia	ok	ok	ok	
City Of Victoria	ok	ok	ok	
City Of Yoakum	ok	ok	ok	
County Line SUD	low	low	low	Current population and demand exceed projection
Crystal Clear SUD	ok	ok	ok	
Dimmit County Other	ok			
East Central SUD	low	low	ok	
Fair Oaks Ranch	low		high	Recent reduction in GPCD

2

POPULATION & DEMAND SURVEY RESPONSES (VIA EMAIL)

Entity	Population	Demand	GPCD	Notes
Hondo	ok	ok	ok	
Kendall West Utility	low	low	high	Expect 720% growth over planning period
Kyle	ok	ok	ok	General questions
Leon Valley	high	high		Landlocked
Martindale WSC	low			Expect higher growth rate due to development
Maxwell WSC	ok	ok	ok	
New Braunfels Utilities	ok	ok	ok	
Refugio County Other	low	low		Expect higher growth rate due to development
San Antonio Water System	ok	high	high	GPCD estimated is higher than targets
San Marcos	low	high	high	Sent revised numbers
Springs Hill WSC	ok	low	low	Low GPCD estimate, projections don't seem to include a portion of their system
Sunko WSC	ok	ok	ok	
Wimberley WSC	high	ok	ok	Growth rate higher than historical

3

IN-PERSON MEETINGS

- CRWA
- Springs Hill WSC
- SSLGC
- NBU
- SAWS
- Boerne
- Green Valley SUD (5/8)
- Offered Additional Meetings

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POPULATION & DEMAND SURVEY RESPONSE SUMMARY

- 30 Responses from 27 Entities + 7 In-Person Meetings
- 22% of WUGs in the Region
- Representing ~75% of the Region's Population

	Population	Demand	GPCD
High	3	3	4
Ok	15	13	14
Low	7	5	2
Total	**25**	**21**	**20**

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Dear Mr. Siebert,

As the technical consultant to the South Central Texas Regional Water Planning Group, Black & Veatch is contracted via the San Antonio River Authority to assist the Region L planning group in the preparation of the 2021 South Central Texas Regional Water Plan (SCTRWP). As part of this effort, we seek your assistance in reviewing the draft projections, prepared by the Texas Water Development Board (TWDB) for your utility. Below are the draft population and water demand projections for SAN ANTONIO WATER SYSTEM for the decades 2020 through 2070, along with associated per capita water use data, as calculated from the draft projections.

We ask that you review the draft projections for SAN ANTONIO WATER SYSTEM and provide any feedback to us by **Tuesday April 18, 2017**, via reply to this email. As you review the data, please keep in mind that these are projections of water demand under drought conditions, and are estimated based on best available data.

Population projection data comes from the Texas State Demographer on a county-wide basis (which analyzes county birth rates, mortality rates, and net migration rates). TWDB then uses this information, along with CCN information and other census data, to develop population projections at the utility level. Water demand projections are estimated using these population projections and a Base per capita water use, which then declines over time assuming implementation of plumbing codes in new construction.

SAN ANTONIO WATER SYSTEM **Base GPCD = 147**

	Year 2020	Year 2030	Year 2040	Year 2050	Year 2060	Year 2070
Population	1812792	2056014	2287677	2500490	2696122	2874852
Water Demand (acft/yr)	279165	307846	336178	364034	391700	417441
GPCD	137	134	131	130	130	130

**GPCD = Gallons Per Capita Per Day*

If you find the projections adequate, please reply to this email to indicate so. If you feel the population and/or water demand projections do not adequately approximate the future of your utility, please let us know so that we may follow up and work with TWDB to request adjustments. Final population and water demand projections for your utility will be made by TWDB in January 2018.

In addition, we'd like to take the opportunity to confirm your existing sources of water which you currently utilize to serve your customers. According to our previous records, your utility uses the following sources of water:

Existing Sources of Connected Supply

Edwards Aquifer	Carrizo Aquifer
Trinity Aquifer	Recycle Program
Purchase from GBRA	Brackish Wilcox

Please confirm and/or provide a revised list of existing (connected) water sources for your utility via reply to this email.

If you would like to learn more about the 2016 SCTRWP, the current regional water planning cycle (2021 SCTRPWP development), and these draft TWDB projections, **a workshop hosted by the Regional Water Alliance will be held on May 12, 2017 at 9:30 a.m.** at the Guadalupe-Blanco River Authority River Annex, located at 905 Nolan St, Seguin, TX 78155.

Thank you for your cooperation in developing the 2021 South Central Texas Regional Water Plan,

R Brian Perkins, PE
Project Manager – 2021 Region L Water Plan
Black & Veatch

15. Texas Comptroller of Public Accounts Presentation: Impact of Federal Listing of Freshwater Mussels as Endangered or Threatened Species – Kimberley A. Horndeski

Glenn Hegar

Texas Comptroller of Public Accounts

Central Texas Freshwater Mussels

Kimberly Horndeski, Economic Growth and
Endangered Species Management Division (EGESM)

Glenn Hegar

Texas Comptroller of Public Accounts

Species Research Program

- 2013 and 2015 - Legislature appropriated a total of $10 million for research by state universities on petitioned or listed species
- To date, approximately $8 million has been allocated for research on 24 species, including 12 freshwater mussels
- Priorities are identified based on:
    1. Immediacy of listing decision
    2. Existing data gaps
    3. Potential impacts of listing

Glenn Hegar | Texas Comptroller of Public Accounts

Proposed Listing of Texas Hornshell

- U.S. FWS proposed listing of the Texas Hornshell as endangered in 2016

- Key threats noted by FWS
  - Water quality impairment
  - Loss of flowing water
  - Increased fine sediment
  - Barriers to fish movement

The listing decision will be based on a **range wide** assessment of the species

Glenn Hegar | Texas Comptroller of Public Accounts

Mussels in Texas

Mussel Species	Package Name and Grouping	Historical Range in Texas River Basin	Federal ESA Listing Status
False Spike	Central Texas Mussels (2018)	Brazos, Colorado, Guadalupe	Petitioned
Texas Fatmucket		Colorado, Guadalupe	Candidate
Texas Pimpleback		Colorado, Guadalupe	Candidate
Texas Fawnsfoot		Brazos, Colorado	Candidate
Triangle Pigtoe	East Texas Mussels (2019)	Neches, San Jacinto	Petitioned
Louisiana Pigtoe		San Jacinto, Trinity, Neches, Sabine	Petitioned
Texas Heelsplitter		Neches, Trinity, Sabine	Petitioned
Golden Orb	Texas Quadrula Species (2020)	Guadalupe, San Antonio, Nueces-Frio	Candidates
Smooth Pimpleback		Brazos, Colorado	Candidate
Mexican Fawnsfoot	Rio Grande Mussels (2022)	Rio Grande, Pecos, Rio Salado	Petitioned
Salina Mucket		Rio Grande	Petitioned
Texas Hornshell	-	Rio Grande	Proposed Endangered

Glenn Hegar
Texas Comptroller of Public Accounts

FWS 12-Month Finding

- All mussels likely face the same or very similar threats
- Decline of mussels in Texas and throughout the U.S. is mainly due to **habitat loss and degradation** primarily caused by:
  - **Impoundments**
  - **Sedimentation**
  - **Dewatering**
  - **Sand and gravel mining**
  - **Chemical contaminants**
- Additional factors – nonnative species, climate change, inadequacy of existing regulatory mechanisms

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Texas Comptroller of Public Accounts

Impoundments

- Fluctuation in flow regime
- Scouring and erosion
- Impaired water quality
- Changes in reproductive cycle
- Decreased DO and temperature
- Increased sedimentation

SUMMARY OF POTENTIAL THREATS IDENTIFIED BY FWS 12-MONTH FINDING

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Sedimentation

- Livestock access, grazing
- Removal of vegetation
- Urbanization, population growth
  - Increased impervious surface
  - Construction
  - Road crossings

SUMMARY OF POTENTIAL THREATS IDENTIFIED BY FWS 12-MONTH FINDING

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Dewatering

- Surface water diversions
- Groundwater pumping
- Hydropower facilities
- Construction
- Drought

SUMMARY OF POTENTIAL THREATS IDENTIFIED BY FWS 12-MONTH FINDING

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Chemical Contaminants

- Chemical spills
- Industrial waste
- Municipal effluents
- Animal feedlots
- Fertilizer use
- Pesticide use
- Emerging contaminants

SUMMARY OF POTENTIAL THREATS IDENTIFIED BY FWS 12-MONTH FINDING

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Sand and Gravel Mining

- Channel degradation and erosion, turbidity, bank and stream instability
- Changes in water flow, temperature, quality
- Increased fine sediment, suspended sediment

SUMMARY OF POTENTIAL THREATS IDENTIFIED BY FWS 12-MONTH FINDING

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Objectives

Ensure accurate science is available to inform listing decisions

If listings occur, ensure that compliance is cost-effective

Assist in the development of voluntary conservation measures if stakeholders are interested in pursuing

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New Research: Texas State University

- Surveys throughout historical range– combined with other efforts to determine distribution
- Applied research to understand potential threats – applicable range wide
- Long-term captive propagation study to gather information needed for future reintroduction efforts

Research is designed to ensure science is available for listing decisions and for the development of any voluntary conservation efforts

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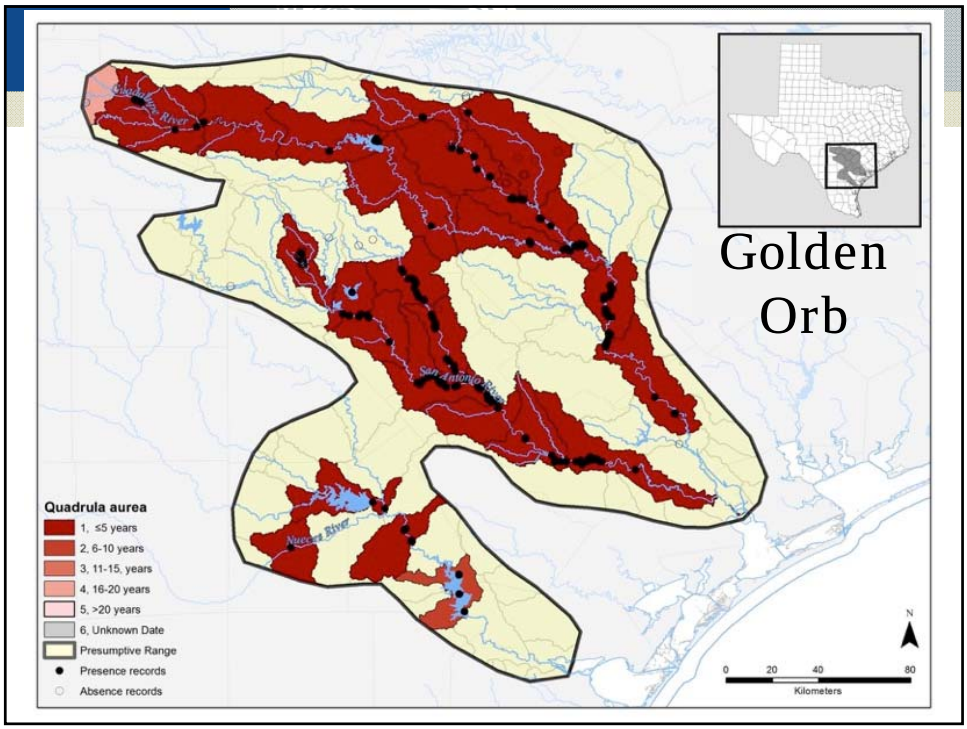
DECISION-MAKING FRAMEWORK FOR CENTRAL TEXAS MUSSELS

- BACKGROUND AND OVERVIEW OF THE PROCESS
- WHAT ARE THE KEY THREATS?
- EVALUATION OF THREATS: SPECIES NEEDS, CURRENT STATUS AND MAGNITUDE OF THE THREATS
- POTENTIAL VOLUNTARY CONSERVATION MEASURES

→ DISCUSSION OF POSSIBLE VOLUNTARY CONSERVATION MEASURES AND PROGRAMS THAT MAY BE AVAILABLE TO FUND THEIR IMPLEMENTATION

→ DISCUSSION OF STAKEHOLDERS VIEWS ON MOVING FORWARD WITH PREPARATION OF CCAA



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Freshwater Mussel Work Group: Stakeholder Process

- Listing status updates
- Discussions about options for voluntary conservation
- Research updates
- Primarily focused on the species with 2018 listing deadlines

Upcoming Meetings
May 16, 2017
June 20, 2017
July 19, 2017

Glenn Hegar
Texas Comptroller of Public Accounts

Research Program Contacts

Comptroller's Office

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16. Possible Agenda Items for the Next Region L Meeting

    a. Adopting Substitution to 2016 Region L Regional Water Plan

    b. Workgroup Updates

    c. Review and Recommend Revision Request Regarding Draft Population Demand Projections

    d. 2017 SAWS Management Plan

17. Public Comment